



FAO SPECIES IDENTIFICATION SHEETS FOR FISHERY PURPOSES

FIELD GUIDE TO THE COMMERCIAL MARINE AND BRACKISH-WATER RESOURCES OF THE NORTHERN COAST OF SOUTH AMERICA



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DEVELOPMENT

**FIELD GUIDE TO THE
COMMERCIAL MARINE AND
BRACKISH-WATER RESOURCES OF THE
NORTHERN COAST OF SOUTH AMERICA**

prepared by:

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PREPARATION OF THIS DOCUMENT

The continental shelf and the upper part of the slope of the northern coast of South America represent the most heavily exploited fishing areas of the Caribbean sea. In addition to extensive trawlable grounds, especially off the "Guianas" (Guyana, Suriname and French Guiana) and the eastern part of Venezuela, this region offers a great diversity of habitats and is rich in exploitable species. Its fisheries potential is further enhanced by the extension of fishing operations into deeper water and the presence, in local and regional markets, of an increasing number of species that had not been commercially exploited in the past. At present, the majority of fishery products landed on this coast, especially those coming from artisanal fisheries, are consumed locally and do not reach the main regional and international markets. Current catch statistics are poor and cover only a fraction of the landing sites along this extensive coastline. Furthermore, most of the statistical categories recorded are highly diverse assemblages of catch items and very few species are registered separately. The lack of precise information on species composition of catches coming from different fishing grounds or localities, and on the relative frequency of species in the landings throughout the year, represents a serious handicap to rational management of the fish populations currently exploited.

The main objective of this guide is to make available to fishery workers operating along the northern coast of South America, a practical tool that can facilitate their daily work, by providing them with: (a) a qualified, illustrated inventory of species of current or potential interest to fisheries occurring in the area, complemented by up-to-date scientific nomenclature and FAO names in English, French, and Spanish proposed for use at the regional level; (b) the essential technical information required for correct field identification of families and species of interest to fisheries, and (c) basic information on distribution, habits and fisheries for each family and species. It is hoped that the use of this field guide in all fisheries sectors will contribute towards the improvement of the quality and detail of biological, statistical, and marketing data by species collected throughout the area, as well as towards a standardization of regional vernacular species names to be used for statistical and marketing purposes.

The preparation of this field guide was largely based on technical information contained in the series of FAO Species Identification Sheets for Fishery Purposes for the Western Central Atlantic (Fishing Area 31), prepared and published in 1978 in English, in collaboration with more than 50 experts on the taxonomy of the various fishery resource groups occurring in this large area. Without this solid technical background, the production of this field guide would not have been possible in the time allotted for this project. On the other hand, due to considerable gaps in information for the southern part of Fishing Area 31 (the part of the region covered by this field guide), the information on southern species provided in the identification sheets was necessarily less accurate and exhaustive than that on species occurring in the northern part of the area. In the last 15 years, knowledge of the nomenclature, distribution, and fisheries of species occurring in the southern part of the Western Central Atlantic has increased considerably. The present field guide includes this new information.

To a large part, this new information (especially that pertaining to Venezuela) is the result of the patient fisheries research and survey work carried out in the course of the last 20 or more years by the main author of this guide, Dr Fernando Cervigón. Thanks to him it was possible to include here a considerable amount of first-hand, mostly unpublished information and data on the fishery resources of the area.

Another important source of new information was furnished by the results of the recent fisheries survey work (1989) carried out in the area by the Norwegian research vessel "Dr F. NANSEN." This survey collected new data on the horizontal and vertical distribution of many species.

The editors wish to thank Dr Cervigón and all other authors and revisers of this field guide for their valuable contributions. They also thank especially Dr G. Bianchi and Dr C. Nauen for their care in helping to coordinate efforts with their respective agencies.

Dr Cervigón wishes to express his personal appreciation to his collaborators. This include in particular Mrs Ayurami Alcalá, who was responsible for the formatting, word-processing, and proofreading of his texts, as well as for the logistic organization of the work; and Lic. Ricardo Alvarez who completed the data and revised the texts relevant to the Colombian coast.

The preparation and publication of the present field guide would not have been possible without the financial support of the Commission of the European Communities, in the framework of their regional programme for fisheries development and training of personnel in this sector. Also, NORAD (Norwegian Agency for International Development) has contributed a substantial amount of funds and technical support for this work and were the primary supporters of this English version of the field guide.

Limitations, Future Prospects, and Utilization of this Field Guide

It should be kept in mind that this guide can only reflect our somewhat fragmentary current knowledge of the fishery resources of this area. It will be necessary in the course of the next few years to collect new information, especially on the distribution and fisheries of each species. This field guide will prove essential for this task, since correct species identification constitutes the basic technical premise for the execution of fisheries management.

The selection of the major resource groups, families, and species included in this guide, have been based largely on the personal experience of the authors and from the experts that they consulted. This selection was also based on data coming from the recent survey work of the research vessel "DR F. NANSEN," and from numerous recent publications on taxonomy, biology, and fisheries which are too numerous to mention here.

Because of the heterogenous nature of the information available, it was impossible to be uniform in the presentation of all information for the different resource groups. For example, in some groups (e.g. bony fishes), the geographic distribution of each species within the area is given in some detail, while in others (e.g. many crustaceans and cephalopods) only the general distribution in the Western Central Atlantic is indicated. In the bivalves and gastropods it was decided to leave out details on geographical distribution except presence in the area. In most cases, the omission of some information was necessary because of the unreliability of available data, usually due to dubious identification of the species concerned.

The "FAO names" have mostly been taken from the FAO species identification sheets published in 1978, but a few were substituted (old names are given in parenthesis), and others, added. FAO English names are followed by the official designations used by the "American Fisheries Society" (AFS) in the few cases where these differ. No "Common names" of the species are given because local names currently in use often lead to confusion. Often, the same local name is applied to a variety of species, and local names for one species change from one locality to the other. It was therefore decided to leave a blank space behind the term "Common names" which may be filled directly by users of the field guide for their own use. It is recommended that countries bordering the area assign an exclusive national name to every one of the species included in the guide, and send the list of their national names to the editors for inclusion in future editions. Users of the guide are requested to send their critical comments on mistakes and new information to the editors for the purpose of future improvements.

In order to ensure best results from the use of this field guide, and especially for the purpose of species identification, the user should, first of all, become familiar with the technical terms and measurements presented in the introductory pages to each of the major resources groups. Before proceeding to identify the species to which a specimen belongs, it is advisable to find the respective family (see "Guidelines for the Identification of Families" under the corresponding group), and the genus (see characterization of genera under the sections "Families and Species of Interest to Fisheries"). This procedure will help to reduce errors, since diagnostic characters pertaining to families and genera are not repeated in the presentation of species.

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Summary

This field guide covers the major fishery resource groups occurring along the northern coast of South America, including seaweeds, gastropods, bivalves, cephalopods, stomatopods, shrimps, lobsters, crabs, sharks, batoid fishes, bony fishes, and marine turtles. The introduction includes a detailed description of the boundaries and the geophysical, oceanographic and ecological features of the area, the distribution and nature of the main fishing grounds, the species dominating in each habitat, and the fishing techniques used. Each of the major resource group sections includes an explanation of the technical terms and measurements used, guidelines for the identification of families present in the area, and a detailed presentation of families and species considered to be of interest to fisheries. It provides scientific nomenclature, FAO names proposed for use at regional level, one or more illustrations, diagnostic features, and notes on geographical distribution, habitat, and fisheries. An alphabetical index of family and species names used is included. The guide is illustrated with black and white drawings and 320 colour photographs.

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TABLE OF CONTENTS

	Page
INTRODUCTION	1
SEAWEEDS	17
MOST COMMON SPECIES OF COMMERCIAL VALUE IN THE AREA	18
DIVISION CHLOROPHYTA	18
DIVISION PHAEOPHYTA	21
DIVISION RHODOPHYTA	22
GASTROPODS	29
TECHNICAL TERMS AND MEASUREMENTS	29
GLOSSARY OF TECHNICAL TERMS	30
GUIDELINES FOR THE IDENTIFICATION OF FAMILIES	30
FAMILIES	
Cassidae	36
Conidae	37
Fasciolariidae	37
Fissurellidae	39
Meiongenidae	40
Muricidae	40
Neritidae	43
Olividae	43
Ranellidae (=Cymatiidae)	44
Strombidae	45
Trochidae	46
Turbinellidae (=Vasidae)	47
Turbinidae	47
Volutidae	49
BIVALVES	51
TECHNICAL TERMS AND MEASUREMENTS	51
GLOSSARY OF TECHNICAL TERMS	52
GUIDELINES FOR THE IDENTIFICATION OF FAMILIES	52
FAMILIES	
Arcidae	60
Cardiidae	61
Corbiculidae	62
Donacidae	63
Isognomonidae	64
Limidae	64
Lucinidae	65
Mactridae	65
Mytilidae	66
Ostreidae	67
Pectinidae	67
Pholadidae	69
Pinnidae	69
Psammobiidae	71
Pteriidae	71
Solecurtidae	72
Solenidae	72
Spondylidae	72
Tellinidae	73
Veneridae	74

	Page
CEPHALOPODS	77
GLOSSARY OF TECHNICAL TERMS	77
ORDER SEPIOIDEA	79
TECHNICAL TERMS AND MEASUREMENTS	79
GUIDELINES FOR THE IDENTIFICATION OF FAMILIES	79
ORDER TEUTHOIDEA	81
TECHNICAL TERMS AND MEASUREMENTS	81
GUIDELINES FOR THE IDENTIFICATION OF FAMILIES	82
FAMILIES	
Lepidoteuthidae	87
Loliginidae	87
Ommastrephidae	90
Onychoteuthidae	93
Thysanoteuthidae	93
ORDER OCTOPODA	94
TECHNICAL TERMS AND MEASUREMENTS	94
GUIDELINES FOR THE IDENTIFICATION OF FAMILIES	94
FAMILIES	
Octopodidae	97
STOMATOPODS	103
TECHNICAL TERMS AND MEASUREMENTS	103
GUIDELINES FOR THE IDENTIFICATION OF FAMILIES	103
FAMILIES	
Lysiosquillidae	105
Squillidae	105
SHRIMPS	107
TECHNICAL TERMS	107
GUIDELINES FOR THE IDENTIFICATION OF FAMILIES	109
FAMILIES	
Aristeidae	113
Atyidae	114
Hippolytidae	115
Palaemonidae	115
Pandalidae	120
Pasiphaeidae	122
Penaeidae	123
Sicyoniidae	128
Solenoceridae	130
LOBSTERS	133
TECHNICAL TERMS AND MEASUREMENTS	133
GUIDELINES FOR THE IDENTIFICATION OF FAMILIES	134
FAMILIES	
Nephropidae	137
Palinuridae	142
Scyllaridae	145
Synaxidae	147

	Page
CRABS	149
TECHNICAL TERMS AND MEASUREMENTS	149
GUIDELINES FOR THE IDENTIFICATION OF FAMILIES	150
FAMILIES	
Calappidae	153
Dromiidae	155
Gecarcinidae	156
Geryonidae	156
Majidae	157
Ocypodidae	157
Portunidae	158
Xanthidae	162
 SHARKS	 163
TECHNICAL TERMS AND MEASUREMENTS	163
GUIDELINES FOR THE IDENTIFICATION OF FAMILIES	165
FAMILIES	
Alopiidae	168
Carcharhinidae	169
Hexanchidae	179
Lamnidae	180
Mitsukurinidae	181
Orectolobidae (= Ginglymostomatidae)	182
Oxinotidae	182
Rhincodontidae (= Rhiniodontidae)	183
Scyliorhinidae	183
Sphyrnidae	185
Squalidae	189
Squatinae	190
Triakidae	190
 BATOID FISHES	 193
TECHNICAL TERMS AND MEASUREMENTS	193
GUIDELINES FOR THE IDENTIFICATION OF FAMILIES	195
FAMILIES	
Dasyatidae	198
Gymnuridae	200
Mobulidae	201
Myliobatidae	202
Pristidae	204
Rajidae	205
Rhinobatidae	207
Torpedinidae	208
 BONY FISHES	 209
TECHNICAL TERMS AND MEASUREMENTS	210
GUIDELINES FOR THE IDENTIFICATION OF FAMILIES	213
FAMILIES	
Acanthuridae	251
Albulidae	252
Alepisauridae	253
Anablepidae	254

	Page
Anguillidae	254
Argentinidae	255
Ariidae	256
Aspredinidae	261
Atherinidae	262
Auchenipteridae	264
Aulostomidae	264
Balistidae	264
Batrachoididae	266
Belonidae	269
Berycidae	271
Bothidae	271
Branchiostegidae	280
Caproidae	282
Carangidae	283
Centropomidae	296
Clupeidae	298
Congridae	302
Coryphaenidae	304
Cynoglossidae	305
Cyprinodontidae	306
Dactylopteridae	307
Echeneididae	307
Elopidae	308
Emmelichthyidae	309
Engraulididae	309
Ephippidae	317
Exocoetidae	317
Fistularidae	320
Gadidae	321
Gempylidae	322
Gerreidae	324
Haemulidae	328
Hemiramphidae	337
Holocentridae	339
Hypophthalmidae	341
Inermiidae	342
Istiophoridae	342
Kyphosidae	344
Labridae	344
Lampridae	348
Lobotidae	348
Lophiidae	348
Lutjanidae	350
Macrorhamphosidae	357
Malacanthidae	358
Megalopidae	358
Merlucciidae	358
Monacanthidae	359
Moridae	360
Mugilidae	361
Mullidae	363
Muraenesocidae	365

	Page
Muraenidae	366
Ophichthidae	370
Ophidiidae	374
Ostraciidae	377
Peristediidae	378
Pimelodidae	379
Polymixiidae	380
Polynemidae	380
Pomacanthidae	382
Pomacentridae	384
Romatomidae	386
Priacanthidae	386
Pristigasteridae	388
Rachycentridae	390
Scaridae	391
Sciaenidae	397
Scomberesocidae	414
Scombridae	414
Scorpaenidae	419
Serranidae	423
Soleidae	437
Sparidae	440
Sphyraenidae	443
Stromateidae	445
Synodontidae	445
Tetraodontidae	447
Trichiuridae	450
Triglidae	451
Uranoscopidae	454
Xiphiidae	454
Zeidae	455
MARINE TURTLES	457
TECHNICAL TERMS AND MEASUREMENTS	457
GUIDELINES FOR THE IDENTIFICATION OF FAMILIES AND SPECIES	458
FAMILIES	
Chelonidae	459
Dermochelidae	461
INDEX OF SCIENTIFIC AND VERNACULAR NAMES	463

COLOUR PLATES

PLATE I

CEPHALOPODS

- LOLIGINIDAE: 1. *Doryteuthis plei*
2. *Loligo pealei*

SHRIMPS

- ARISTEIDAE: 3. *Aristeus antillensis*
4. *Plesiopenaeus edwardsianus*
PENAEIDAE: 5. *Penaeus brasiliensis*
6. *Penaeus notialis*
7. *Penaeus schmitti*
8. *Penaeus subtilis*

PLATE II

- PENAEIDAE: 9. *Trachypenaeus similis*
10. *Xiphopenaeus kroyeri*

LOBSTERS

- NEPHROPIDAE: 11. *Acanthacaris caeca*
12. *Metanephrops binghami*
PALINURIDAE: 13. *Panulirus argus*
SCYLLARIDAE: 14. *Scyllarides delfosi*

CRABS

- CALAPPIDAE: 15. *Calappa flammea*
16. *Calappa nitida*

PLATE III

- CALAPPIDAE: 17. *Calappa sulcata*
18. *Hepatus pudibundis*

SHARKS

- CARCHARHINIDAE: 19. *Carcharhinus acronotus*
20. *Carcharhinus leucas*
21. *Carcharhinus limbatus*
22. *Carcharhinus perezii*
23. *Carcharhinus porosus*
24. *Rhizoprionodon porosus*

PLATE IV

- SPHYRNIDAE: 25. *Sphyrna lewini*
26. *Sphyrna lewini*
27. *Sphyrna tudes*
28. *Sphyrna tudes*
29. *Sphyrna tiburo*
SQUATINIDAE: 30. *Squatina dumeril*
TRIAKIDAE: 31. *Mustelus canis*
32. *Mustelus higmani*

PLATE V

BATOID FISHES

- DASYATIDAE: 33. *Dasyatis americana*
34. *Dasyatis geijkesi*
35. *Dasyatis guttata*
GYMNURIDAE: 36. *Gymnura micrura*
MYLIOBATIDAE: 37. *Aetobatus narinari*
38. *Myliobatis freminvillei*
RHINOBATIDAE: 39. *Rhinobatos percellens*
TORPEDINIDAE: 40. *Narcine brasiliensis*

PLATE VI

BONY FISHES

- ACANTHURIDAE: 41. *Acanthurus bahianus*
42. *Acanthurus chirurgus*
43. *Acanthurus coeruleus*
ALBULIDAE: 44. *Albula nemoptera*
ARIIDAE: 45. *Arius grandicassis*
46. *Arius proops*
47. *Bagre bagre*
48. *Bagre marinus*

PLATE VII

- ARIIDAE: 49. *Cathorops spixii*
ATHERINIDAE: 50. *Xenomelaniris brasiliensis*
AULOSTOMIDAE: 51. *Aulostomus maculatus*
BALISTIDAE: 52. *Balistes capriscus*
53. *Balistes vetula*
54. *Canthidermis maculata*
55. *Melichthys niger*
BATRACHOIDIDAE: 56. *Batrachoides surinamensis*

PLATE VIII

- BATRACHOIDIDAE: 57. *Porichthys pauciradiatus*
58. *Porichthys plectrodon*
59. *Thalassophryne maculosa*
BELONIDAE: 60. *Strongylura marina*
61. *Tylosurus crocodilus*
BOTHIDAE: 62. *Ancylosetta kumperae*
63. *Bothus lunatus*
64. *Bothus ocellatus*

PLATE IX

- BOTHIDAE: 65. *Cyclosetta chittendeni*
66. *Cyclosetta fimbriata*
67. *Etropus crossotus*
68. *Paralichthys tropicus*
69. *Syacium papillosum*
70. *Syacium papillosum*
BRAMIDAE: 71. *Taractichthys longispinnis*
BRANCHIOSTEGIDAE: 72. *Caulolatilus chrysops*

PLATE X

- BRANCHIOSTEGIDAE: 73. *Caulolatilus cyanops*
CARANGIDAE: 74. *Caulolatilus guppyi*
75. *Alectis ciliaris*
76. *Caranx latus*
77. *Caranx (Carangoides) ruber*
78. *Chloroscombrus chrysurus*
79. *Decapterus macarellus*
80. *Hemicaranx amblyrhyncus*

PLATE XI

- CARANGIDAE: 81. *Oligoplites saurus*
 82. *Selene setapinnis*
 83. *Selene vomer*
 84. *Seriola dumerili*
 85. *Seriola fasciata*
 86. *Trachinotus carolinus*
 87. *Trachinotus falcatus*
 88. *Trachinotus goodei*

PLATE XII

- CARANGIDAE: 89. *Uraspis secunda*
 CENTROPOMIDAE: 90. *Centropomus pectinatus*
 91. *Centropomus undecimalis*
 CLUPEIDAE: 92. *Harengula jaguana*
 93. *Opisthonema oglinum*
 94. *Sardinella aurita*
 CONGRIDAE: 95. *Paraconger caudilimbatus*
 CORYPHAENIDAE: 96. *Coryphaena hippurus*

PLATE XIII

- CYNOGLOSSIDAE: 97. *Symphurus diomedianus*
 98. *Symphurus plagusia*
 DACTYLOPTERIDAE: 99. *Dactylopterus volitans*
 100. *Dactylopterus volitans*
 ELOPIDAE: 101. *Elops saurus*
 ENGRAULIDIDAE: 102. *Anchoa hepsetus*
 103. *Anchoa spinifer*
 104. *Anchoviella lepidentostole*

PLATE XIV

- ENGRAULIDIDAE: 105. *Lycengraulis grossidens*
 EPHIPPIDAE: 106. *Chaetodipterus faber*
 FISTULARIDAE: 107. *Fistularia tabacaria*
 GERREIDAE: 108. *Diapterus auratus*
 109. *Diapterus rhombeus*
 110. *Eucinostomus gula*
 111. *Gerres cinereus*
 HAEMULIDAE: 112. *Anisotremus surinamensis*

PLATE XV

- HAEMULIDAE: 113. *Anisotremus virginicus*
 114. *Conodon nobilis*
 115. *Genyatremus luteus*
 116. *Haemulon album*
 117. *Haemulon aurolineatum*
 118. *Haemulon bonariense*
 119. *Haemulon boschmae*
 120. *Haemulon flavolineatum*

PLATE XVI

- HAEMULIDAE: 121. *Haemulon macrostomum*
 122. *Haemulon melanurum*
 123. *Haemulon parrai*
 124. *Haemulon plumieri*
 125. *Haemulon sciurus*
 126. *Haemulon steindachneri*
 127. *Haemulon striatum*
 128. *Orthopristis ruber*

PLATE XVII

- HAEMULIDAE: 129. *Pomadasys corvinaeformis*
 130. *Pomadasys crocro*
 HEMIRAMPHIDAE: 131. *Hemiramphus brasiliensis*
 132. *Hyporhamphus unifasciatus*
 HOLOCENTRIDAE: 133. *Holocentrus adscensionis*
 134. *Holocentrus bullisi*
 135. *Holocentrus rufus*
 136. *Myripristis jacobus*

PLATE XVIII

- HOLOCENTRIDAE: 137. *Ostichthys trachypoma*
 INERMIDAE: 138. *Inermia vittata*
 KYPHOSIDAE: 139. *Kyphosus sectatrix*
 LABRIDAE: 140. *Bodianus pulchellus*
 141. *Bodianus rufus*
 142. *Clepticus parrai*
 143. *Decodon puellaris*
 144. *Doratonotus megalepis*

PLATE XIX

- LABRIDAE: 145. *Halichoeres bivittatus*
 146. *Halichoeres bivittatus*
 147. *Halichoeres caudalis*
 148. *Halichoeres radiatus*
 149. *Halichoeres radiatus*
 150. *Halichoeres radiatus*
 151. *Lachnolaimus maximus*
 152. *Lachnolaimus maximus*

PLATE XX

- LABRIDAE: 153. *Hemipteronotus novacula*
 LUTJANIDAE: 154. *Lutjanus analis*
 155. *Lutjanus apodus*
 156. *Lutjanus apodus*
 157. *Lutjanus buccanella*
 158. *Lutjanus cyanopterus*
 159. *Lutjanus griseus*
 160. *Lutjanus jocu*

PLATE XXI

- LUTJANIDAE: 161. *Lutjanus mahogoni*
 162. *Lutjanus mahogoni*
 163. *Lutjanus purpureus*
 164. *Lutjanus synagris*
 165. *Lutjanus vivanus*
 166. *Ocyurus chrysurus*
 167. *Pristipomoides aquilonaris*
 168. *Pristipomoides freemani*

PLATE XXII

- LUTJANIDAE: 169. *Rhomboplites aurorubens*
 MONACANTHIDAE: 170. *Aluterus heudelotii*
 171. *Aluterus monoceros*
 172. *Aluterus schoepfi*
 173. *Cantherhines macroceros*
 174. *Cantherhines pullus*
 MUGILIDAE: 175. *Mugil curema*
 176. *Mugil incilis*

PLATE XXIII

- MULLIDAE: 177. *Mulloidichthys martinicus*
 178. *Mullus auratus*
 179. *Pseudupeneus maculatus*
 180. *Upeneus parvus*
 MURAENIDAE: 181. *Channomuraena vittata*
 182. *Enchelycore nigricans*
 183. *Gymnothorax ocellatus*
 184. *Lycodontis funebris*

PLATE XXIV

- MURAENIDAE: 185. *Lycodontis moringa*
 OPHICHTHIDAE: 186. *Ophichthus gomesi*
 187. *Ophichthus ophis*
 OPHIDIIDAE: 188. *Lepophidium pheromystax*
 189. *Lepophidium profundorum*
 OSTRACIIDAE: 190. *Lactophrys bicadavilis*
 191. *Lactophrys polygonius*
 192. *Lactophrys quadricornis*

PLATE XXV

- OSTRACIIDAE: 193. *Lactophrys triqueter*
 POLYMIXIIDAE: 194. *Polimixia lowei*
 POLYNEMIIDAE: 195. *Polydactylus oligodon*
 196. *Polydactylus virginicus*
 POMACANTHIDAE: 197. *Holacanthus ciliaris*
 198. *Holacanthus tricolor*
 199. *Pomacanthus paru*
 200. *Pomacanthus paru*

PLATE XXVI

- POMACANTHIDAE: 201. *Pomacanthus arcuatus*
 POMACENTRIDAE: 202. *Abudefduf saxatilis*
 203. *Abudefduf taurus*
 204. *Chromis multilineata*
 205. *Microspathodon chrysurus*
 POMATOMIDAE: 206. *Pomatomus saltatrix*
 PRIACANTHIDAE: 207. *Cookeolus boops*
 208. *Priacanthus arenatus*

PLATE XXVII

- RACHICENTRIDAE: 209. *Rachycentron canadum*
 SCARIDAE: 210. *Cryptotomus roseus*
 211. *Nicholsina usata*
 212. *Scarus coelestinus*
 213. *Scarus coeruleus*
 214. *Scarus guacamaia*
 215. *Scarus croicensis*
 216. *Scarus vetula*

PLATE XXVIII

- SCARIDAE: 217. *Scarus taeniopterus*
 218. *Scarus taeniopterus*
 219. *Scarus vetula*
 220. *Sparisoma aurofrenatum*
 221. *Sparisoma chrysopterum*
 222. *Sparisoma chrysopterum*
 223. *Sparisoma rubripinne*
 224. *Sparisoma rubripinne*

PLATE XXIX

- SCARIDAE: 225. *Sparisoma viride*
 226. *Sparisoma viride*
 227. *Sparisoma radians*
 SCIAENIDAE: 228. *Bairdiella rhonchus*
 229. *Bairdiella sanctaeluciae*
 230. *Ctenosciaena gracilicirrhus*
 231. *Cynoscion acoupa*
 232. *Cynoscion jamaicensis*

PLATE XXX

- SCIAENIDAE: 233. *Cynoscion leiarchus*
 234. *Cynoscion microlepidotus*
 235. *Cynoscion similis*
 236. *Cynoscion virescens*
 237. *Equetus acuminatus*
 238. *Equetus lanceolatus*
 239. *Equetus punctatus*
 240. *Larimus breviceps*

PLATE XXXI

- SCIAENIDAE: 241. *Macrodon ancylodon*
 242. *Menticirrhus americanus*
 243. *Micropogonias furnieri*
 244. *Nebris microps*
 245. *Odontoscion dentex*
 246. *Paralonchurus brasiliensis*
 247. *Paralonchurus elegans*
 248. *Plagioscion squamosissimus*

PLATE XXXII

- SCIAENIDAE: 249. *Stellifer griseus*
 250. *Stellifer microps*
 251. *Stellifer rastrifer*
 252. *Umbrina coroides*
 SCOMBRIDAE: 253. *Auxis thazard*
 254. *Euthynnus alletteratus*
 255. *Sarda sarda*
 256. *Scomber japonicus*

PLATE XXXIII

- SCOMBRIDAE: 257. *Scomberomorus brasiliensis*
 258. *Scomberomorus regalis*
 SCORPAENIDAE: 259. *Helicolenus dactylopterus*
 260. *Pontinus longispinis*
 261. *Scorpaena agassizi*
 262. *Scorpaena brasiliensis*
 263. *Scorpaena dispar*
 264. *Scorpaena plumieri*

PLATE XXXIV

- SERRANIDAE: 265. *Hemanthias leptus*
 266. *Hemanthias vivanus*
 267. *Holanthias martinicensis*
 268. *Cephalopholis cruentata*
 269. *Cephalopholis fulva*
 270. *Epinephelus adscensionis*
 271. *Epinephelus flavolimbatus*
 272. *Epinephelus guttatus*

PLATE XXXV

- SERRANIDAE: 273. *Epinephelus itajara*
 274. *Epinephelus nigritus*
 275. *Epinephelus striatus*
 276. *Mycteroperca cidi*
 277. *Mycteroperca interstitialis*
 278. *Mycteroperca phenax*
 279. *Mycteroperca tigris*
 280. *Mycteroperca venenosa*

PLATE XXXVI

- SERRANIDAE: 281. *Paranthias furcifer*
 282. *Diplectrum bivittatum*
 283. *Diplectrum formosum*
 284. *Diplectrum radiale*
 285. *Hypoplectrus unicolor*
 286. *Paralabrax degeweri*
 287. *Serranus phoebe*
 SOLEIDAE: 288. *Achirus achirus*

PLATE XXXVII

- SOLEIDAE: 289. *Achirus lineatus*
 290. *Gymnachirus nudus*
 291. *Trinectes inscriptus*
 292. *Trinectes paulistanus*
 SPARIDAE: 293. *Archosargus rhomboidalis*
 294. *Calamus bajonado*
 295. *Calamus calamus*
 296. *Calamus cervigoni*

PLATE XXXVIII

- SPARIDAE: 297. *Calamus pennatula*
 298. *Pagrus pagrus*
 SPHYRAENIDAE: 299. *Sphyaena barracuda*
 300. *Sphyaena barracuda*
 301. *Sphyaena guachancho*
 STROMATEIDAE: 302. *Peprilus paru*
 SYNODONTIDAE: 303. *Saurida brasiliensis*
 304. *Saurida normani*

PLATE XXXIX

- SYNODONTIDAE: 305. *Synodus foetus*
 306. *Trachinocephalus myops*
 TETRAODONTIDAE: 307. *Canthigaster rostrata*
 308. *Colomesus psittacus*
 309. *Lagocephalus laevigatus*
 310. *Sphoeroides spengleri*
 311. *Sphoeroides testudineus*
 TRIGLIDAE: 312. *Prionotus punctatus*

PLATE XL

- TRIGLIDAE: 313. *Prionotus roseus*
 314. *Prionotus stearnsi*
 TRICHIURIDAE: 315. *Trichiurus lepturus*
 316. *Trichiurus lepturus*
 URANOSCOPIDAE: 317. *Astroscopus y-graecum*
 318. *Kathetostoma cubana*
 XIPHIIDAE: 319. *Xiphias gladius*
 ZEIDAE: 320. *Zenopsis conchifer*

INTRODUCTION

I. DESCRIPTION OF THE AREA

General Features

The area covered by this guide includes the Caribbean coast of Colombia (except the islands of Providencia and San Andrés), all insular and continental coasts of Venezuela (except Aves del Norte island), Aruba, Curaçao, Bonaire, Trinidad and Tobago, and the entire coastlines of Guyana, Suriname, and French Guiana. It extends from 4° N to 12°30' N latitude and from 51°40' to 77°30' W longitude (Fig. 1).

These coordinates cover about 6 502 km of continental coastline, comprising 1 600 km of the Caribbean shores of Colombia, 2 718 km the Caribbean shores of Venezuela up to Punta Paria, the 1 008 km of the eastern coast of Venezuela (from Punta Paria to the border with the Republic of Guyana, including the Gulf of Paria and the Atlantic coast of that country), the 414 km coastline of the Republic of Guyana, 333 km of Suriname, and 350 km of French Guiana. The insular shores include Trinidad and Tobago (about 600 km coastline), Aruba, Curaçao, Bonaire, and the groups of Caribbean islands off the shores of Colombia and Venezuela. Hence, the total coastline of our area exceeds 7 500 km in length.

The Caribbean and Atlantic coasts are strikingly different in terms of their oceanographic and ecological features. This has a strong influence on the nature of their respective faunas, the structure of their fisheries, and the types of exploitation in use.

The ecological heterogeneity of the area also accounts for its remarkable species diversity. This is further accentuated by the presence of extensive brackish-water regions, whose influence may sometimes be felt many kilometres offshore, especially in the Atlantic subarea.

Geographic differences in species composition are particularly evident in the fish fauna. A large number of species are found, in the Atlantic subarea, only from the mouth of the Orinoco river, including the part of the Gulf of Paria influenced by it, eastward to the outflow of the Amazon. In contrast, many of the typical Caribbean coral reef species are absent from this subarea.

Spatial distribution of species is more closely related to the ecological nature of the environment than to geographical coordinates. For example, it is well known that many of the typical Caribbean species reappear south of the Amazon river. Users of this catalogue should therefore bear in mind that general statements on the geographical range of a species, such as "occurrence throughout the area," should be

considered in reference to the types of habitat in which that species is found, hence often excluding vast stretches of the Atlantic or the Caribbean coasts.

Taking into consideration its oceanographic and ecological features, the area can be roughly divided into the following subareas or, in some cases, ecological environments (Fig. 2):

1. **The Atlantic coast**, from the Gulf of Paria to Brazil, characterized by the presence of many large river mouths.

2. **The waters around Trinidad and Tobago.**

3. **The coastal upwelling zone along the north-eastern coast of Venezuela**, which extends from State of Sucre, at about 62°30' W to 65°00' W. The position of its northern border varies greatly from year to year in relation to the steadiness and intensity of the trade winds.

4. **The zone influenced by oceanic waters**, which comprises part of the nearly shelfless central coast of Venezuela and the offshore islands along the entire Caribbean coast. This extends from San Bernardo and El Rosario (Colombia) to Tobago, including Aruba, Curaçao, Bonaire, and the Venezuelan islands Los Monjes, Aves, Los Roques Archipelago, La Orchila, La Tortuga, La Blanquilla, Los Hermanos, and the Los Testigos Archipelago.

5. **The estuarine environments of the Caribbean Sea**, i.e. the Maracaibo system together with the southern part of the Gulf of Venezuela in western Venezuela, and the coastal zone influenced by freshwater from the Magdalena river (including the Ciénaga Grande de Santa Marta), as well as the Gulf of Urabá, in Colombia.

In addition to the above-mentioned subareas, there are other smaller, local ecosystems or environments that sometimes host a special type of fauna, or have significance for fisheries as refuge, growth, and feeding sites of commercial species. Examples of such environments are brackish or hypersaline littoral lagoons along the coasts of Venezuela and Colombia, and the coastal upwelling zone off the northern coast of La Guajira.

1. THE ATLANTIC COAST FROM THE GULF OF PARIA TO BRAZIL

1.1 Hydrographic features

The Atlantic coast is mainly characterized by the outflow of the large rivers on the northeastern coast of South America. The most important of these is the

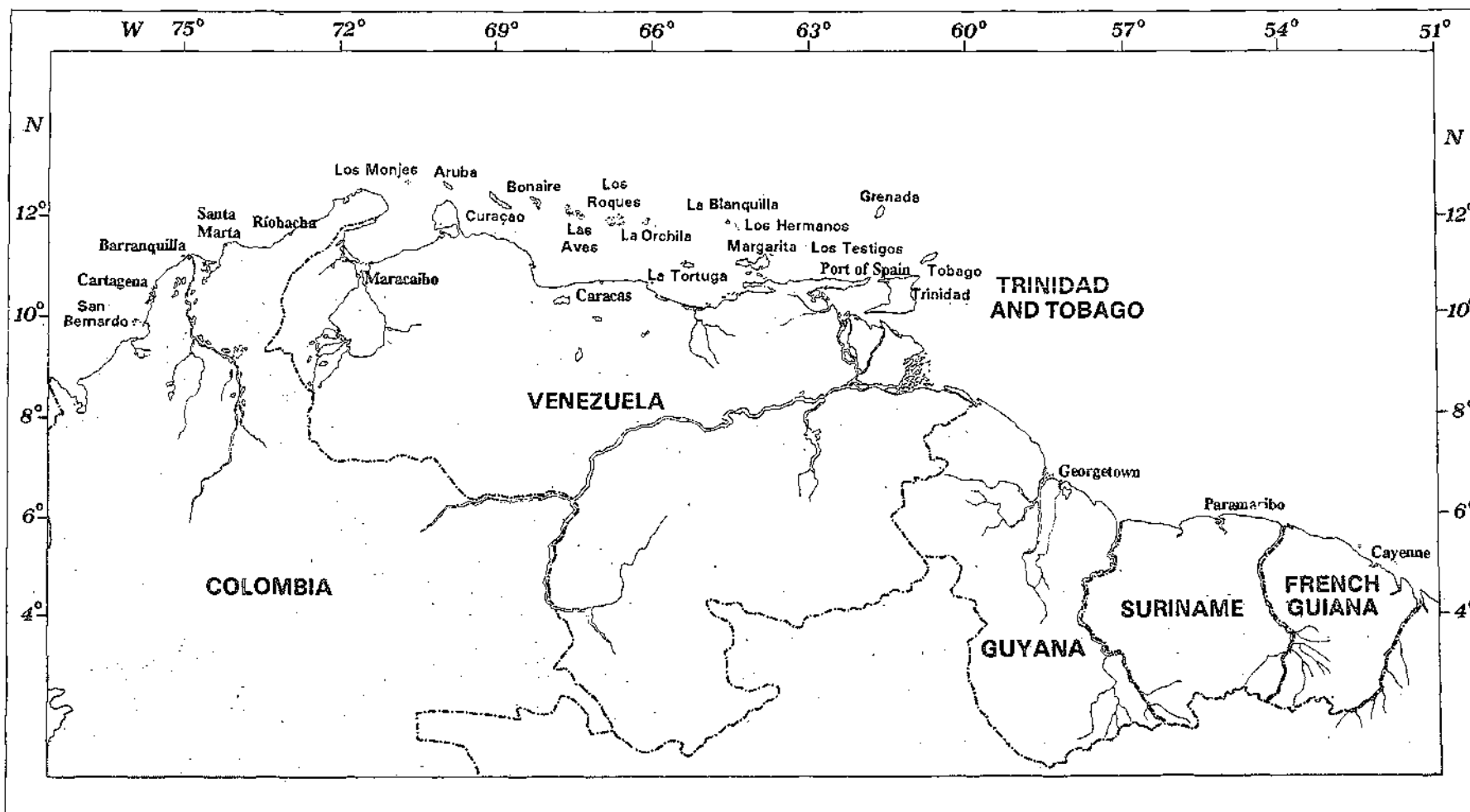


Fig. 1 Area boundaries and principal political and geographical designations

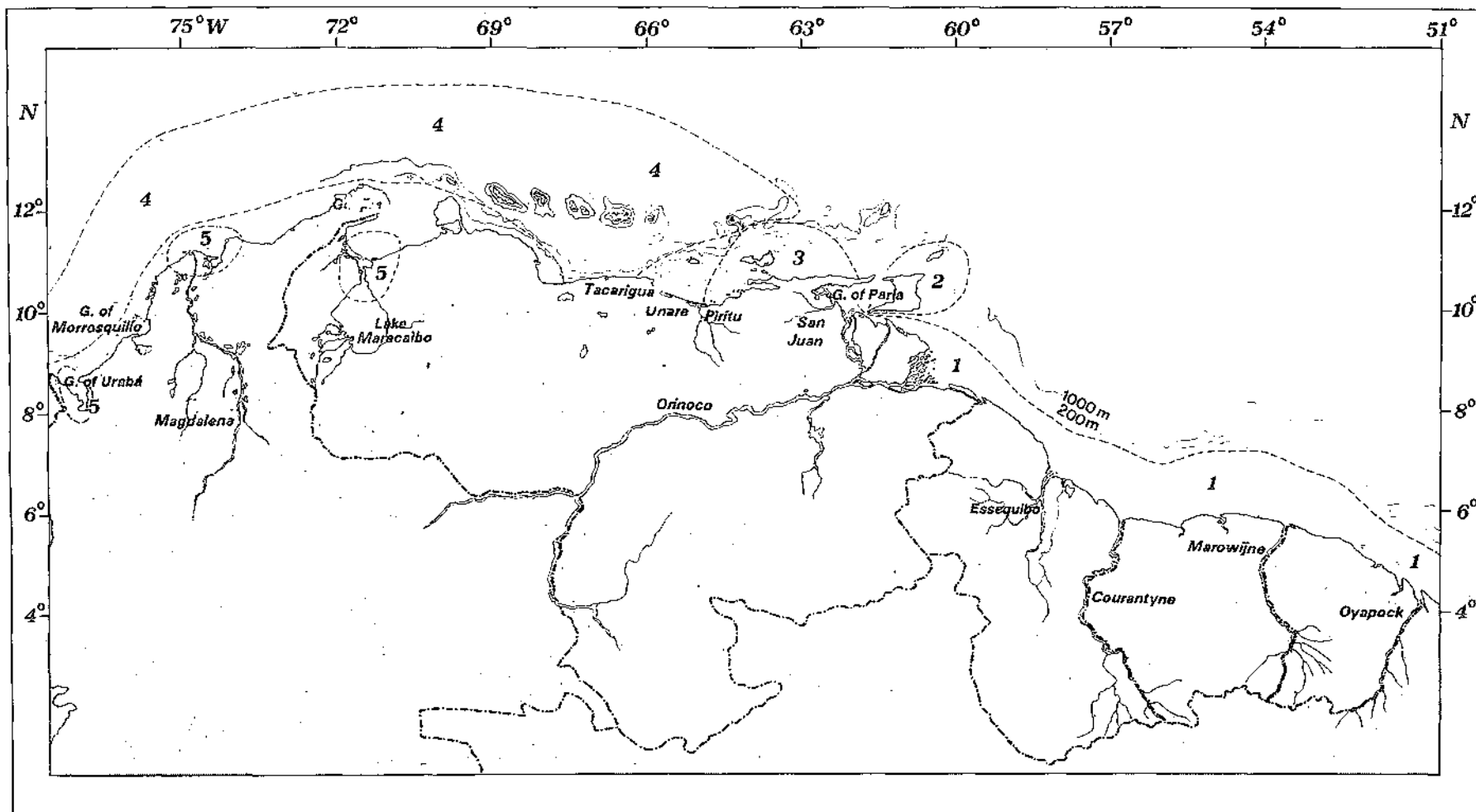


Fig. 2 Subareas or ecological environments and isobaths (200 m and 1 000 m)

- Subarea 1: Atlantic coast
- Subarea 2: Trinidad and Tobago
- Subarea 3: Coastal upwelling zone
- Subarea 4: Oceanic waters
- Subarea 5: Estuarine environments

Orinoco, whose fan-shaped delta comprises 300 km of coastline and exerts its influence on the entire Atlantic coast of Venezuela, and on the southern and eastern coasts of Trinidad. It also strongly influences the waters of the Gulf of Paria, which in addition receive the outflow of the river San Juan that is part of another hydrographic system. Therefore, the west coast of Trinidad and the east coast of Venezuela inside the Gulf of Paria are also directly influenced by freshwater, and their fauna is essentially the same as that of the Atlantic coast. Southeast of the Orinoco and along the coast of the Republic of Guyana are the outlets of the rivers Essequibo and Demerara, and on the border with Suriname, that of the Courantyne or Corantijn. The coastline of Suriname is interrupted by the outlets of several rivers, among which the most important are the Coppename, Suriname, and Marowijne (or Maroni), the last located on the border with French Guiana. Finally, the coastline of French Guiana is intersected by the rivers Mana, Courcibo, Apronague, and Oyapock, the latter located directly on the border with Brazil.

The extent to which the outflow of all these rivers influences the distribution of the marine fauna in this subarea fluctuates considerably in the course of the year. In general, it is possible to distinguish a rainy season usually extending from April-May to October-

November, and a dry season, from November-December to March-April. These two seasons are clearly distinguishable in the area of the Orinoco and Essequibo river mouths, but they tend to intergrade toward the south of this zone. Already in Suriname two rainy seasons can be observed, one from May to October, and a shorter one from December to January. During the rainy season, and especially from May onwards, the freshwater influence reaches far offshore, causing the marine fauna to withdraw to the outer shelf, while the coastal zone is invaded by freshwater fauna, and the brackish-water fauna is displaced offshore, at least to (but often beyond) a depth of 20 m. During the dry season, this phenomenon reverses and the marine fauna moves toward the estuaries, occasionally entering the lower reaches of the rivers. In July, nearly 40 km off the large mouth of the Orinoco, surface salinities may be as low as 10‰ (Fig. 3).

The other hydrographic phenomenon that characterizes the Atlantic area is the presence of the Guiana current, a northern branch of the South Equatorial current that flows constantly towards east-northeast. This current pushes the Orinoco freshwater westward, forcing it to enter the Gulf of Paria through the Serpent's Mouth or to flow along the east coast of Trinidad, and to penetrate the eastern part of the Caribbean between that island and Tobago.

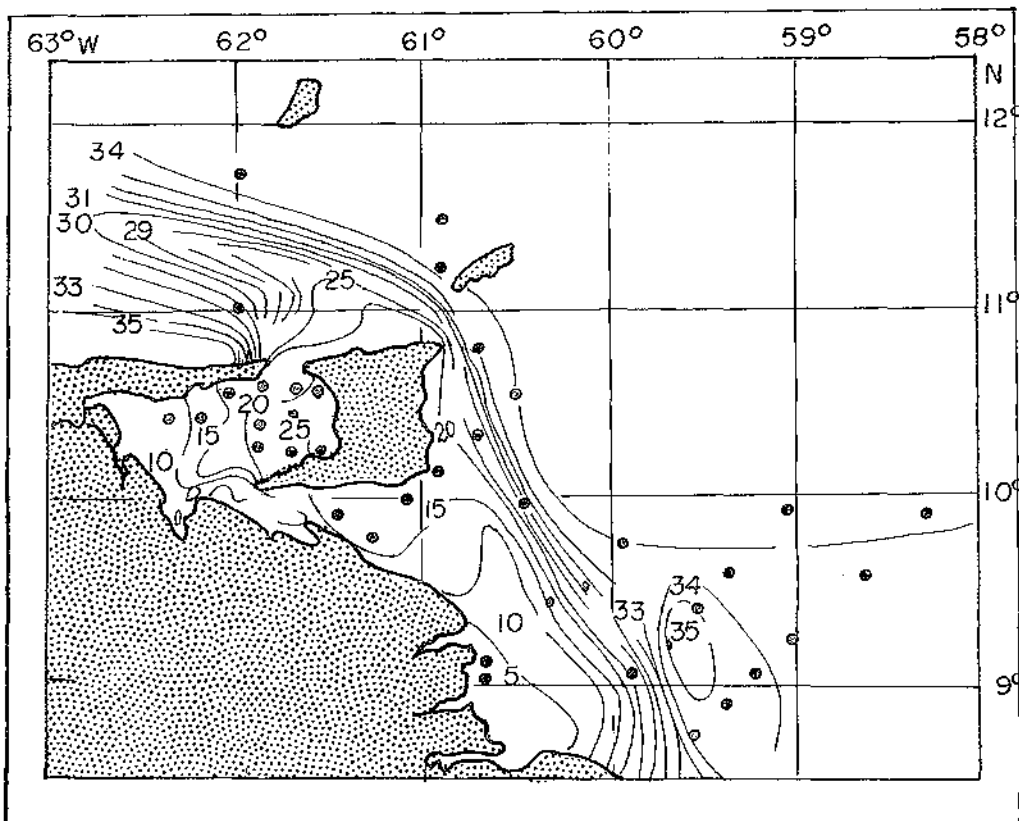


Fig. 3 Distribution of surface-water salinities (in ‰) during August in the eastern part of the area.

The entire area is influenced by the trade winds that blow from east-northeast throughout most of the year, but more strongly and steadily so from January to June, representing in this period a handicap for the operation of artisanal and semi-industrial fisheries. From June onwards, the speed of the winds decreases and therefore, fishing conditions improve.

The waters of the Amazon river are also pushed northeastward by trade winds, penetrating the Caribbean between Trinidad and Tobago. These waters occasionally extend along the east coast of Trinidad up to its northern end.

The Gulf of Paria occupies a surface of 9 700 km² and reaches a maximum depth of about 40 m, although it is mostly shallower than 30 m. Its waters flow northwards out through the Dragon's Mouth, between Venezuela and Trinidad, and all currents converge at this point. However, the surface current sometimes reverses its direction during high tide, making the Carib-

bean water reflow into the Gulf and causing dangerous turbulence in the area of the Dragon's Mouth, where it meets the outflowing water. Along the Trinidad coasts of the Gulf, there is a small southward-directed current that is part of a clockwise gyre located in the east-central part of the Gulf (Fig. 4).

During the trade wind season between January and April, surface water temperatures off the Atlantic coasts fluctuate between 26.5° and 28° C, but off Suriname they may be slightly lower. From June onwards, surface temperatures increase steadily, reaching between 28.5° and 29.2° C. Also in this period temperatures tend to be lower off Suriname. At a depth of 20 m, yearly temperatures generally fluctuate between 25° and 26.5° C.

The influence of marine waters is stronger along Suriname than off Venezuela and Guyana. Water salinity 30 km off Suriname may reach 35‰ even in July, while at the same time off the Orinoco delta it may be

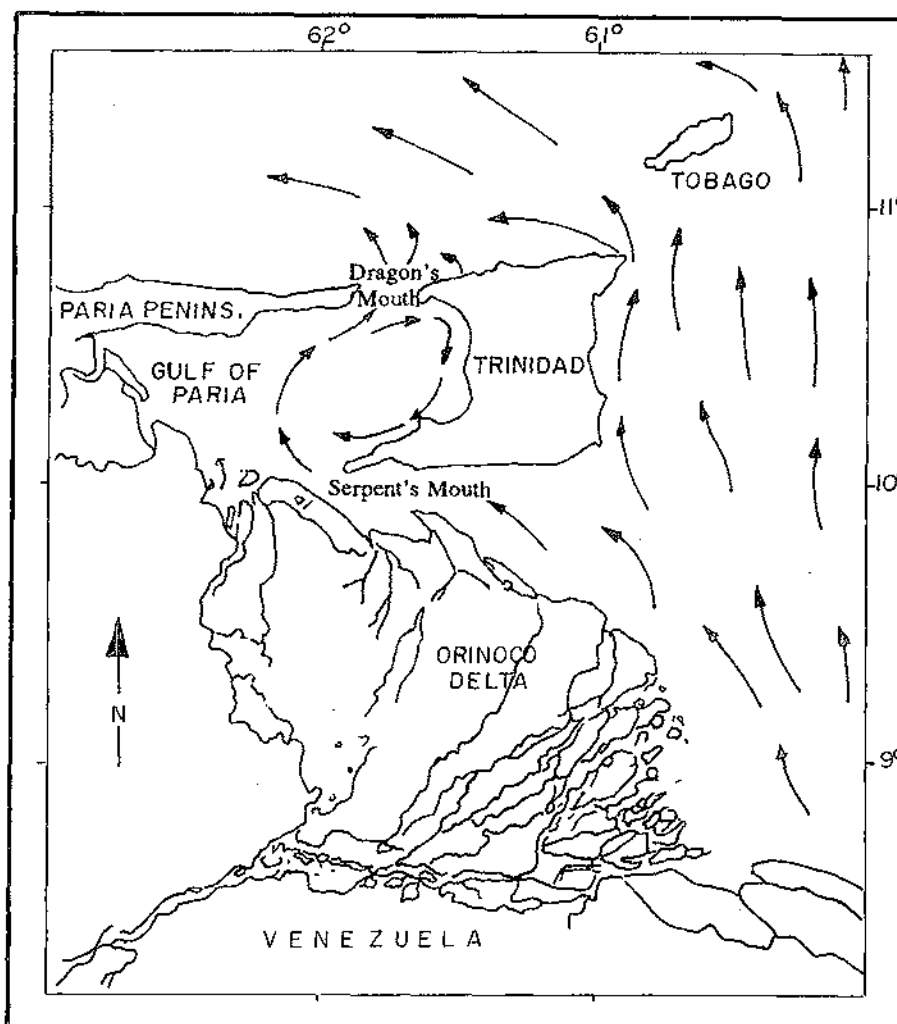


Fig. 4 Oceanic currents around Trinidad and Tobago.

as low as 10 ‰ or even less. Apart from the above-mentioned seasonal parameters, it is necessary to consider the flux and reflux of the tidal currents that follow a 12-hour rhythm. These can be very strong, and may have an amplitude of about 3 m in some localities and periods.

1.2. Geomorphological Structure

The structure and morphological features of the seabed are generally uniform within the Atlantic subarea, from the Orinoco delta to Brazil. It consists basically of a continental shelf that declines slightly toward its outer edge. The slope has mostly rocky or coralline substrate and fluctuates in depth between 100 and 200 m. Its distance from the shore is about 150 km eastward from Demerara, and about 140 km off the Orinoco delta.

Along the entire coast of this subarea, the shelf is characterized by 4 types of habitat:

a) A belt of mud that extends from the coastline to various depths depending on the zone. Off the Orinoco delta, this belt may reach depths of 50 m and a distance of 100 km from the shore, off Guyana (Essequibo) only to a depth of 30 m and 40 km offshore, and less along Suriname and French Guiana.

b) A belt of muddy sand or sand that extends from the border of a band of mud to depths of 50 to 75 m, and from 40 to 100 km from the shore.

c) A belt of relatively hard substrate consisting of sand or shell debris, which extends from the border of a belt of sand to the rocky or coralline edge of the shelf, at depths of 100 to 200 m, where the slope begins to descend steeply to at least 300 m.

d) The continental slope, which is of great interest to fisheries.

Generally, the sedimentary zones of soft mud bottoms become narrower towards the southeast (Suriname and French Guiana) in direct correlation with the diminishing river outflow. Each of the above-mentioned habitat has a distinct faunistic community.

2. THE WATERS AROUND TRINIDAD AND TOBAGO

The ecological features of the shelf on each of the four coasts of Trinidad are strikingly different. The southern part is an extension of the Orinoco delta area and is strongly influenced by the seasonal variations of freshwater outflow from that river. The inner part of the eastern shelf is also directly influenced by freshwater discharges, but the external part is controlled by the Guianas current. The northern shelf, which has a maximum width of 50 km, is the site where the Caribbean current originates, causing coastal upwelling. The eastern shelf is the narrowest of the Atlantic ocean and its bottom is rough and irregular.

3. THE COASTAL UPWELLING ZONE ALONG THE NORTHEASTERN COAST OF VENEZUELA

The morphological and sedimentary pattern of the shelf to the west of the northern coast of Trinidad changes substantially with respect to that of the Atlantic coast, becoming an erosion terrace crossed by depressions filled with sedimentary material. This entire area is characterized by coastal upwelling which increases as the shelf widens, especially in the sector known as the Margarita-Los Testigos shelf, from about 62° 20' W to 64° 25' W, and from the coastline to about 12° N. These boundaries are highly variable, since the intensity of the upwelling phenomenon depends directly on the strength and steadiness of the trade winds, which vary from year to year.

The presence of coastal upwelling is evident from abnormally low surface-water temperatures (as compared to the average at this latitude) and high salinities. Temperatures fluctuate between 22° and 26° C in the period of strongest upwelling, between January and June. In some localities, surface temperatures occasionally drop to 21° C, and sometimes even lower. In periods of calm weather upwelling decreases, the water column stratifies, and develops a well marked thermocline, and surface water warms from 26° to 28° C. However, in the past 5 years, there have been abnormal deviations from this classical pattern. For example, in 1989 and 1990, surface temperatures in the period of calm weather attained nearly 30° C. In November 1990 the tidal range was particularly large. In the period between 1983 and 1984 the direction of the wind was reversed for 50 days from east-west to west-east, probably as a result of the unusual intensity of the "El Niño" phenomenon off the Peruvian coast during the same period.

Primary production in the upwelling area is very high, much more so than in the adjacent oceanic areas. Due to this, the shelf of northeastern Venezuela, with an extension of 18 000 km², a width of up to 106 km at some points and a depth of about 100 m at the edge of the slope, constitutes the richest fishing ground of the entire area covered by this field guide. The abundance in fishery resources in the pelagic environment is particularly evidenced by the presence of large schools of the sardine, *Sardinella aurita*, and many other larger pelagic species, such as jacks (*Caranx* spp.), Spanish mackerels (*Scomberomorus* spp.), frigate mackerels (*Auxis* spp.), the bonito *Sarda sarda*, and many more.

The distributional range of the sardine is variable, expanding and contracting in relation to the intensity of upwelling. The fish fauna of this zone differs sharply from the typical Caribbean-Antillean one, due to the fact that local ecological features, lower water temperatures, and strong seasonal fluctuations preclude the development of many stony-coral species. It is also quite different from the brackish-water influenced Atlantic fauna.

The Unare shelf, which lies west of 64° W, is narrower; it attains a maximum width of 47 km in the

central part, and fluctuates only between 2 and 8 km at its east and west ends. The edge of the slope is situated placed around the 104 m isobath. North of this shelf lies the Cariaco trench, with a 1380 m-deep eastern, and a 1394 m-deep western fossa, both anoxic. Upwelling is not very strong on the Unare shelf. Further west, along the entire coast of central Venezuela, the shelf is practically non-existent.

4. THE ZONE INFLUENCED BY OCEANIC WATERS

This subarea comprises mainly the chain of islands along the continental Caribbean coasts of Venezuela and Colombia. This includes from east to west: Los Testigos, Los Hermanos, La Blanquilla, La Tortuga, La Orchila, Archipelago Los Roques, Archipelago Las Aves (windward and leeward islands), Bonaire, Curaçao, Aruba, Archipelago Los Monjes, the Archipelagos El Rosario and San Bernardo (the groups of islands south of Cartagena, Colombia), and Tobago island at the eastern limit of the area.

This subarea also includes a large portion of the central, nearly shelfless, coast of Venezuela, part of the coast of Santa Marta, Colombia (although the oceanic character of this zone is less evident), and finally, the west coast of the Gulf of Urabá (or Caribbean Chocó). The area of Santa Marta and the coast of Guajira are characterized by coastal upwelling caused by the strong trade winds that blow from northeast between December and April.

The typical oceanic zone comprises, apart from the open sea, the stretch of water occupied by the above-mentioned islands (although La Blanquilla, Los Testigos and La Tortuga, off Venezuela, are under the influence of coastal upwelling and cannot be considered as typically oceanic), and by the Archipelagos Rosario and San Bernardo. Although located on the continental shelf, these have clear oceanic waters due to the presence of the east/northeast-directed Darien countercurrent (or Panama current) that counteracts the influence of the sediment-rich continental waters coming from the Magdalena river (Fig. 5). In general, these waters are characterized by high surface temperatures year-round and the presence of well developed stony corals. Coral may form barrier reefs extending to depths of 50 m or more (off Rosario islands they reach down to 70 m). The fish fauna in this zone resembles more closely the typical Antillean-Caribbean fauna (e.g. that of Bahamas and Jamaica) than that from the coastal continental zone or the islands located in coastal upwelling areas (i.e. Margarita, Coche and Cubagua off northeastern Venezuela).

Off the coasts of Santa Marta (Colombia), central Venezuela, and some of the above-mentioned islands (e.g. Los Testigos and La Tortuga), there are periods of the year when the waters are not clear and coral reef development and diversity are much more limited. Nevertheless, along the central Venezuelan coast, where the shelf is very narrow, there are also some

extensive coral reef areas (i.e. Morrocoy and Falcón State). The fish fauna dominating in the reef areas includes parrotfishes (Scaridae), surgeonfishes (Acanthuridae), damselfishes (Pomacentridae), butterflyfishes (Chaetodontidae), groupers (Serranidae), and snappers (Lutjanidae).

5. THE ESTUARINE ENVIRONMENTS OF THE CARIBBEAN SEA

The estuarine areas include mainly the Maracaibo system, a large part of the Gulf of Venezuela, the Ciénaga Grande de Santa Marta influenced by the Magdalena river, and the Gulf of Urabá. Other, smaller brackish-water environments are scattered all along the continental coast.

The Maracaibo estuary influences substantially the species composition of the ecosystem, second in importance only to the Orinoco delta. The most typical estuarine zone is the Bay of Tablazo which receives the outflow of both Lake Maracaibo (surface 12 500 km²) from the south, and the river Limón at its northeastern tip. During the dry season, sea water enters through the eastern mouth into the northern part of the bay, and much larger quantities of freshwater flow out through the western mouth. Also, high-salinity water is pushed into the mouth of the river Limón. During the wet or rainy season, the penetration of salt water into the bay practically stops and water salinity stabilizes at values between 4 and 6‰ throughout the bay.

The fauna inhabiting the estuaries of the Caribbean region and the entire Gulf of Venezuela shows many affinities with that of the Orinoco estuary area. The dominating fish species here are catfishes (Ariidae), croakers (Sciaenidae), sea snooks (Centropomidae), many species of anchovies (Engraulidae), and sardines (Clupeidae and Pristigasteridae). Furthermore, it represents one of the most important fishing grounds for white shrimp (*Penaeus schmitti*). The Gulf of Venezuela has an extension of 20 000 km² and its offshore limit is the 90 m isobath.

The Ciénaga Grande de Santa Marta, with a surface of 450 km², receives a large part of the waters coming from the Magdalena and other rivers that descend from the Sierra Nevada of Santa Marta. While the lower course of the river Magdalena is dominated by freshwater species, near the river mouth (a single, 200 m-wide channel known as the "Boca de la Barra") there is a rich brackish-water fauna. This includes some mullets such as *Mugil incilis*, *M. curema* and *M. liza*, mojarras (Gerreidae), tarpon (*Tarpon atlanticus*), some snooks (*Centropomus ensiferus*), jacks (*Caranx hippos*), catfishes (*Ariopsis bonillai*) and several species of croakers (Sciaenidae). The same species also dominate outside the marsh, in the coastal zone directly influenced by the river.

In the Gulf of Urabá, as well as in the coastal areas located southeast of Cartagena, the substrate is soft and mostly trawlable, and the fauna is very similar to

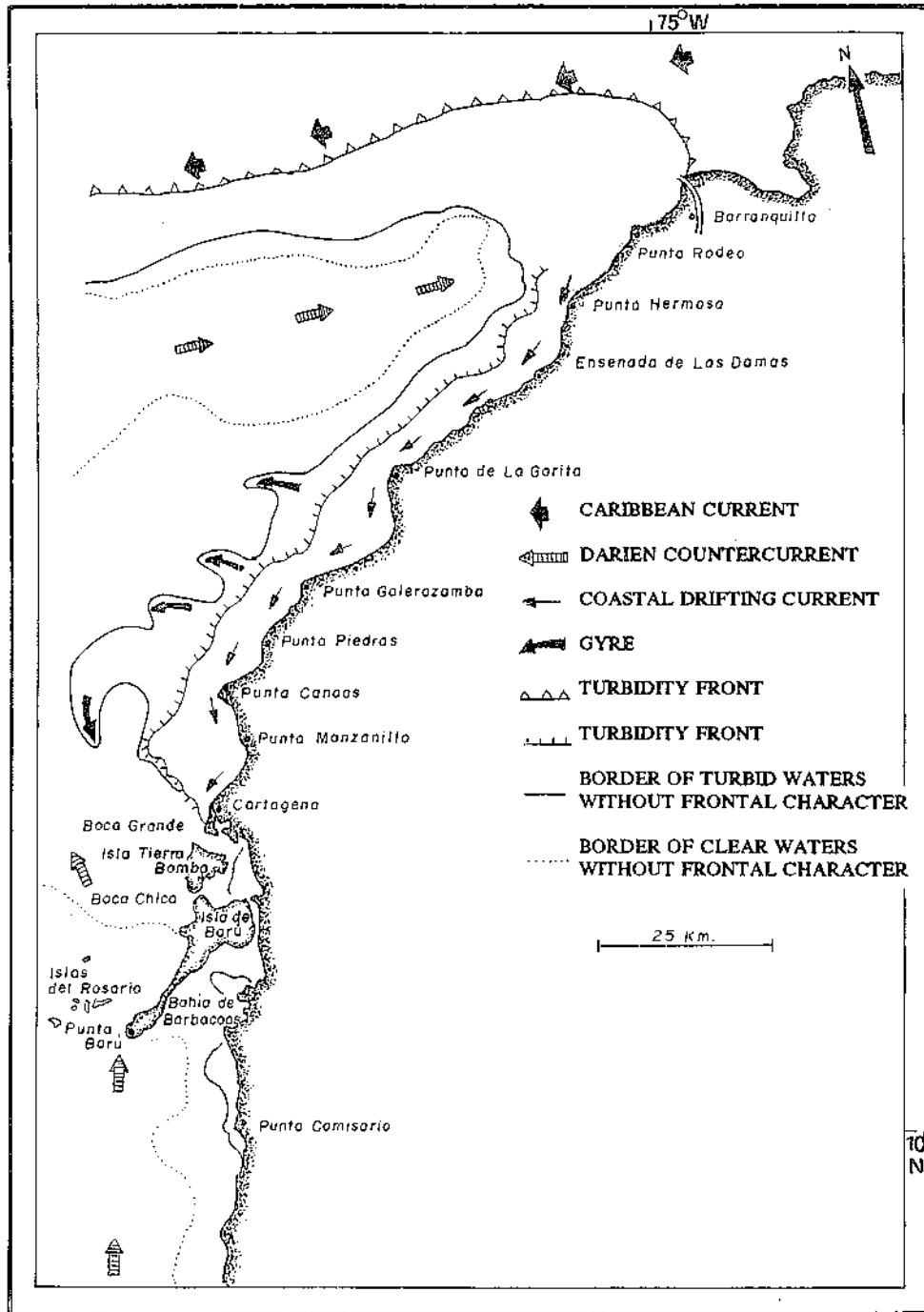


Fig. 5 Oceanic circulation in the western part of the Colombian Caribbean coast (after Amaya and Thomas, 1988).

that of the Gulf of Venezuela and parts of the north-eastern Venezuelan shelf. The fauna includes the presence of white shrimp, *Penaeus schmitti*, in coastal waters, and of pink and redspotted shrimp, *P. notialis* and *P. brasiliensis*, at greater depths.

Other Caribbean estuarine areas are formed by a series of littoral lagoons. For example, the Tacarigua, Unare and Píritu in central-eastern Venezuela and the Bay of Cartagena and the Ciénaga de Tesca (or de la Virgen) in Colombia.

II. FISHERIES

In the area covered by this field guide, annual landings reported from marine and brackish waters fluctuate between 260 000 and 300 000 t (Table 1). The most important fishing nation is Venezuela, with annual landings currently approaching 250 000 t. The relatively large volume of Venezuela's fisheries production is mainly due to the following three factors:

a) The high productivity of the coastal upwelling zone which contributes about 70% of the national fisheries production, including 40 000 to 70 000 t of sardines.

b) The existence of a well established artisanal fisheries tradition, including the construction of excellent boats, whose socio-economic level, although low, has generally grown beyond the level of a mere subsistence activity. Artisanal fisheries contribute 60 to 65% of total Venezuelan catches.

c) The development of a rather large tuna fishing fleet, that operates mostly in the Pacific, outside our area.

In the Atlantic subarea, the reported annual fisheries production has reached about 50 000 t in recent years. This is attributed mostly to Guyana (Table 1).

Colombia's yearly marine fisheries production totals about 49 000 t, of which only about 10 000 t come from the Caribbean coast (Table 1). The Caribbean fisheries industry is based mainly on shrimp catches from shallow waters, and some landings of fish, gastropods, and lobsters from rocky and coralline grounds. The fishing fleet along the Caribbean coast of Colombia consists of 107 motorized shrimp trawlers (conventional Florida type) that operate north (Colombian Guajira) and south (Sinú-Urubá) of Cartagena, 30 medium-sized boats engaged in gastropod, lobster, and finfish fisheries, and 2 longliners operating in tuna fisheries. Artisanal fishermen are estimated to number more than 7 400 and they contribute about 70% of the fishery production from that area.

1. THE ATLANTIC COAST

1.1. Atlantic coastline

1.1.1. Fisheries Agreements

The Atlantic waters of the area are exploited by Venezuela, Trinidad and Tobago, Guyana, Suriname, and French Guiana. There is some interaction between the fisheries operations of most of these countries. Fisheries treaties exist between Venezuela and Trinidad and Tobago, and between Venezuela and Suriname. There are also agreements between the owners of Venezuelan fishing boats and certain fishing companies in French Guiana.

The treaty between Venezuela and Trinidad and Tobago was initially signed in 1977 and renewed for a period of 5 years in 1985. By this treaty, Venezuela authorizes 60 small outboard-motor trawlers from

Table 1

Fishery production of the area in metric tons

Country	metric tons per year				
	1985	1986	1987	1988	1989
Colombia	10 623	10 364	9 740	10 591	9 646
Venezuela	217 469	222 599	223 561	202 472	245 056
Trinidad and Tobago	2 862	3 000	3 200	3 200	3 200
Guyana	36 794	36 583	35 951	35 710	34 524
Suriname	3 913	3 542	5 080	3 558	3 570
French Guiana	2 476	3 290	5 305	4 827	5 177
TOTAL	274 137	279 378	282 837	260 358	301 173

Source: FAO, 1991. Yearbook of Fishery Statistics. Catches and landings, 1989.

Trinidad and Tobago to exploit shrimp within a stretch of its territorial waters in the northern half of the Orinoco delta. It also establishes an area defined under the term "Southern Trinidad/Northern Venezuela" for common exploitation by conventional trawling vessels of both countries. This area excludes coastal waters within two miles from the shore. A third aspect of the treaty concerns the authorization by Trinidad and Tobago for 30 Venezuelan high-seas vessels to operate in open waters of the Exclusive Economic Zone (EEZ) along its northern and eastern coasts, beyond a limit of 12 miles from the shore, and for 40 medium-sized Venezuelan vessels to fish in the waters between 2 and 12 miles off its northern coast.

The fisheries treaty between Venezuela and the Republic of Suriname was signed in Caracas in 1986 and renewed with some modifications in 1990. Suriname authorized the operation of 100 Venezuelan snapper-fishing vessels in its EEZ under fishery licenses amounting to US\$ 3 500 per boat. Suriname reimburses part of this payment in accordance with the catch volume landed in its ports, as an incentive to maintain its regular market supply of snapper.

Through the unilateral concession of fishing permits, French Guiana currently authorizes 35 Venezuelan snapper-fishing vessels to operate within its EEZ. There is the understanding that they will disembark 75% of their snapper, grouper, and Spanish mackerel catches in ports of that country, under exclusive arrangements with the national companies concerned.

1.1.2. Fishery Resources and their Exploitation

The distribution of fishery resources on the continental shelf is rather uniform throughout the Atlantic coastline, and it is closely correlated with the location and extent of the major habitats defined above. Generally speaking, 4 types of faunistic communities can be recognized:

a) The yellow-fish zone, which is dominated by yellow or yellow-brown species. It occupies the coastal fringe influenced by brackish waters and hosts permanently estuarine species, juveniles of marine species coming to feed in those nutrient-rich waters, and more or less euryhaline species that approach the delta during their respective spawning seasons. The most important commercial species occurring in this shallow zone of soft substrates include large catfishes of the family Ariidae, mainly *Arius parkeri*, *A. couma*, and *A. passany*, and smaller fishes such as the croakers (Sciaenidae) *Cynoscion acoupa* and *C. microlepidotus*. The mullets (Mugilidae) *Mugil incilis* and *M. liza*, a large number of anchovies (Engraulidae) of the genera *Lycengraulis*, *Anchoa*, and *Anchoviella*, sardines (Pristigasteridae) of the genera *Odontognathus*, *Pellona*, and others, soles (Soleidae) of the genus *Achirus*, and toadfishes (Batrachoididae) of the genus *Batrachoides*. In the northern zone of the Orinoco delta, the white shrimp *Penaeus schmitti* is abundant, much more so than in the southeastern zone; it becomes more scarce off Suriname and French Guiana.

This coastal zone, which during low tide has extensively exposed mud flats, is exploited mainly by artisanal fishermen using beach seines, trammel nets, longlines, and handlines. The fishermen from Trinidad exploit the white shrimp in the Orinoco delta from small boats of 8 to 12 m length ("peñeros"), which are equipped with outboard motors and small shrimp trawls. Toward the outer limit of this fringe the more abundant resources are rays of the genus *Dasyatis*, some sharks of the genus *Carcharhinus*, and croakers (Sciaenidae) of the genera *Nebbris* and *Macrodon*. Among the shrimp species, the sea-bob *Xiphopenaeus kroyeri* is the most abundant, but also *Penaeus subtilis* is taken.

b) The white-fish zone occupies a fringe of muddy sand, and is clearly dominated by croakers (Sciaenidae), especially the species *Cynoscion virescens* and *Micropogonias furnieri*, although *Macrodon ancylodon* may also be very abundant. This is the zone where the highest yields are obtained, especially off Suriname. Here fisheries exploitation is entirely industrial, with Florida-type shrimp trawlers of 20 to 30 m length, partly belonging to companies of the bordering nations, and partly to foreign countries. The Korean fleet off Suriname is however committed to disembark its catches in Suriname. The most important shrimp species in this zone is *Penaeus subtilis*. The juveniles of the two most important fish species, *Cynoscion virescens* and *Micropogonias furnieri*, do not occur here, but in the brackish or even fresh waters of the estuarine areas.

c) The red-fish zone, which occupies the belt of hard or semi-hard sand and shell substrate located immediately before the coralline edge of the shelf. This zone hosts a large variety of species belonging to the families Serranidae (groupers), Haemulidae (grunts), Lutjanidae (snappers), Mullidae (mulletts), Scorpaenidae (rockfishes), and others. Also found here are juveniles of some pelagic species such as the serra Spanish mackerel *Scomberomorus brasiliensis*, and jacks (Carangidae). Off the Orinoco delta, this zone begins at depths between 40 and 50 m, and off Suriname, between 20 and 25 m. The red-fish zone is also exploited industrially by trawling vessels for shrimp or fish from all bordering countries. Invertebrates are more abundant here than in the preceding zones. The shrimp species dominating in the catches is *Penaeus subtilis*, but also *P. brasiliensis* and *P. notialis* are taken.

d) The continental slope zone, with rocky or coraline substrate, hosts species of great commercial importance. In particular are the southern red snapper, *Lutjanus purpureus*, the yellowedge grouper, *Epinephelus flavolimbatus*, and the vermilion snapper *Rhomboplites aurorubens*. These are exploited throughout the area by the semi-industrial Venezuelan snapper fleet that consists of artisanal-built wooden vessels of 15 to 20 m length. They operate mostly with line gear, such as the "balestrilla" (a line with a lead weight and 3 to 5 hooks), but longlines are also used. It was the existence of this old, traditional fleet that brought about the fisheries agreement between Venezuela and Suriname and the concession of unilateral fishing rights by French Guiana. The yield of this

fishery is rather high, but the resources are most probably approaching the level of over-fishing. The annual catches obtained by this fleet fluctuate between 5 000 and 8 000 t and the highest yields are obtained in the Exclusive Economic Zone of Suriname. In Colombia, the dominating species in the catches, taken at depths of 160 to 200 m between Cartagena and the Gulf of Urabá, is the silk snapper *Lutjanus vivanus*. On the same fishing grounds, and even down to depths of 800 m (off the Ciénega Grande de Santa Marta and Riohacha), are important concentrations of deep-sea shrimp, such as *Pleoticus robustus*, *Aristaeomorpha foliacea*, *Plesiopenaeus edwardsianus*, *Heterocarpus ensifer*, and *Solenocera* spp. are beginning to be exploited.

1.2. The Gulf of Paria

Throughout the Gulf of Paria, the sea bottom is soft and trawlable. It reaches maximum depths of 40 m, but is generally less than 30 m deep. With the exception of some coastal areas subjected to artisanal fishing, the entire Gulf is exploited by industrial vessels of 20 to 25 m length from Trinidad and Tobago and Venezuela, which operate with shrimp and fish trawls. The dominating species in the Gulf are croakers (Sciaenidae) of the genera *Cynoscion*, *Macrodon*, and *Nebris*, catfishes of the genus *Arius*, snooks of the genus *Centropomus*, and sharks. The white shrimp, *Penaeus schmitti*, is taken in the south and in the extreme northwest of this area by an important artisanal fishery using manually-operated nets.

2. THE WATERS AROUND TRINIDAD AND TOBAGO

On the northern shelf of Trinidad, the most common species are anchovies (Engraulidae), sardines (Clupeidae), and some jacks (Carangidae) such as *Selene setapinnis* which are sometimes taken in large quantities with bottom trawls. Also present in this zone are the cutlassfish *Trichiurus lepturus* and the guachanche barracuda, *Sphyrna guachancho*.

The trawlable grounds are restricted to a coastal fringe of 36 to 45 km maximum width. This hosts the fauna typical of the entire shelf area: croakers (Sciaenidae) of the genera *Micropogonias* and *Cynoscion* (mostly *C. jamaicensis*), some snappers (Lutjanidae) such as *Lutjanus purpureus*, *L. synagris*, and the wenchman snapper *Pristipomoides aquilonaris*.

Most of the eastern shelf of Trinidad is unsuitable for trawling. This is possible only in the shallow waters between Point Galera and Manzanilla Bank, and further offshore on that bank. The species occurring there are practically the same as those already mentioned for the northern coast, with the addition of catfishes of the genus *Arius* which are absent in the north.

East of Tobago there are trawlable shelf areas at 11° 10' N latitude and from 10° 20' N southward to 10° 00' N, or even somewhat further. The slope is gentle and hosts large-sized shrimp species of the genus *Solenocera* at depths between 200 and 500 m. Shrimps of the genera *Plesiopenaeus*, *Penaeopsis*, and *Pleoticus* can be taken east of Trinidad, in depths between 150 and 800 m.

3. THE COASTAL UPWELLING ZONE

This zone is intensively exploited by artisanal and industrial fisheries. Industrial fishing is performed mainly by shrimp trawlers operating with two types of nets, the "Florida" trawl and the stern trawl, and by a few boats (ramperos) using a single net. The most commonly caught species is the redspotted shrimp *Penaeus brasiliensis*, but many of the fishes taken as bycatch are also marketed. These include *Micropogonias furnieri*, *Cynoscion jamaicensis*, and *C. similis* (Sciaenidae), cusk eels (Ophidiidae) of the genera *Lepophidium* and *Ophidion*, left-eye flounders of the genera *Paralichthys* and *Syacium*, the lane snapper *Lutjanus synagris*, and others. However, 70 to 80% of the finfish caught by this fleet are discarded, in particular juveniles of commercial species and adults of species of low market value. At present, the number of shrimp vessels operating in this zone exceeds 200. A snapper fleet operates further offshore. Furthermore, there are extensive banks of the South American rock mussel *Perna perna* in the rocky canyons of the Araya-Paria coast, and of clams (genus *Donax* and trigonal tivela *Tivela mactroides*) on shallow sand or sandy mud flats.

Many types of fishing gear are used in this zone, including:

- a) Beach seines or trawls for coastal fishes; purse seines for sardines, jacks, and other pelagic fish; surface trammel nets for pelagic fish such as jacks and scombrids (Spanish mackerels, bonitos), and bottom trammel nets for demersal species such as catfishes, croakers, snappers, rays, and sharks.
- b) Special beach nets for mullets.
- c) Cast nets for mullets, mojarras, and others.
- d) Handlines for snappers and groupers; longlines for snappers, groupers, and sharks.
- e) Trolling gear for pelagic fish such as Spanish mackerels and bonitos.
- f) Traps for grunts (Haemulidae), groupers (Serranidae), and others.
- g) Iron dredges for molluscs such as the Turkey wing *Arca zebra* and the Atlantic pearl oyster *Pinctada imbricata*.

Conflictive situations arise between the artisanal and industrial fisheries, especially with regard to fishing zones.

4. THE ZONE INFLUENCED BY OCEANIC WATERS

For fishery purposes, this area can be subdivided into 3 zones, one typically oceanic, another insular oceanic (around oceanic islands), and a third, coastal continental. The typically oceanic zone of the Caribbean and the Atlantic is exploited by an extensive tuna fleet consisting mostly of three types of large, modern vessels: purse seiners, trolling boats, and longliners, the latter utilizing sardine as bait. The most important species taken by this fleet is the yellowfin tuna *Thunnus albacares*, followed by the skipjack *Katsuwonus pelamis*. There is also an experimental fishery for the swordfish *Xiphias gladius*.

The insular oceanic zone is dominated by artisanal fisheries which are sometimes directed toward very specific resources. For example, there is the trap fishery for the Caribbean spiny lobster *Panulirus argus*, and diving activities (without SCUBA equipment) for the pink conch *Strombus gigas* on the Los Roques Archipelago, off Venezuela. In these cases, the capture of fishes is secondary. In other insular areas, the most commonly used fishing gear are traps and pots, and the species dominating in the catches are parrotfishes (Scaridae), grunts (Haemulidae), and a large number of less important species belonging to other families such as the Chaetodontidae, Pomacentridae, Labridae, and Muraenidae. Fishermen in these insular areas also use live bait, trammel nets, and substrate permitting, beach seines. The development of an industrial or semi-industrial fishery with larger boats powered by inboard motors has recently been initiated in order to exploit the fish resources occurring on deep, rocky bottoms of the slope below depths of 100 m. In particular, the silk snapper *Lutjanus vivanus*, the blackfin snapper *Lutjanus bucanella*, and groupers of the genus *Epinephelus* are the target species.

5. THE ESTUARINE ENVIRONMENTS OF THE CARIBBEAN

The Gulf of Venezuela is an area of intensive industrial trawling activities conducted by more than 150 vessels. These are primarily oriented toward shrimps for export, especially the white shrimp *Penaeus schmitti* in the vicinity of the coast, and the redspotted shrimp *Penaeus brasiliensis* in deeper water. In the coastal zone there is also an artisanal fishery operating mainly with beach seines.

In the Ciénaga Grande de Santa Marta, fisheries are entirely artisanal, based mostly on a canoe-type of boat powered by oars or sails and using cast nets and trammel nets. These capture mainly mullets, mojarras, shads, snooks, croakers (*Micropogonias furnieri*), and catfishes. Also actively exploited are the banks of the mangrove-cupped oyster *Crassostrea rhizophorae*.

Another relatively important artisanal fishery operates in the Bay of Cartagena and the adjacent areas between Point Garita to the north and Point Barú to the south. This is a coastline of about 100 km that includes the marsh of Ciénaga de Tesca (or de la Virgen) and Barbacoas Bay, north and south of Cartagena, respectively. It yields about 900 t annually and employs about 2 100 fishermen. In these bays, fishing takes place throughout the year. The most important species taken are the ladyfish *Elops saurus*, the lebranche mullet *Mugil liza*, the parassi mullet *Mugil incilis*, snooks of the genus *Centropomus* and the lane snapper *Lutjanus synagris*. Catches also include, among others, the serra Spanish mackerel *Scomberomorus brasiliensis*, the crevalle jack *Caranx hippos*, and the blue runner *Caranx crysos*. The fishermen use wooden rowboats, some of which are also powered with outboard motors. Fishing gear includes cast nets in the Ciénaga de Tesca and the Bay of Cartagena, mostly lines in the marine sectors near Tierra Bomba, Barú, and Ararca, and some purse seines in the locality of Boquilla. The use of dynamite among Colombian artisanal fishermen for the capture of table- or baitfish has not yet been entirely banned.

Southwest of Cartagena and up to the Gulf of Urabá there is an industrial shrimp-trawl fishery directed at the white shrimp *Penaeus schmitti* in coastal waters, the pink shrimp *Penaeus notialis*, and the redspotted shrimp *Penaeus brasiliensis* in deeper areas. The fishing grounds for white shrimp are located mainly between depths of 7 and 15 m, and those of the other species, between depths of 10 and 20 m.

The fish fauna is typical for the soft bottoms throughout the entire area. The dominant species belong to the families Sciaenidae or croakers, Carangidae or jacks (juveniles and subadults), Lutjanidae or snappers (such as the lane snapper *Lutjanus synagris*), Haemulidae or grunts, Ariidae or catfishes (mainly the gafftopsail sea catfish *Bagre marinus*), Centropomidae or snooks (only in the immediate vicinity of the shore), and Gerreidae (mojarras of the genera *Diapterus* and *Eucinostomus*). The most abundant sharks are the Carcharhinidae or requiem sharks and the Sphyrnidae or hammerhead sharks. The Dasyatidae or stingrays are also common. This fauna is very similar to that of the Gulf of Venezuela, and partly to that of the Atlantic coast, even though many species typical of these areas are missing.

6. OTHER AREAS

In the Guajira of Colombia, from Cape San Juan de Guía (11° 22' N and 74° 00' W) to the border with Venezuela (Castilletes, 11° 51' N and 71° 19' 30" W), the fishing grounds on the shelf down to depths of 90 m are relatively wide only in the northern part, between Bibulla and Cape Vela. An industrial shrimp fishery operates throughout this zone with Florida-type boats of 19 to 22 m length, mainly between depths of 18 and 70 m, with highest yields between 40 and 70 m.

The species captured are the southern pink shrimp *Penaeus notialis* and the redspotted shrimp *P. brasiliensis*.

In Colombia there are coastal areas reserved exclusively for artisanal fisheries (Gulf of Urabá, Gulf of Morrosquillo, Barbacoas Bay, the coastal zone off the Ciénaga de Tesca and part of the Bay of Cartagena off the Ciénaga Grande de Santa Marta). These fisheries are subject to special protective regulations (a sanctuary for the flora and fauna of Los Flamencos and a National submarine park Los Corales del Rosario).

In the zone of Santa Marta, where the shelf is rather narrow and offers only rocky and coralline substrates, artisanal fisheries operate with regular-sized trammel nets. These capture scombrids (Scombridae) of the genera *Auxis*, *Sarda*, and *Scomberomorus*, and jacks (Carangidae) of the genera *Caranx*, *Selar*, and *Elagatis*. Line gear are also used for snappers (Lutjanidae) of the genera *Lutjanus* and *Ocyurus*, groupers (Serranidae) of the genera *Epinephelus*, *Serranus*, and *Mycteroperca*, grunts (Haemulidae) and barracudas (Sphyraenidae). In recent years, the utilization of plastic and metal traps for the capture of lobsters (*Panulirus argus* and *P. laevicauda*) has resulted in an increase of the catches of groupers, snappers (*Rhomboplites aurorubens*, *Lutjanus synagris*, *L. purpureus*, *Pristipomoides aquilonaris*), and triggerfishes (*Balistes* spp.).

III. FISHING GEAR

1. ARTISANAL FISHERIES

The artisanal fisheries are highly developed, mainly along the coasts of Venezuela. For this reason the nets and line fishing gear are very diversified.

1.1. Nets

Beach nets

Beach nets are found along the entire northern coast of South America. They are used on gently sloping beaches and are hauled on shore manually by several fishermen at each end, or by boats up to the waterline. This net has the shape of a very long rectangle, and consists of a rather fine-meshed central cup made of stronger twine, where the fish gathers, and the lateral wings or "mangas." The upper headline bears the floaters and the lower, the lead weights.

There are two main types of beach nets. The floating beach net in which the lead weights do not touch

the bottom until the net is near to the shoreline, and the bottom beach net or "mandinga" where the lower headline starts scraping the bottom from the moment the net has been laid out. The floating net is also called a beach seine, although presently this designation is generally applied to all types and sizes of beach nets.

The features of this gear vary in relation to the species for which it is designed. Such variations refer especially to mesh size, type of cup, and thickness of twine. Some special types of beach nets are, for example, the wide-meshed and strong "picuero" used for the capture of the barracuda *Sphyraena barracuda*, the fine-meshed and light "sardinero" used for the sardine *Sardinella aurita*, and the "lisero" for mullets of the genus *Mugil*. Other types of beach nets are the "jurelero" and the "caranchero" (for certain carangid species).

The "sardinero" is not hauled to the shore, but closed in a circle near the shoreline, allowing the sardine to stay alive and be removed for sale in accordance with the market demand.

Purse seines

As the name suggests, these nets are not hauled onto the shore. Instead they are closed in the water by a rope (jareta) that runs through a set of rings attached to the lower headline.

Set nets

These so-called "tendedores" are simple square pieces of net cloth sown together in order to provide the desired length. The net functions like a curtain fixed on the sea bottom by anchors or grapplings, while the upper line is provided with floaters. The net can be fixed directly on the bottom, or at any distance from it, and is usually laid out in the evening and hauled in very early in the morning. This type of setting is called "tendedor fijo o de fondo" (fixed or bottom set net). Another widely used type of setting is the "tendedor aboyao o derivante" (drifting set net), where the gear is attached by a line to the prow of the boat, which drifts with the wind and the currents, dragging along the net. This type of gear is also operated between evening and dawn. When the net is composed of 3 curtains, the mesh size in the central piece is smaller than in the lateral pieces, and the gear is generally called trammel net.

The use of set nets has become widespread in recent years, especially for the capture of pelagic fishes. Mesh size and thickness of twine vary with the type of fish for which the net is designed. For example the "rayero" or "chuchero," with a mesh size of up to 18 inches and very strong twine, is used for stingrays of the genus *Dasyatis* or eagle rays of the genera *Aetobatus* and *Myliobatis*. In the "cazonera," a net designed for shark fishing, the meshes are somewhat smaller (from 9 to 16 inches). The "cariteros" are used for Spanish mackerels of the genus *Scomberomorus*, and the "anchoeros", for the bluefish *Pomatomus saltatrix*.

A very special type of set net is the "fisero" used for mullets. It is laid out so as to intercept the passage of a fish school, and there is a pronounced curve or "codillo" at each end. When the mullets come to the front part of the net, they deviate to the sides and get firmly entangled in one of the "codillos."

Cast nets (atarrayas or tarrayas)

They are mainly used for catching mullets, mojaras and other species that inhabit shallow waters, or species from deeper waters that come very near to the shoreline. The simple type of cast net is thrown by the fisherman or "tarrayero" and may land at any distance from him. The ring cast net (atarraya de anillo) remains attached to the fisherman by a rope passing through a ring at the top of the net and then divides into numerous strings of equal length leading to the base of the net. In this way the "tarrayero" may retrieve the gear even when it sinks under the water surface. Obviously, this latter type is generally used when fishing from a boat, whereas the simple type is used by fishermen walking on the beach or in very shallow water.

1.2. Traps

Traps and pots are widely used throughout the southern coast of the Caribbean sea, especially in insular areas or along rocky or coralline continental coasts where the possibilities for the use of nets are restricted. The traps are made of the iron mesh for chicken coves and are flat and hexagonal, with two of the sides forming a concave, funnel-shaped angle. They are mainly used for catching lobsters, but also many fish species, especially grunts (Haemulidae), groupers (Serranidae), snappers (Lutjanidae), and the entire spectrum of typical coral reef fishes. The traps are often laid out in groups of 2 or 3 units connected by a rope ("enyuges"). They are hauled in by dredging the bottom with a set of grapplings or a small net.

1.3. Line gear

Simple hooks and lines are used while fishing with live bait. The bait, usually sardine, is brought along in tanks, the boat is anchored at the fishing site and the bait thrown into a small net held under water to attract the fish. Subsequently, the hooks are baited with live sardine and fishing begins.

The technique used while fishing with dead bait may require a single hook-and-line ("rendal") or several hooks ("balestrilla") attached to a line that ends in a thick wire bearing the lead weight. A rope ("rendal") leads from the lead weight to the boat and is held by the fisherman. The "balestrilla" is generally used for fishing red snappers in deep water over the slope off the Guianas; there are several models of "balestrilla."

Artisanal fishermen also use bottom longlines consisting of a main rope variable in length, to which many lines ending in hooks are attached at regular intervals. They are mostly used for the capture of demersal sharks and many other bottom-living fish species.

The "potera" or "potero" is used for fishing squids. Its terminal iron piece consists of a fusiform rod ending in a rosette of curved hooks.

Another technique commonly employed is trolling ("pesca al curricán"). It uses natural or artificial decoys or lures. The lines are attached to the ends of wooden lateral outriggers. The decoys are mostly the same as those used by sportsfishermen: metallic spoons ("cucharas"), feathers ("plumas"), and others. Natural decoys are preferably sardine *Sardinella aurita*, or other clupeid and engraulid species. The "curricán" is mainly used for fishing scombrids, such as Spanish mackerels (*Scomberomorus*), bonito (*Sarda sarda*), frigate mackerels (*Auxis* spp.), and little tunny (*Euthynnus alletteratus*), but also for jacks of the genus *Caranx* and dolphinfish (*Coryphaena*).

1.4. Manual gear

Several types of harpoons ("arpones", "fisgas" and "puyos") constitute auxiliary instruments of hook-and-line fishing. They are mainly used for killing and hoisting on board large fish. They are rarely used nowadays, as a result of the development of scuba-diving.

1.5. Dredges

These fine-meshed nets generally have a rigid steel frame and are trawled from boats. They are mainly used for fishing molluscs such as the Turkey wing *Arca zebra* or the Atlantic pearl oyster *Pinctada imbricata*.

1.6. Fishing with lights

In Colombia as well as in Venezuela, artisanal fishermen use artificial lights to attract and concentrate the fish in order to facilitate its capture. In the bays of Taganga and Santa Marta (Colombia), light-fishing is used to capture the bigeye scad *Selar crumenophthalmus*, and also other carangids such as the rough scad *Trachurus lathami* and the Atlantic bumper *Chloroscombrus chrysurus*, and scombrids such as frigate mackerels (*Auxis* spp.). This operation is performed from small boats ("cayucos") of 2.5 to 6 m length, manned by two fishermen, one at the prow and the other at the stern. Once on the fishing site, the fishermen use hand lines with 1 to 4 hooks and a lead weight, while a gasoline lamp attached to the mast (1 m above the rim of the boat rim and 1 to 1.5 m from the stern) throws light on the sea surface. This operation is highly effective, and the fishermen operate

fine-meshed scoop nets to capture the fish schools that surround the boat.

In Venezuela, the fishermen of some areas, such as the Araya peninsula, also use artificial light to capture carangids and other fishes. Every fishing unit consists of 3 small boats of 6 to 7 m length ("peñeros") equipped with outboard motors. The "mother" boat carries an electrical unit of about 500 W with 5 or 6 bulbs of 40 to 50 W each. The two auxiliary boats encircle the fish with a purse seine of about 200 to 300 m length and 35 to 60 m height. The most important among the species caught by this fishery are the rough scad *Trachurus lathami*, the Atlantic moonfish *Selene setapinnis*, the chub mackerel *Scomber japonicus*, and the Atlantic cutlassfish *Trichiurus lepturus*.

2. INDUSTRIAL FISHERY

2.1. Oceanic fishery

Three types of tuna vessels operate in the southern part of the Caribbean as well as in offshore waters along the entire Atlantic coast: purse seiners ("cerqueros") using enormous nets, trolling vessels ("cañeros"), and longliners ("palangreros"). The largest and most modern of these boats are the purse

seiners. The trolling vessels and the longliners use sardine as bait.

2.2. Trawl fishery

Shrimp resources are exploited throughout the area, from Colombia to Suriname, by trawlers of 18 to 25 m length, mostly of the Florida type, which operate with two otter trawls. There are only a few vessels using a single stern trawl for the exploitation of finfish species. These are larger than the shrimp trawlers and operate in deeper waters.

3. SPORTS FISHING

In the southern part of the Caribbean, and mainly off the central coast of Venezuela, there is a concentration area of billfishes called "Placer de la Guaira," which is subjected to an intensive trolling sports fishery. The most important species captured by this fishery are the sailfish *Istiophorus albicans*, the blue marlin *Makaira nigricans* and the white marlin *Tetrapturus albidus*.

SEAWEEDS

For many centuries, the use of seaweeds by man had been restricted to China, Japan, and other countries of the Far East. In 1947 seaweed exploitation began to develop in South American countries when Chile started exploiting the vast seaweed beds along its coast. A few years later other nations, in particular Argentina and Brazil, followed with seaweed survey programmes and harvesting activities on their natural seaweed beds, mainly for the production of gelatine.

In the northern countries of South America, seaweeds were not exploited until the middle of our century, except in Trinidad and Tobago, where harvesting of "Moby," a red seaweed of the genus *Gracilaria*, used in the preparation of jellies, constitutes an ancient tradition. In the course of the sixties, other countries bordering our area initiated applied algological studies with a view to exploiting these resources.

The green algae, or Chlorophyta, are very well represented along the tropical coasts of America. In our area they include about 40 genera and 130 species. Some of these genera, such as *Enteromorpha*, *Ulva*, *Bryopsis*, *Codium*, *Caulerpa*, and *Gayralia* (*Monostroma*), are of great economic importance, not only as human food, but also in pharmacology and cosmetics, as animal feeds, in the preparation of food concentrates, and as manure in agriculture. Apparently none of these species are exploited in the area at present. However, some experimental studies on their possible utilization have already been undertaken, such as the marketing of chicken feed concentrates prepared from *Ulva* and *Enteromorpha*. The Faculty of Pharmacology of the University of Los Andes, Venezuela, has performed some experimental work on the use of seaweeds in pharmacology. They have extracted certain substances from green seaweeds known as typhing compounds which are chemical reagents used for the identification of blood groups. In countries located in higher latitudes, including some Caribbean islands such as Grenada, Barbados, Antigua, St. Kitts, Jamaica, and Cuba, some species of the 6 above-mentioned genera are already used regularly as human food. In Trinidad, the species *Ulva lactuca* (sea lettuce) is consumed in salads or in fermented beverages (bush tea), which reportedly has curative properties.

The brown algae, or Phaeophyta, are represented in the area by about 27 genera and 79 species. Only the genera *Sargassum* and *Turbinaria* have species that might prove of potential commercial importance. They are possible sources of alginic acid, a phycocolloid contained in the cell walls of brown algae constituting a basic component in the preparation of alginates (salts of alginic acid). These polymers are in great demand in international markets. However, the world's principal sources of alginates are not from these tropical species, but from the large brown seaweeds occurring in cold waters known as "kelps" (*Macrocystis*, *Nereocytis*, *Lessonia*, and others). Alginates obtained from *Sargassum* and *Turbinaria* are often poor in viscosity and hence, the species of these genera are less valuable than those occurring in cold waters. However, the alginates originating from warm-water species of *Sargassum* and *Turbinaria* are particularly well-suited for the production of heavy gels because of their content of the alginates manuronic and the guluronic acid (the M/G ratio). About 15 species of *Sargassum* are known from our area, including *S. flutans* from Colombian waters. Also reported from this country, but restricted to San Andrés island (just outside our area), is *S. natans*. In the genus *Turbinaria*, only *T. turbinata* and *T. tricornata* are reported from the area. Both *Turbinaria* and *Sargassum* are used in the alginate industry in India. Alginates are widely used as stabilizing agents for ice creams and other cream products, as thickening agents for puddings and custards, and as homogenizers in sauces and food dressings. In the pharmacological industry they find manifold applications because of their colloidal properties as emulsifiers, mainly in the preparation of syrups, medicine capsules, and others. Furthermore, they are used in the preparation of paints, detergents, cosmetics, beer, and for textiles, in sugar refinery, in photography, in ceramics, and many more. Finally, species of *Sargassum* and *Turbinaria* are used as animal feeds and as manure.

The red algae, or Rhodophyta, include the large majority of seaweeds occurring along the northern coast of South America, with about 115 genera and 275 species. They also include the largest number of economically important species in tropical regions. Some, such as species of the genera *Porphyra* (in Japanese, "Nori"), *Halymenia*, and *Gracilaria* are utilized directly as food. Other genera are important sources of agar and various types of carrageenan (Kappa, Lambda, Iota, etc.). Agar is well known for its use in culture media in microbiology. In the area, the principal genera rich in carrageenan are *Meristiella*, *Hypnea*, and *Gigartina*. On the other hand, *Gelidium*, *Pterocladia*, *Gracilaria*, *Gelidiella*, *Gracilariopsis*, and *Bryothamnion* contain agar.

MOST COMMON SPECIES OF COMMERCIAL VALUE IN THE AREA

The presentation that follows includes, for each species, a brief diagnosis and general information on geographical distribution in the Western Atlantic, habitat and potential utilization.

DIVISION CHLOROPHYTA

Enteromorpha flexuosa (Wulfen) J. Agardh

Common names:

Diagnosis: Green plant consisting of a tubular frond, narrow and cylindrical at its base and gradually expanding distally. Branches confined to the basal portion. Height to about 15 cm, and about 1 cm in diameter, tapering towards the top.

Distribution and habitat: From Bermuda and North Carolina (USA) to Uruguay. Occurs in the intertidal zone, predominantly on rocks.

Utilization: Food.



Enteromorpha intestinalis (Linnaeus) Nees

Common names:

Diagnosis: Light green plant. Tubular, branched at base, gradually expanding toward the top, and presenting a series of constrictions giving them an intestine-like appearance. Height to 10 cm or more.

Distribution and habitat: From Bermuda and North Carolina (USA) to Uruguay. Grows in the intertidal zone.

Utilization: Food.



***Gayralia oxysperma* (Kutzing) Vinogradova**

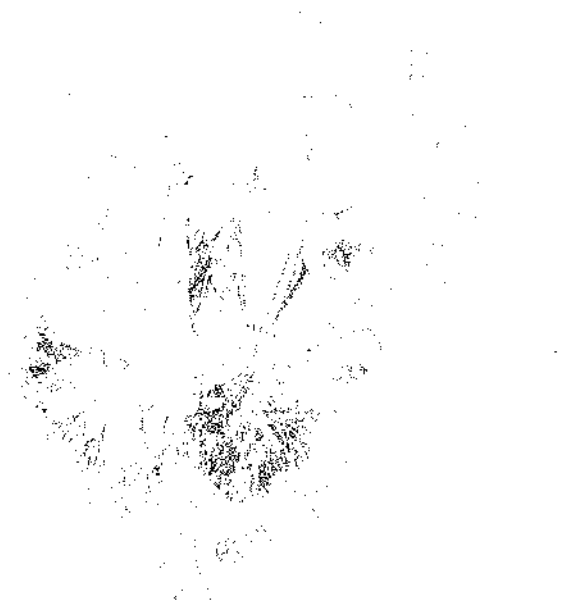
Synonyms: *Monostroma oxysperma* (Kutzing) Thuret, *Ulvaria oxysperma* (Kutzing) Bliding.

Common names:

Diagnosis: Delicate, light green plant with an expanded laminar thallus. Microscopic structure: a single cell layer. Height 2-7 cm.

Distribution and habitat: From Bermuda and North Carolina (USA) to Brazil. Grows on hard substrates of the intertidal zone, in still water.

Utilization: Food.



***Ulva fasciata* Delile**

Common names:

Diagnosis: Light green plant. Thallus composed of lamellose bands. Microscopic structure: 2 cell layers. Length of bands up to 5 m.

Distribution and habitat: From Bermuda and North Carolina (USA) to Uruguay. Grows mainly in the intertidal zone, in moderately exposed areas.

Utilization: Food.



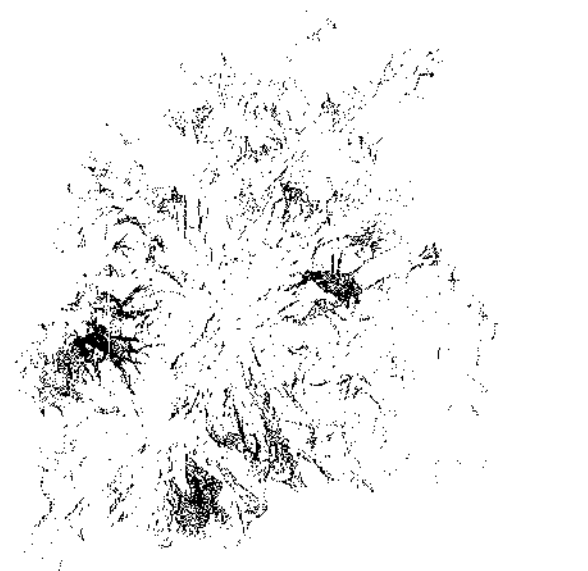
***Ulva lactuca* Linnaeus**

Common names:

Diagnosis: Light green plant. Thallus formed by expanded laminae. Microscopic structure: 2 cell layers. Height 20 cm or more.

Distribution and habitat: From Bermuda and Florida (USA) to Brazil. Grows predominantly in the intertidal zone, in moderately still water.

Utilization: Food.



CHLOROPHYTA

Bryopsis plumosa (Hudson) C. Agardh**Common names:**

Diagnosis: Olive green plant consisting of a main axis, simple basally, but with pinnulate branches in the upper regions that give the thallus a triangular shape. Height to 10 cm.

Distribution and habitat: From Bermuda and North Carolina (USA) to Uruguay. Grows usually around the low-tide level.

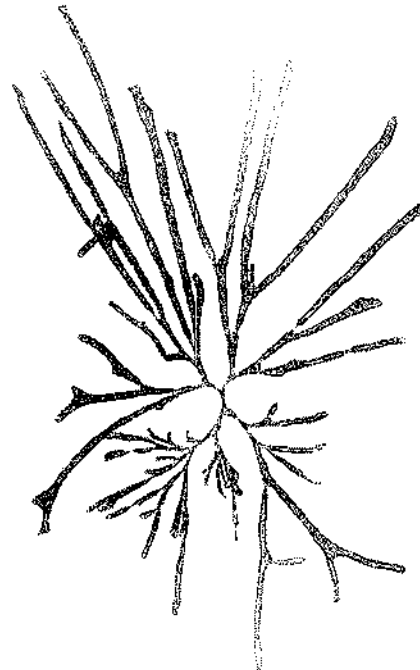
Utilization: Pharmacology.

*Codium decorticatum* (Woodward) Howe**Common names:**

Diagnosis: Erect, dark green plant with many axes of spongy consistency, cylindrical toward the apical portions, but flattened in the regions of dichotomous branches. Diameter of cylindrical axes 0.5-2.5 cm. Height to 50 cm or more.

Distribution and habitat: From Bermuda and North Carolina (USA) to Uruguay. Grows on rocks in shallow water.

Utilization: Pharmacology.

*Caulerpa racemosa* (Forsskål) J. Agardh**Common names:**

Diagnosis: Green plant. Thallus consisting of a basal rhizoid-bearing stolon giving rise to cylindrical axes covered with close-set, short, nearly spherical branchlets resembling a cluster of grapes. Height to 20 cm.

Distribution and habitat: From Bermuda and Florida (USA) to Brazil. Grows in the sublittoral zone on sand, sandy clay, rocks or coral.

Utilization: Food.



Caulerpa sertularioides* (S.G. Gmelin) Howe*Common names:**

Diagnosis: Green plant. Thallus consisting of a basic rhizoid-bearing stolon from which arise cylindrical, pinnulate (feather-like) axes which may be branched. Height to 20 cm.

Distribution and habitat: From Bermuda and Florida (USA) to Brazil. Grows on sand, sandy clay or small stones, in the sublittoral zone.

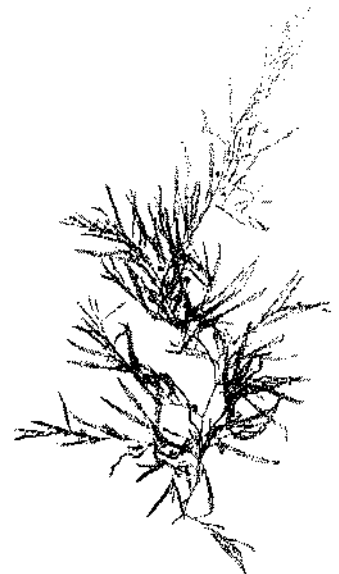
Utilization: Food.

**DIVISION PHAEOPHYTA*****Sargassum filipendula* C. Agardh****Common names:**

Diagnosis: Brown plant. Basal portion lobulate, giving rise to sparsely branched main axes, but with secondary lateral branchlets giving the thallus a conical appearance. Filoids linear or oblong, with serrate margins. Maximum height about 1 m.

Distribution and habitat: From Bermuda and North Carolina (USA) to Brazil. Grows on rocks, corals or shells, from the intertidal zone to depths of 10-15 m.

Utilization: Extraction of alginates.

***Sargassum vulgare* C. Agardh****Common names:**

Diagnosis: Greenish brown plant. Attached to the substrate by a well defined basal portion, which gives rise to erect axes with lateral branches of 4-12 cm in length; the branches bear lanceolate to lanceolate-oblong filoids (1-4 cm long and 2-10 mm broad). Numerous aerocysts appearing as verrucose, long and dichotomously branched receptacles. Height to 60 cm.

Distribution and habitat: From Bermuda and Florida (USA) to Brazil. Grows on rocks or corals, from the low-tide level to 3-4 m depth.

Utilization: Extraction of alginates.



Turbinaria tricostata Barton

Common names:

Diagnosis: Erect brown plant. Attached to the substrate by an expanded rhizome-like base giving rise to well spaced, erect and cylindrical axes. Branches short, bearing pelted or pyramidal folial organs, margins usually toothed, distal portion truncate, without vesicles. Height to about 15 cm.

Distribution and habitat: Caribbean islands, San Andrés and Providencia (Colombia), Los Roques, La Blanquilla, Los Hermanos and Cayo Sombrero (Venezuela). Grows on rocks or corals, in or below the intertidal zone.

Utilization: Extraction of alginates.



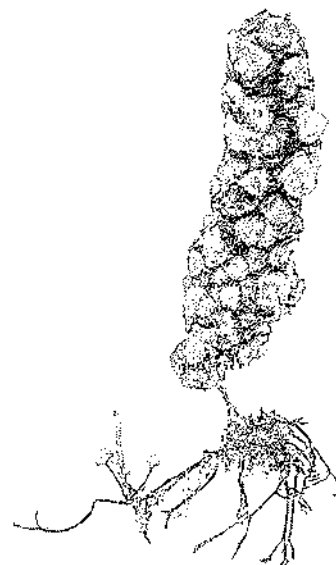
Turbinaria turbinata (Linnaeus) Kuntze

Common names:

Diagnosis: Brown plant. Attached to the substrate by an expanded rhizome-like basal portion, which gives rise to erect, simple or branched cylindrical axes. Branches short and numerous, bearing pelted or pyramidal folial organs with straight margins and a central vesicle distally. Height 40 cm or more.

Distribution and habitat: From Florida (USA) to Brazil. Grows on coral rocks in or below the intertidal zone.

Utilization: Extraction of alginates.



DIVISION RHODOPHYTA

Porphyra spiralis Oliveira and coll.

var. *amplifolia* Oliveira and coll.

Common names:

Diagnosis: Mauve-coloured plant. Thallus laminar, membranaceous. Laminae elongate, lobulate. Microscopic structure: a single cell layer. A heteromorph species, with a laminar macroscopic gametangial and a filamentous microscopic sporangial phase. Height to about 18 cm.

Distribution and habitat: Colombia, Venezuela and Brazil. Grows in the upper intertidal and in the supralittoral zones, on water-washed rocks in areas of strong wave action.

Utilization: Food.



Gelidium serrulatum J. Agardh**Common names:**

Diagnosis: Strong, dark red plant. Attached to the substrate by a fibrous basal portion. Main axis simple at base, but branched in its distal portions, 3-4 times pinnate. Cystocarps with 2 pores. Height to about 32 cm.

Distribution and habitat: Venezuela and Trinidad. Grows on rocks in the intertidal zone, in areas of strong wave action.

Utilization: Extraction of agar.

*Pterocladia capillacea* (S.G. Gmelin) Bornet and Thuret**Common names:**

Diagnosis: Erect, gregarious, purple red plant. Basal portion stoloniferous. Axes with irregular, alternating, pinnate branches; usually, the distal branches of the main axis are shorter than those originating in the middle and proximal portions. Microscopic structure: cortex with small, elongate cells, medulla with larger irregular, thick-walled cells; rhizines present in medulla. Cystocarps with a single pore. Height to 22 cm.

Distribution and habitat: From North Carolina (USA) to Brazil. Grows on rocks in the upper intertidal zone, in exposed areas.

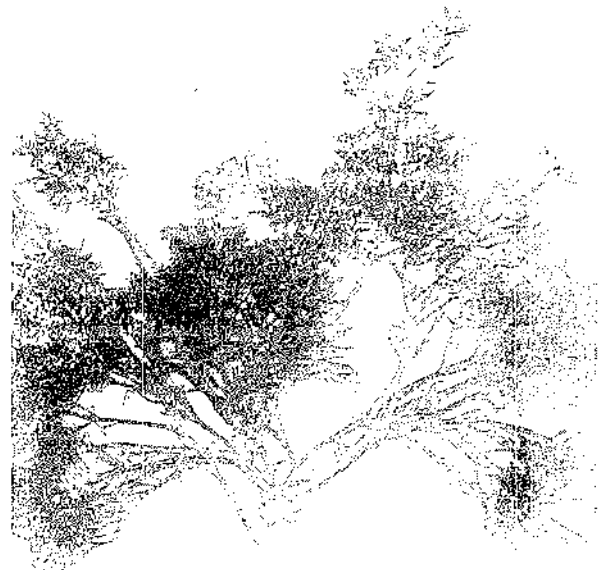
Utilization: Extraction of agar.

*Gelidiella acerosa* (Forsskål) J. Feldmann and Hamel**Common names:**

Diagnosis: Plant with cylindrical to slightly compressed cartilaginous axes, either straight or sometimes curved, originating from a decumbent basal portion that is attached to the substrate by means of stoloniferous rhizoids. Branches distichous and opposed.

Distribution and habitat: From Bermuda and Florida (USA) to Brazil. Grows on rocks in the intertidal zone.

Utilization: Extraction of agar.



RHODOPHYTA

Gracilaria cornea* J. Agardh*Common names:**

Diagnosis: Plant with terete to subterete axes, 3-6 mm in diameter, some of them curved. Numerous branches, alternating irregularly; the terminal branchlets may be whip-like. Cystocarps prominent, 1 mm in diameter. Height 20 cm.

Distribution and habitat: From Florida (USA) to Brazil. Grows in shallow waters of the sublittoral zone.

Utilization: Extraction of agar.

Note: Bird, De Oliveira and McLachlan (1986) apply this name to plants of the western Atlantic referred to as *Gracilaria debilis* and *Polycavernosa debilis*.

Gracilaria domingensis* (Kutzing) Sonder ax Dickie*Common names:**

Diagnosis: Violet red plant. Main axis and secondary branches flattened, 2-10 mm in width; main branches subdichotomous, secondary branches pinnate, with subcylindrical lateral branchlets. Height about 40 cm.

Distribution and habitat: From Costa Rica to Brazil. Usually grows in shallow water of the sublittoral zone.

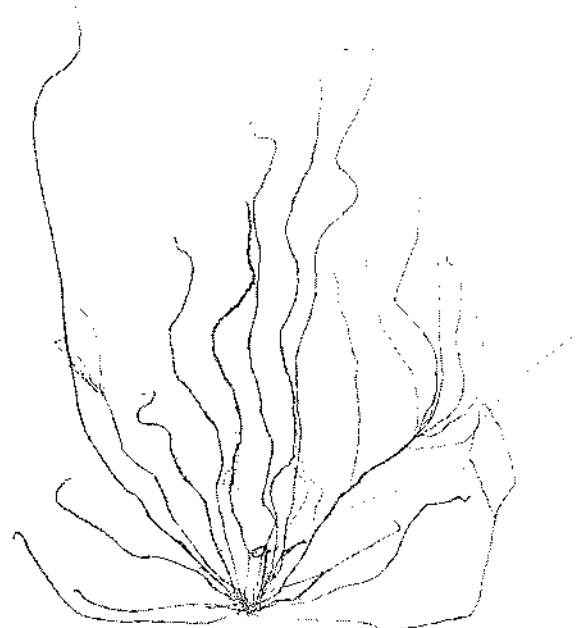
Utilization: Extraction of agar.

***Gracilaria verrucosa* (Hudson) Papenfuss****Common names:**

Diagnosis: Purple, brownish red to greenish plant with terete axes, 0.5-2.5 mm in diameter. Branches radial to dichotomous, with numerous proliferations; terminal branchlets with slender tips. Length to 2 m.

Distribution and habitat: From Bermuda and North Carolina (USA) to Brazil. Usually grows in shallow water of the intertidal zone.

Utilization: Extraction of agar.



Gracilariopsis tenuifrons (Bird and Oliveira) Fredericq and Hommersand

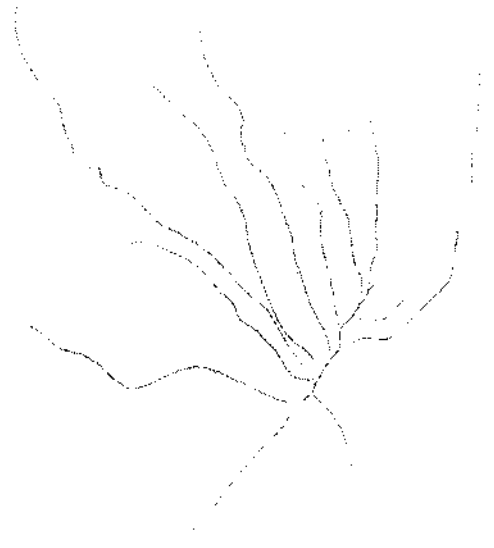
Common names:

Diagnosis: Greenish brown to dark brown plant, with terete axes, 0.3-1.5 mm in diameter. The axes tend to branch dichotomously in the proximal portion, and become fewer and irregular toward the middle and distal zones; ends of branchlets sharply pointed. Cystocarps conspicuous. Length to about 1.50 m or more.

Distribution and habitat: Venezuela. Grows in shallow water, predominantly in the intertidal zone.

Utilization: Extraction of agar.

Note: The differences between the genera *Gracilaria* Greville and *Gracilariopsis* Dawson, are based on microscopic internal structures, mainly relating to the ontogeny of the spermatangial phase and to the development after fertilization (Bird and Rice, 1990); it is therefore difficult to distinguish *Gracilaria verrucosa* from *Gracilariopsis tenuifrons* on the basis of external morphological features.



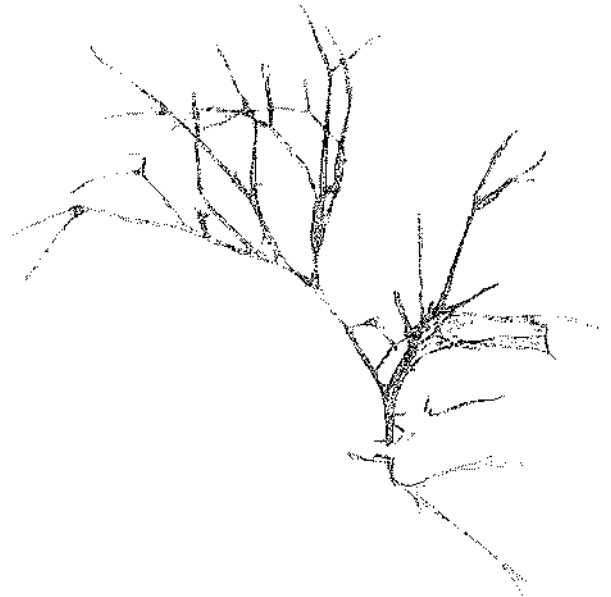
Gymnogongrus griffithsiae (Turner) Martius

Common names:

Diagnosis: Plant forms dark purple tufts. Axes cylindrical and repeatedly branched toward the basal regions, but flat and not broader than 1 mm toward the upper regions. Cystocarps located in the centre of the axes, generally encircling them. Height to about 5 cm.

Distribution and habitat: From North Carolina (USA) to Argentina. Grows usually in the intertidal zone.

Utilization: Extraction of carrageenan.



Gymnogongrus tenuis J. Agardh

Common names:

Diagnosis: Light purple-coloured plant. Axes band-like, about 2 mm broad, repeatedly branched. Cystocarps located toward the middle and upper portions of the axes, with unilateral projections not covering the entire contour of axes. Height to 6 cm.

Distribution and habitat: From Mexico to Trinidad. Usually grows in the intertidal zone.

Utilization: Extraction of carrageenan.



Hypnea musciformis (Wulfen) Lamouroux

Common names:

Diagnosis: Violet-olive plant. Profusely branched. Main axes slender, about 0.8-1.5 mm in diameter, secondary branchlets thinner; apical portions of terminal branchlets usually hook-like; numerous short branchlets present as proliferations along the axes. Main axis up to 20 cm long.

Distribution and habitat: From Bermuda and North Carolina (USA) to Argentina. Grows submerged on hard substrates; also epiphytic on seaweeds and fanerogams.

Utilization: Extraction of carrageenan.



Gigartina acicularis (Roth) Lamouroux

Common names:

Diagnosis: Erect, purple or dark green plant. Axes cylindrical, densely branched in different planes, their diameter ranging from 0.4 to 1 mm; branchlets usually becoming slender toward base, apices sharply pointed. Height to 8 cm.

Distribution and habitat: From North Carolina (USA) to Brazil. Grows in shallow water.

Utilization: Extraction of carrageenan.



Halymenia floresia (Clemente) C. Agardh

Common names:

Diagnosis: Foliaceous, pinkish violet plant, gelatinous to the touch. Attached to the substrate by a basal disk giving rise to a pedicel of about 1 cm length and 2 mm width, from which originates a lamina; type of branching subdichotomous or pinnate; secondary branches with numerous marginal branchlets, bipinnate to the third order. They may reach heights of 45 cm.

Distribution and habitat: From North Carolina (USA) to Brazil. Grows in depths of about 10 m.

Utilization: Extraction of carrageenan.



Solieria filiformis* (Kützinger) Gabrielson*Common names:**

Diagnosis: Delicate, red to pale purple plant, with cylindrical axes of 1-5 mm in diameter, basal portion fibrous. Type of branching alternately radial or irregular; branches with constrictions at bases, apical portions pointed. Height to 20 cm.

Distribution and habitat: From North Carolina (USA) to Brazil. Grows in the upper part of the sublittoral zone.

Utilization: Extraction of carrageenan.

Note: Ganesan (1989), following the synonymy of Gabrielson (1985), refers this name to *Agardhiella tenera* and *Solieria tenera*, reported from the area by different authors.

***Meristiella gelidium* (J. Agardh) Cheney and Gabrielson****Common names:**

Diagnosis: Subcartilaginous plant, fronds somewhat flattened. Main axis with sparse, terete or flattened branches; branches repeatedly pinnate, margins sub-entire or with dense, spinulose proliferations. Height 12 cm.

Distribution and habitat: From Bermuda and North Carolina (USA) to Brazil. Grows in shallow water.

Utilization: Extraction of carrageenan.

Note: According to Ganesan (1989), this genus is synonymous with *Euclima*.

***Ceramium nitens* (C. Agardh) J. Agardh****Common names:**

Diagnosis: Plant grows in pink tufts. Main axes 0.6-0.85 mm in diameter. Branching dicotomous, terminal branchlets curved. Axial cells broader than long (length 2-3 times in width); the cortical cells overgrow the axes entirely. Height to 10 cm.

Distribution and habitat: From Bermuda and Florida (USA) to Venezuela. Grows on rocks in still, shallow waters, but may occur in greater depths. This species may be found growing together with seaweeds of other genera.

Utilization: Extraction of agar.



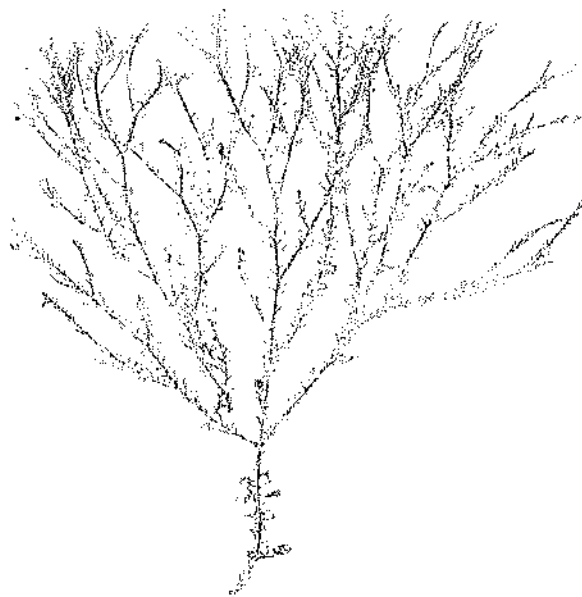
RHODOPHYTA

Bryothamnion seaforthii* (Turner) Kützting*Common names:**

Diagnosis: Erect plant. Axes compressed, about 1 mm broad with numerous alternating pinnate branches. Microscopic structure: polysiphonal, with 8-9 large pericentral cells; axes corticate. Height to 15 cm.

Distribution and habitat: From Florida (USA) to Brazil. Usually found in shallow water, although it has been reported from greater depths (30 m).

Utilization: Extraction of agar.

***Acanthophora spicifera* (Vahl) Borgesen****Common names:**

Diagnosis: Erect plant. Axes cylindrical, 0.8-2.0 mm in diameter. Branching alternate; axes and branches with numerous short branchlets ending in spinose bodies (usually with 4 spinules); trichoblasts present on the short branchlets. Height to 20 cm.

Distribution and habitat: From Bermuda and Florida (USA) to Brazil. Grows in shallow water, often in areas exposed to wave action.

Utilization: Food.

***Laurencia papillosa* (C. Agardh) Grevill****Common names:**

Diagnosis: Plant ranging in colour from olive green to red. Densely branched, with a central axis tending to branch alternately; most secondary branches oriented radially; terminal branchlets set on the axes so as to give them an elongate-pyramidal appearance. Height to 10 cm.

Distribution and habitat: From Bermuda and Florida (USA) to Brazil.

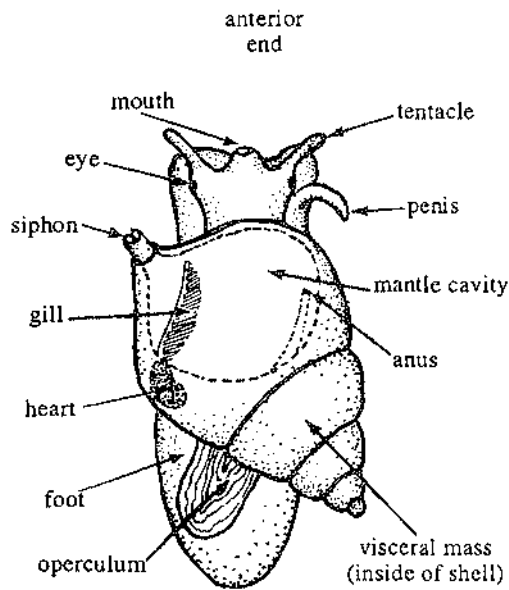
Utilization: Food.



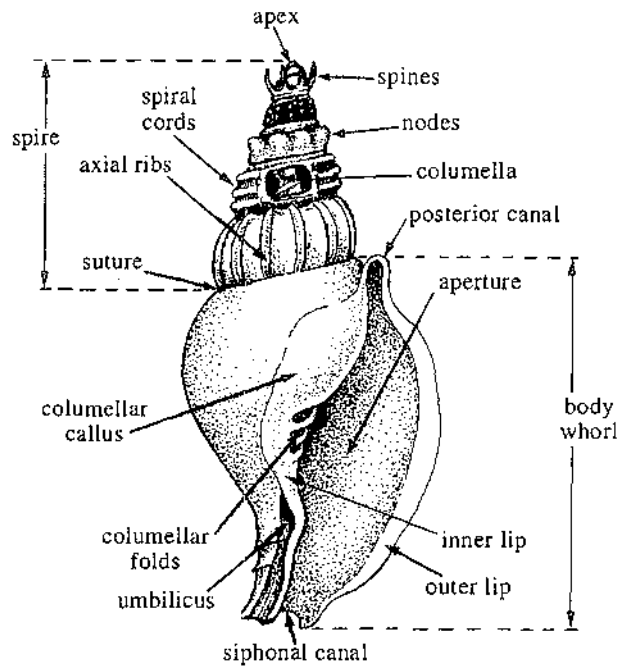
GASTROPODS

At present gastropods are considered a fishery resource of secondary importance along the entire northern coast of South America. Species of moderate to large size are marketed and consumed locally, raw or cooked (in soups and sauces), and the most attractive shells are sold as ornaments. The 42 gastropod species included in this field guide belong to 13 families. They have been selected on the basis of available data on their presence in local markets and they represent only a small fraction of the highly diversified gastropod fauna occurring in our area.

TECHNICAL TERMS AND MEASUREMENTS



dorsal view of animal
(shell removed)



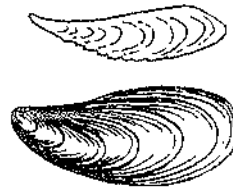
ventral view
of shell



multispiral



paucispiral



elliptical



calcareous

operculum types

GLOSSARY OF TECHNICAL TERMS

Aperture: the opening in the last whorl, providing an outlet for the head and foot. In a coiled shell, the border of the aperture closest to the coiling axis is the inner lip, while the opposite border is the outer lip.

Apex: the usually pointed top end of the shell that is formed first.

Axial: see "Sculpture".

Callus: smooth thickening of the inner lip of the aperture covering the columella.

Columella: central coiling axis of the shell constituting the lower part of the inner lip. The columella may be solid or hollow (umbilical cavity).

Last whorl (or body whorl): the largest and most recent whorl of a coiled shell.

Lip: see "Aperture".

Nucleus: part of the operculum generated first.

Operculum: a horny or calcareous body attached to the foot; it seals the aperture when the animal withdraws into the shell.

Periostracum: an outer layer of thin or thick chitinous or horny material covering the shell.

Sculpture: raised elements (ribs, cords, varices, grooves, tubercles, threads, etc.) on the outer surface of the shell. When these elements encircle the whorls parallel to the sutures, they are called "spiral" sculpture; when they are parallel to the coiling axis, they are termed "axial" sculpture.

Shoulder: a spiral crest on a whorl.

Spiral: see "Sculpture".

Spire: the whorls at the top or narrow end of the shell (excluding the last, or body whorl).

Suture: continuous spiral line or groove on the shell surface where the whorls join.

Siphonal canal: channelled or tubular anterior extension of the aperture giving passage to a fleshy siphon.

Umbilicus: a central cavity at the base of the columella.

Varices: axial ribs on the outer shell surface, generated by the thickening of the outer lip of the aperture during successive growth phases.

GUIDELINES FOR THE IDENTIFICATION OF FAMILIES

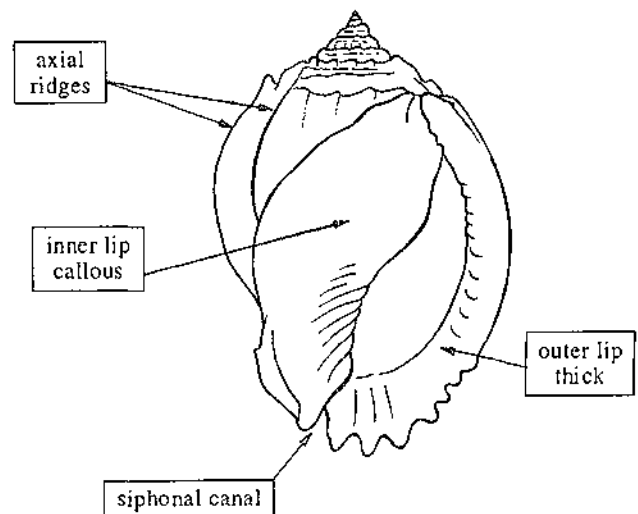
The following guidelines are intended to facilitate the identification of those gastropod families that include marine or brackish-water species regularly exploited or occasionally found in local markets. These families represent only a small fraction of the gastropod fauna occurring in the area, and their number is likely to increase as more reliable information on gastropod fisheries and consumption will become available.

For practical reasons, the family diagnoses presented below are based, wherever possible, on shell features. In a few cases, however, additional reference to anatomical features of soft parts of the animals was unavoidable, in order to ensure correct identification. All diagnostic characters used here are applicable exclusively to species occurring in the area.

CASSIDAE

page 36

Shell medium-sized to large, thick and heavy, with spiral or nodular sculpture. Spire more or less developed. Aperture elongate, with a short siphonal canal curved dorsally. Inner lip with a well developed shield-like callus. Outer lip thickened, often denticulate; previous outer lips sometimes retained on earlier whorls as axial ridges. No periostracum. Operculum horny, quite small.

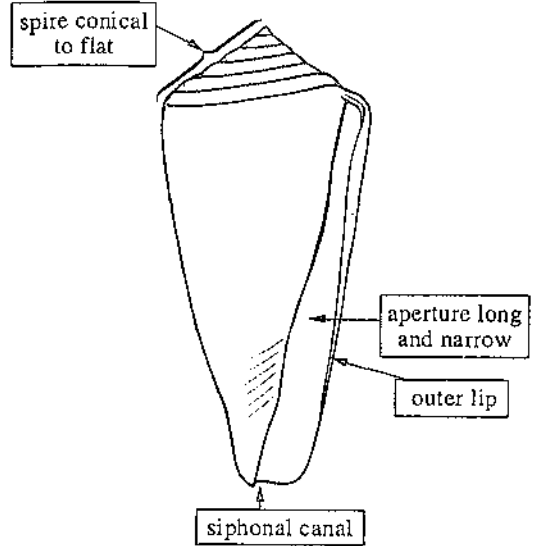


CONIDAE

page 37

Shell usually cone-shaped, with a relatively low conical to flat spire and a well developed body whorl tapering towards the pointed anterior end. Aperture long and narrow, with a notch posteriorly, and a short wide siphonal canal anteriorly. Inner lip without callus, outer lip smooth and thin. Periostracum often well developed, sometimes obscuring the external colour patterns. Operculum quite small, elongate.

Active predators, armed with sharp, arrow-like teeth and a poisonous gland that secretes a powerful nerve toxin. Although the stings of Atlantic cones are not considered harmful to man, it is still advisable to handle all large living specimens with great care. Because of the temperature sensitivity of the venom, cones are edible without any danger after cooking.

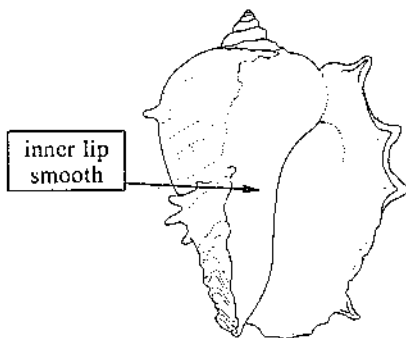


FASCIOLARIIDAE

page 37

Shell elongate, medium-sized to large, spindle-shaped, with a generally elevated spire and a well developed siphonal canal. Periostracum smooth, when present. Aperture long, inner lip often with a few columellar folds. Operculum thick and horny, claw-shaped, with an apical nucleus. Soft parts of animal brilliant red.

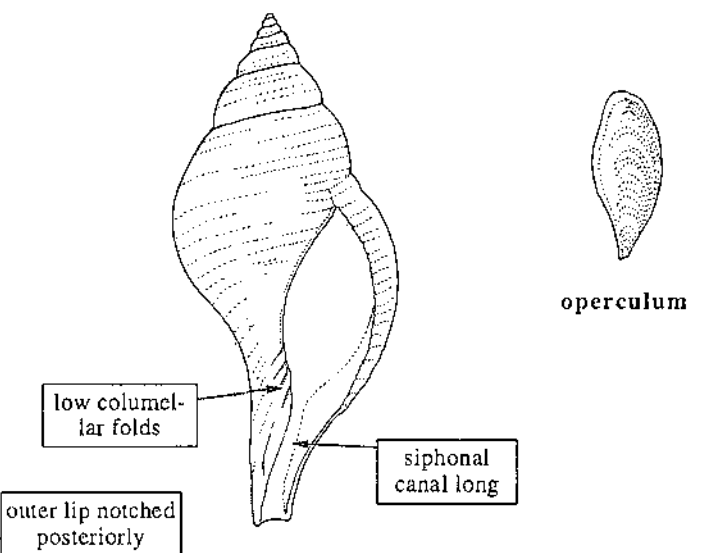
Can be confused with the following families:



Family Melongenidae



Family Turridae

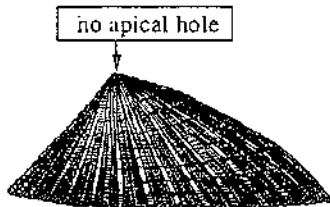


FISSURELLIDAE

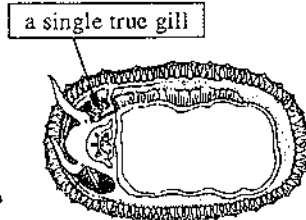
page 39

Shell conical, with an apical hole (sometimes with an anterior slit or notch, or just with an internal groove anteriorly). Outer sculpture mostly radial. Interior porcellaneous, with a horseshoe-shaped muscular scar opening anteriorly. No operculum. A pair of well developed gills in the mantle cavity.

Can be confused with the following families:

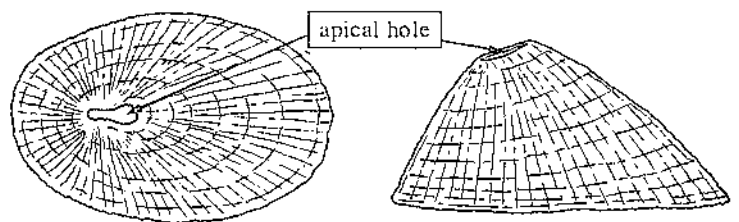


lateral view



ventral view of animal

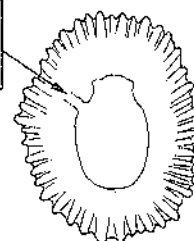
Family Lottiidae



dorsal view

lateral view

low radial groove interrupting the ring-shaped muscle scar



ventral view of shell

Family Siphonariidae

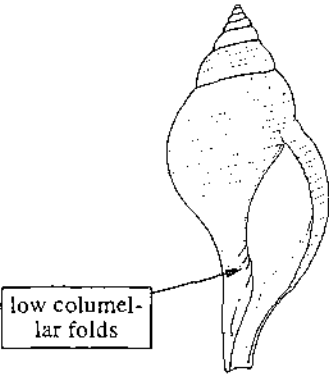
(a pulmonate snail living on supralittoral and upper intertidal rocks)

MELONGENIDAE

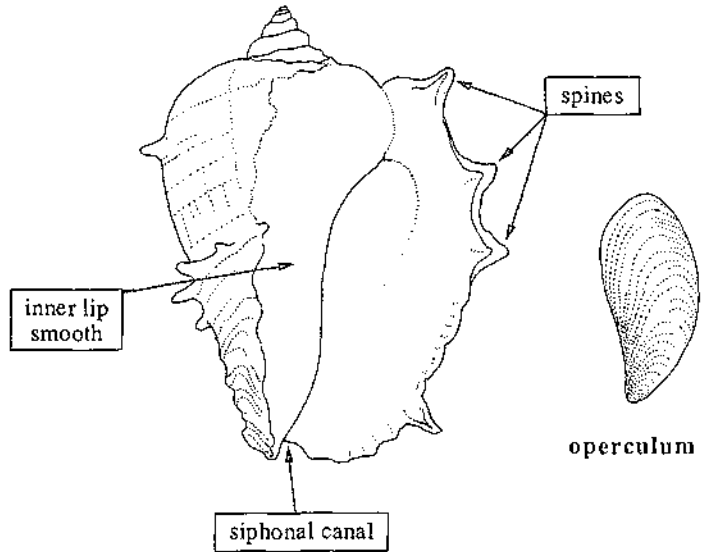
page 40

Shell medium-sized to large, pear-shaped to fusi-form, with a variously developed spire. Outer surface fairly smooth or spirally ridged, often with spines or nodules on shoulder. Periostracum usually thick. Siphonal canal short to long. Inner lip of aperture smooth. Operculum thick and horny, claw-shaped, with an apical nucleus.

Can be confused with the following family:



Family Fasciolaridae



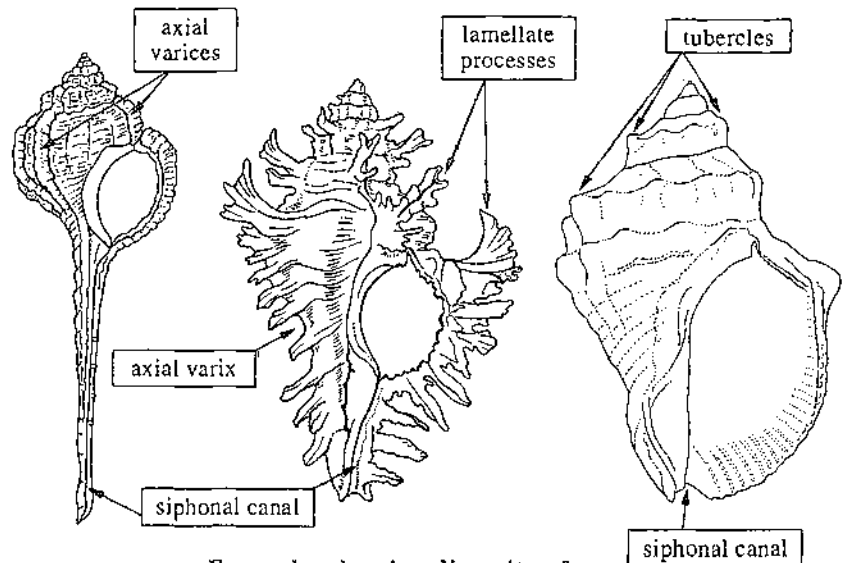
MURICIDAE

page 40

Shell variably shaped, with a raised spire and strong, sculptured with axial varices often bearing spines, tubercles or lamellate processes. Aperture with a well developed siphonal canal. No periostracum. Operculum thick and horny.

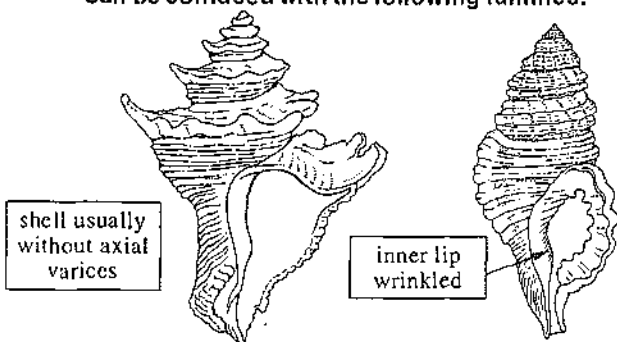
Note: The family Muricidae is here defined in a wide sense and therefore includes the less typical genera as a subfamily (Thaidinae).

Can be confused with the following families:



Examples showing diversity of shape and sculpture

periostracum often conspicuous, thick and hairy



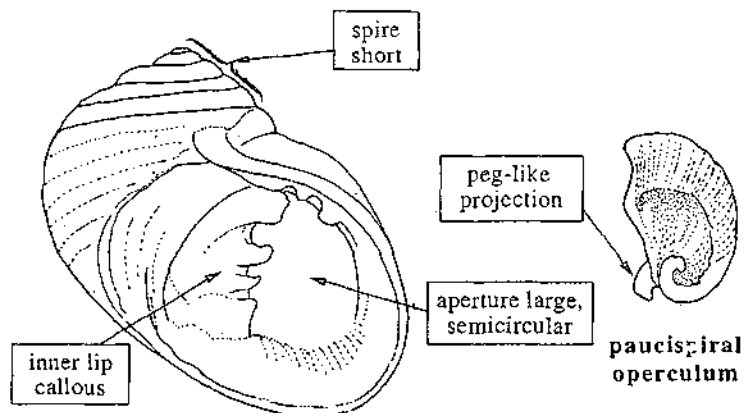
Family Coralliophilidae
(parasitic species on corals, seaweeds and sea anemones)

Family Ranellidae

NERITIDAE

page 43

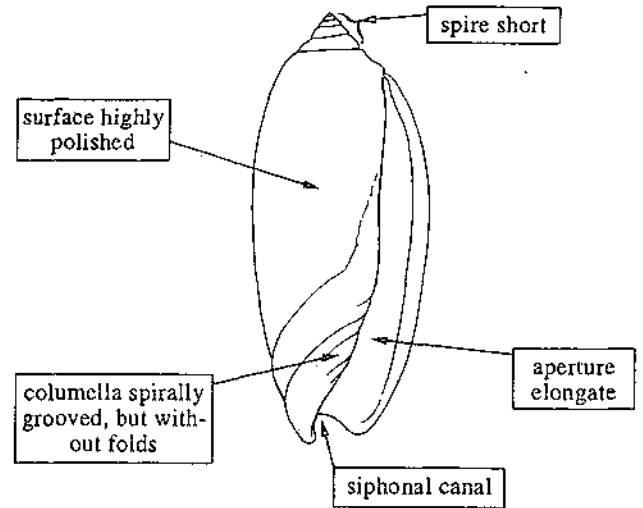
Shell sturdy, globose, with a relatively low spire and a very large, rounded body whorl. No umbilicus. Aperture semi-circular, inner and outer lips often toothed. Inner lip flat, thickened by a callus, protruding as a septum that narrows towards the aperture. Interior porcellaneous. Operculum calcified, with a few spiral turns, often with a projecting peg on its inner edge.



OLIVIDAE

page 43

Shell ovate, elongate and thick, with a short spire, a large body whorl and often deeply-channelled suture. Surface highly polished, smooth and usually vividly coloured. Aperture elongate, with a short siphonal canal. Columella spirally grooved and with strong spiral grooves. No periostracum. Operculum small or wanting.

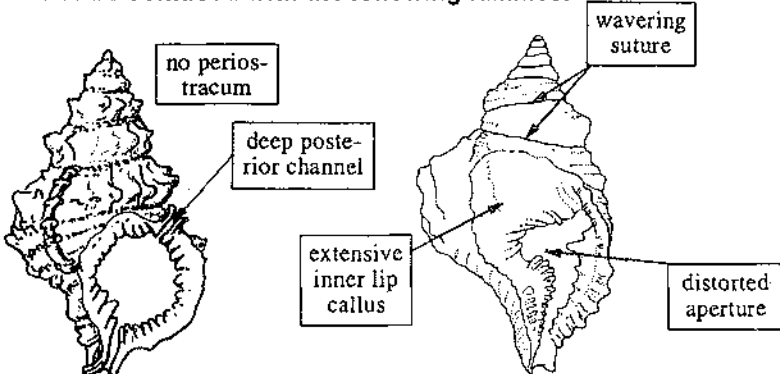


RANELLIDAE (= CYMATIIDAE)

page 44

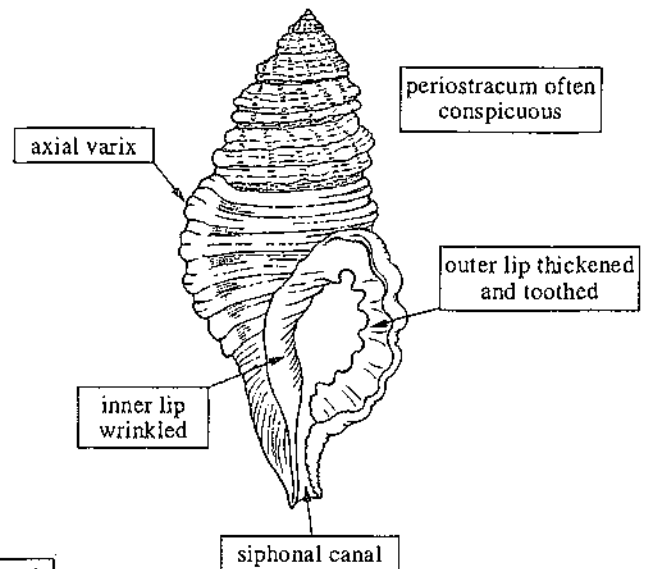
Shell fusiform, with a rather strong spiral sculpture and axial varices. Aperture with siphonal canal. Outer lip thick and toothed, inner lip wrinkled. Periostracum frequently well developed and hairy. Operculum thick and horny.

Can be confused with the following families:



Family Bursidae

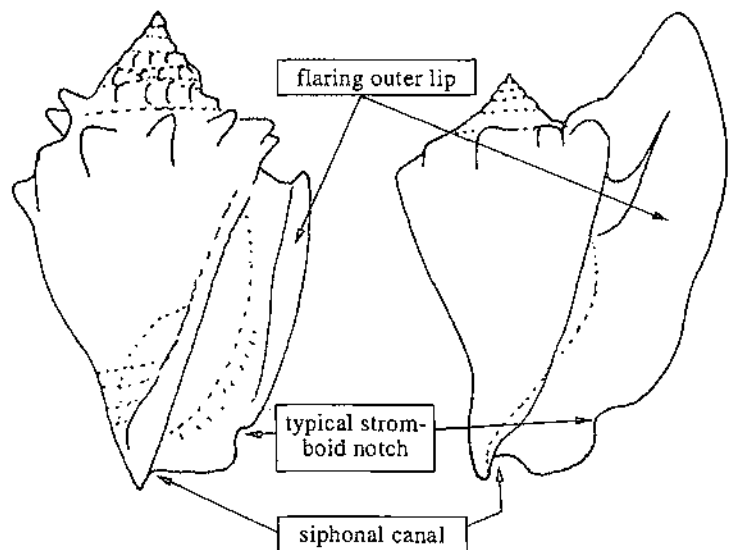
Family Personidae



STROMBIDAE

page 45

Shell thick and solid, with a relatively large body whorl and variable shape. Aperture narrow, with a well developed siphonal canal. Outer lip thick and flaring in adult stages, with a distinct notch anteriorly. Inner lip covered by a glossy callus. Operculum thick and spiny, hook-shaped, serrated along outer side. Foot narrow and arched, with an elongate posterior part supporting the operculum and used for a leaping locomotion. Eyes complex, on top of long stalks protruding, the one along the anterior canal, the other under the notch of the outer lip.



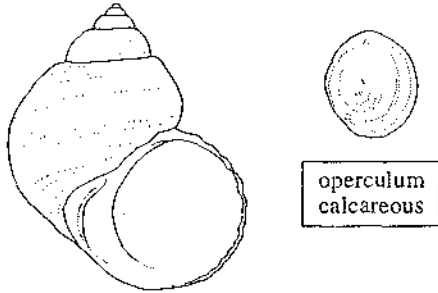
Examples showing diversity of shape

TROCHIDAE

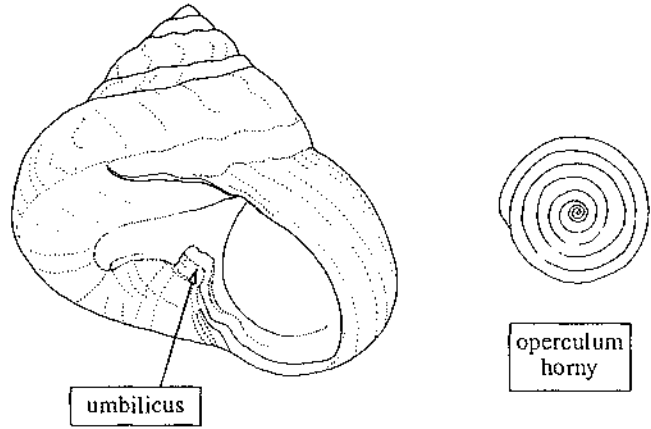
page 46

Shell conical to globose, often with a flattened and umbilicate base. Body whorl usually rounded to angular. Aperture rounded to squarish, without a siphonal canal, nacreous within. Operculum horny, often with many whorls.

Can be confused with the following family:



Family Turbiniidae

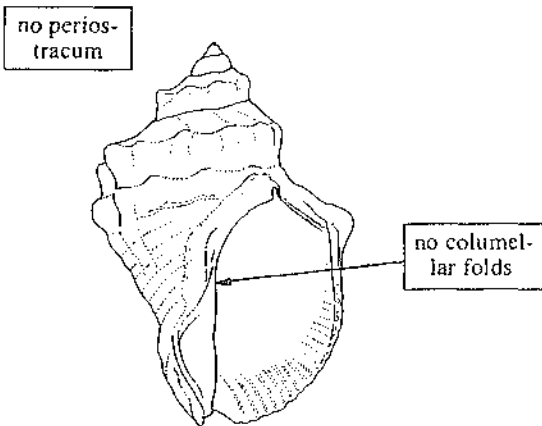


TURBINELLIDAE (= VASIDAE)

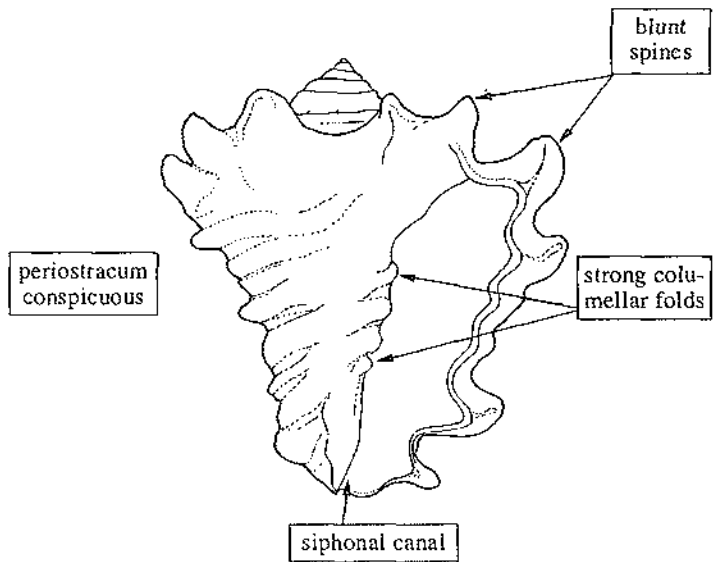
page 47

Shell thick and heavy, biconical to fusiform, roughly sculptured. Shoulder often nodulose to spinose. Periostracum conspicuous. Siphonal canal present. Inner lip with strong folds. Operculum thick and horny, claw-like with an apical nucleus.

Can be confused with the following family:



Family Muricidae (Thaidinae)

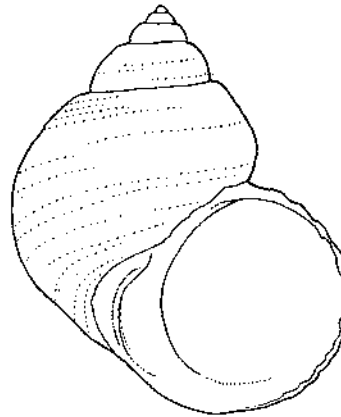


TURBINIDAE

page 47

Shell thick, conical, often heavy. Outer sculpture variable, often spiral or nodular. Umbilicus sometimes present. Aperture rounded, without a siphonal canal, nacreous within. Operculum calcified, its inner layer horny, usually showing spiral coiling.

Can be confused with the following family:



operculum calcareous



operculum horny

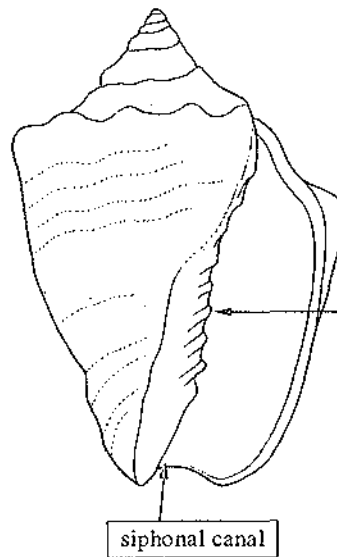
Family Trochidae

VOLUTIDAE

page 49

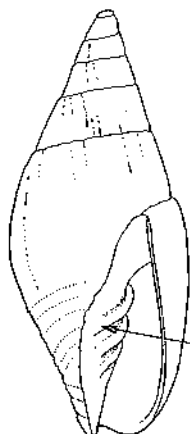
Shell variable in shape, subcylindric, oblong or fusiform, often fairly smooth and brightly coloured. Aperture with a short siphonal canal. Inner lip usually with strong, oblique folds, the weaker ones situated posteriorly. Operculum horny, sometimes absent.

Can be confused with the following family:



oblique columellar folds, strongest anteriorly

siphonal canal



columellar folds stronger posteriorly (families Costellariidae and Mitridae)

Family Mitridae

FAMILIES AND SPECIES OF INTEREST TO FISHERIES

Note: The measurements indicated here represent the maximum sizes so far recorded for each species, measured on the longest axis of the shell. In view of the paucity of biogeographic information by species, especially for the eastern part of the area, no details are provided on geographic distribution of the species within the area.

CASSIDAE

En: Helmet shells. **Fr:** Casques. **Sp:** Cascos.

Three species of interest to fisheries in the area. Hand-collected, especially by divers with or without scuba equipment, and marketed locally. The shell is sold as an ornament.

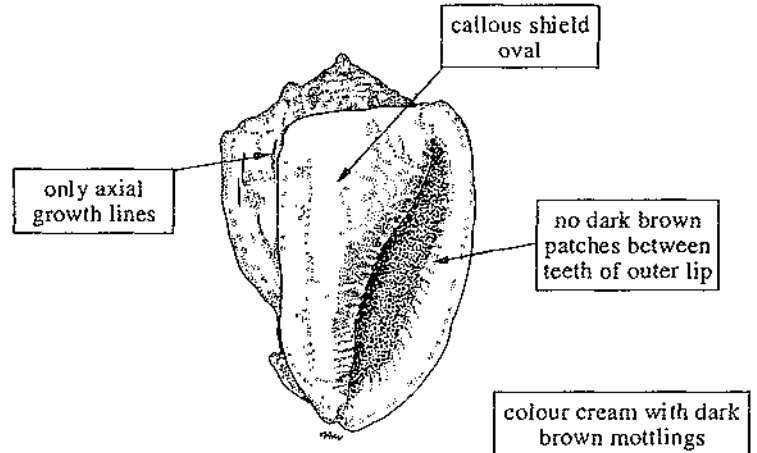
Cassis flammea (Linnaeus, 1758)

FAO names: **En** - Flame helmet; **Fr** - Casque flamme; **Sp** - Casco flameante.

Common names:

Size: To 12 cm.

Habitat and fisheries: Lives on sand bottoms near seagrass beds, between depths of 1 and 5 m.



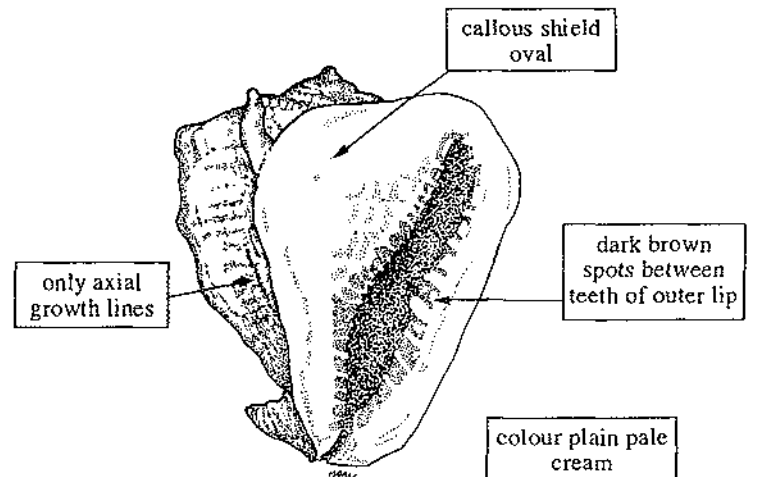
Cassis madagascariensis Lamarck, 1822

FAO names: **En** - Emperor helmet; **Fr** - Casque impérial; **Sp** - Casco imperial.

Common names:

Size: To 35 cm.

Habitat and fisheries: Usually lives on sand bottoms, near seagrass beds, between depths of 6 and 30 m.



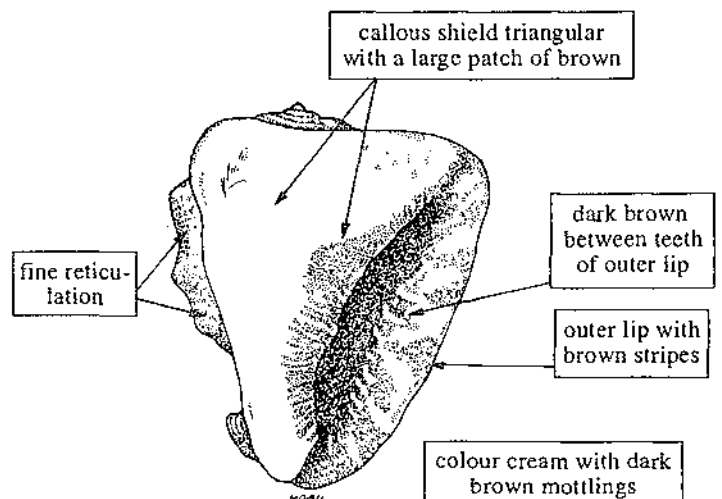
Cassis tuberosa (Linnaeus, 1758)

FAO names: **En** - King helmet; **Fr** - Casque royal; **Sp** - Casco real.

Common names:

Size: To 20 cm.

Habitat and fisheries: Lives on sand bottoms (sometimes buried) near seagrass beds, in depths of about 10 m.



CONIDAE

En: Cone shells. **Fr:** Cônes. **Sp:** Conos.

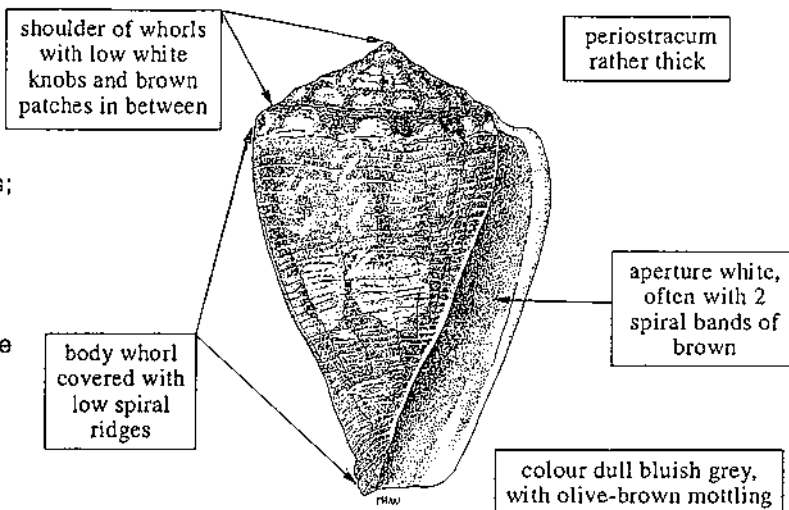
Two species of interest to fisheries in the area. Hand-collected, especially by divers; marketed locally and consumed raw or cooked.

***Conus mus* Hwass, 1792**

FAO Names: **En** - Mouse cone; **Fr** - Cône souris; **Sp** - Cono ratón.
Common names:

Size: To 3 cm.

Habitat and fisheries: Lives on flat bottoms in the intertidal zone, under rocks or in coral reef areas.



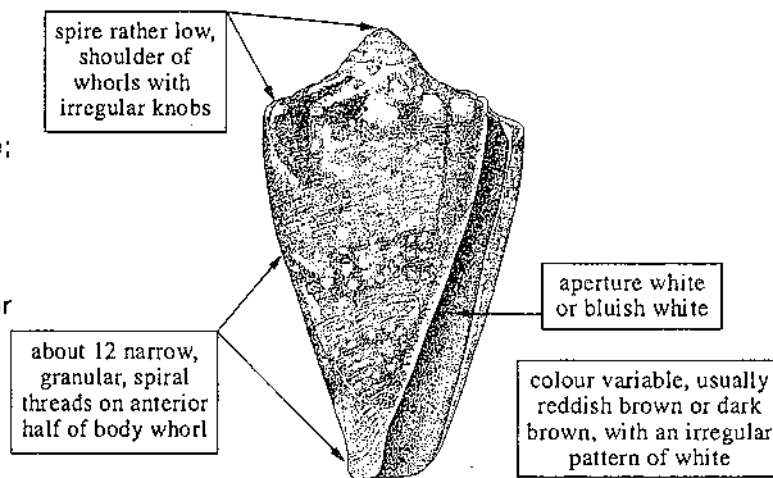
***Conus regius* Gmelin, 1791**

Synonyms: *Conus nebulosus* Hwass, 1792.

FAO names: **En** - Crown cone; **Fr** - Cône couronné; **Sp** - Cono coronado.
Common names:

Size: To 5 cm.

Habitat and fisheries: Lives buried in sand or under rocks and corals in littoral coral reef areas.



FASCIOLARIIDAE

En: Tulips, horse conchs, spindle conchs. **Fr:** Fasciolières, fuseaux. **Sp:** Husos, tulipanes.

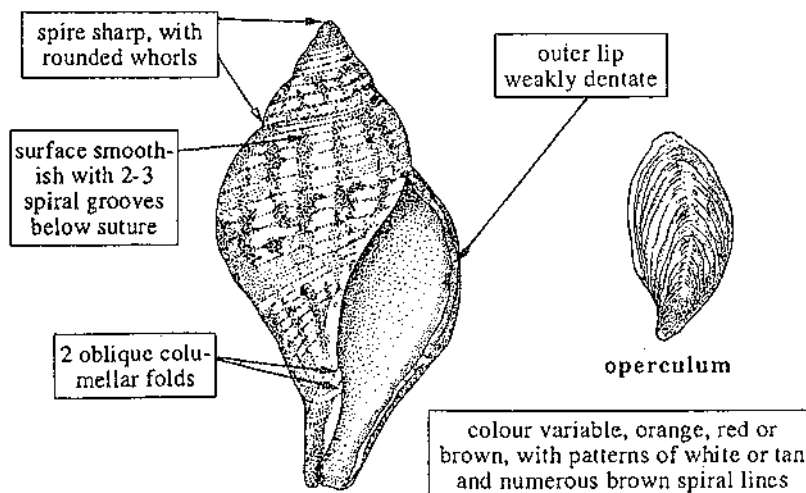
Four species of interest to fisheries in the area, hand-collected by divers with or without scuba equipment, and consumed locally.

***Fasciolaria tulipa* (Linnaeus, 1758)**

FAO names: **En** - True tulip; **Fr** - Fasciolaire tulipe; **Sp** - Tulipán verdadero.
Common names:

Size: To 18 cm.

Habitat and fisheries: Lives on seagrass beds, in shallow depths.



FASCIOLARIIDAE

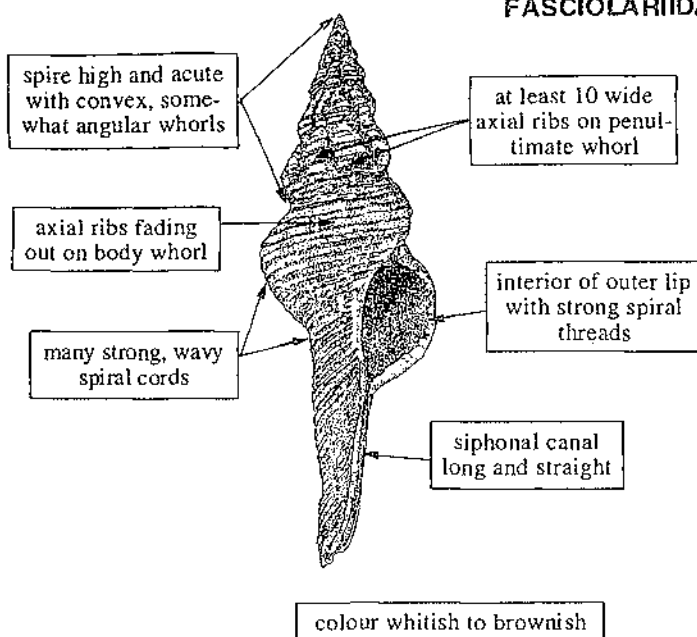
Fusinus closter (Philippi, 1850)

FAO names: **En** - Philippi's spindle; **Fr** - Fuseau de Philippi; **Sp** - Huso de Philippi.

Common names:

Size: To 16 cm.

Habitat and fisheries: Lives on muddy sand, from the sublittoral zone to depths of about 60 m.

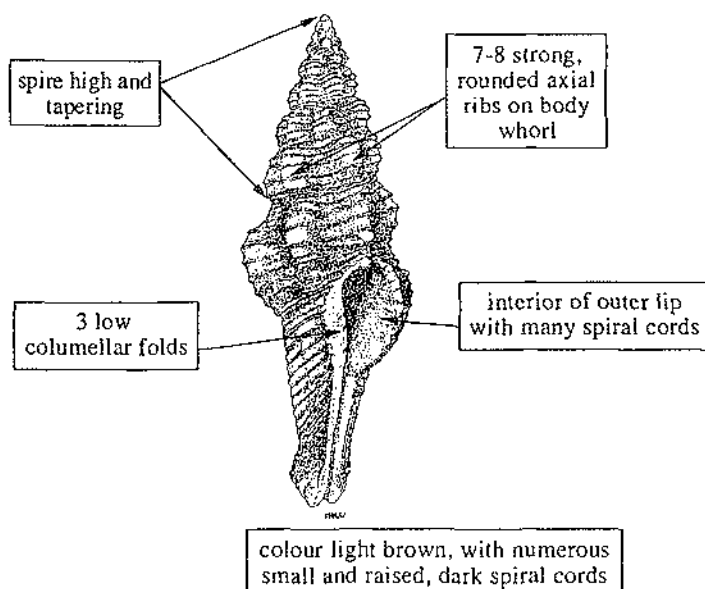
*Latirus infundibulum* (Gmelin, 1791)

FAO names: **En** - Brown-lined latirus; **Fr** - Fuseau zébré; **Sp** - Huso cebra.

Common names:

Size: To 7.5 cm.

Habitat and fisheries: Lives on sand, shell fragments and rocks near coral reef areas, from depths of 2 to 60 m, and on mud bottoms in deeper water.

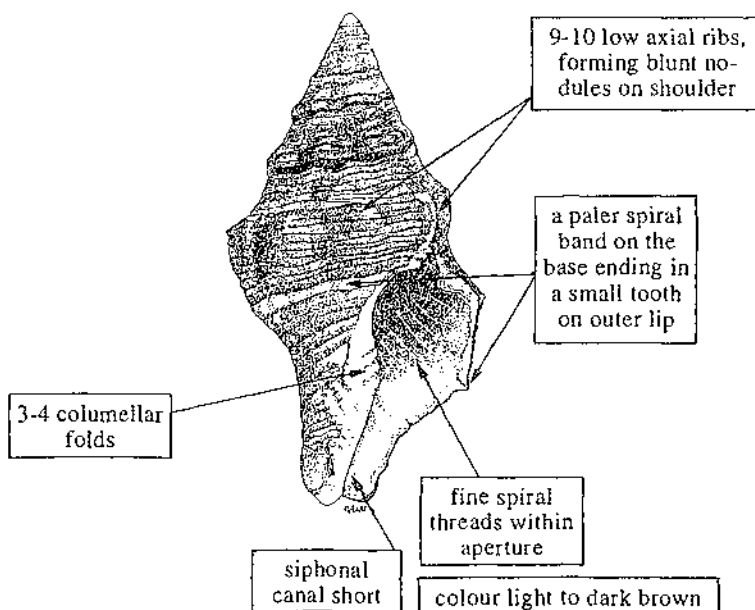
*Leucozonia nassa* (Gmelin, 1791)

FAO names: **En** - Chestnut latirus; **Fr** - Fuseau marron; **Sp** - Huso castaña.

Common names:

Size: To 6 cm.

Habitat and fisheries: Lives under rocks and in coral reef areas, in shallow depths. A predator of oysters and mussels.



FISSURELLIDAE

En: Keyhole limpets. **Fr:** Fissurelles. **Sp:** Fisurelas, lapas.

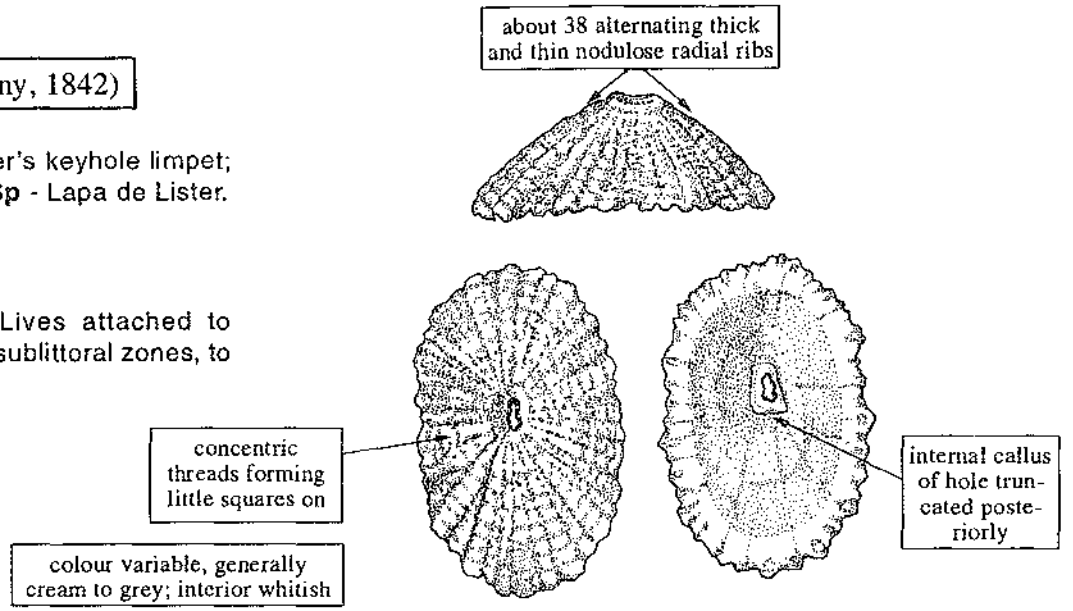
Three species of interest to fisheries in the area, hand-collected and consumed locally in soups and sauces.

***Diodora listeri* (Orbigny, 1842)**

FAO names: **En** - Lister's keyhole limpet; **Fr** - Fissurelle de Lister; **Sp** - Lapa de Lister.
Common names:

Size: to 5 cm.

Habitat and fisheries: Lives attached to rocks in the intertidal and sublittoral zones, to a depth of about 10 m.

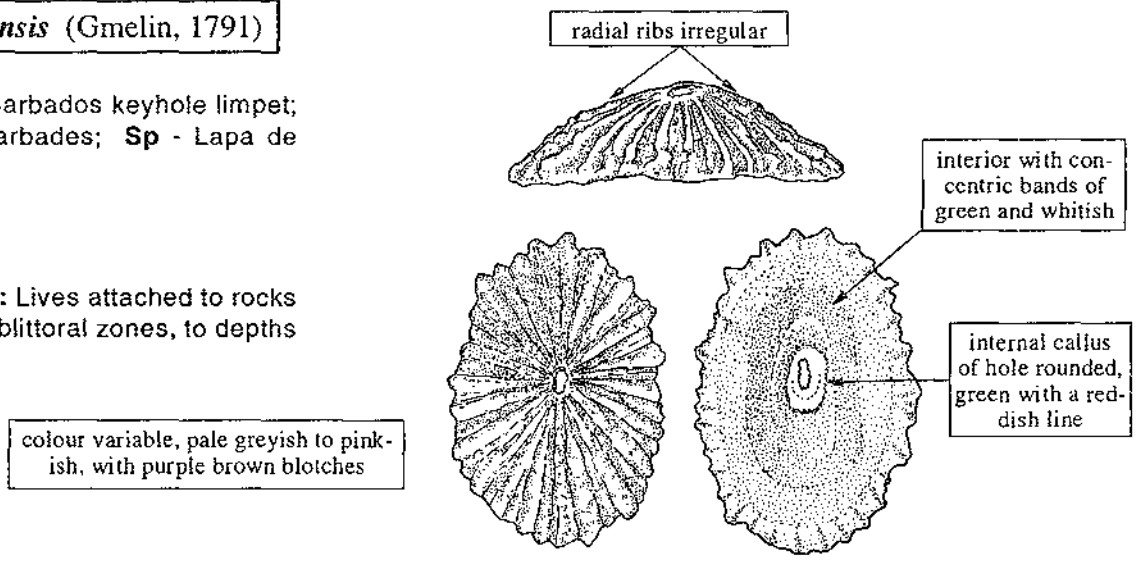


***Fissurella barbadensis* (Gmelin, 1791)**

FAO names: **En** - Barbados keyhole limpet; **Fr** - Fissurelle des Barbades; **Sp** - Lapa de Barbados.
Common names:

Size: To 3 cm.

Habitat and fisheries: Lives attached to rocks in the intertidal and sublittoral zones, to depths of a few metres.



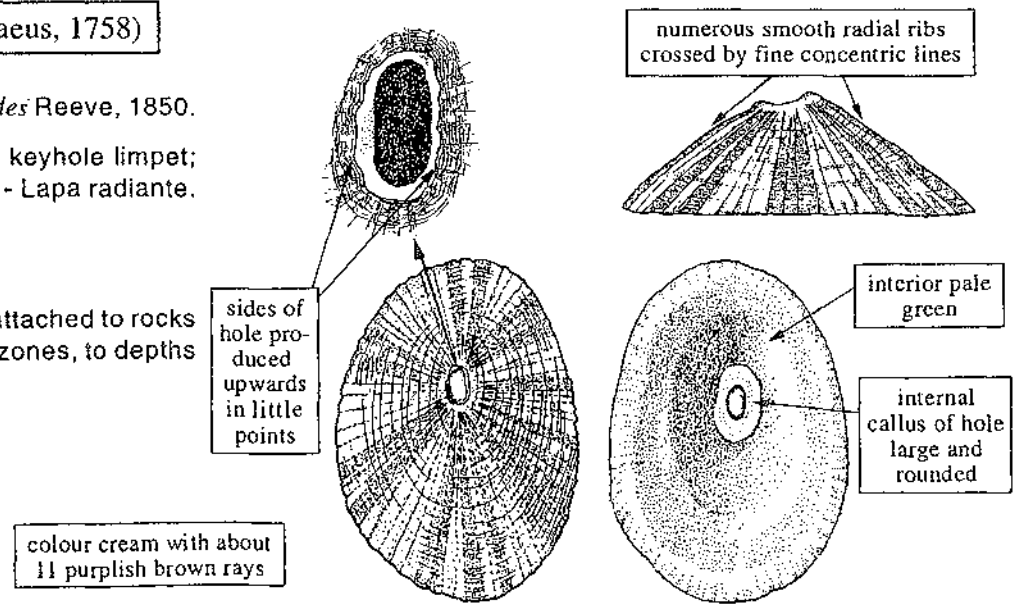
***Fissurella nimbosa* (Linnaeus, 1758)**

Synonyms: *Fissurella balanoides* Reeve, 1850.

FAO names: **En** - Rayed keyhole limpet; **Fr** - Fissurelle rayonnante; **Sp** - Lapa radiante.
Common names:

Size: To 5 cm.

Habitat and fisheries: Lives attached to rocks in the intertidal and sublittoral zones, to depths of a few metres.



MELONGENIDAE

En: Whelks and crown conchs. **Fr:** Mélongènes. **Sp:** Melongenas, cascos de burro.

Two species of interest to fisheries in the area, hand-collected, especially by divers. Marketed and consumed locally. The shell is sold as an ornament.

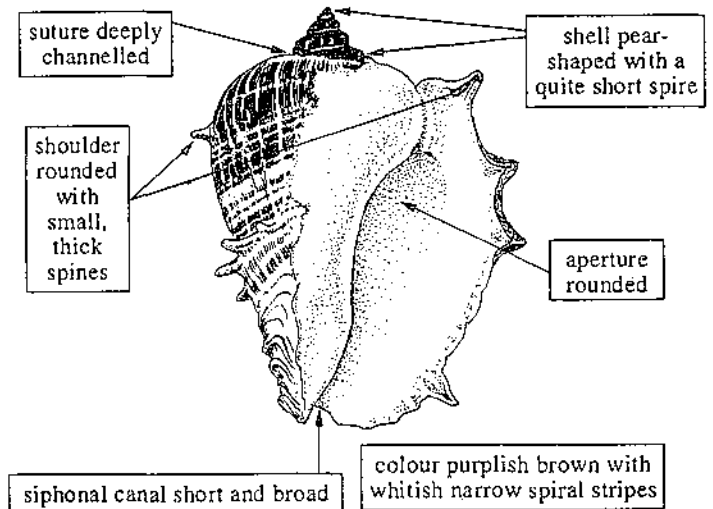
Melongena melongena (Linnaeus, 1758)

FAO names: **En** - West Indian crown conch; **Fr** - Mélongène des Caraïbes; **Sp** - Melongena antillana.

Common names:

Size: To 17 cm.

Habitat and fisheries: Lives on mud and other soft substrates rich in organic matter, especially in mangrove areas and along beaches near river estuaries.



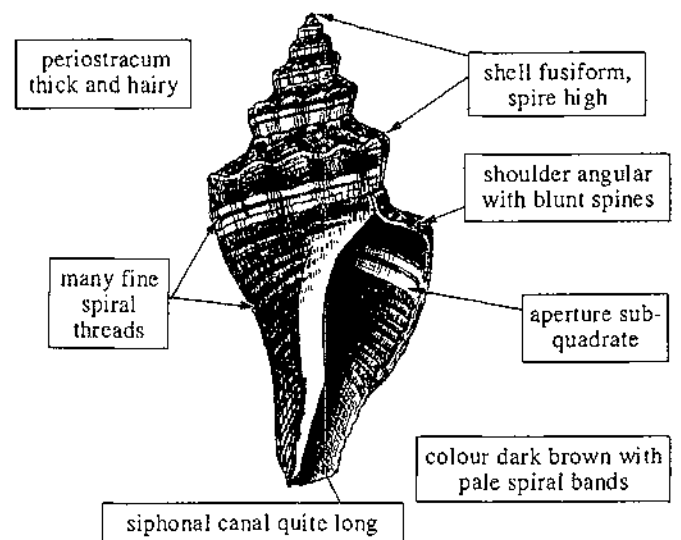
Pugilina morio (Linnaeus, 1758)

FAO names: **En** - Giant hairy melongena; **Fr** - Mélongène noire; **Sp** - Melongena negra.

Common names:

Size: To 16 cm.

Habitat and fisheries: Lives on mud and other soft substrates in mangrove areas and near river estuaries. Feeds mainly on carrion.



MURICIDAE

En: Rock shells, murex shells. **Fr:** Rochers, murex, pourpres. **Sp:** Busanos, púrpuras.

Eight species of interest to fisheries in the area, hand-collected, especially by divers; also taken with pots and bottom trawls. Consumed raw or cooked; some species are frequent in local markets. The shells are also marketed.

Chicoreus brevifrons (Lamarck, 1822)

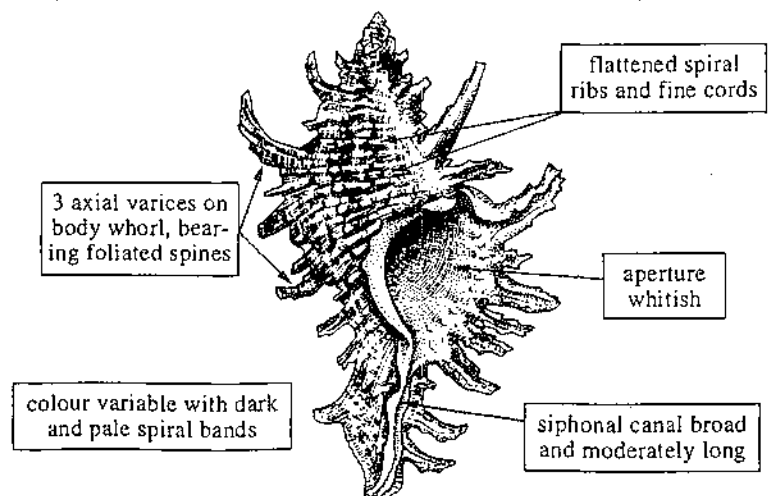
Synonyms: *Murex brevifrons* Lamarck, 1822.

FAO names: **En** - West Indian murex; **Fr** - Rocher antillais; **Sp** - Busano antillano.

Common names:

Size: To 15 cm.

Habitat and fisheries: Lives usually in coastal lagoons and mangrove areas, near oyster banks and culture areas of *Perna perna*; also found on seagrass beds.



***Haustellum chrysostoma* (Sowerby, 1834)**

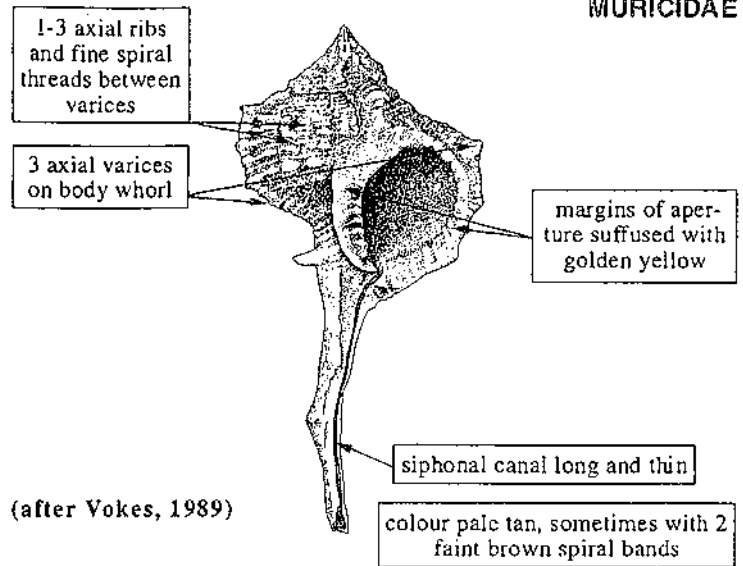
Synonyms: *Murex chrysostoma* Sowerby, 1834; *Murex bellus* Reeve, 1845.

FAO names: **En** - Goldmouth murex; **Fr** - Murex bouche d'or; **Sp** - Busano boca de oro.

Common names

Size: To 8 cm.

Habitat and fisheries: Lives on mud often mixed with coarse sand, between depths of 20 and 90 m.



(after Vokes, 1989)

***Haustellum donmoorei* (Bullis, 1964)**

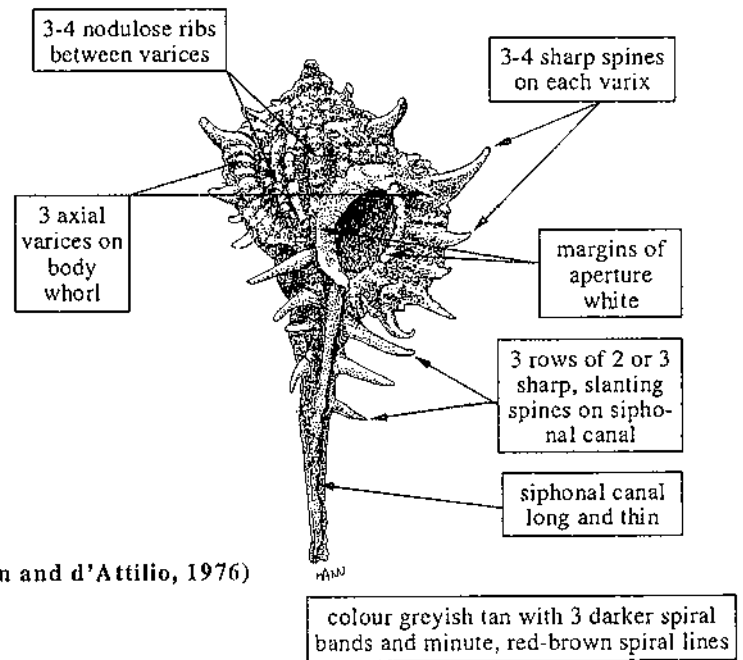
Synonyms: *Murex donmoorei* Bullis, 1964.

FAO names: **En** - Don Moore's murex; **Fr** - Murex de Moore; **Sp** - Busano de Moore.

Common names:

Size: To 7 cm.

Habitat and fisheries: Lives on mud bottoms from depths of about 20 to 80 m.



(after Radwin and d'Attilio, 1976)

***Haustellum messorius* (Sowerby, 1841)**

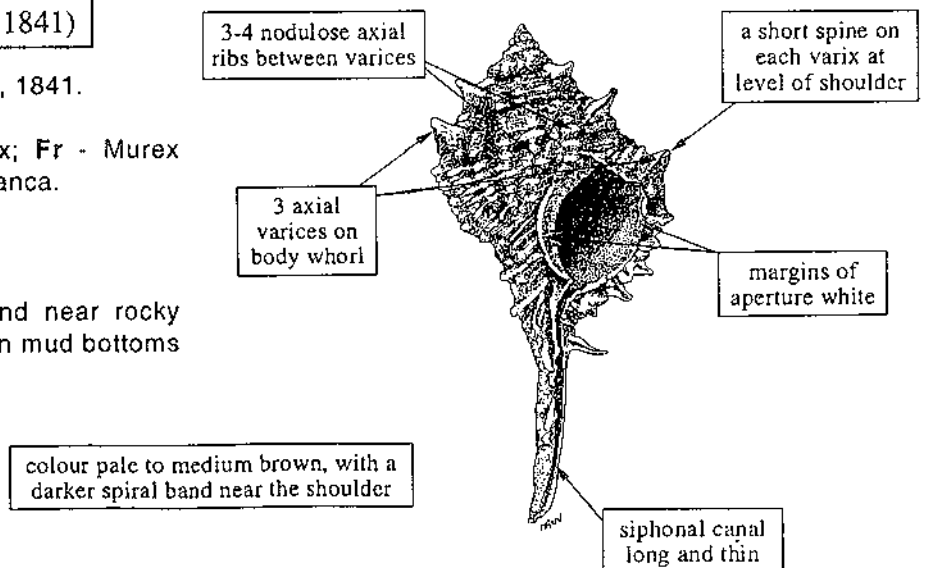
Synonyms: *Murex messorius* Sowerby, 1841.

FAO names: **En** - Messorius murex; **Fr** - Murex bouche blanche; **Sp** - Busano boca blanca.

Common names:

Size: To 6 cm.

Habitat and fisheries: Lives on sand near rocky areas, in a few metres of water, and on mud bottoms in deeper water, to about 90 m.



(after Radwin and d'Attilio, 1976)

MURICIDAE

***Phyllonotus margaritensis* (Abbott, 1958)**

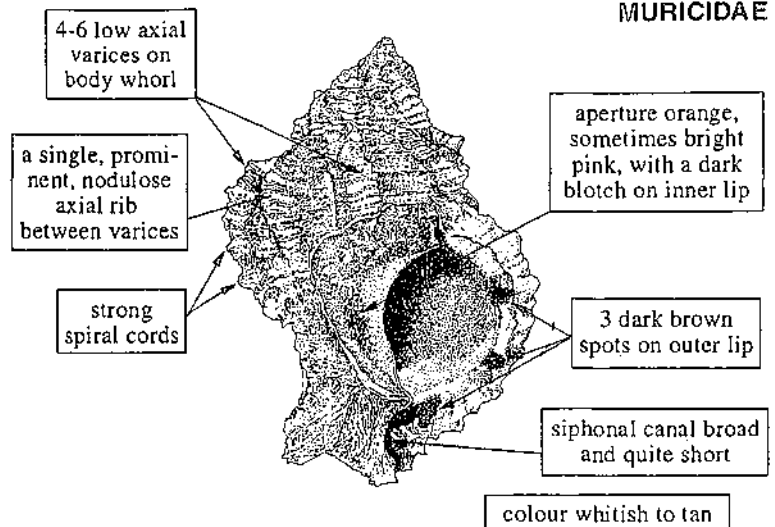
Synonyms: *Chicoreus (Phyllonotus) margaritensis* (Abbott, 1958); *Murex imperialis* Swainson, 1831.

FAO names: En - Margarita murex; Fr - Murex margu rite; Sp - Busano margarita.

Common names:

Size: To 14 cm.

Habitat and fisheries: An active predator, frequently associated with seagrass beds in shallow water, found on coarse sand or mud, near natural banks or culture areas of bivalves (*Arca zebra*, *Pinctada imbricata*, *Perna perna*).



(after Radwin and d'Attilio, 1976)

***Phyllonotus pomum* (Gmelin, 1791)**

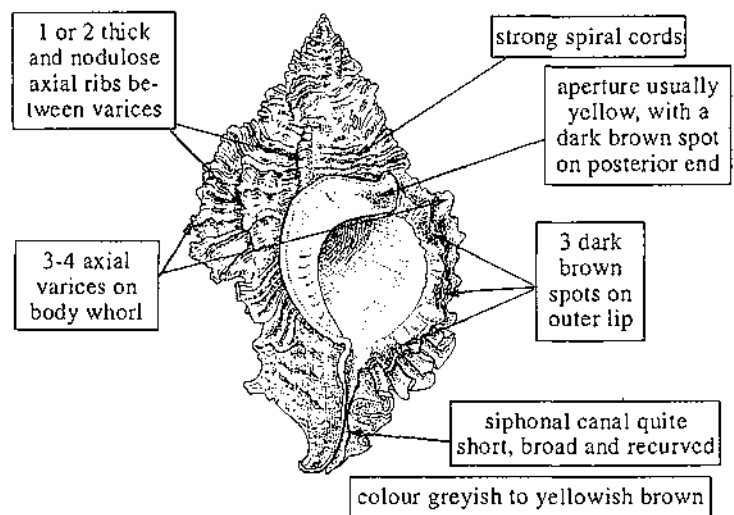
Synonyms: *Chicoreus (Phyllonotus) pomum* (Gmelin, 1791); *Murex pomum* Gmelin, 1791.

FAO names: En - Apple murex; Fr - Rocher pomme; Sp - Busano manzanero.

Common names

Size: To 12.5 cm.

Habitat and fisheries: An active predator living on soft and hard bottoms, occasionally to depths of 200 m; common between 0.5 and 30 m, on seagrass beds or on coarse sand or mud, near natural banks or culture areas of bivalves (*Arca zebra*, *Pinctada imbricata*, *Perna perna*).

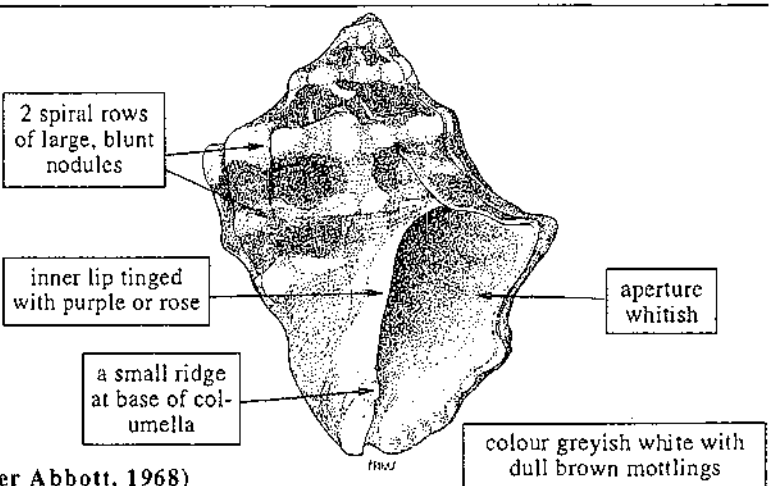
***Thais deltoidea* (Lamarck, 1822)**

FAO names: En - Deltoid rock shell; Fr - Pourpre deltoide; Sp - P rpura deltoide.

Common names:

Size: To 5 cm.

Habitat and fisheries: Lives on rocks in the intertidal zone; also frequent on coral reefs, especially those formed by *Acropora palmata* and *A. curvicornis*.



(after Abbott, 1968)

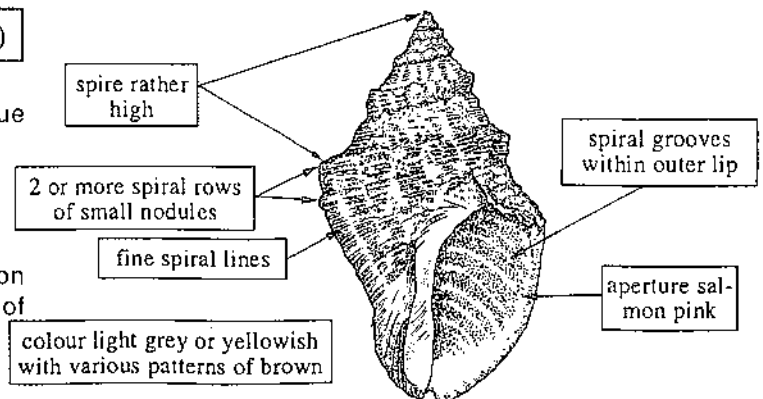
***Thais haemastoma floridana* (Conrad, 1837)**

FAO names: En - Florida rock shell; Fr - Ovarque de Floride; Sp - P rpura de Florida.

Common names:

Size: To 5 cm.

Habitat and fisheries: An active predator living on rocks, mainly in the intertidal zone, near banks of mussels, clams, and barnacles.



NERITIDAE

En: Nerites. **Fr:** Nérîtes. **Sp:** Neritas.

One species of interest to fisheries in the area.

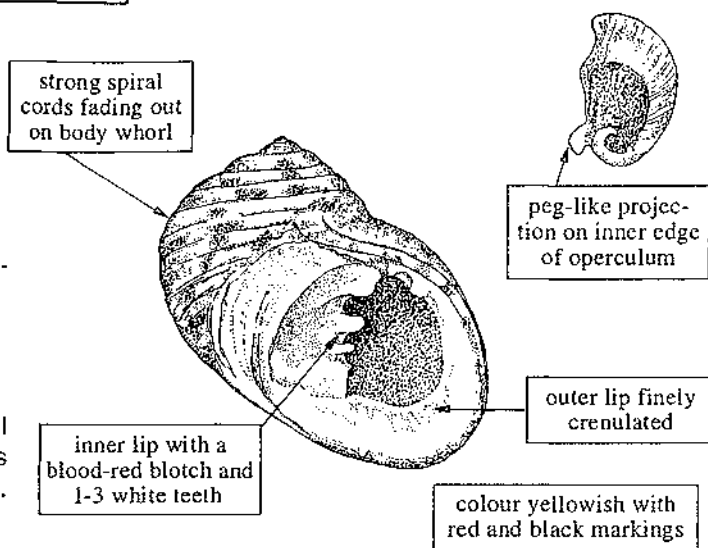
***Nerita peloronta* Linnaeus, 1758**

FAO names: **En** - Bleeding tooth; **Fr** - Nérîte dent saignante; **Sp** - Nerita diente sangrante.

Common names:

Size: To 3.5 cm.

Habitat and fisheries: Lives on rocks in the intertidal zone, mainly in the surf area. Performs small migrations in search of shelter during the day and of food at night. Hand-collected and consumed locally, mainly in soups.



OLIVIDAE

En: Olive shells. **Fr:** Olives. **Sp:** Olivas.

Two species of interest to fisheries in the area, hand-collected and taken in dredges and bottom trawls. Consumed locally; the shell is marketed as an ornament.

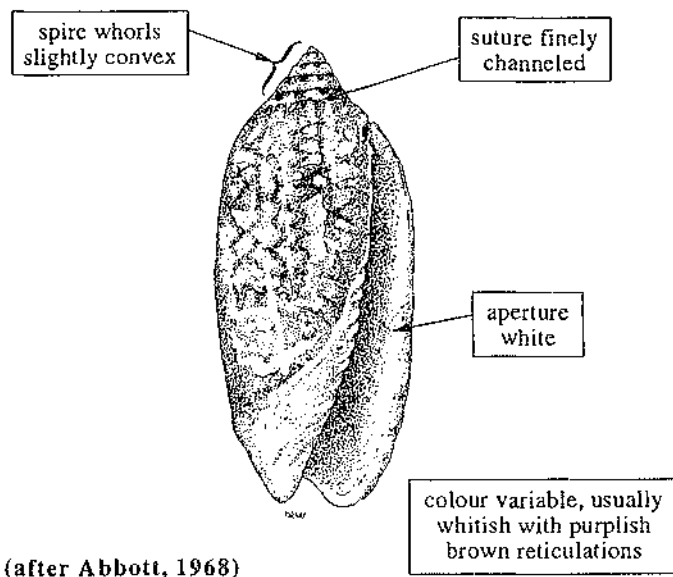
***Oliva reticularis* Lamarck, 1810**

FAO names: **En** - Netted olive; **Fr** - Olive réticulée; **Sp** - Oliva reticulada.

Common names:

Size: To 4.5 cm.

Habitat and fisheries: A carnivorous and necrophagous species crawling on soft substrates. Common on sand in the intertidal and sublittoral zones, where it feeds on bivalves (*Donax*) and carrion; often found on seagrass beds. Also occurs in deeper water, to depths of about 70 m.



***Oliva sayana* Ravenel, 1834**

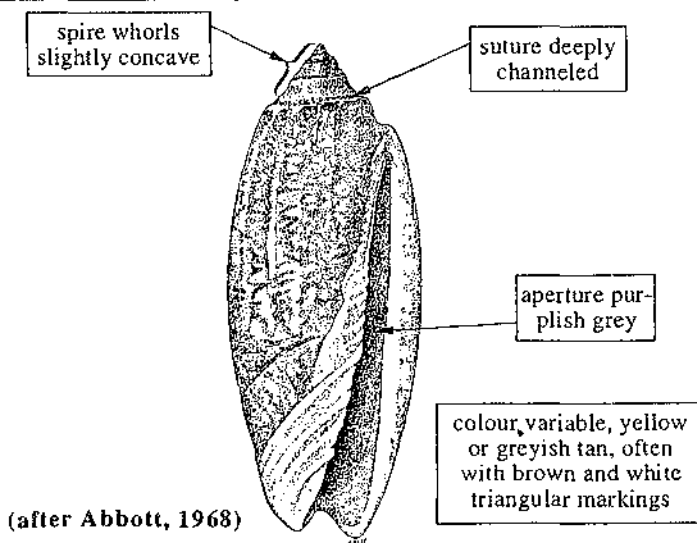
Synonyms: *Oliva litterata* Lamarck, 1810.

FAO names: **En** - Lettered olive; **Fr** - Olive écriteure; **Sp** - Oliva escribana.

Common names:

Size: To 6.5 cm.

Habitat and fisheries: A carnivorous, nocturnal species crawling on soft, especially sandy bottoms in the intertidal and sublittoral zones, occasionally to a depth of 60 m.



RANELLIDAE (=CYMATIIDAE)

En: Triton shells. **Fr:** Tritons. **Sp:** Cornetas, tritones.

Three species of interest to fisheries in the area. Hand-collected by divers, also taken in pots and beach nets. Consumed locally, raw or cooked; the shell is marketed as an ornament.

***Charonia tritonis variegata* (Lamarck, 1816)**

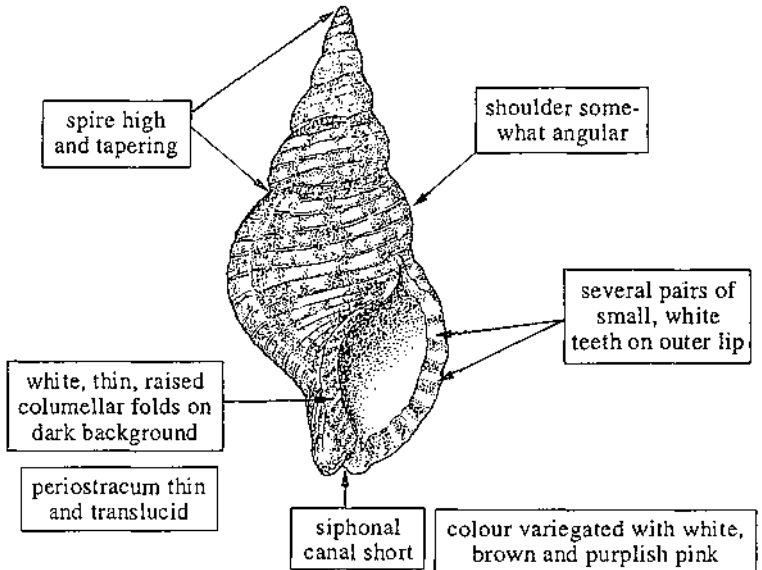
Synonyms: *Charonia atlantica* (Bowdich, 1822);
Charonia nobilis (Conrad, 1848).

FAO names: **En** - Atlantic triton's trumpet; **Fr** - Triton émaillé (=Triton de l'Atlantique); **Sp** - Tritón Atlántico.

Common names:

Size: To 35 cm.

Habitat and fisheries: Lives in shallow water, usually on seagrass beds near coral reef areas, feeding on starfish and sea urchins.



***Cymatium femorale* (Linnaeus, 1758)**

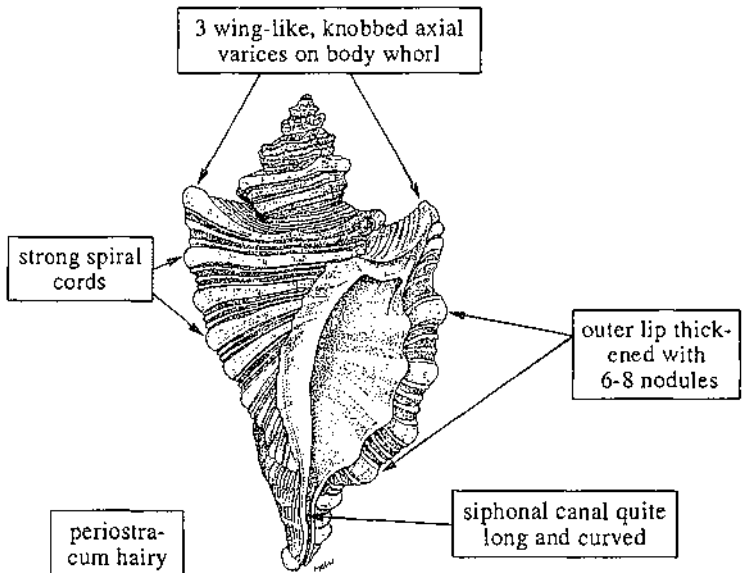
Synonyms: *Cymatium rederi* d'Attilio and Myers, 1984.

FAO names: **En** - Angular triton; **Fr** - Triton anguleux; **Sp** - Tritón anguloso.

Common names:

Size: To 18 cm.

Habitat and fisheries: Lives on rocks or sand in the vicinity of seagrass beds, usually between depths of 1 and 10 m, but may occur in deeper water, to 150 m. Feeds on bivalves and other molluscs, causing damage to natural and artificial banks of commercial species.



(after Abbott, 1968)

colour brownish to orange, with white varices

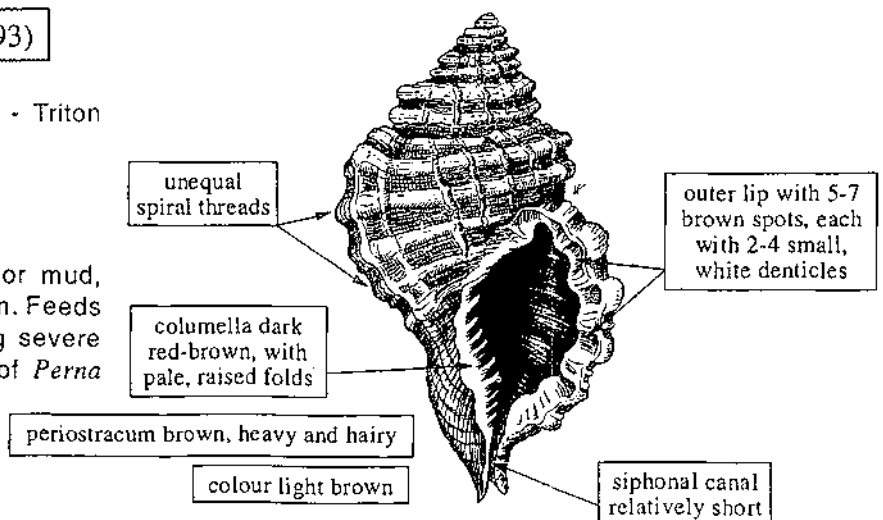
***Cymatium parthenopeum* (Salis, 1793)**

FAO names: **En** - Giant hairy triton; **Fr** - Triton géant velu; **Sp** - Tritón gigante peludo.

Common names:

Size: To 12 cm.

Habitat and fisheries: Lives on sand or mud, commonly between depths of 0.5 and 70 m. Feeds on bivalves and other molluscs, causing severe damage to natural and artificial banks of *Perna perna* and other commercial bivalves.



STROMBIDAE

En: Stromb conchs. **Fr:** Strombes. **Sp:** Cobos.

Five species of interest to fisheries in the area, hand-collected by divers and consumed locally, raw, cooked, or pickled. The shell is marketed as an ornament.

***Strombus costatus* Gmelin, 1791**

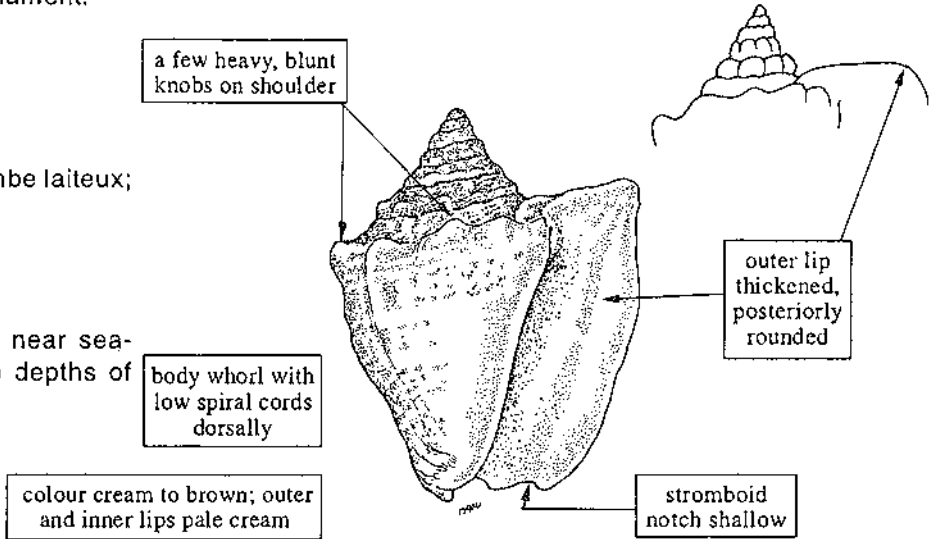
FAO names: **En** - Milk conch; **Fr** - Strombe laiteux;

Sp - Cobo lechoso .

Common names:

Size: To 16 cm.

Habitat and fisheries: Lives on sand near sea-grass beds, from the intertidal zone to depths of about 7 m.



***Strombus gallus* Linnaeus, 1758**

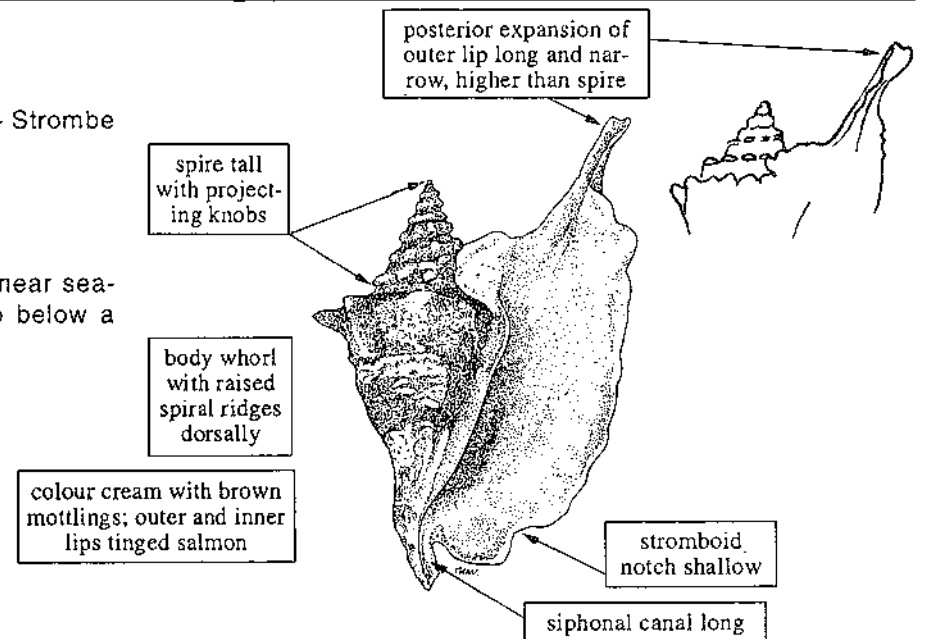
FAO names: **En** - Roster-tail conch; **Fr** - Strombe

queue-de-coq; **Sp** - Cobo cola de gallo.

Common names:

Size: To 13 cm.

Habitat and fisheries: Lives on sand near sea-grass beds, from the intertidal zone to below a depth of 10 m.



***Strombus gigas* Linnaeus, 1758**

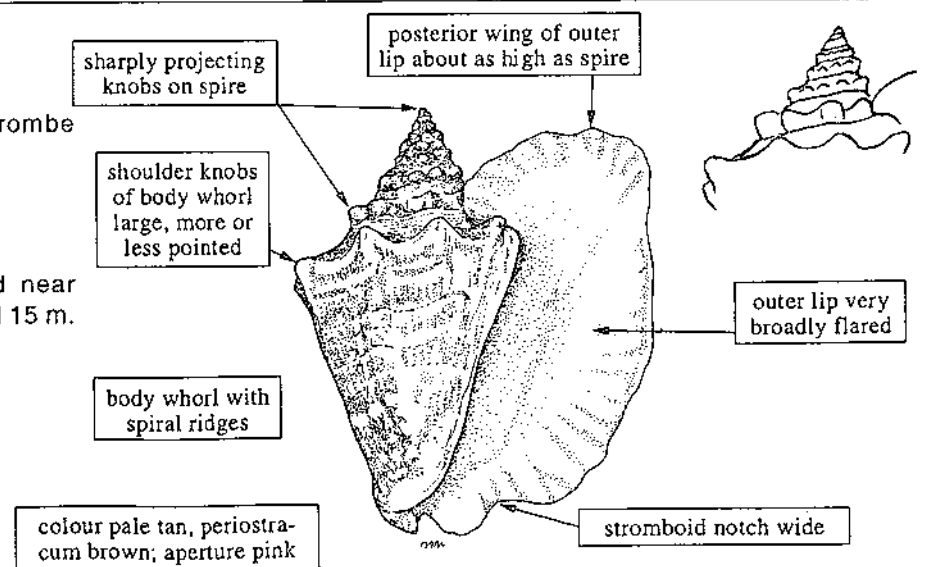
FAO names: **En** - Pink conch; **Fr** - Strombe

rose; **Sp** - Cobo rosado.

Common names:

Size: To 30 cm.

Habitat and fisheries: Lives on sand near seagrass beds, between depths of 2 and 15 m.



STROMBIDAE

Strombus pugilis Linnaeus, 1758

FAO names: En - Fighting conch; Fr - Strombe combattant; Sp - Cobo luchador.

Common names:

Size: To 13 cm.

Habitat and fisheries: Lives on sand near sea-grass beds, between depths of 2 and 10 m.

a single row of spines on shoulder, longer on the penultimate whorl

posterior angle of outer lip erect

colour yellowish to orange; inner and outer lips reddish orange; interior of aperture white

stromboid notch deep

anterior end dark purple

Strombus raninus Gmelin, 1791

FAO names: En - Hawk-wing conch; Fr - Strombe aile-de-faucon; Sp - Cobo ala de águila.

Common names:

Size: To 13 cm.

Habitat and fisheries: Lives in shallow water on sand, near seagrass beds.

posterior expansion of outer lip lower than spire

a narrow band of black and white mottling (most visible ventrally)

body whorl with coarse spiral ridges dorsally

colour brownish, spotted with white; inner and outer lips white or cream; interior of aperture reddish

stromboid notch distinct

(after Sterrer, 1986)

TROCHIDAE

En: Top shells. **Fr:** Troques. **Sp:** Burgados.

One species of interest to fisheries in the area.

shell conical, heavy and smoothish (rough in young stages)

Cittarium pica (Linnaeus, 1758)

FAO names: En - West Indian top shell; Fr - Troque des Antilles; Sp - Burgado antillano.

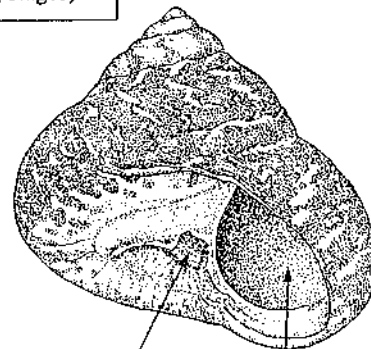
Common names:

Size: To 10 cm.

Habitat and fisheries: Usually lives on rocks and empty shells, a little below the low-tide mark. Hand-collected by divers. A species of great commercial importance that is disappearing from markets due to heavy over-exploitation.



operculum multispiral, round, iridescent brown



umbilicus deep and round

aperture round, interior pearly white

colour whitish with purple-black zigzag blotches

TURBINELLIDAE (= VASIDAE)

En: Vase shells. **Fr:** Turbinelles. **Sp:** Vasos.

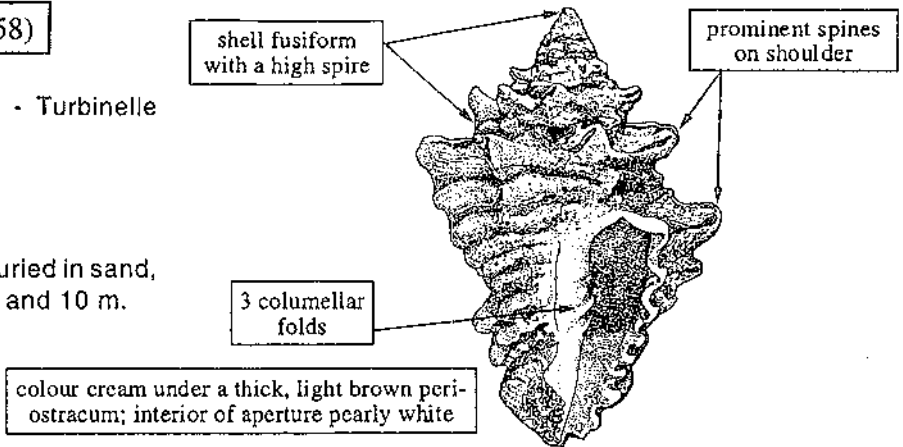
Two species of interest to fisheries in the area, hand-collected by divers and consumed locally.

***Vasum capitellum* (Linnaeus, 1758)**

FAO names: **En** - Spiny vase; **Fr** - Turbinelle épineuse; **Sp** - Vaso espinoso.
Common names:

Size: To 7.5 cm.

Habitat and fisheries: Usually lives buried in sand, near coral reefs, between depths of 6 and 10 m.



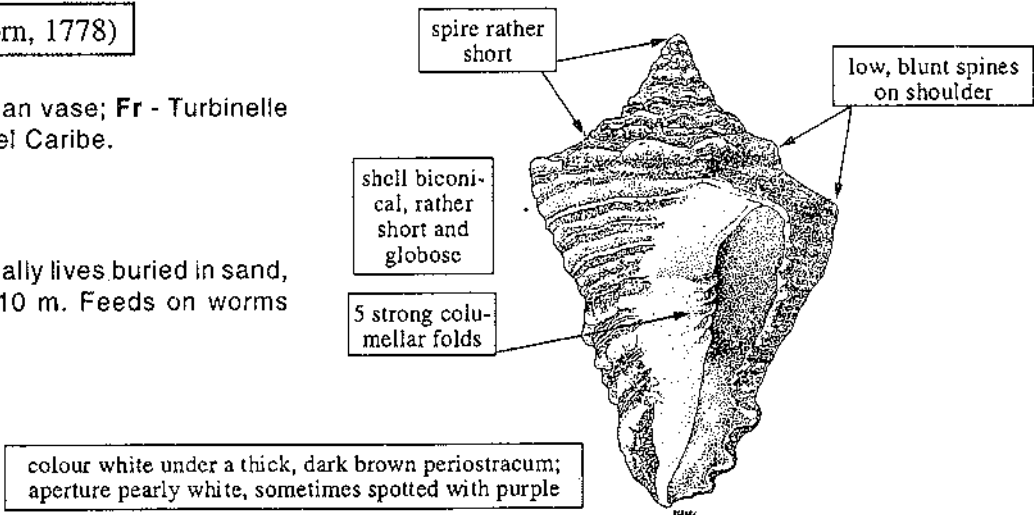
(after Warmke and Abbott, 1961)

***Vasum muricatum* (Born, 1778)**

FAO names: **En** - Caribbean vase; **Fr** - Turbinelle des Caraïbes; **Sp** - Vaso del Caribe.
Common names:

Size: To 10 cm.

Habitat and fisheries: Usually lives buried in sand, between depths of 6 and 10 m. Feeds on worms and bivalves.



(after Abbott, 1968)

TURBINIDAE

En: Turban top shells, star-shells. **Fr:** Turbans. **Sp:** Turbantes.

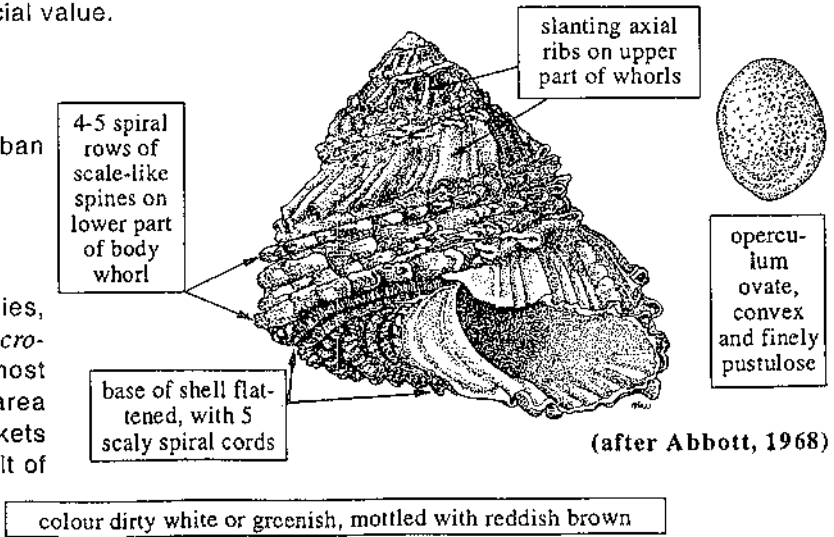
Five species of interest to fisheries in the area, hand-collected by divers and consumed mainly cooked. Some species are heavily exploited and are of great commercial value.

***Lithopoma caelata* (Gmelin, 1791)**

FAO names: **En** - Carved star-shell; **Fr** - Turban incisé; **Sp** - Turbante tallado.
Common names:

Size: To 7.5 cm.

Habitat and fisheries: A shallow-water species, very common in coral reef areas, attached to *Acropora palmata* or coral fragments. One of the most heavily exploited gastropod species in the area which has partly replaced *Cittarium pica* in markets after the disappearance of the latter as a result of over-exploitation.



(after Abbott, 1968)

TURBINIDAE

***Lithopoma tecta* (Lightfoot, 1786)**

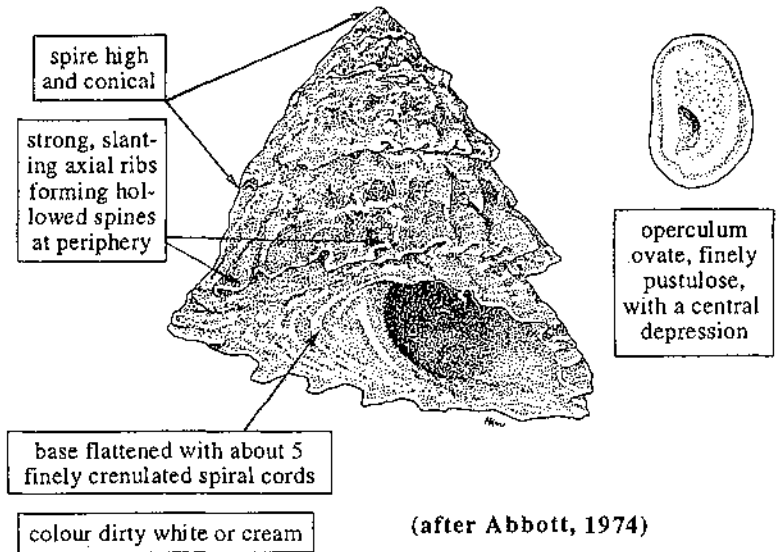
Synonyms: *Astraea tecta* (Lightfoot, 1786).

FAO names: En - Imbricated star-shell; Fr - Turban imbriqué; Sp - Turbante imbricado.

Common names:

Size: To 7 cm.

Habitat and fisheries: Lives in shallow water; very common on coral reefs, often attached to *Acropora palmata*; also found among fragments of coral. One of the most heavily exploited gastropod species in the area which has partly replaced *Cittarium pica* in markets after the disappearance of the latter as a result of over-exploitation.

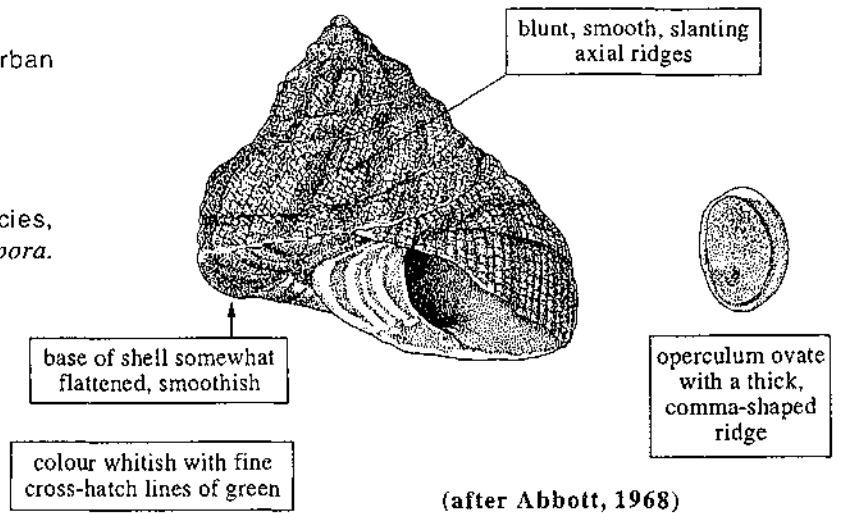
***Lithopoma tuber* (Linnaeus, 1767)**

FAO names: En - Green star-shell; Fr - Turban vert; Sp - Turbante verde.

Common names:

Size: To 5 cm.

Habitat and fisheries: A shallow-water species, common in coral reefs, attached to *Acropora*. Heavily exploited.

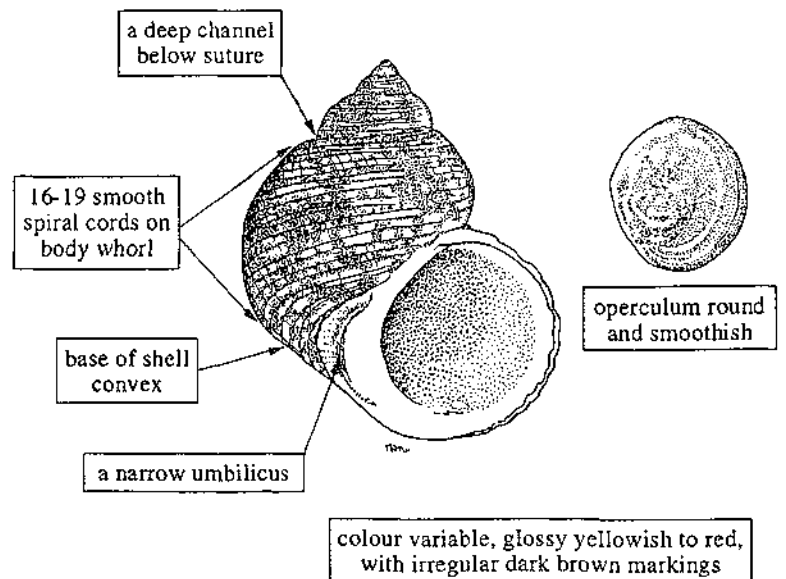
***Turbo canaliculatus* Hermann, 1781**

FAO names: En - Channelled turban; Fr - Turban canaliculé; Sp - Turbante acanalado.

Common names:

Size: To 7.5 cm.

Habitat and fisheries: Lives on rocks, especially among seaweeds, from the shore to depths of about 120 m, but most commonly between 3 and 20 m. A species of potential commercial importance.



TURBINIDAE

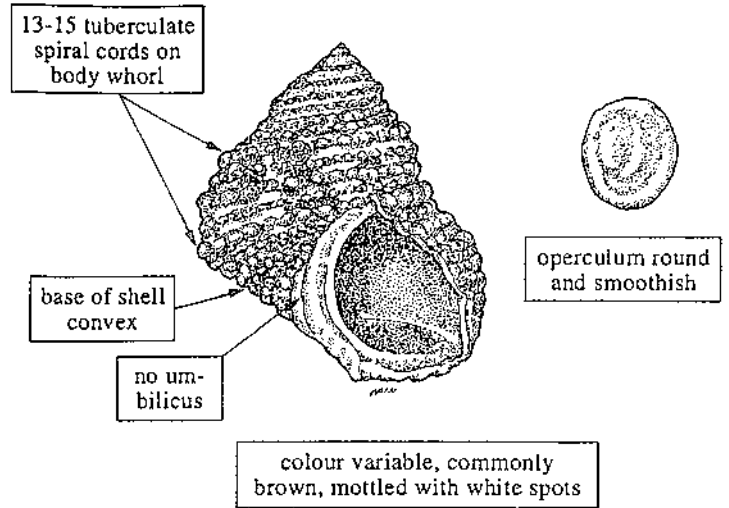
***Turbo castanea* Gmelin, 1791**

FAO names: En - Chestnut turban; Fr - Turban marron; Sp - Turbante castaña.

Common names:

Size: To 3.5 cm.

Habitat and fisheries: Lives on sand, fragments of coral and rocks in the vicinity of coral reefs, between depths of 1 and 5 m. A species of potential commercial importance.



VOLUTIDAE

En: Volutes. **Fr:** Volutes. **Sp:** Volutas.

Two species of interest to fisheries in the area. Hand-collected or taken with dredges; occasionally, with bottom trawls in deeper water. Consumed locally, raw or cooked.

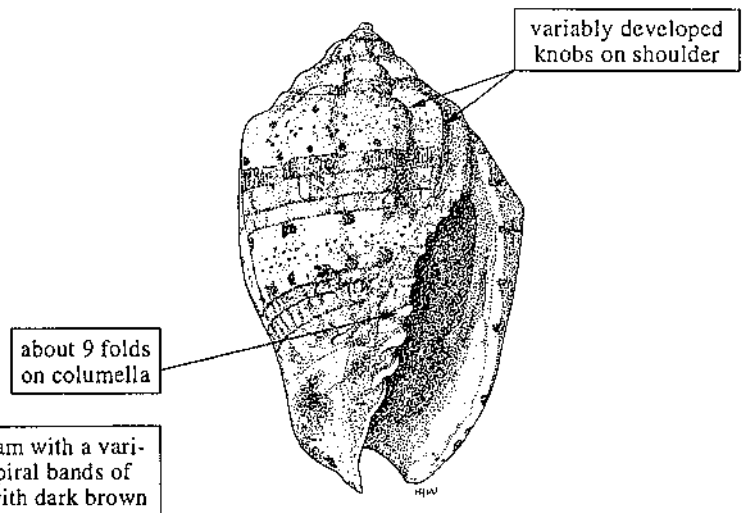
***Voluta musica* Linnaeus, 1758**

FAO names: En - Common music volute; Fr - Volute musique; Sp - Voluta musical.

Common names:

Size: To 9 cm.

Habitat and fisheries: Lives on various types of soft bottoms, except mud, from very shallow water to depths of about 40 m; frequent on seagrass beds. Juveniles are usually buried in sand among leaves and roots.



(after Warmke and Abbott, 1961)

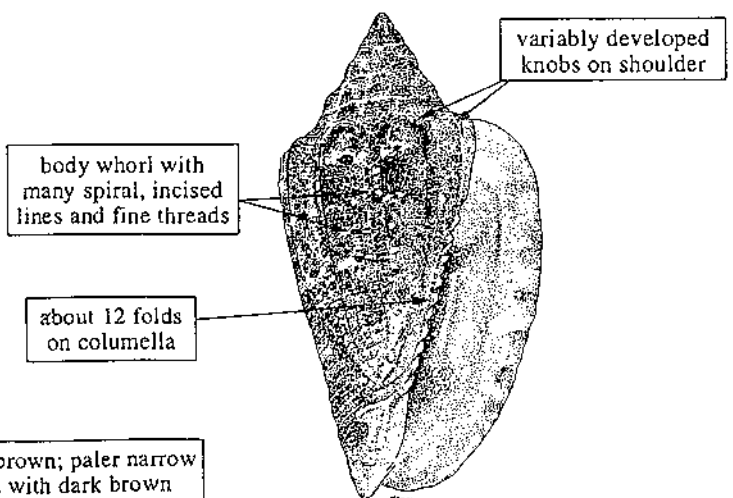
***Voluta virescens* Lightfoot, 1786**

FAO names: En - Green music volute; Fr - Volute verte; Sp - Voluta verde.

Common names:

Size: To 9 cm.

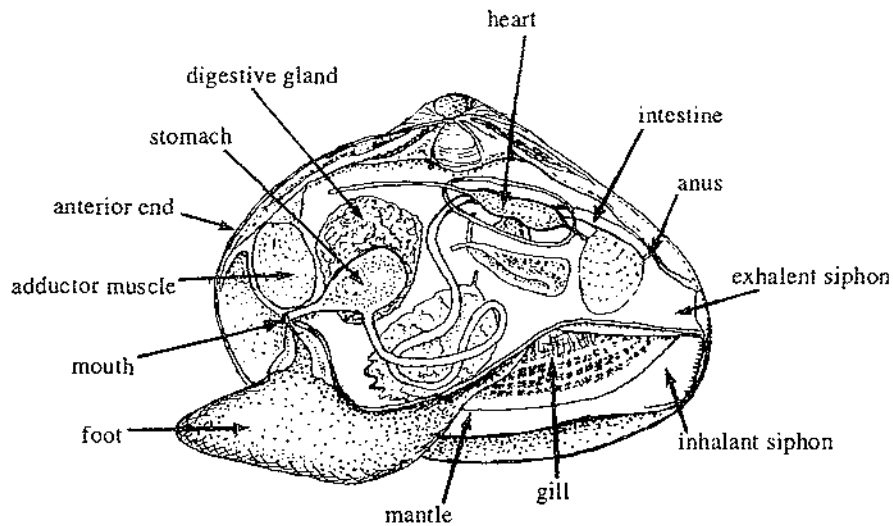
Habitat and fisheries: Lives buried in mud or sand bottoms rich in organic matter, from very shallow water to depths of about 90 m; frequent on seagrass beds.



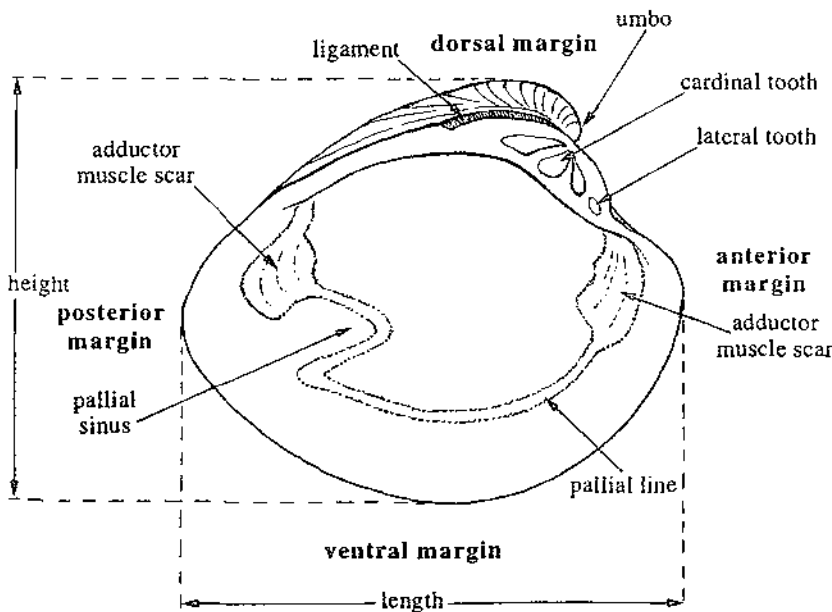
BIVALVES

The bivalves of the northern coast of South America are predominantly a potential fishery resource, since the number of traditionally exploited species is rather small (i.e. *Crassostrea rhizophorae*, *Perna perna*, *Pinctada imbricata*, *Isognomon alatus*, etc.). However, the variety and quantity of bivalves observed in markets of the region has been steadily increasing during the past few years. Furthermore, the exploitation of natural bivalve populations with dredges, bottom trawls and by hand, is currently complemented by the experimental or commercial culture of some species. On the basis of available data on the presence of bivalves in local markets during the past few years, it was decided to include in this field guide 53 species belonging to 20 families. This represents only a small fraction of the rich bivalve fauna occurring in the area, and it is likely that the number of species exploited by man will increase in the near future. Most bivalve species are consumed raw or boiled (in soups or sauces), and a few, (e.g. *Perna perna*, *Crassostrea rhizophorae*, etc.) are canned.

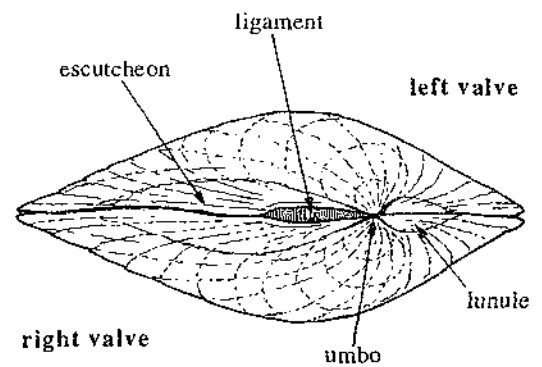
TECHNICAL TERMS AND MEASUREMENTS



soft parts after removal of left valve and mantle



left valve (interior)



bivalve shell (dorsal view)

GLOSSARY OF TECHNICAL TERMS

- Adductor:** muscle that closes the valves.
- Aperture:** permanent space between the closed valves at either end of the shell.
- Byssus:** clump of horny filaments spun by a gland in the foot, by means of which the animal attaches itself to hard substrates.
- Chomata:** small denticles and corresponding pits located on the inner margin of the valves (Families Ostreidae and Gryphaeidae).
- Concentric:** parallel to the growth lines.
- Equilateral:** a symmetric valve with the umbones in central position.
- Equivalve:** a shell of equal valves.
- Escutcheon:** a narrow area extending along the dorsal margin of the shell, behind the umbones.
- Foot:** extensible muscular organ, utilized for locomotion, burying or adhering to the substrate (by means of the byssus threads).
- Hinge:** top interlocking margin of the valves, often with teeth and pits.
- Hinge line:** margin of the shell adjacent to the hinge.
- Ligament:** an elastic, horny structure that holds the valves together dorsally.
- Lunule:** an arrow-shaped or heart-shaped area extending along the dorsal margin of the valves, in front of the umbones.
- Mantle:** a bilobed skin fold that covers the body of the animal and secretes the shell.
- Nymph:** narrow platform extending along the dorsal margin, behind the umbo, for the attachment of the external ligament.
- Pallial:** referring to the mantle.
- Pallial line:** the line that delimits the adhesion area of the mantle near the inner margin of each valve.
- Pallial sinus:** posterior embayment of the pallial line.
- Periostracum:** layer of horny material that covers the shell.
- Pit:** cavity of the shell into which fits a tooth of the opposite valve.
- Radial (or radiating):** shell sculpture diverging from the umbo toward the margin of the shell.
- Siphons:** extensible, tubular projections of the posterior marginal mantle region forming two openings, one for the influx (inhalant siphon) and the other for the outflow of water (exhalant siphon).
- Tooth:** projection of the shell that fits into a pit on the opposite valve; the cardinal teeth are near the umbo, while the lateral teeth are farther away from it, either anteriorly or posteriorly.
- Umbo:** part of the valve that was generated initially, generally located above the hinge.
- Valve:** one of the halves of a bivalve shell.

GUIDELINES FOR THE IDENTIFICATION OF FAMILIES

The following guidelines are intended to facilitate the identification of bivalve families including marine or brackish-water species regularly exploited or occasionally found in markets of the area. These families represent only a small part of the bivalve fauna occurring in the area, and it is probable that their number will increase once we have better information on the fisheries and utilization of this group of resources.

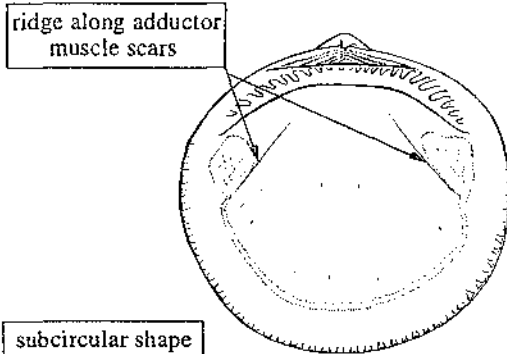
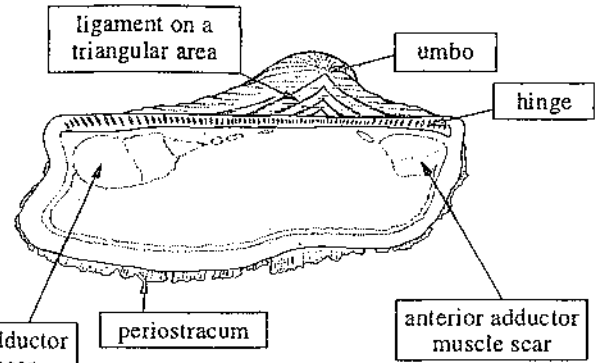
In order to facilitate the use of this guide in the field, the diagnoses of families have been based, whenever possible, on shell features. However, in the case of a few families it was necessary, in order to ensure correct identification, to utilize also some anatomic characters of the soft parts of the animal. All diagnostic features used here apply exclusively to species present in our area.

ARCIDAE

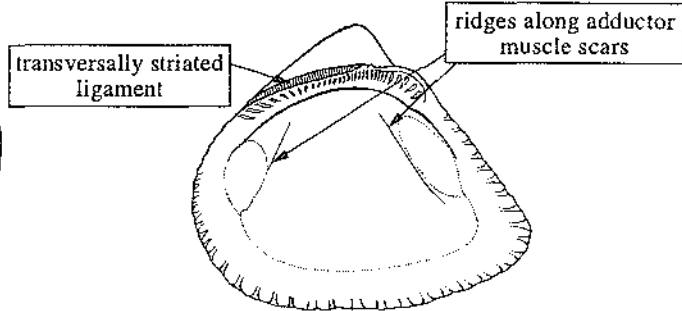
page 60

Shell solid, roughly less quadrangular, radially ribbed. Periostracum usually thick and fibrous. Ligament external, stretching across an area between the hinge margin and the umbo. Hinge elongate, with numerous small, transverse teeth. Two large adductor muscle scars. No pallial sinus. Byssus often present, at least in the young stages.

Can be confused with the following families:



Family Glycymerididae

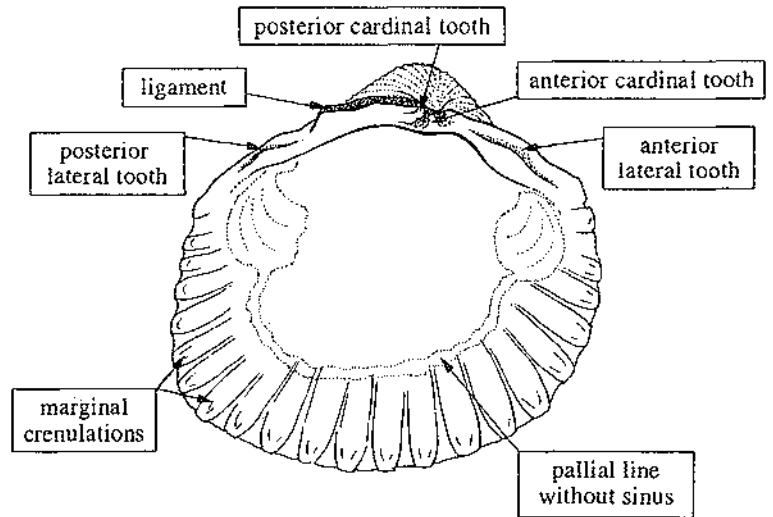


Family Noetiidae

CARDIIDAE

page 61

Shell equivalve, inflated, with a mostly radial sculpture (and corresponding marginal crenulations internally). Ligament external, short. Hinge characteristic: 2 conical cardinal teeth in each valve, cruciform in arrangement; lateral teeth distant from cardinals. Adductor muscle scars subequal. No pallial sinus. Foot long and strong, geniculate.

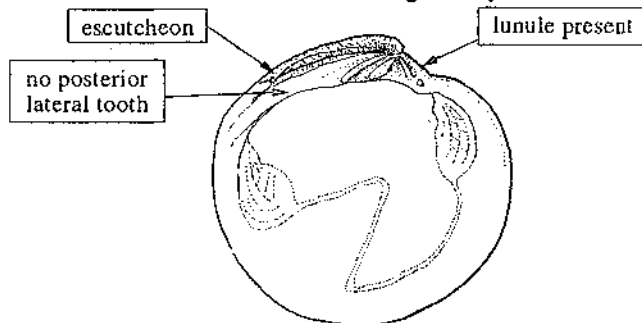


CORBICULIDAE

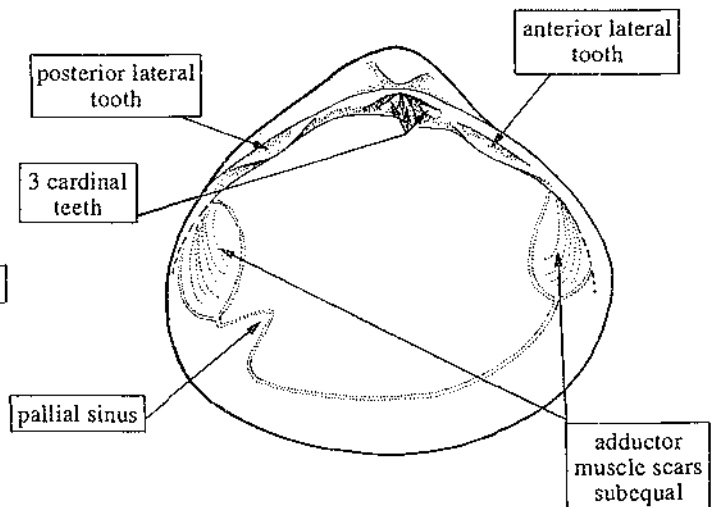
page 62

Shell equivalve, stout, oval to triangular. No lunule or escutcheon. Periostracum conspicuous. Ligament external. Hinge with 3 cardinal teeth in either valve, plus anterior and posterior laterals. Adductor muscle scars subequal. Pallial sinus short to absent.

Can be confused with the following family:



Family Veneridae

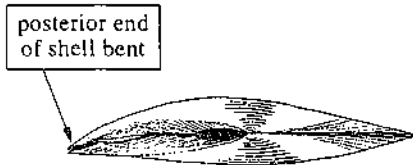
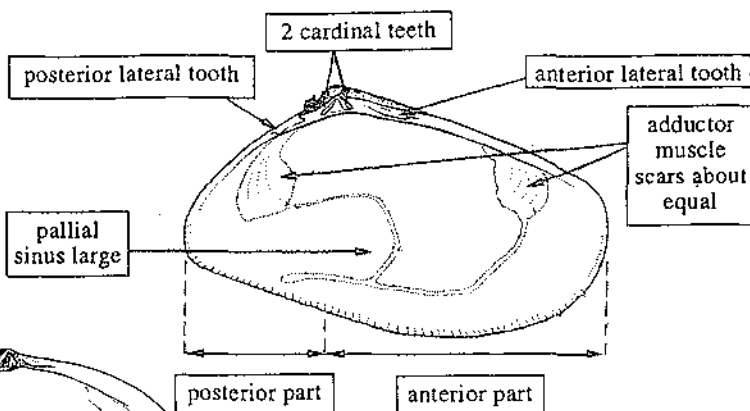


DONACIDAE

page 63

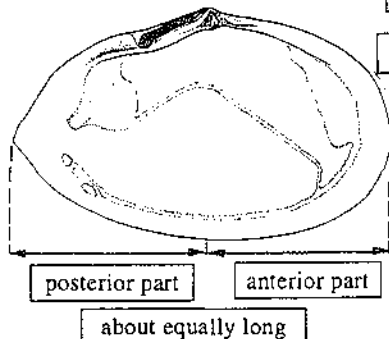
Shell elongate, typically wedge-shaped, with a shorter posterior part. Ligament external. Hinge with 2 cardinal teeth in either valve; lateral teeth more or less developed. Adductor muscle scars almost equal. Pallial sinus well developed.

Can be confused with the following family:



dorsal view

Family Tellinidae

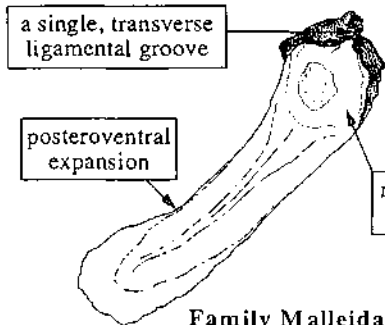


ISOGNOMONIDAE

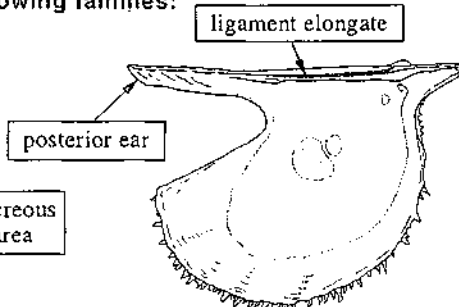
page 64

Shell rather compressed, with slightly unequal valves. Outer surface lamellate. Hinge line straight, toothless, with a series of transverse ligamental grooves. Interior with a nacreous layer. A single adductor muscle scar. No pallial sinus. Byssus present.

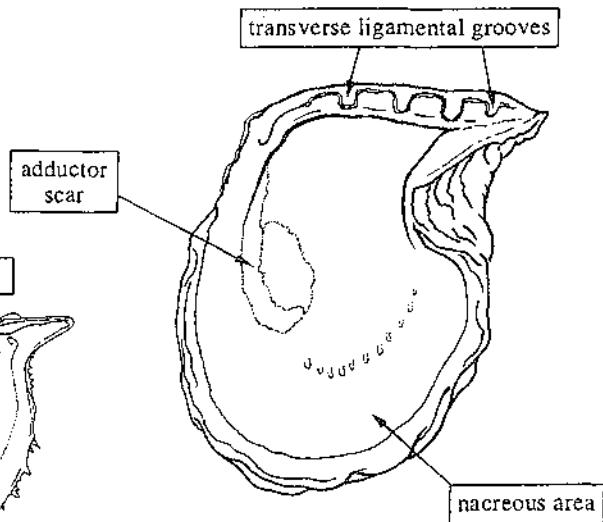
Can be confused with the following families:



Family Malleidae



Family Pteriidae

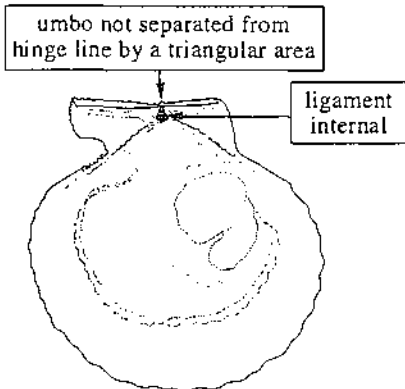


LIMIDAE

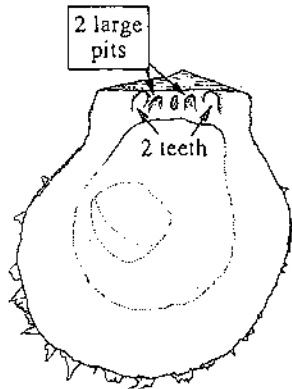
page 64

Shell equivalve, higher than long, slightly oblique. Umbo separated from hinge line by a triangular area. Hinge line straight, with 2 small expansions (ears) and a central ligamental groove. Hinge toothless. A single, faint adductor muscle scar. No pallial sinus.

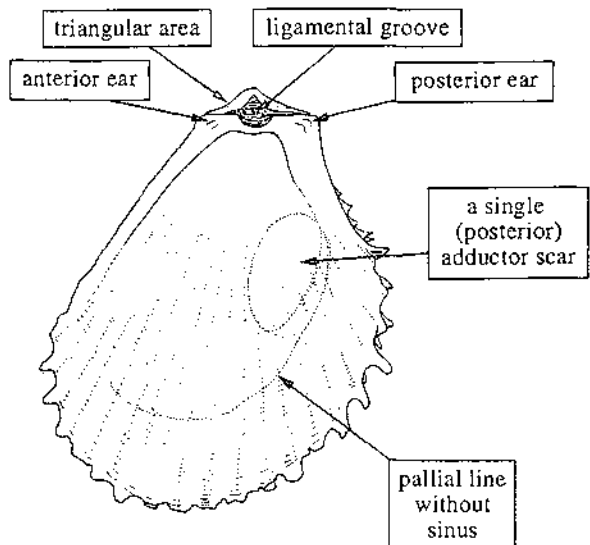
Can be confused with the following families:



Family Pectinidae



Family Spondyliidae

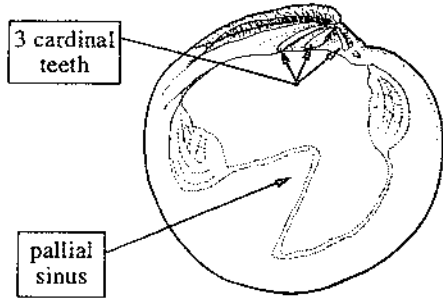
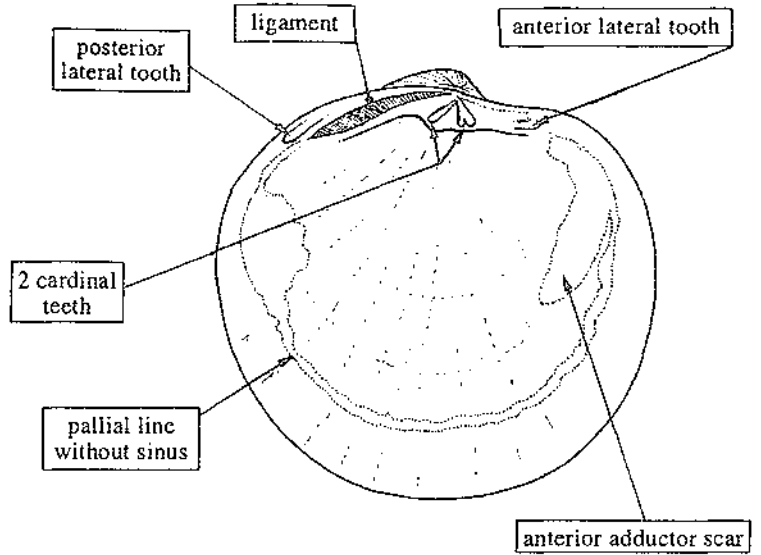


LUCINIDAE

page 65

Shell equivalve, lenticular. Ligament external to more or less deeply sunken. Hinge typically with 2 cardinal and 2 lateral teeth, one anterior and the other posterior (sometimes reduced). Anterior adductor muscle scar elongate, often forming a ventral expansion distinct from pallial line. No pallial sinus. Foot long, worm-like.

Can be confused with the following family:

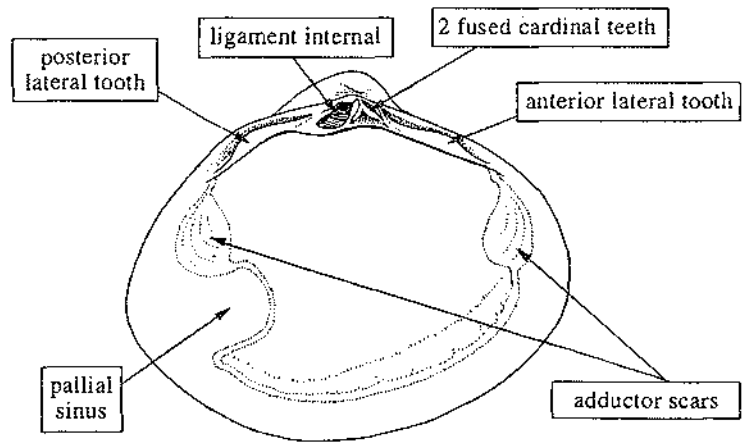


Family Veneridae
(*Dosinia* species)

MACTRIDAE

page 65

Shell equivalve, triangular-ovate or transversely elongate. External ligament reduced; internal ligament in a large, socket-like pit. Hinge with 2 fused cardinal teeth forming an inverted "V" in the left valve. Adductor muscle scars about equal. Pallial sinus present.

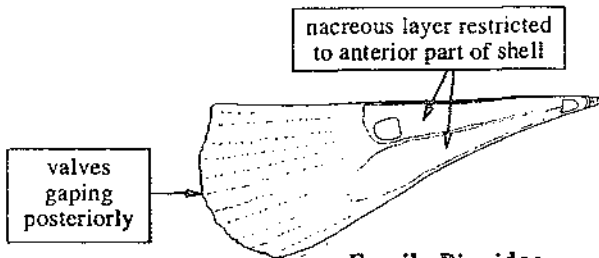
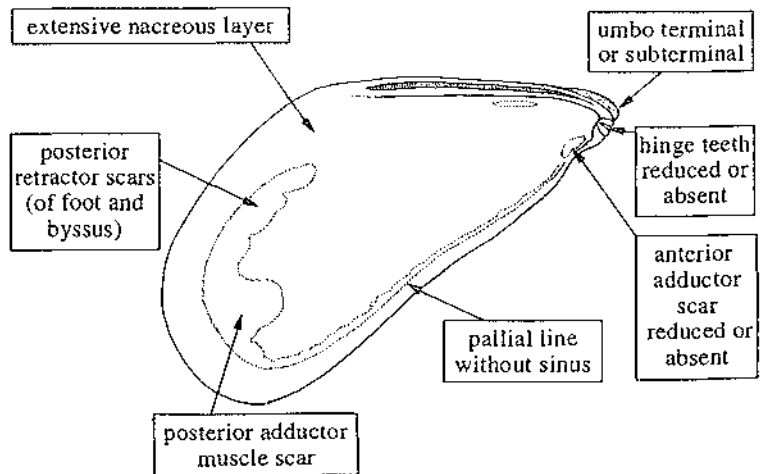


MYTILIDAE

page 66

Shell elongate, with umbones at or near the anterior end. Ligament deeply inset along the posterior dorsal margin. Hinge without teeth, or with a few small denticles. Interior with a dull nacreous layer. Adductor muscle scars very unequal, the anterior one small to absent. No pallial sinus. Foot elongate, byssus present.

Can be confused with the following family:



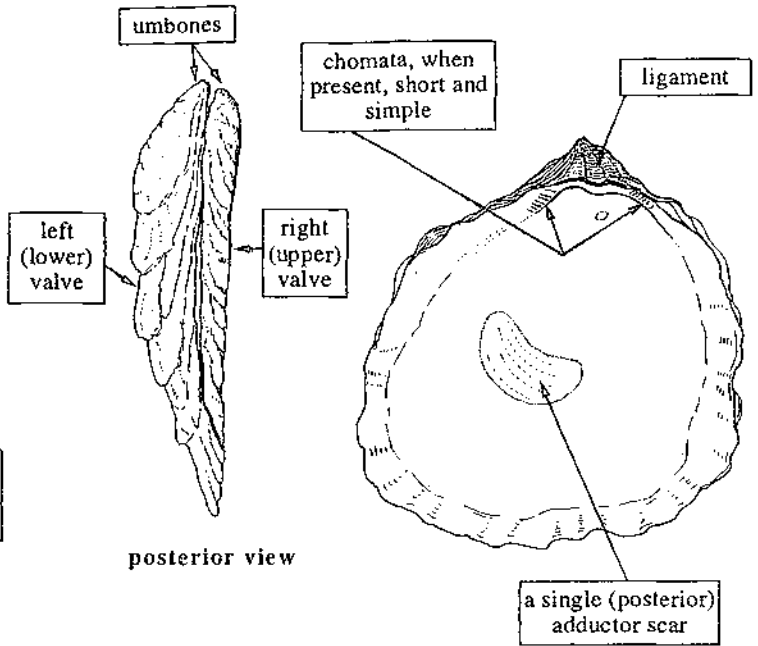
Family Pinnidae

OSTREIDAE

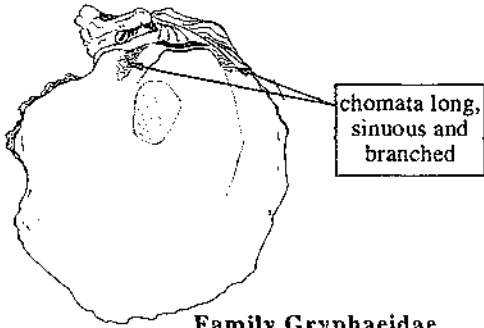
page 67

Shell solid and irregularly shaped, cemented to the substrate by the left (lower) valve which is generally larger and deeper. Right (upper) valve quite flat and often lamellate. Ligament in an external broad, shallow pit. Hinge toothless. A single (posterior) adductor muscle scar. Internal margins with or without fine denticles and opposing pits (chomata).

Can be confused with the following family:



shell light, of vesicular structure (honey-comb pattern of pores)



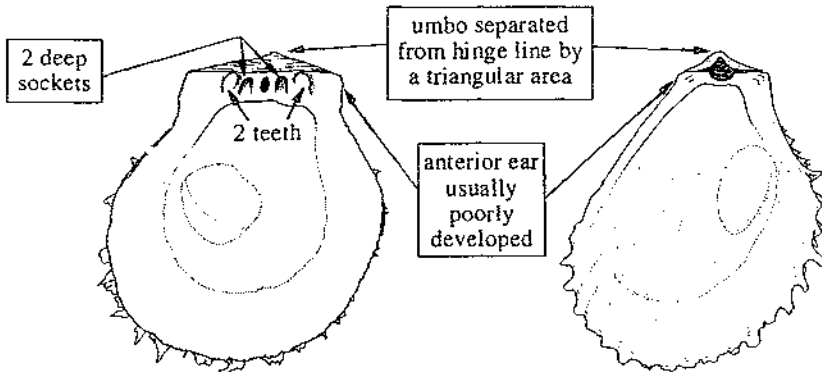
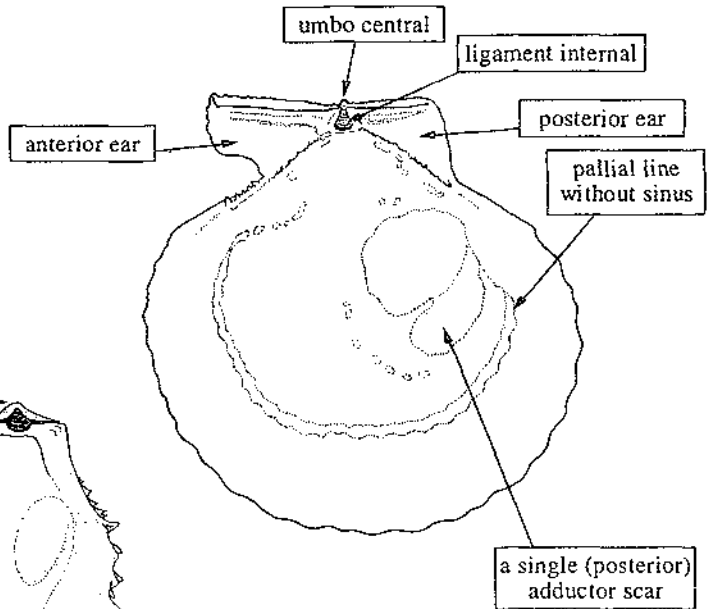
Family Gryphaeidae

PECTINIDAE

page 67

Shell ovate to subcircular, with central umbones. Sculpture mostly radial. Hinge line straight, with wing-like expansions (ears). Ligament mostly internal, triangular, pointing under umbones. Hinge toothless. A single adductor muscle scar. No pallial sinus. Foot reduced. Byssus persistent or disappearing with growth.

Can be confused with the following families:



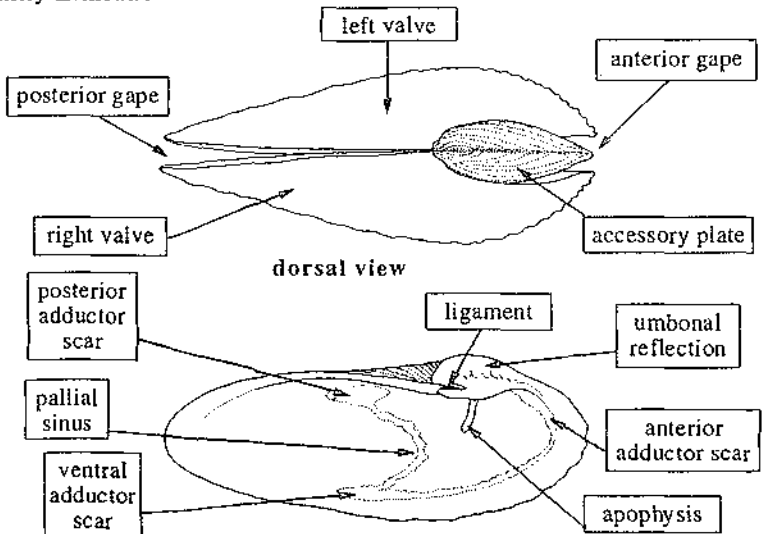
Family Spondylidae

Family Limidae

PHOLADIDAE

page 69

Shell equivalve, elongate and fragile, generally gaping anteriorly and posteriorly (anterior gape sometimes closed in adult stage by a calcareous "callum"). Sculpture rough to prickly. Dorsal margin unrolled over the umbones (umbonal reflection). Up to 4 accessory plates besides the paired valves. Ligament internal, reduced. Hinge toothless; a long, recurved apophysis projecting from the umbonal cavity. Pallial line with a deep sinus and 3 adductor muscle scars, one anterior, one posterior and the third, ventral. Siphons long and united, not wholly retractable within the shell.

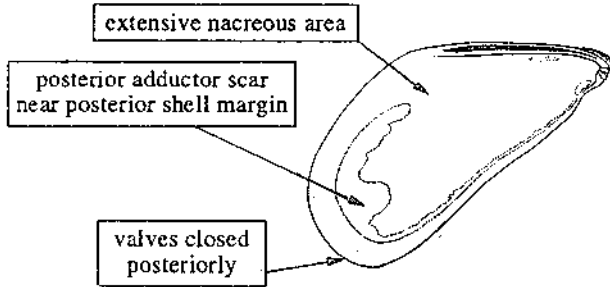


PINNIDAE

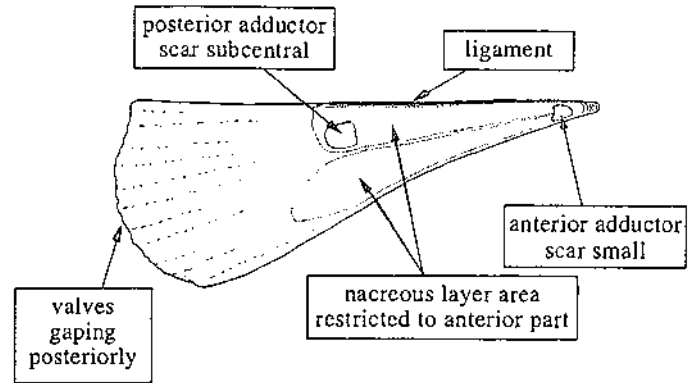
page 69

Shell large and brittle, wedge-shaped, with sharp umbones at anterior end; posterior end gaping. Ligament deeply inset along the posterior dorsal margin. Hinge toothless. Interior with a thin nacreous layer anteriorly. Adductor muscle scars unequal, the posterior bigger and more or less central.

Can be confused with the following family:



Family Mytilidae

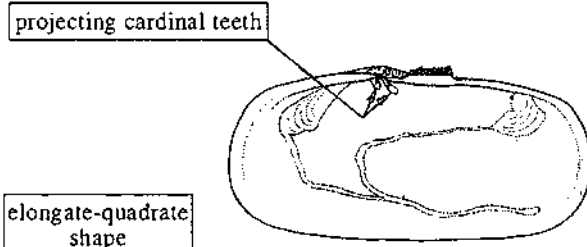


PSAMMOBIIDAE

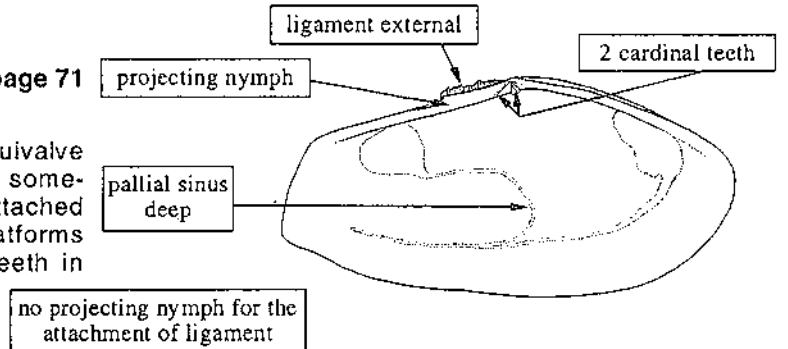
page 71

Shell oblong to ovate, usually slightly gaping, equivalve to somewhat inequivalve. Sculpture concentric, sometimes also radial. Ligament external, strong, attached behind the umbones on projecting narrow platforms (nymphs). Hinge quite weak, with 2 cardinal teeth in either valve. Pallial sinus deep.

Can be confused with the following families:



Family Solecurtidae



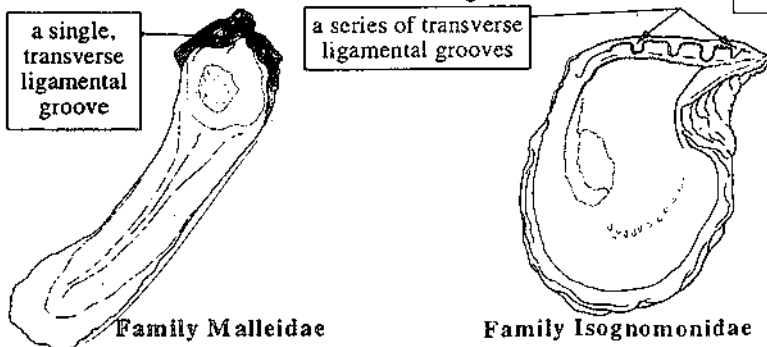
Family Tellinidae

PTERIIDAE

page 71

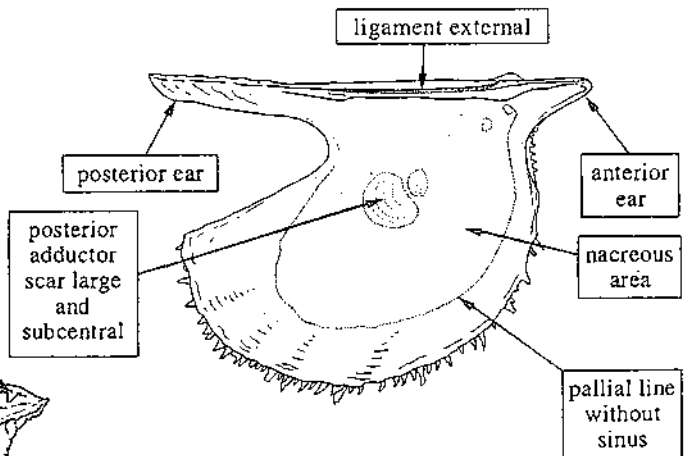
Shell rather compressed, often with unequal valves. Outer surface scaly to lamellate. Hinge line straight, tending to form a triangular, wing-like projection (ear) at each end. Ligament elongate, external, but sunken. Hinge toothless, or with much reduced teeth. Inner surface pearly. Adductor muscle scars very unequal, the anterior one small to absent. No pallial sinus. Byssus present.

Can be confused with the following families:



Family Malleidae

Family Isognomonidae

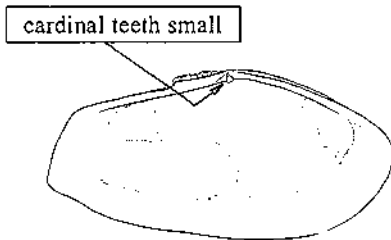


SOLECURTIDAE

page 72

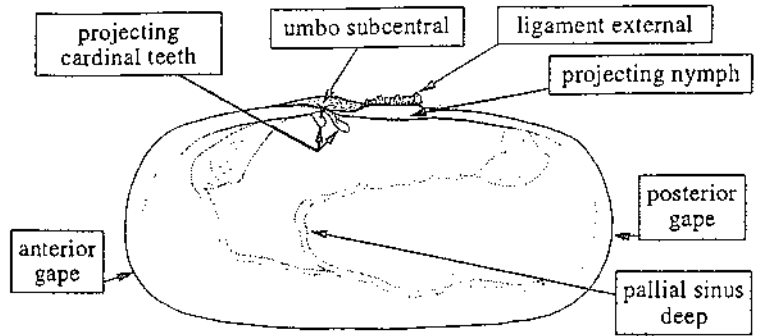
Shell equivalve, elongate-quadrate, well gaping at both ends, with subcentral umbones. Sculpture mainly concentric or oblique. Ligament external, strong, attached behind umbones on projecting, narrow platforms (nymphs). Hinge with one or two small, but projecting cardinal teeth in each valve. Two adductor muscle scars, unequal in shape. Pallial sinus deep. Siphons long and separate.

Can be confused with the following families:

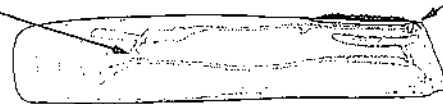


Family Psammobiidae

elongate-ovate shape



pallial sinus relatively shallow



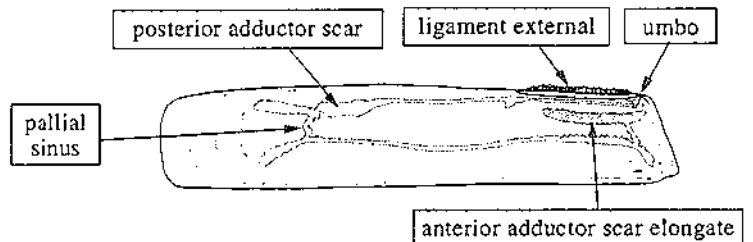
Family Solenidae

SOLENIIDAE

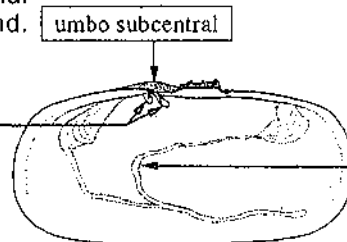
page 72

Shell equivalve, narrow and elongate, gaping at both ends. Umbones near anterior end. Ligament external. Hinge feeble. Anterior adductor muscle scar elongate, larger than the posterior one. Pallial sinus present. Foot strong, with an inflated end. Siphons short, fused at base.

Can be confused with the following family:



projecting cardinal teeth



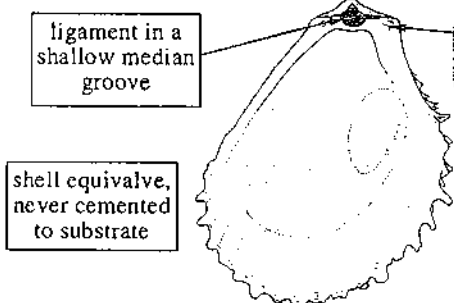
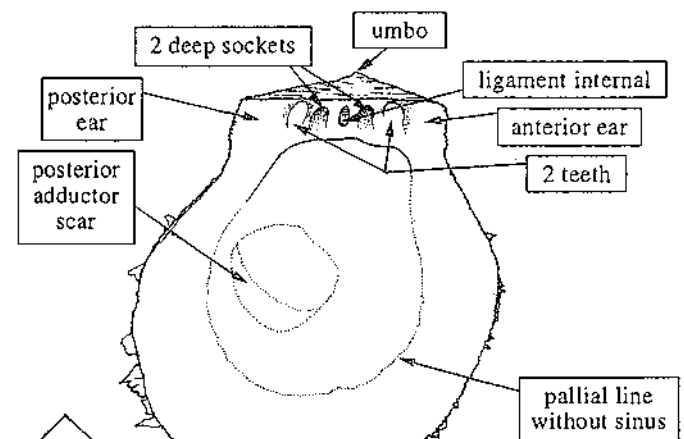
Family Solecurtidae

SPONDYLIDAE

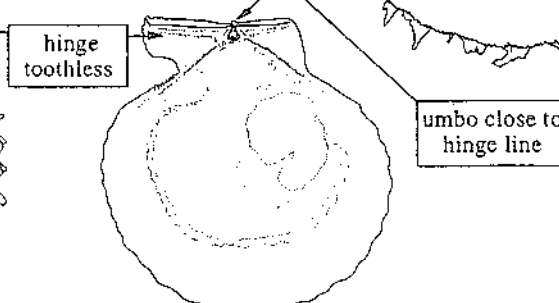
page 72

Shell stout, irregularly rounded and higher than long, cemented to the substrate by its right valve which is generally deeper. Outer sculpture mainly radial, often scaly to spinose. Umbones separated from hinge line by a triangular area which is higher in the right valve. Hinge line straight, with a small triangular expansion (ear) at each end. Ligament internal, in a deep median pit. Hinge symmetrical, with 2 strong teeth and 2 deep sockets in either valve. A single adductor muscle scar. No pallial sinus.

Can be confused with the following families:



Family Limidae



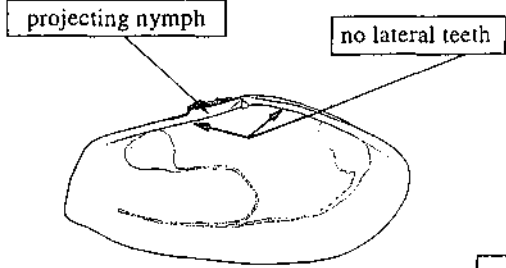
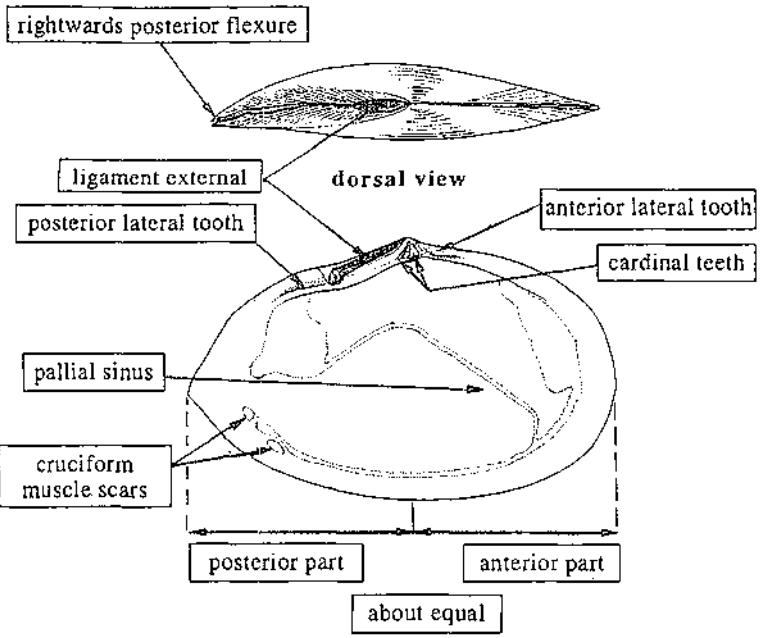
Family Pectinidae

TELLINIDAE

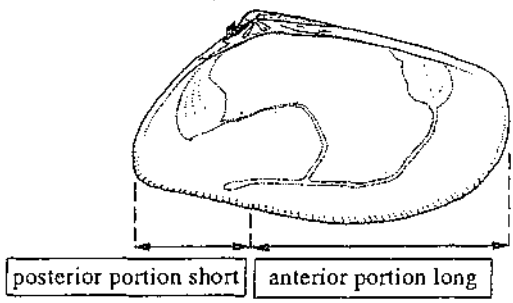
page 73

Shell ovate or oblong, more or less compressed, usually slightly flexed posteriorly. Outer surface often brightly coloured, with weak sculpture. Ligament external. Hinge rather weak, with 2 cardinal teeth in either valve; lateral teeth present or not. Two adductor muscle scars. Pallial sinus deep, with 2 small imprints (cruciform muscle scars) near its postero-ventral extremity.

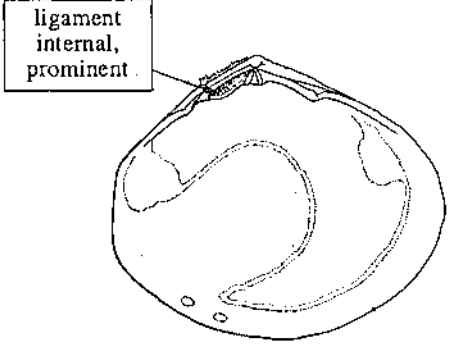
Can be confused with the following families:



Family Psammobiidae



Family Donacidae



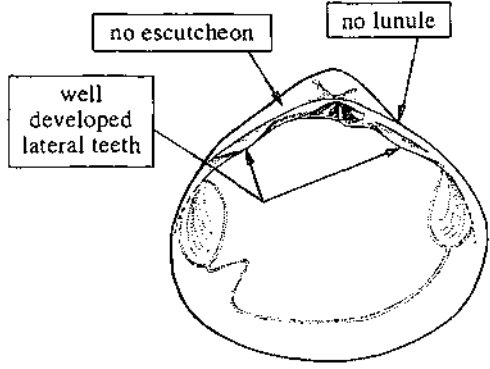
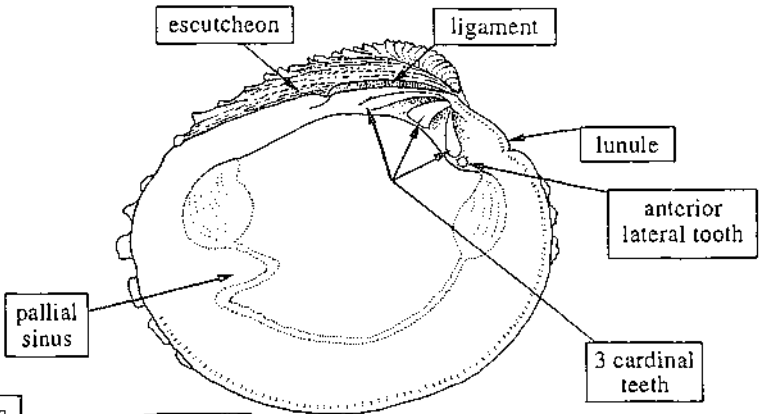
Family Semelidae

VENERIDAE

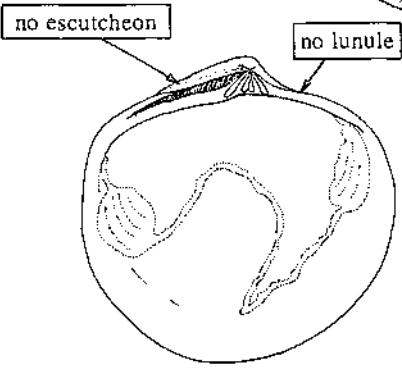
page 74

Shell solid, equivalve or nearly so. Umbones in front of midline. Lunule and/or escutcheon present. Sculpture mostly concentric. Ligament external. Hinge with 3 (rarely 2) cardinal teeth in either valve, and sometimes laterals. Adductor scars more or less equal. Pallial sinus usually present.

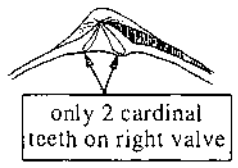
Can be confused with the following families:



Family Corbiculidae



Family Petricolidae



FAMILIES AND SPECIES OF INTEREST TO FISHERIES

Note: The measurements indicated here represent the largest sizes so far reported for the species, measured along the longest axis of the shell. In view of the paucity of available biogeographic information by species, especially for the eastern part of the area, no details are given regarding the distribution of each species within the area.

ARCIDAE

En: Ark shells. **Fr:** Arches. **Sp:** Arcas.

Four species of interest to fisheries in the area. Hand-collected or taken with dredges. Consumed locally, especially in soups, sauces, or pickled; at least two species are canned industrially.

Anadara notabilis (Röding, 1798)

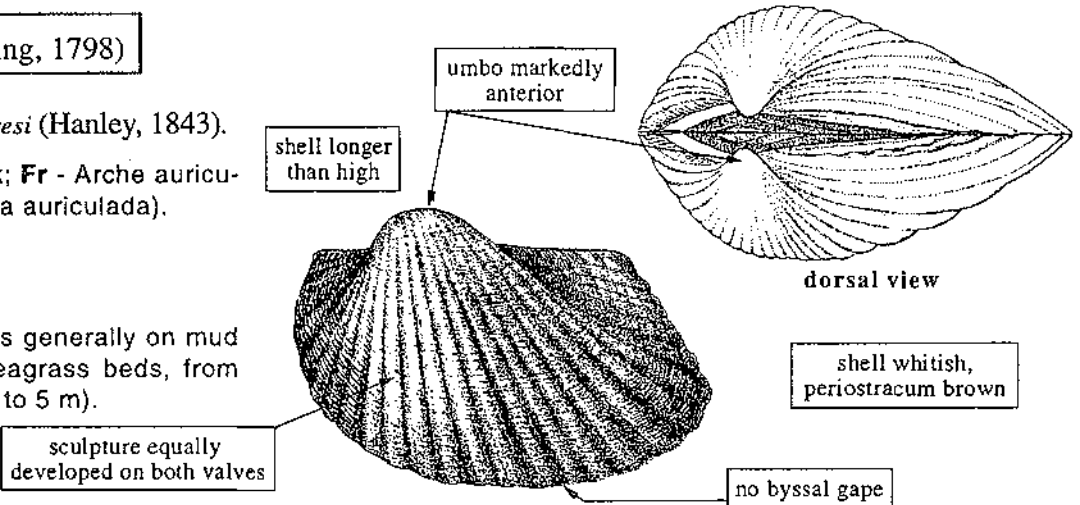
Synonyms: *Anadara deshayesi* (Hanley, 1843).

FAO names: **En** - Eared ark; **Fr** - Arche auriculée; **Sp** - Arca orejona (=Arca auriculada).

Common names:

Size: To 9 cm.

Habitat and fisheries: Lives generally on mud or sand bottoms and on seagrass beds, from depths of 1 to 15 m (usually to 5 m).



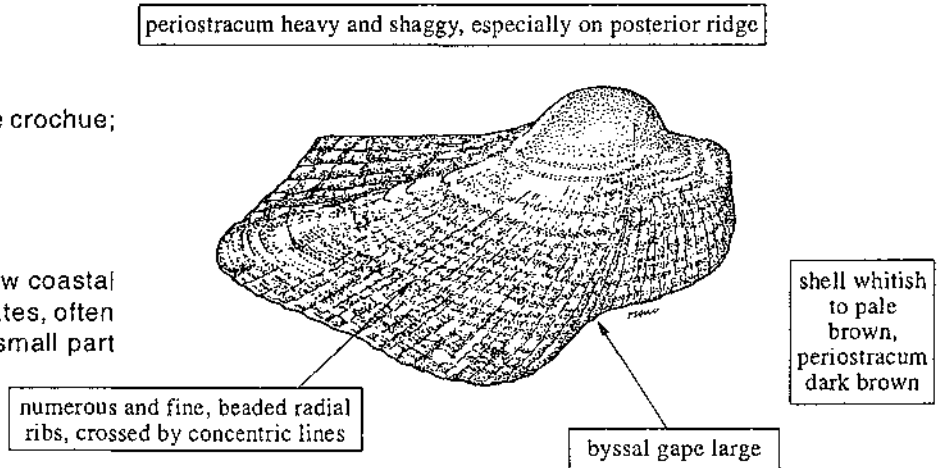
Arca imbricata Bruguière, 1789

FAO names: **En** - Mossy ark; **Fr** - Arche crochue; **Sp** - Arca pata de cabra.

Common names:

Size: To 6 cm.

Habitat and fisheries: Found in shallow coastal marine waters, attached to hard substrates, often in crevices of rocks. In Venezuela, a small part of the landings is canned.



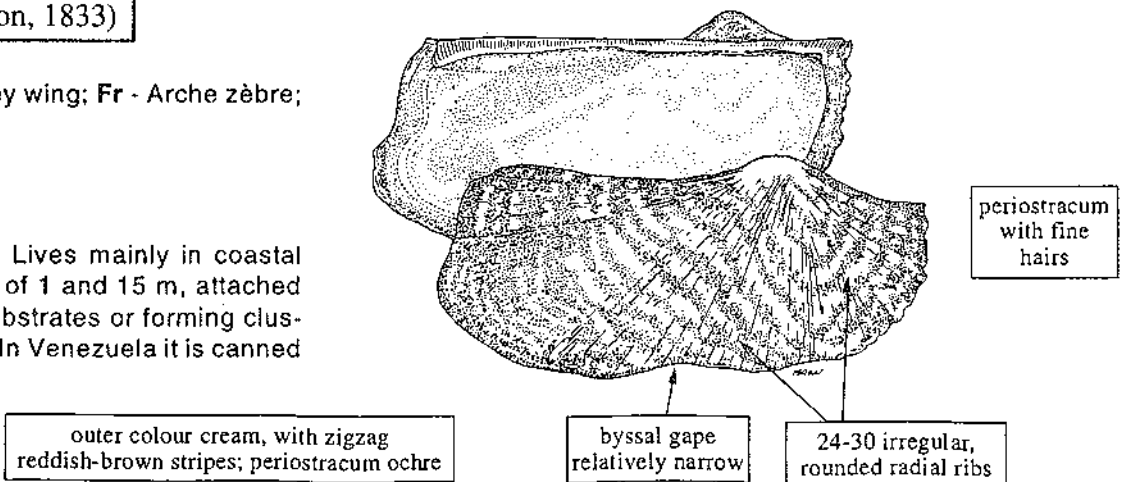
Arca zebra (Swainson, 1833)

FAO names: **En** - Turkey wing; **Fr** - Arche zèbre; **Sp** - Arca cebra.

Common names:

Size: To 10 cm.

Habitat and fisheries: Lives mainly in coastal waters between depths of 1 and 15 m, attached by its byssus to hard substrates or forming clusters on seagrass beds. In Venezuela it is canned industrially.



ARCIDAE

***Scapharca brasiliana* (Lamarck, 1819)**

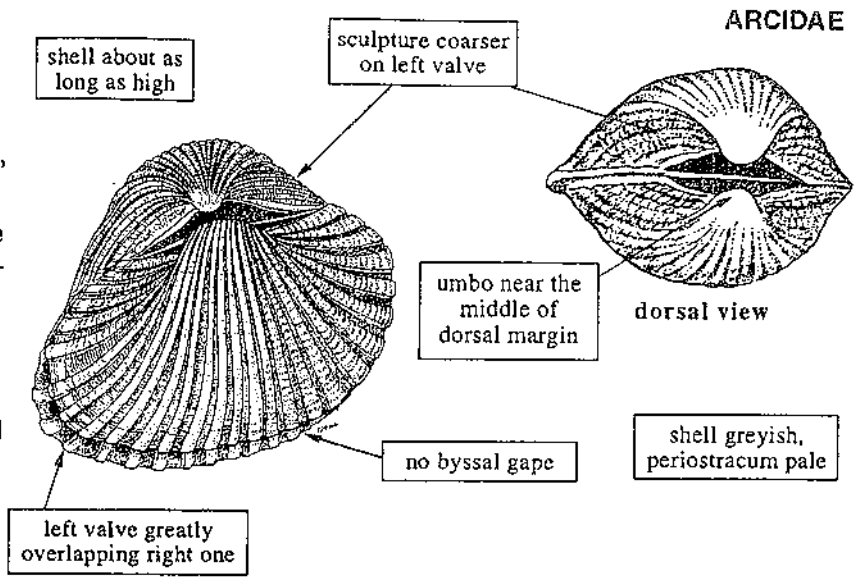
Synonyms: *Anadara brasiliana* (Lamarck, 1819); *Cunearca brasiliana* (Lamarck, 1819).

FAO names: En - Incongruous ark; Fr - Arche incongrue; Sp - Arca pepitona (=Arca incongrua).

Common names:

Size: To 6 cm.

Habitat and fisheries: Lives on sand, shell debris, and on seagrass beds from depths of 1 to 50 m, more commonly between 1 and 3 m.



(after Abbott, 1968)

CARDIIDAE

En: Cockles. **Fr:** Bucardes. **Sp:** Berberechos.

Four species of interest to fisheries in the area. Hand-collected or taken with bottom trawls. Consumed locally, mostly in soups.

***Americardia media* (Linnaeus, 1758)**

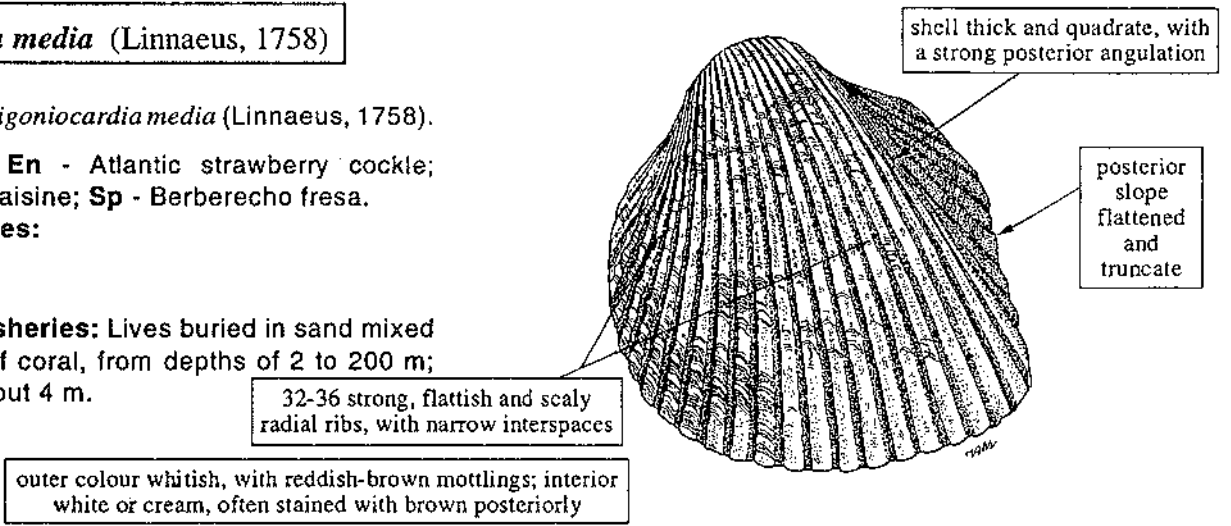
Synonyms: *Trigoniocardia media* (Linnaeus, 1758).

FAO names: En - Atlantic strawberry cockle; Fr - Bucarde fraisine; Sp - Berberecho fresca.

Common names:

Size: To 3 cm.

Habitat and fisheries: Lives buried in sand mixed with remains of coral, from depths of 2 to 200 m; common to about 4 m.



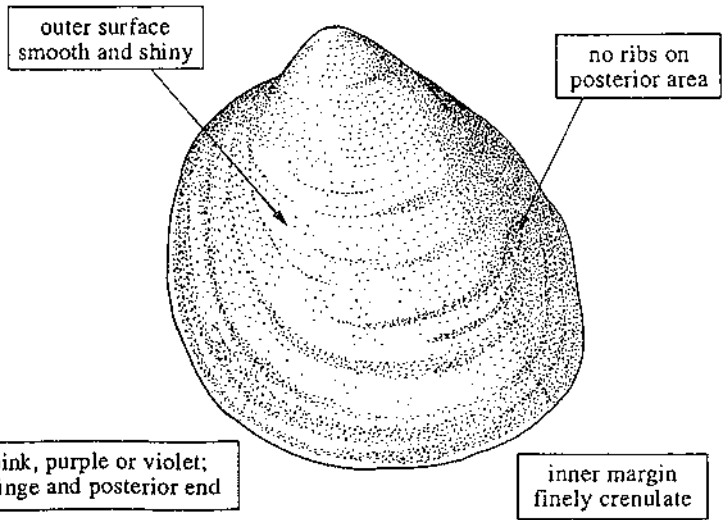
***Laevicardium laevigatum* (Linnaeus, 1758)**

FAO names: En - Common egg cockle; Fr - Bucarde lisse des Caraïbes; Sp - Berberecho huevo.

Common names:

Size: To 7 cm.

Habitat and fisheries: Lives buried in several types of soft bottom and on seagrass beds, from the sublittoral zone to about a depth of 75 m; very abundant between 5 and 8 m. One of the most common species of bivalves in trawl catches of the shrimp fishery in Venezuela.



colour variable, usually creamy, with tints of orange, pink, purple or violet; interior white, often stained with orange or purple on hinge and posterior end

(after Sterrer, 1986)

CARDIIDAE

***Trachycardium isocardia* (Linnaeus, 1758)**

FAO names: En - Even cockle; Fr - Bucarde régulière; Sp - Berberecho guacuco.

Common names:

Size: To 7.5 cm.

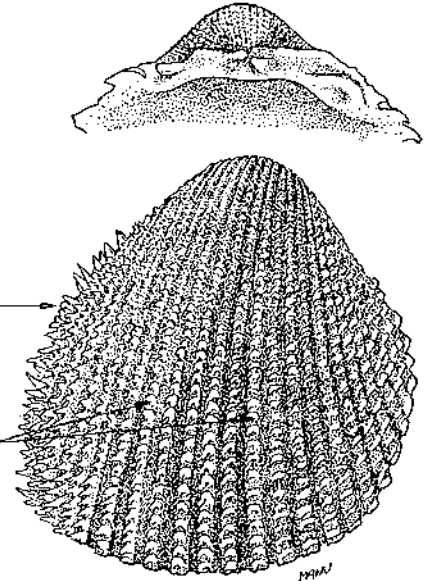
Habitat and fisheries: Lives in coastal waters, buried in sandy bottoms, sometimes in the vicinity of seagrass beds; very common between depths of 2 and 10 m. A very abundant species on Margarita island and on the eastern coast of Venezuela.

shell higher than long, with quite prominent umbones

posterior margin strongly dentate

31-37 strong radial ribs covered by prominent imbricate spines

shell creamy, mottled with dull brown; interior vivid salmon to purple

***Trachycardium muricatum* (Linnaeus, 1758)**

FAO names: En - American yellow cockle (=Yellow cockle); Fr - Bucarde jaune; Sp - Berberecho amarillo.

Common names:

Size: To 5 cm.

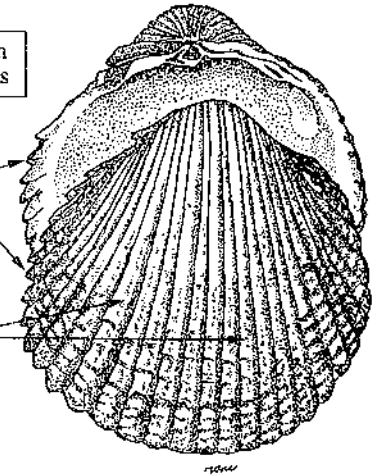
Habitat and fisheries: Lives in coastal waters, buried in sand, sometimes near seagrass beds; very common between depths of 2 and 10 m.

shape subcircular, with relatively low umbones

posterior margin strongly dentate

30-40 strong radial ribs with non-imbricate spines at edges

shell creamy, interior whitish, often tinged with yellow

**CORBICULIDAE**

En: Marsh clams. **Fr:** Cyrènes. **Sp:** Guacucos de marjal.

Two species in brackish waters of the area. Hand-collected and taken with mud dredges. Consumed locally.

***Polymesoda aequilatera* (Deshayes, 1855)**

FAO names: En - Equilateral marsh clam; Fr - Cyrène équilatérale; Sp - Guacuco de marjal.

Common names:

Size: To 4 cm.

Habitat and fisheries: Lives buried in mud in brackish-water swamp areas (estuaries and coastal lagoons).

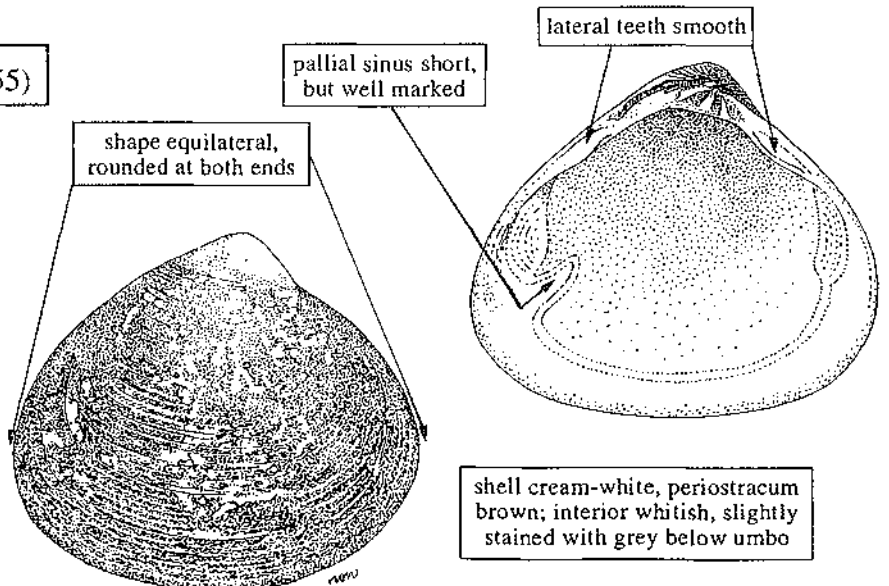
shape equilateral, rounded at both ends

pallial sinus short, but well marked

lateral teeth smooth

outer surface rather smooth, with fine concentric lines

shell cream-white, periostracum brown; interior whitish, slightly stained with grey below umbo



CORBICULIDAE

***Polymesoda arctata* (Deshayes, 1854)**

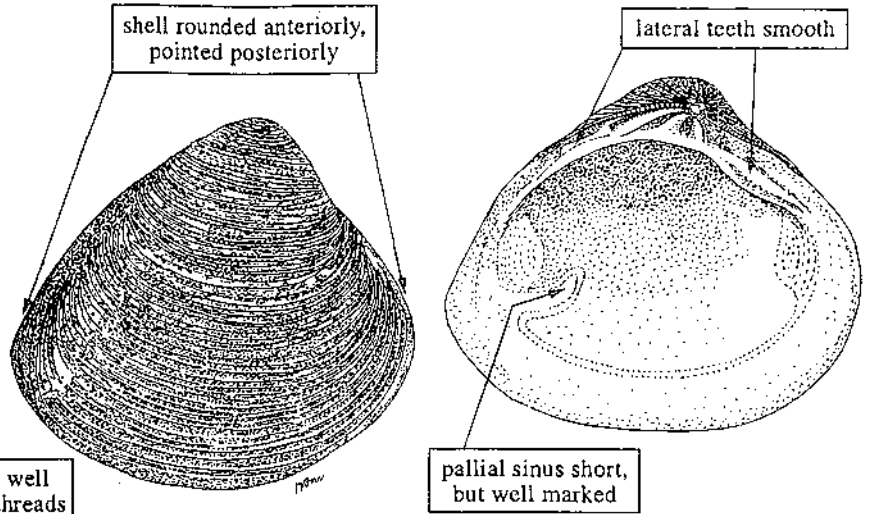
Note: Often confused with *Polymesoda triangula* (Philippi, 1849).

FAO names: En - Slender marsh clam; Fr - Cyrène élancée; Sp - Guacuco de marjal esbelto.

Common names:

Size: To 4 cm.

Habitat and fisheries: Lives buried in mud in brackish water-swamp areas (estuaries and coastal lagoons).



shell rounded anteriorly, pointed posteriorly

lateral teeth smooth

outer surface with well marked concentric threads

pallial sinus short, but well marked

shell cream-white, often tinged with purplish or greyish, periostracum pale or dark brown; interior whitish to dark purple, often with darker radial stripes at both ends

DONACIDAE

En: Bean, donax or wedge clams. **Fr:** Donaces, flions. **Sp:** Coquinas.

Three species of interest to fisheries in the area. Collected by hand or with shovels; also taken with dredges. Consumed locally, raw or boiled.

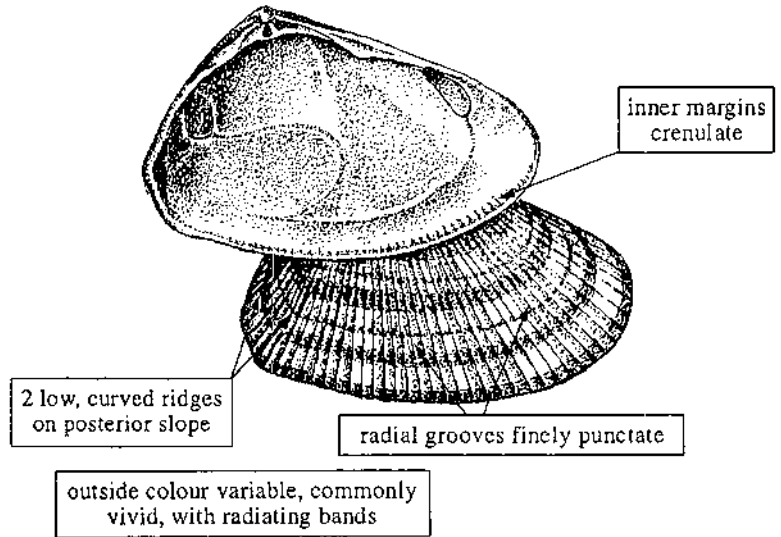
***Donax denticulatus* Linnaeus, 1758**

FAO names: En - Common Caribbean donax; Fr - Flion des Caraïbes; Sp - Coquina del Caribe.

Common names:

Size: To 2.5 cm.

Habitat and fisheries: Lives buried in sand, from the intertidal zone to depths of a few metres, especially near river outlets where the water is rich in suspended organic matter.



inner margins crenulate

2 low, curved ridges on posterior slope

radial grooves finely punctate

outside colour variable, commonly vivid, with radiating bands

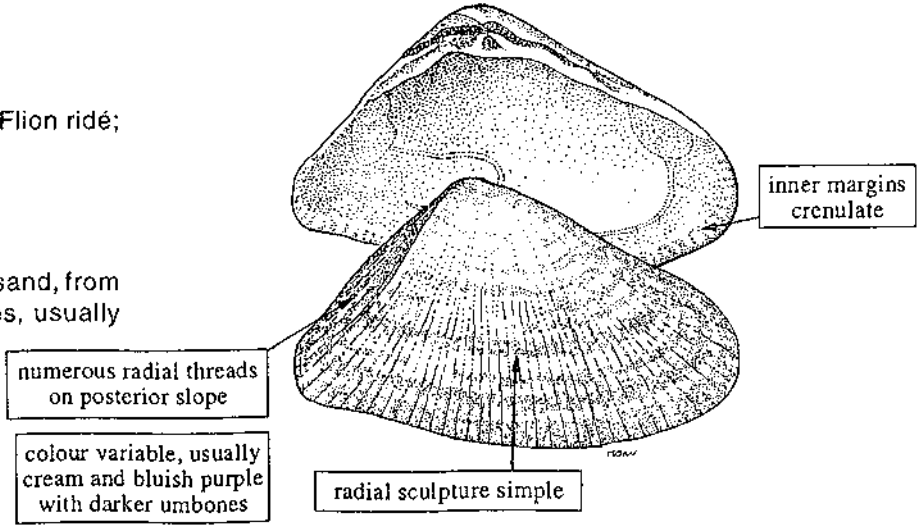
***Donax striatus* Linnaeus, 1767**

FAO names: En - Striate donax; Fr - Flion ridé; Sp - Coquina rayada.

Common names:

Size: To 2.5 cm.

Habitat and fisheries: Lives buried in sand, from the coastline to depths of a few metres, usually in nutrient-rich waters near estuaries.



inner margins crenulate

numerous radial threads on posterior slope

colour variable, usually cream and bluish purple with darker umbones

radial sculpture simple

DONACIDAE

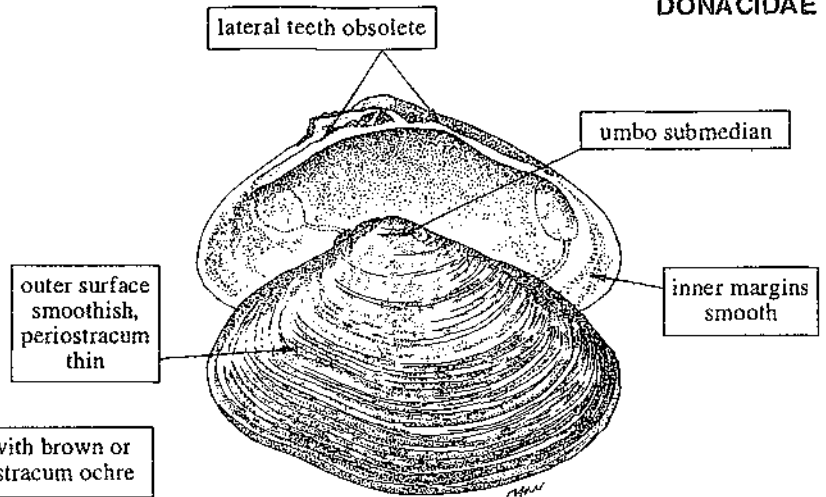
***Iphigenia brasiliana* (Lamarck, 1818)**

FAO names: En - Giant false donax; Fr - Donace géante; Sp - Coquina gigante.
Common names:

Size: To 6.5 cm.

Habitat and fisheries: Lives buried in sandy beaches up to depths of a few metres; common between 1 and 3 m.

colour greyish, suffused with brown or purple on umbones; periostracum ochre



ISOGNOMONIDAE

En- Tree oysters. **Fr-** Ostrèges. **Sp-** Conchas hojarascas.

One species of interest to fisheries in the area.

***Isognomon alatus* (Gmelin, 1791)**

FAO names: En - Flat tree oyster; Fr - Ostrège plate; Sp - Concha hojarasca chata.
Common names:

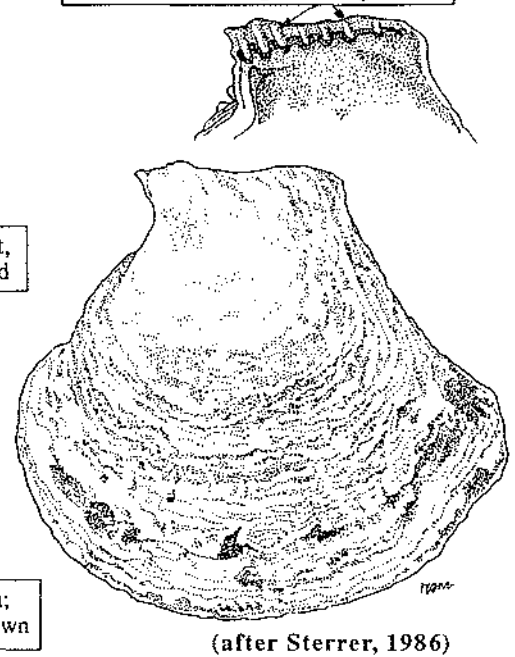
Size: To 7.5 cm.

Habitat and fisheries: A brackish water and marine species, usually found attached by its byssus to the roots of the mangrove tree, to submerged rocks and wood, forming compact clusters. Hand-collected. Strongly exploited in mangrove areas. Consumed locally, and marketed fraudulently as true oyster.

outside dull grey to purplish brown; interior nacreous, purple to dark brown

8 -12 transverse ligamental grooves

valves flat, fan-shaped



LIMIDAE

En: File shells. **Fr:** Lime. **Sp:** Limas.

One species of interest to fisheries in the area.

***Ctenoides scabra* (Born, 1778)**

Synonyms: *Lima scabra* (Born, 1778).

FAO names: En - Rough lima; Fr - Lime rèche; Sp - Lima áspera.

Common names:

Size: To 7.5 cm.

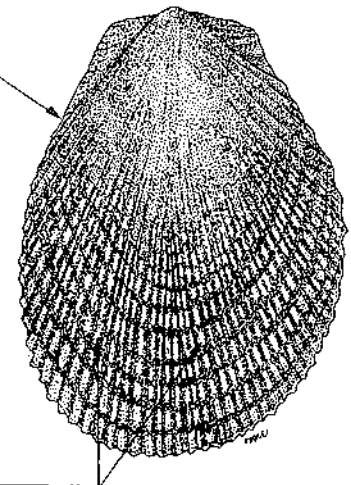
Habitat and fisheries: Lives in shallow marine waters, from the shore to about depths of 140 m, temporarily attached by its byssus to hard substrates (corals, rocks), but can swim away when disturbed. Hand-collected (by divers with or without scuba equipment), and by breaking the corals with a hammer. Consumed raw locally. Its acceptance in markets is limited because of the blood-red colour of its flesh and tentacles.

byssal gape fairly large

sub-equilateral shape

numerous radial rows of short, bar-like ribs slightly diverging from midline of shell, formed by series of short, thin threads

colour white, periostracum yellowish brown



LUCINIDAE

En: Lucines. **Fr:** Lucines. **Sp:** Lucinas.

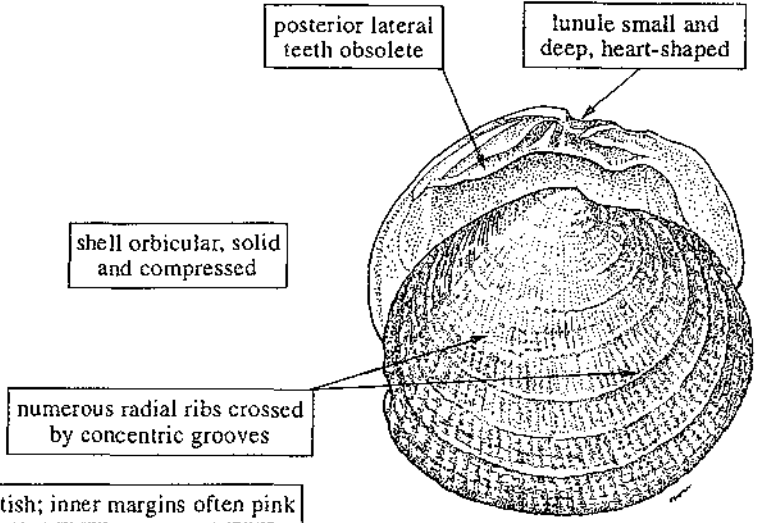
One species of interest to fisheries in the area.

***Codakia orbicularis* (Linnaeus, 1758)**

FAO names: **En** - Atlantic tiger lucine; **Fr** - Lucine tigrée américaine; **Sp** - Lucina tigre americana.
Common names:

Size: To 9 cm.

Habitat and fisheries: Lives deeply buried in sand between depths of 0.5 and 6 m. A characteristic species of seagrass beds. Hand-collected and consumed locally, raw or boiled in soups.



MACTRIDAE

En: Mactras, rangias, trough shells. **Fr:** Mactres, rangies. **Sp:** Mactras, rangias.

Two species of interest to fisheries in the area. Collected by hand or with shovels; also taken with dredges. Consumed locally, especially in soups.

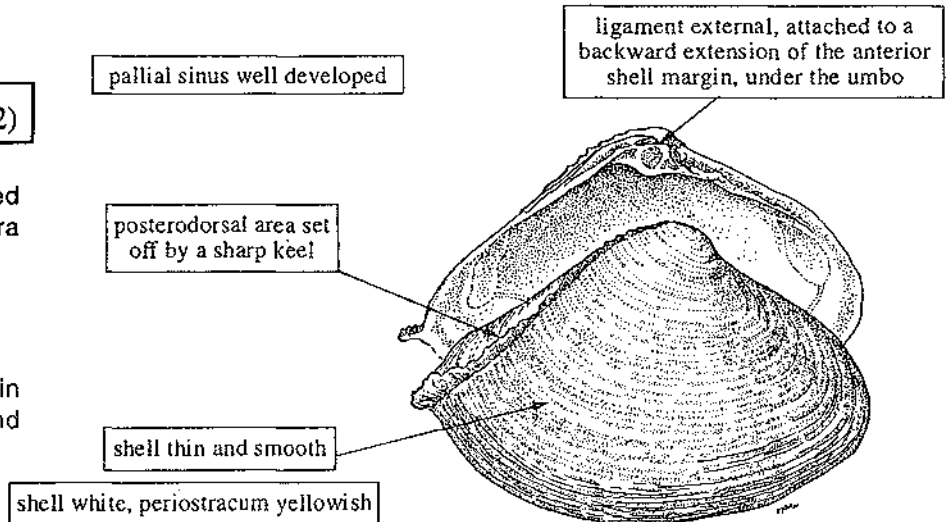
***Mactrellona alata* (Spengler, 1802)**

FAO names: **En** - Caribbean winged mactra; **Fr** - Mactre ailée; **Sp** - Mactra alada.

Common names:

Size: To 10 cm.

Habitat and fisheries: Lives buried in sand between water depths of 2 and 30 m.



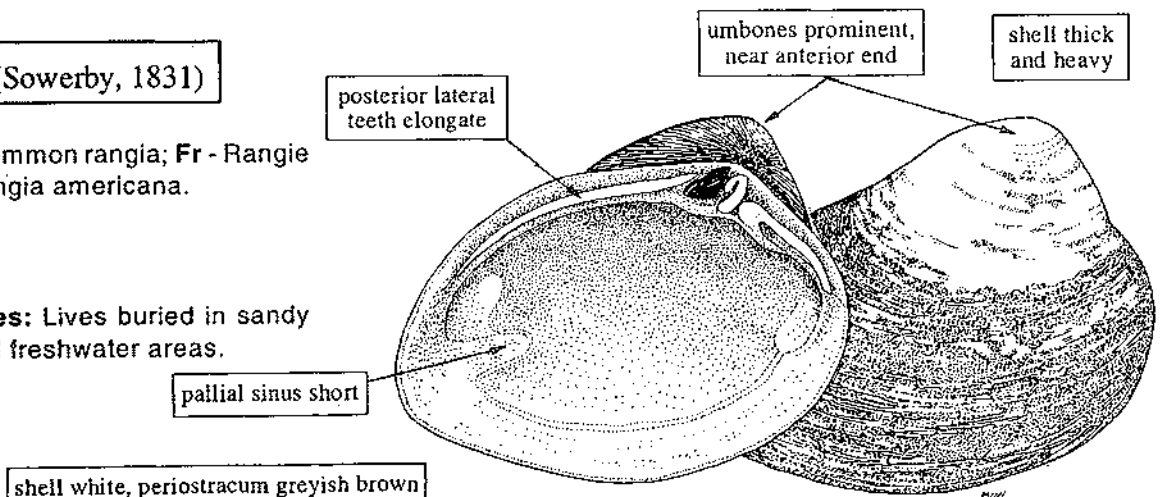
***Rangia cuneata* (Sowerby, 1831)**

FAO Names: **En** - Common rangia; **Fr** - Rangie américaine; **Sp** - Rangia americana.

Common names:

Size: To 5 cm.

Habitat and fisheries: Lives buried in sandy mud, in brackish and freshwater areas.



MYTILIDAE

En: Mussels. **Fr:** Moules, modioles. **Sp:** Mejillones.

Five species of interest to fisheries in the area. Collected by hand or with shovels. Consumed locally, raw or boiled. An industrially exploited species.

***Modiolus americanus* (Leach, 1815)**

Synonyms: *Modiolus tulipa* (Lamarck, 1819); *Modiolus pseudotulipus* Olsson, 1961.

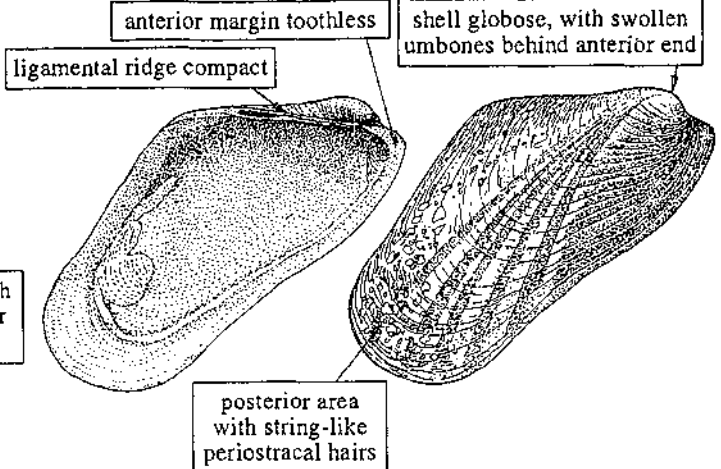
FAO Names: **En** - Tulip mussel; **Fr** - Modiole tulipe; **Sp** - Mejillón tulipán.

Common names:

shell brown, paler in the middle, often with fine, pink to purple radial lines and darker umbones; interior usually pearly rose

Size: To 10 cm.

Habitat and fisheries: In shallow marine waters, between depths of 1 and 6 m, attached to rocks and coral remains.

***Modiolus squamosus* Beuaperthuy, 1967**

Note: Often considered as a subspecies of *Modiolus modiolus* (Linnaeus, 1758).

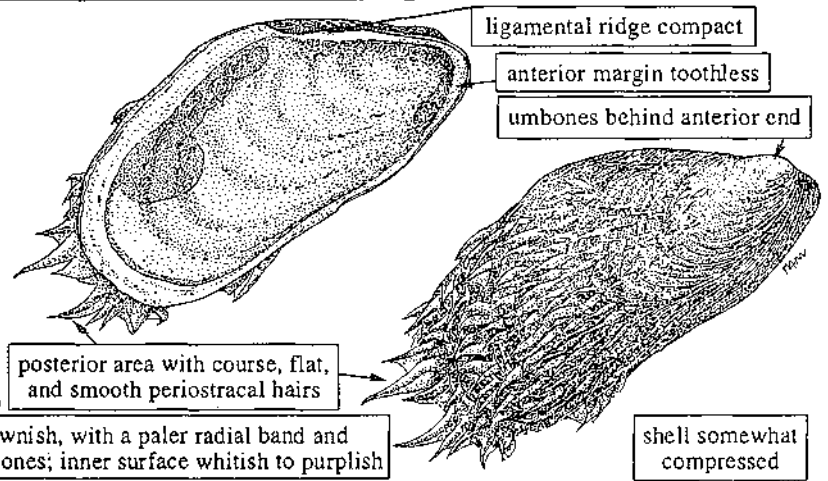
FAO names: **En** - False tulip mussel; **Fr** - Modiole écailleuse; **Sp** - Mejillón escamoso.

Common names:

Size: To 6 cm.

Habitat and fisheries: Lives in shallow marine waters, between depths of 1 and 6 m, attached to rocks, empty shells or coral remains.

shell brownish, with a paler radial band and whitish umbones; inner surface whitish to purplish

***Mytella guyanensis* (Lamarck, 1819)**

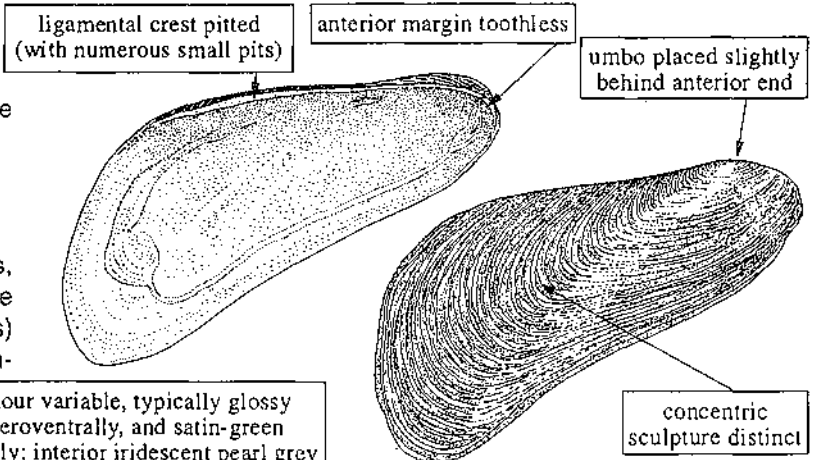
FAO names: **En** - Guiana swamp mussel; **Fr** - Moule de Guyane; **Sp** - Mejillón fanguero de Guayana.

Common names:

Size: To 9 cm.

Habitat and fisheries: Lives in coastal marine waters, estuaries and mangrove areas, from the intertidal zone to a few metres depth, forming clusters (byssal nests) buried in muddy sand; also attached to stones, mangrove roots and other hard substrates.

outside colour variable, typically glossy brown anteroventrally, and satin-green posterodorsally; interior iridescent pearl grey

***Mytella strigata* (Hanley, 1843)**

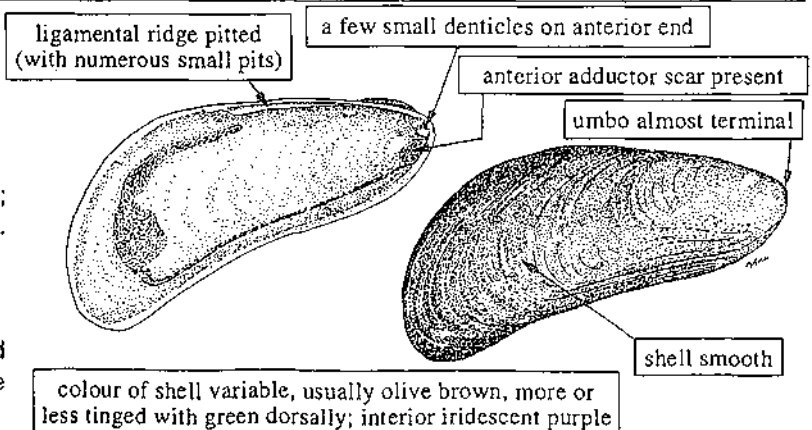
Synonyms: *Mytella charruana* (Orbigny, 1846); *Mytella falcata* (Orbigny, 1846).

FAO names: **En** - Strigate mangrove mussel; **Fr** - Moule hachette; **Sp** - Mejillón barba de hacha.

Common names:

Size: To 5 cm.

Habitat and fisheries: Lives attached to hard substrates, in muddy areas, especially mangrove swamps, estuaries and coastal lagoons.



colour of shell variable, usually olive brown, more or less tinged with green dorsally; interior iridescent purple

MYTILIDAE

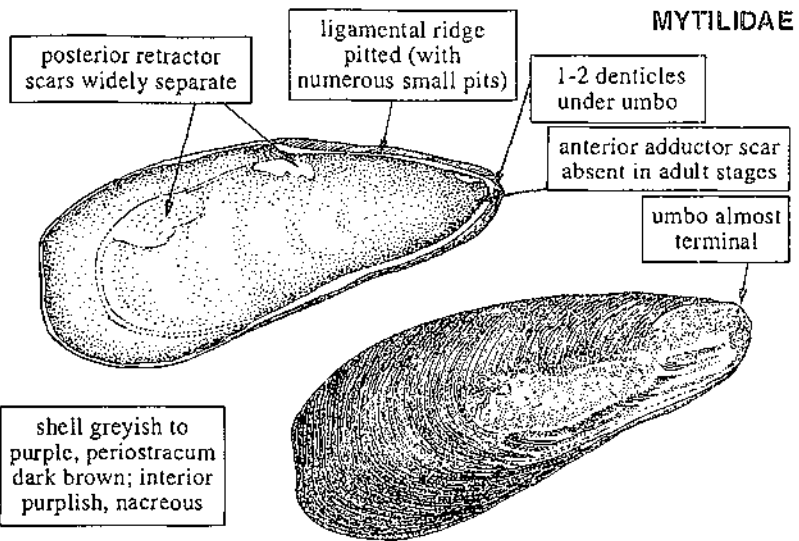
Perna perna (Linnaeus, 1758)

FAO Names: En - South American rock mussel; Fr - Moule de roche sudaméricaine; Sp - Mejillón de roca sudamericano.

Common names:

Size: To 10 cm.

Habitat and fisheries: Lives attached to rocks, corals and other hard substrates in open littoral waters. Heavily exploited in Venezuela and Trinidad. Frequent in local markets, and consumed raw or boiled; also canned industrially. It is recently being cultured for the canning industry.



OSTREIDAE

En: Oysters. **Fr:** Huîtres. **Sp:** Ostiones, ostras.

One species of interest to fisheries in the area.

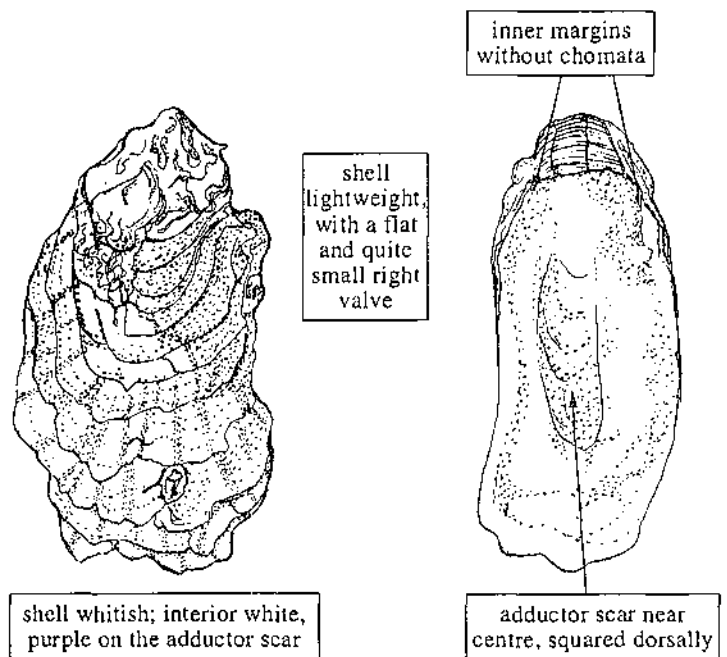
Crassostrea rhizophorae (Guilding, 1828)

FAO names: En - Mangrove cupped oyster. Fr - Huître creuse des Caraïbes; Sp - Ostión de mangle.

Common names:

Size: To 30 cm.

Habitat and fisheries: Lives attached to the roots of the mangrove tree, and to rocks and empty shells, in mangrove areas, estuaries and bays, from the intertidal zone to depths of about 5 m. This is one of the most heavily exploited bivalve species in the area. Some of its local populations have been strongly depleted as a result of over-exploitation. In order to protect the species, its exploitation in Venezuela is at present controlled. Consumed raw or boiled; also canned industrially. Often substituted fraudulently by *Isogomon*.



PECTINIDAE

En: Scallops. **Fr:** Peignes, pétoncles. **Sp:** Peines, vieiras.

Five species of interest to fisheries in the area. They are capable of active swimming by quickly opening and closing their valves, and hence can escape when disturbed. Taken mainly with bottom trawls; also by hand and occasionally with beach seines. Consumed raw or boiled.

Amusium papyraceum (Gabb, 1873)

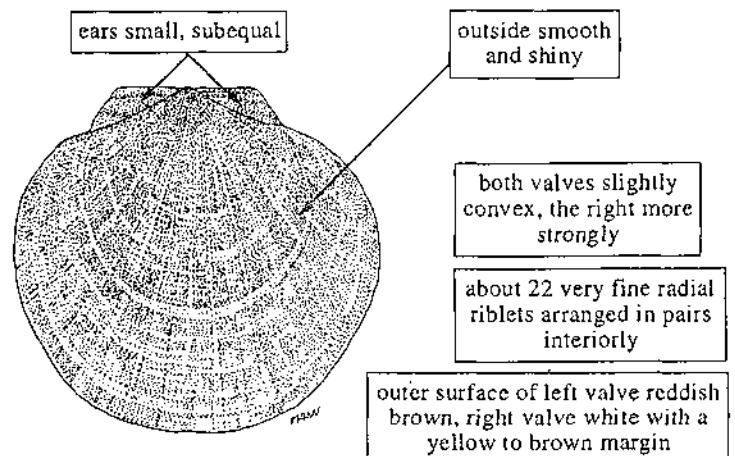
Note: The scientific name of this species will be revised shortly, as it was originally applied to a fossil species.

FAO names: En - Paper moon scallop; Fr - Peigne papyrus; Sp - Vieira papiro.

Common names:

Size: To 8 cm.

Habitat and fisheries: Lives on sandy and muddy bottoms between depths of 15 and 120 m.



PECTINIDAE

Argopecten gibbus (Linnaeus, 1758)

Synonyms: *Aequipecten gibbus* (Linnaeus, 1758).

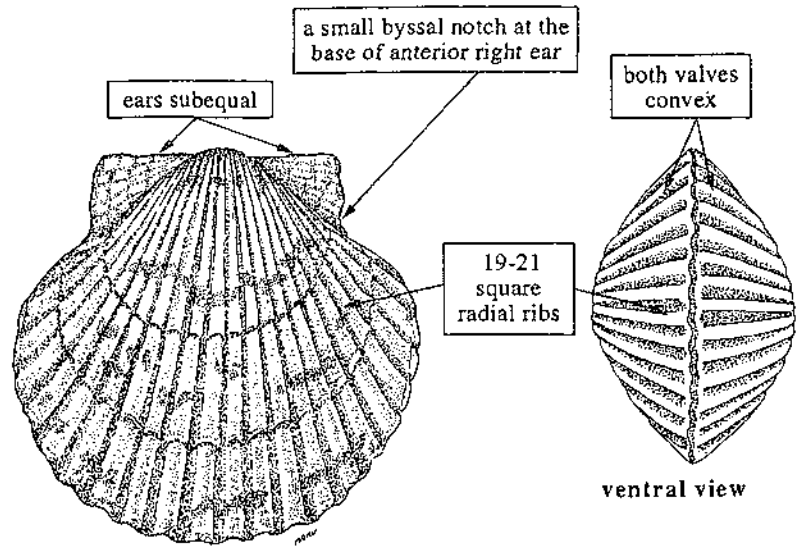
FAO names: En - Calico scallop; Fr - Pétoncle calicot (=Peigne calicot); Sp - Peine percal.

Common names:

Size: To 9 cm.

Habitat and fisheries: Lives on sand and shell debris; common between depths of 3 and 50 m, but may also be found in deeper water, to below 200 m.

shell white, mottled with rose, purple, brown and orange

*Argopecten irradians amplicostatus* (Dall, 1898)

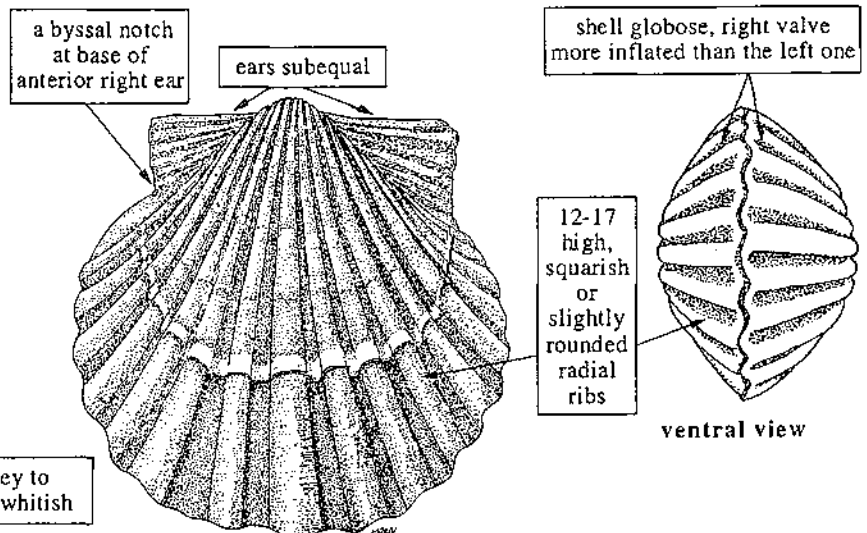
FAO names: En - Atlantic bay scallop; Fr - Pétoncle rayonnant (=Peigne baie de l'Atlantique); Sp - Peine caletero radiante (=Peine caletero atlántico).

Common names:

Size: To 8 cm.

Habitat and fisheries: Lives generally on sandy bottoms and seagrass beds, in protected bays and coastal lagoons, between depths of 0.5 and 20 m. The juveniles are attached by their byssus to aquatic plants.

left valve dull grey to brown, right valve whitish

*Lyropecten nodosus* (Linnaeus, 1758)

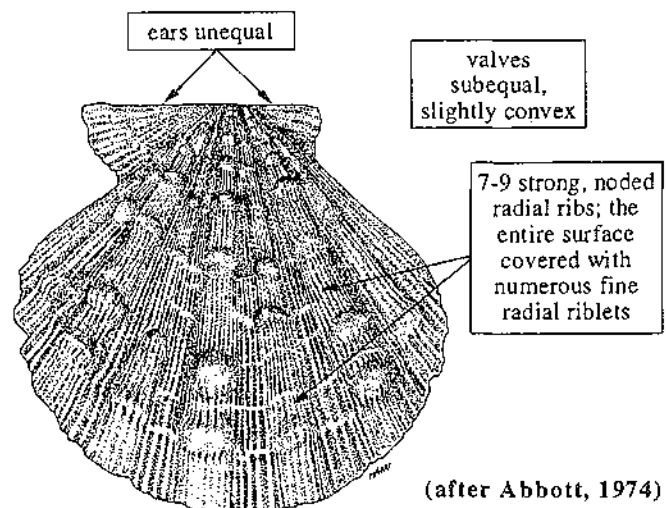
FAO names: En - Lion's paw; Fr - Pétoncle patte de lion; Sp - Vieira lonjúa.

Common names:

Size: To 15 cm.

Habitat and fisheries: Lives on sandy bottoms, mainly between depths of 0.5 and 30 m.

shell reddish brown, orange or yellow



PECTINIDAE

Pecten ziczac (Linnaeus, 1758)

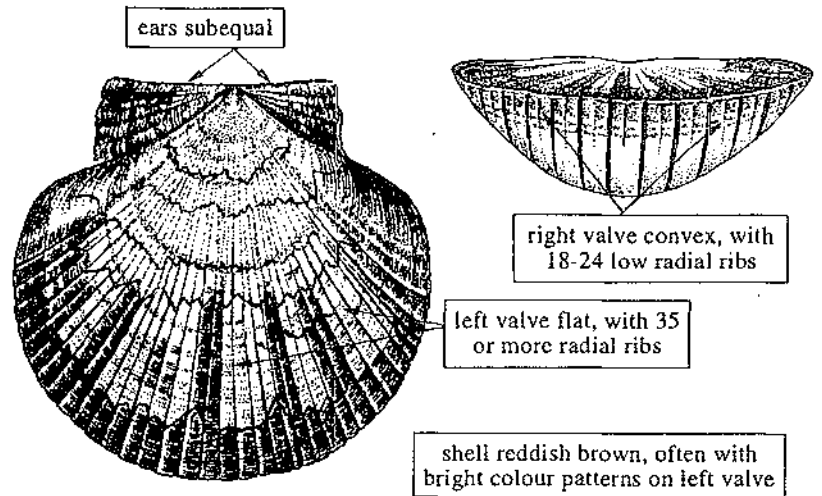
Note: The taxonomic status of this species is under revision. It will probably be placed in the genus *Euvola*.

FAO names: En - Zigzag scallop; Fr - Peigne zigzag; Sp - Vieira zigzag.

Common names:

Size: To 10 cm.

Habitat and fisheries: Lives in communities, partially buried in sand, between water depths of 1 and 50 m.



PHOLADIDAE

En: Angel wings. **Fr:** Ailes d'ange. **Sp:** Alas de ángel.

One species of interest to fisheries in the area.

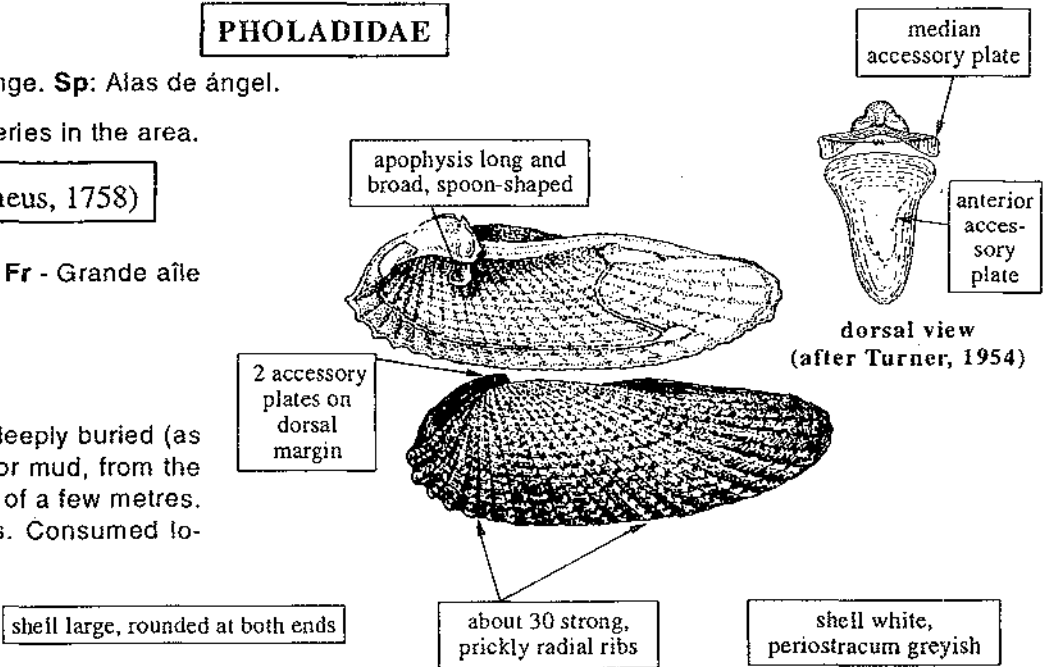
Cyrtopleura costata (Linnaeus, 1758)

FAO names: En - Angel wing; Fr - Grande aîle d'ange; Sp - Ala de ángel.

Common names:

Size: To 15 cm.

Habitat and fisheries: Lives deeply buried (as deep as 30 cm) in sand, clay or mud, from the intertidal zone to water depths of a few metres. Usually collected with shovels. Consumed locally, especially in soups.



PINNIDAE

En: Pen shells. **Fr:** Jambonneaux. **Sp:** Pinas.

Five species of interest to fisheries in the area, usually hand-collected and consumed raw or boiled.

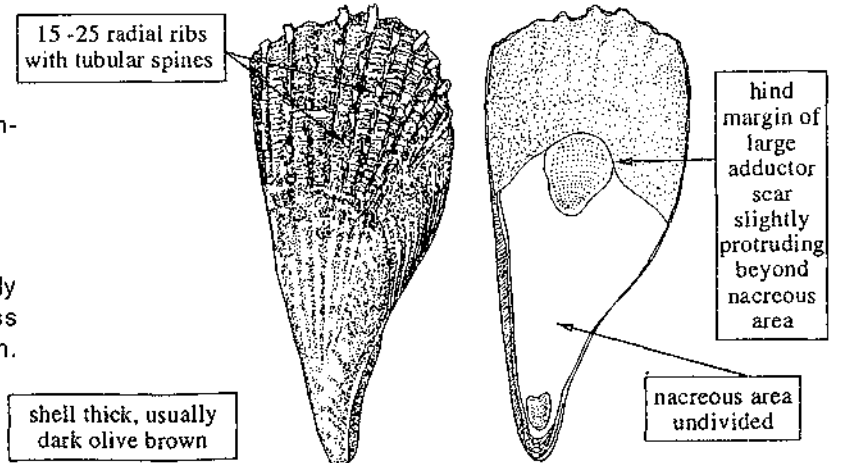
Atrina rigida (Lightfoot, 1786)

FAO names: En - Stiff pen shell; Fr - Jambonneau raide (= Pinne raide); Sp - Pina tiesa.

Common names:

Size: To 26 cm.

Habitat and fisheries: Lives almost completely buried in muddy sand, in the vicinity of seagrass beds, from the coastline to depths of about 3 m.



PINNIDAE

Atrina seminuda (Lamarck, 1819)

Synonyms: *Atrina listeri* (Orbigny, 1846); *Atrina patagonica* (Orbigny, 1846).

FAO names: En - Half-naked pen shell; Fr - Jambonneau demi-lisse (=Pinne demi-lisse); Sp - Pina semilisa.

Common names:

Size: To 24 cm.

Habitat and fisheries: Lives almost completely buried in muddy sand, usually associated with seagrass beds, from the coastline to about a depth of 3 m.

10-15 smooth to scaly radial ribs

shell quite thin, greyish tan to purple brown

nacreous area undivided

posterior adductor scar well enclosed within nacreous area

Atrina serrata (Sowerby, 1835)

FAO names: En - Sawtoothed pen shell; Fr - Jambonneau royal; Sp - Pina reina.

Common names:

Size: To 30 cm.

Habitat and fisheries: Lives almost completely buried in muddy sand, from the low-tide mark to about a depth of 7 m.

about 30 finely scaled radial ribs

shell thin, brownish

nacreous area undivided

posterior adductor scar well enclosed within nacreous area

(after Abbott, 1968)

Pinna carnea Gmelin, 1791

FAO names: En - Amber pen shell; Fr - Jambonneau éventail; Sp - Pina ámbar.

Common names:

Size: To 28 cm.

Habitat and fisheries: Lives almost completely buried in coarse coral sand, fine sand or muddy sand, from the low-tide mark to depths of a few metres.

8-12 smooth to spinose radial ribs

a low median crest anteriorly

outer colour light orange-red to amber

nacreous area divided by a median groove

ventral lobe of nacreous area longer

(after Sterrer, 1986)

Pinna rudis Linnaeus, 1758

Synonyms: *Pinna ferruginosa* Röding, 1798; *Pinna perula* Chemnitz, 1785.

FAO names: En - Rough pen shell; Fr - Jambonneau rude; Sp - Pina áspera.

Common names:

Size: To 55 cm.

Habitat and fisheries: Lives almost completely buried in coarse coral sand and in various types of detritic bottoms; sometimes also in crevices of corals, between depths of 10 and 20 m.

5-8 spinose radial ribs

a low median keel anteriorly

outer colour usually dark reddish brown

nacreous area divided by a median groove

ventral lobe of nacreous area shorter

PSAMMOBIDAE

En: Asaphis and sanguin clams. **Fr:** Sanguinolaires. **Sp:** Asafis.

Two species of interest to fisheries in the area. They are collected by hand or with shovels; also taken with dredges. Consumed locally, usually boiled.

***Asaphis deflorata* (Linnaeus, 1758)**

FAO names: **En** - Gaudy asaphis; **Fr** - Sanguinolaire ridée; **Sp** - Asafis arrugada.

Common names:

Size: To 7 cm.

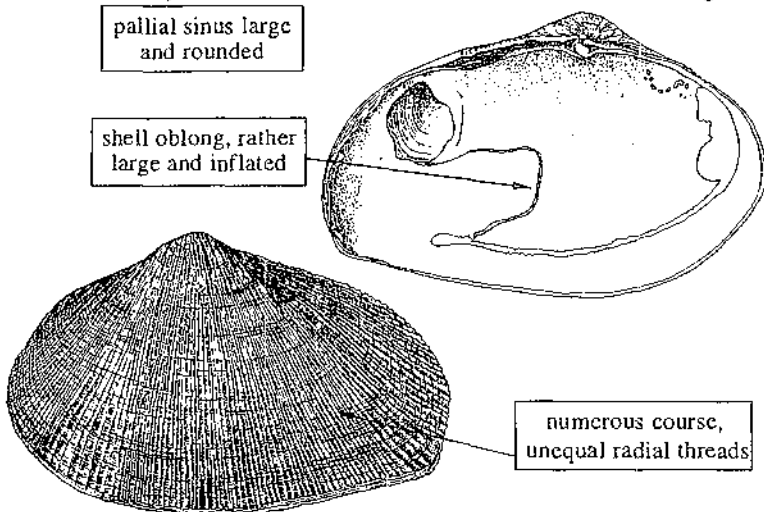
Habitat and fisheries: Lives buried in beaches to about 12 cm in sand and shell debris, from the intertidal zone to water depths of about 2 m.

colour variable, outer surface cream to light grey, often with brown radial rays; interior brightly coloured, especially with yellow, orange or purple

pallial sinus large and rounded

shell oblong, rather large and inflated

numerous course, unequal radial threads



***Heterodonax bimaculatus* (Linnaeus, 1758)**

FAO names: **En** - Small false donax; **Fr** - Fausse donace à deux taches; **Sp** - Chipi-chipi.

Common names:

Size: To 2.5 cm.

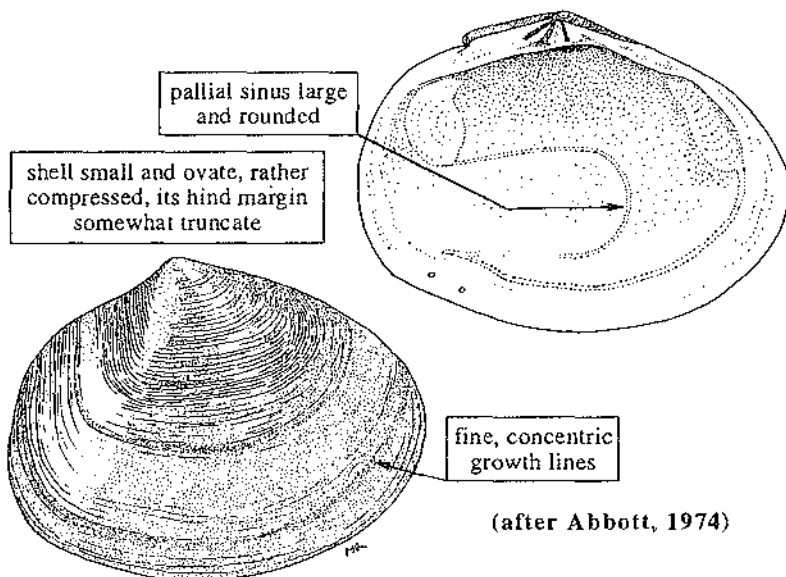
Habitat and fisheries: Lives buried in sandy beaches together with *Donax* species, from the intertidal zone to depths of a few metres.

colour variable, outer surface cream-white to orange, often with blue or purple stripes or spots; interior usually with 2 darker spots

pallial sinus large and rounded

shell small and ovate, rather compressed, its hind margin somewhat truncate

fine, concentric growth lines



(after Abbott, 1974)

PTERIIDAE

En: Pearl oysters. **Fr:** Huîtres perlières. **Sp:** Ostras perlíferas.

One species of interest to fisheries in the area.

***Pinctada imbricata* (Röding, 1798)**

FAO names: **En** - Atlantic pearl oyster; **Fr** - Huître perlière de l'Atlantique; **Sp** - Ostra perlífera Atlántica.

Common names:

Size: To 8 cm.

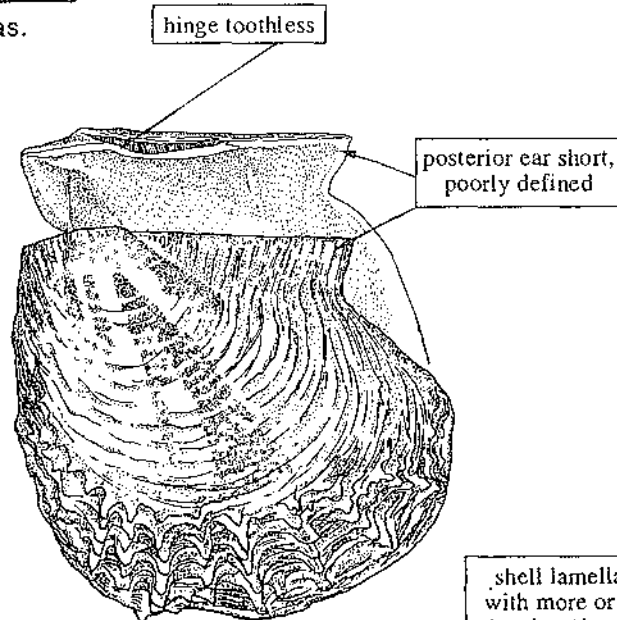
Habitat and fisheries: Lives attached to rocks and other hard substrates, between depths of 1 and 20 m. Collected by hand, occasionally with dredges. Consumed locally, raw or boiled; traditionally exploited for the pearl market.

outer colour variable, tan to purplish brown, often with darker markings; interior nacreous, sometimes with pearls

hinge toothless

posterior ear short, poorly defined

shell lamellate, with more or less developed scales, rounded in adults



SOLECURTIDAE

En: Tagelus clams. Fr: Tagals. Sp: Tagelos.

One species of interest to fisheries in the area.

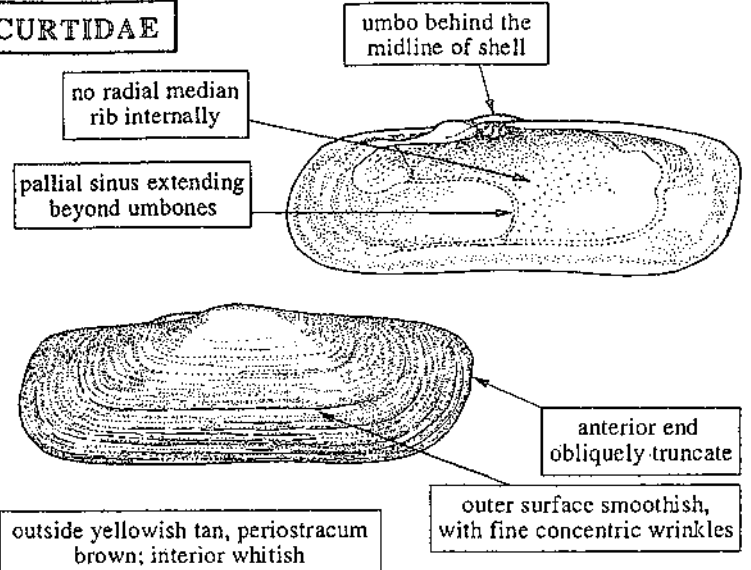
Tagelus plebeius (Lightfoot, 1786)

FAO names: En - Stout tagelus; Fr - Tagal corpulent (=Tagelus corpulent); Sp - Tagelo plebeyo.

Common names:

Size: To 9.5 cm.

Habitat and fisheries: Lives buried in muddy bottoms, from the intertidal zone to depths of about 7 m. Collected by hand or with shovels. Consumed locally.



SOLENIDAE

En: Jackknife and razor clams. Fr: Couteaux. Sp: Navajas.

One species of interest to fisheries in the area.

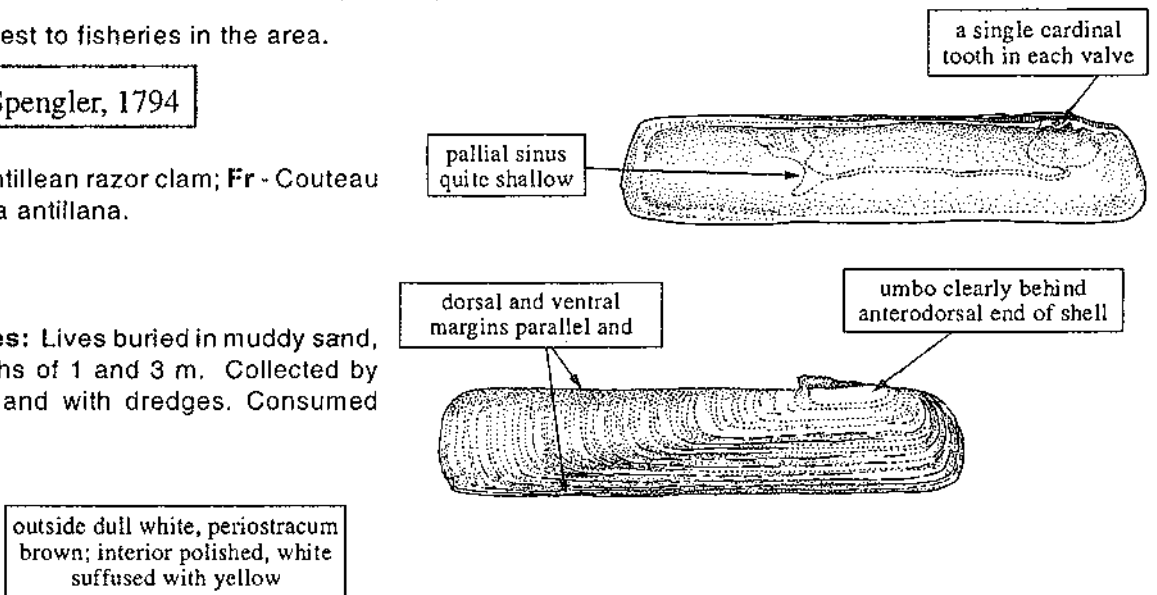
Solen obliquus Spengler, 1794

FAO names: En - Antillean razor clam; Fr - Couteau antillais; Sp - Navaja antillana.

Common names:

Size: To 14 cm.

Habitat and fisheries: Lives buried in muddy sand, between water depths of 1 and 3 m. Collected by hand, with shovels and with dredges. Consumed locally, mainly fried.



outside dull white, periostracum brown; interior polished, white suffused with yellow

SPONDYLIDAE

En: Spiny oysters. Fr: Spondyles. Sp: Ostras espinosas.

One species of interest to fisheries in the area.

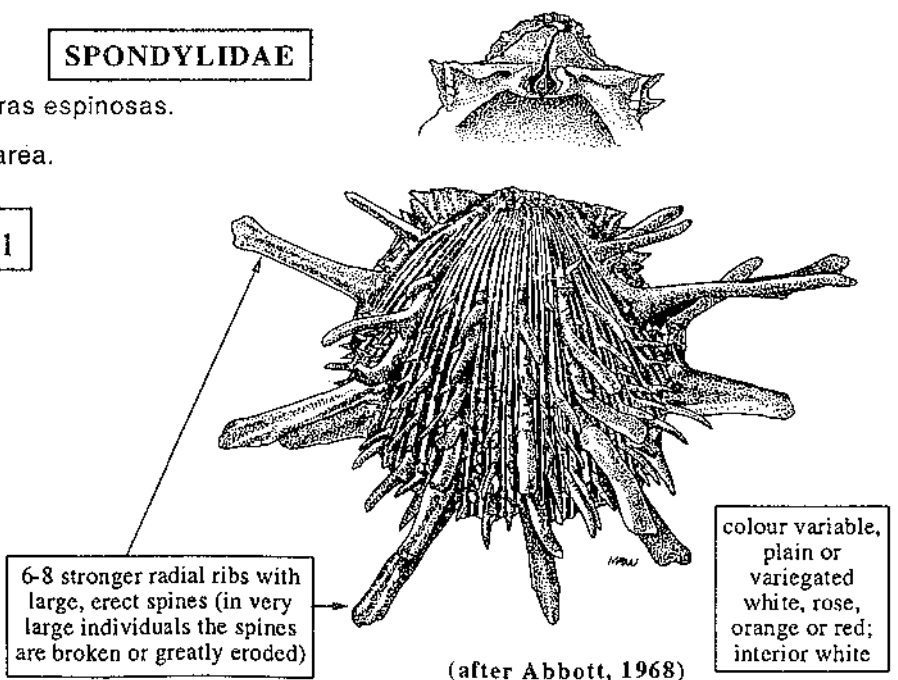
Spondylus americanus Hermann, 1781

FAO names: En - Atlantic spiny oyster; Fr - Spondyle américain; Sp - Ostra espinosa Atlántica.

Common names:

Size: To 14 cm.

Habitat and fisheries: Lives on various types of hard substrate, i.e. rocks, wood, shell debris, or coral, from depths of 10 to over 60 m. Usually hand-collected; occasionally taken in dredges. Consumed mainly raw.



(after Abbott, 1968)

TELLINIDAE

En: Tellins. **Fr:** Tellines. **Sp:** Telinas.

Four species of interest to fisheries in the area. Collected by hand or with shovels, and consumed raw or boiled.

***Tellina fausta* Pulteney, 1799**

Synonyms: *Arcopagia fausta* (Pulteney, 1799).

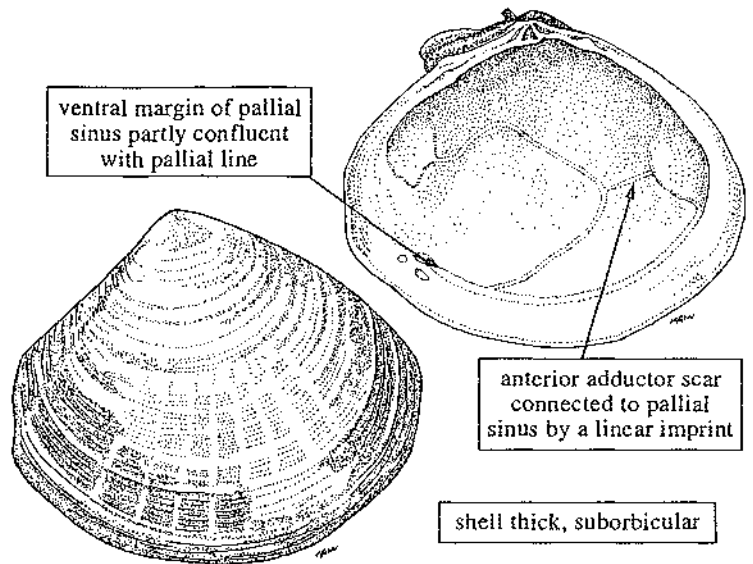
FAO names: **En** - Faust tellin; **Fr** - Telline fauste;
Sp - Telina fausta.

Common names:

Size: To 10 cm.

Habitat and fisheries: Lives deeply buried in coarse sand, near seagrass beds, from the intertidal zone to depths of about 30 m.

outside dull white, periostracum brown; interior polished, white suffused with yellow



***Tellina laevigata* Linnaeus, 1758**

Synonyms: *Lacolina laevigata* (Linnaeus, 1758).

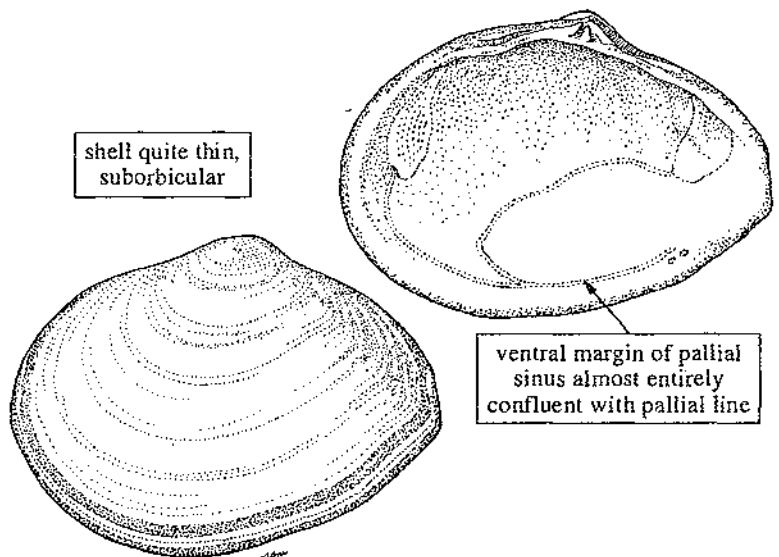
FAO names: **En** - Smooth tellin; **Fr** - Telline lisse;
Sp - Telina lisa.

Common names:

Size: To 9 cm.

Habitat and fisheries: Lives buried in coarse sand, from the intertidal zone to depths of about 16 m.

outside glossy white with orange margins; interior shiny, suffused with yellow



***Tellina listeri* Röding, 1798**

Synonyms: *Tellinella listeri* (Röding, 1798).

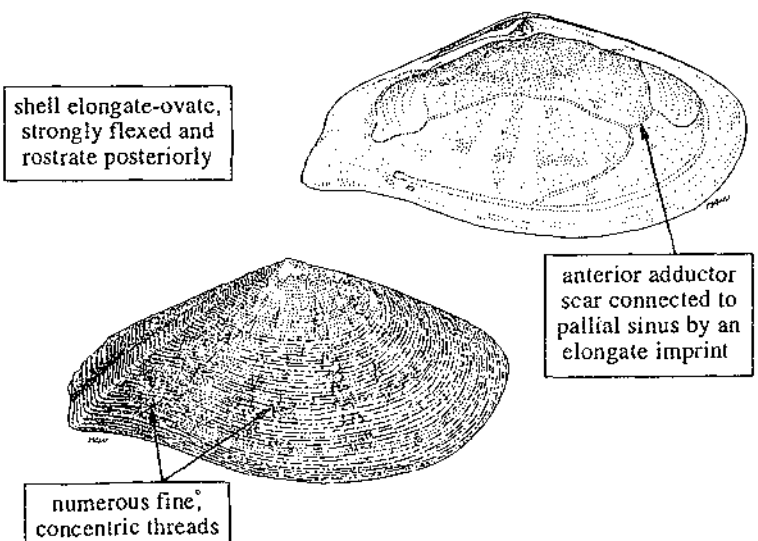
FAO names: **En** - Speckled tellin; **Fr** - Telline mou-chetée; **Sp** - Telina manchada.

Common names:

Size: To 9 cm.

Habitat and fisheries: Lives buried in coarse sand, between depths of 2 and 100 m.

outer surface cream, generally speckled with purplish brown; interior white, largely suffused with yellow



TELLINIDAE

Tellina radiata Linnaeus, 1758

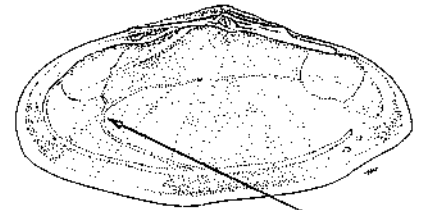
FAO names: En - Sunrise tellin; Fr - Telline aurore; Sp - Telina aurora.

Common names:

Size: To 10 cm.

Habitat and fisheries: Lives buried in sand, between water depths of 1 and 15 m.

outer surface flossy and smoothish



pallial sinus very deep, almost touching anterior adductor scar



shell elliptical elongate, slightly flexed posteriorly

outside pale yellow, often with wide rays of pink, red or orange; interior white, suffused with yellow or purple

VENERIDAE

En: Tivelas and venus clams. **Fr:** Pitars, praires, tivel, vénus, vernis. **Sp:** Almejas, chirlas, tivelas, venus.

Eight species of interest to fisheries in the area. Collected by hand or with shovels and also taken in dredges and bottom trawls. Consumed locally, raw or boiled.

Chione cancellata (Linnaeus, 1767)

FAO names: En - Cross-barred venus; Fr - Vénus quadrillée; Sp - Venus cuadrilla.

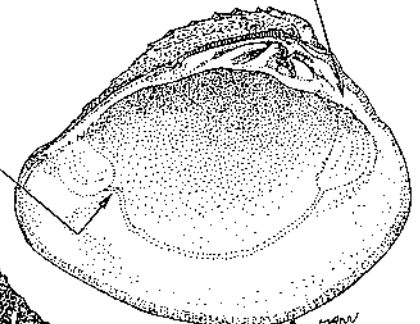
Common names:

Size: To 4.5 cm.

Habitat and fisheries: Lives buried in sand, sometimes near seagrass beds, from the low-tide mark to a water depth of 20 m.

pallial sinus hardly extending beyond anterior adductor scar

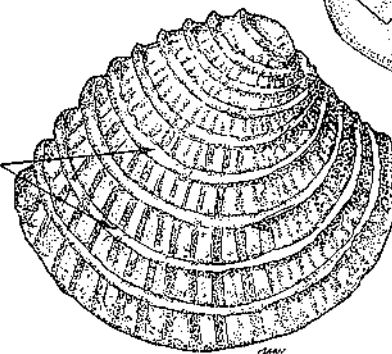
no anterior lateral teeth



inner margin crenulate

raised concentric ridges crossed by coarse radial ribs

outside cream, often variegated with brown; interior whitish, often tinged with purple

*Chione paphia* (Linnaeus, 1767)

FAO names: En - King venus; Fr - Vénus royale; Sp - Venus real.

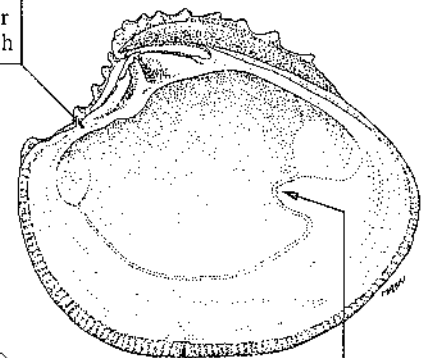
Common names:

Size: To 3.5 cm.

Habitat and fisheries: Lives buried in sand, sometimes near seagrass beds, from the intertidal zone to a water depth of 100 m.

no anterior lateral teeth

a few strong, rounded concentric ribs, lamellose at both ends

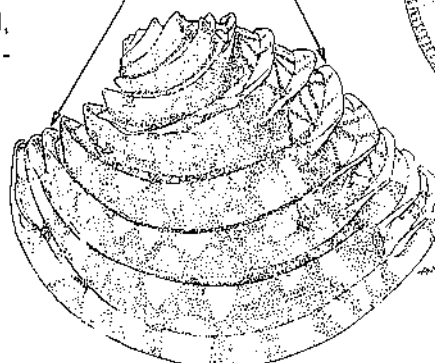


pallial sinus short, triangular

inner margin crenulate

shell thick, triangular ovate

outside cream with brown and pink mottlings; interior white



VENERIDAE

Macrocallista maculata (Linnaeus, 1758)

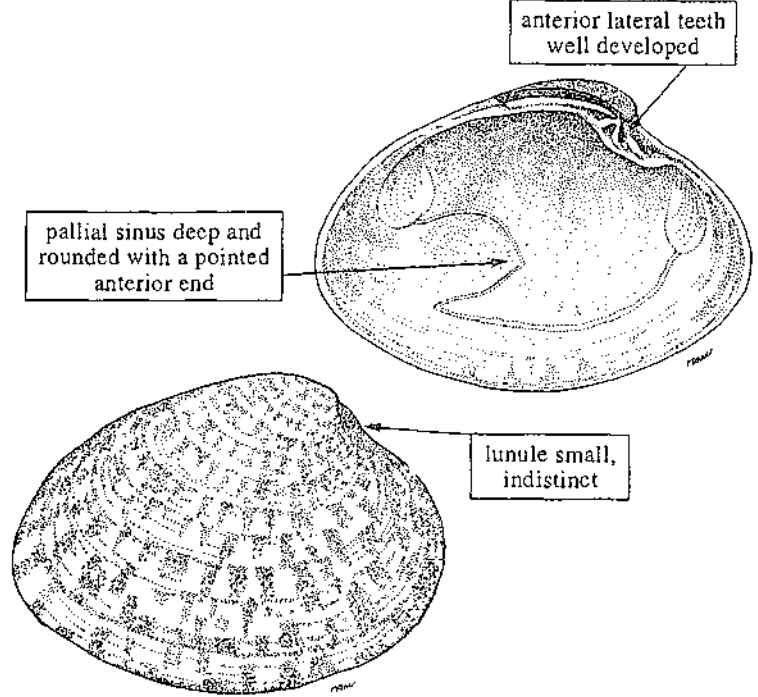
Synonyms: *Callista maculata* (Linnaeus, 1758).

FAO names: En - Calico clam; Fr - Vernis calicot (=Praire calico); Sp - Almeja calico.

Common names:

Size: To 8 cm.

Habitat and fisheries: Lives buried in coarse sand, often near seagrass beds, sometimes near reefs, between water depths of 1 and 20 m.



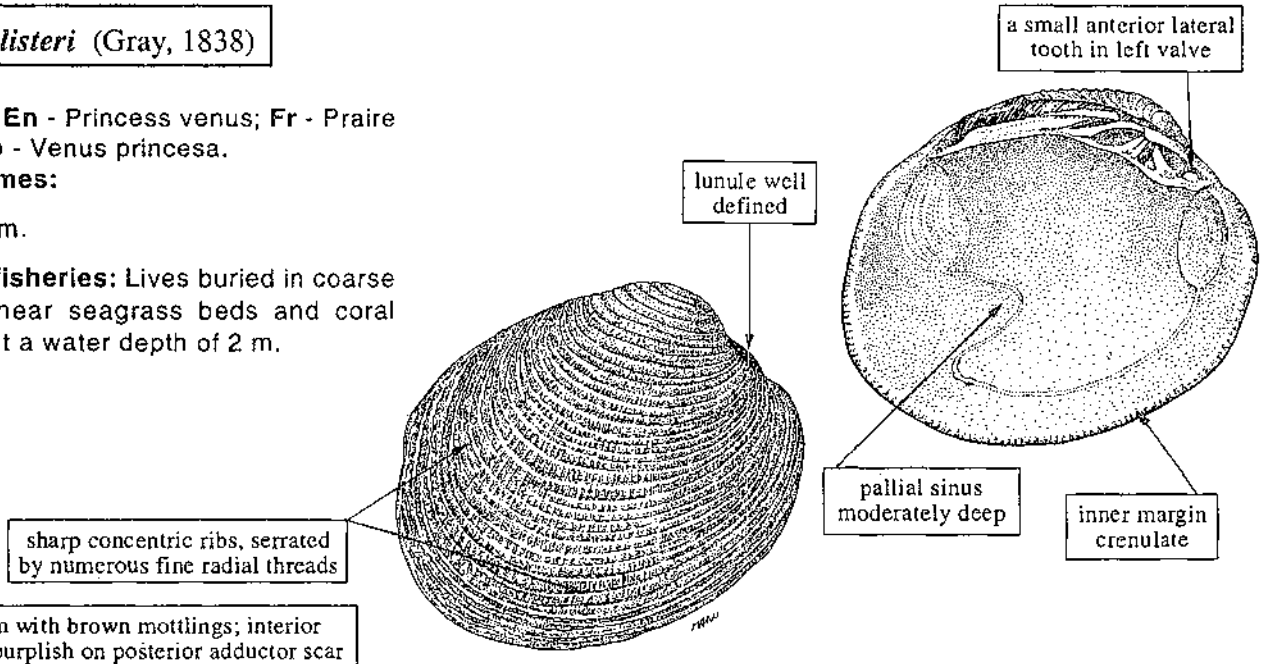
Periglypta listeri (Gray, 1838)

FAO names: En - Princess venus; Fr - Praire princesse; Sp - Venus princesa.

Common names:

Size: To 12 cm.

Habitat and fisheries: Lives buried in coarse sand, often near seagrass beds and coral reefs, in about a water depth of 2 m.



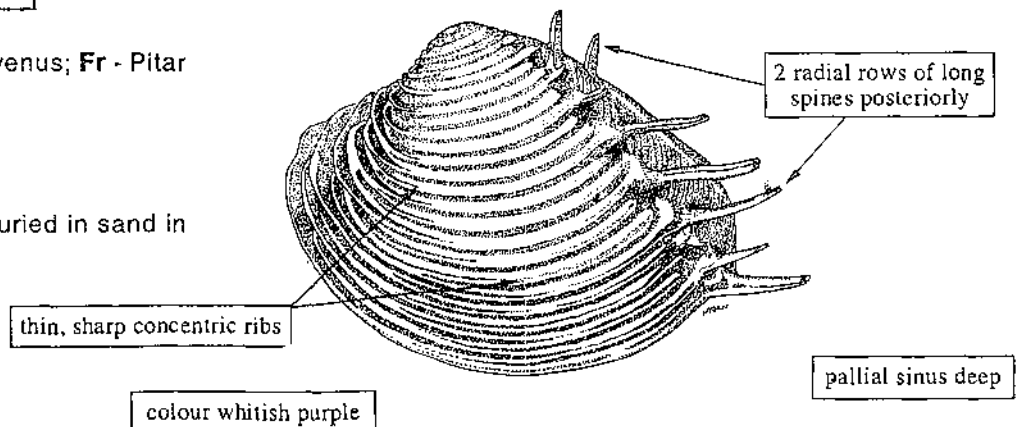
Pitar dione (Linnaeus, 1758)

FAO names: En - Royal comb venus; Fr - Pitar royal; Sp - Chirla real.

Common names:

Size: To 5 cm.

Habitat and fisheries: Lives buried in sand in very shallow water.



(after Warmke and Abbott, 1961)

VENERIDAE

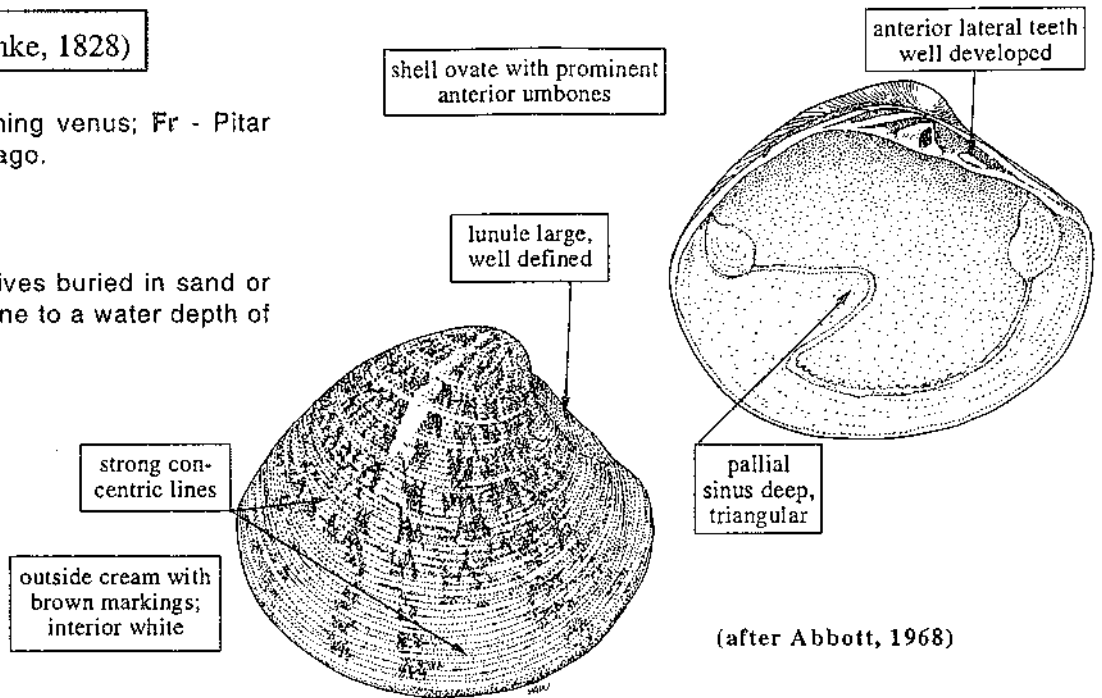
Pitar fulminatus (Menke, 1828)

FAO names: En - Lightning venus; Fr - Pitar éclair; Sp - Chirla relámpago.

Common names:

Size: To 5 cm.

Habitat and fisheries: Lives buried in sand or mud, from the subtidal zone to a water depth of about 30 m.

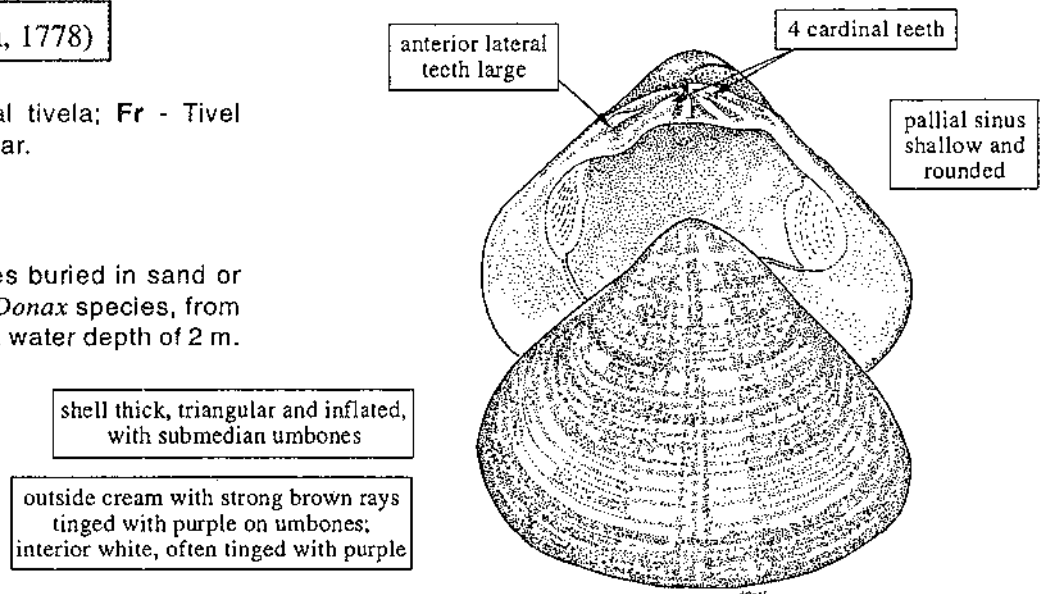
*Tivela mactroides* (Born, 1778)

FAO names: En - Trigonal tivela; Fr - Tivel trigone; Sp - Tivela triangular.

Common names:

Size: To 4.5 cm.

Habitat and fisheries: Lives buried in sand or muddy sand, together with *Donax* species, from the intertidal zone to about a water depth of 2 m.

*Ventricolaria rigida* (Dillwyn, 1817)

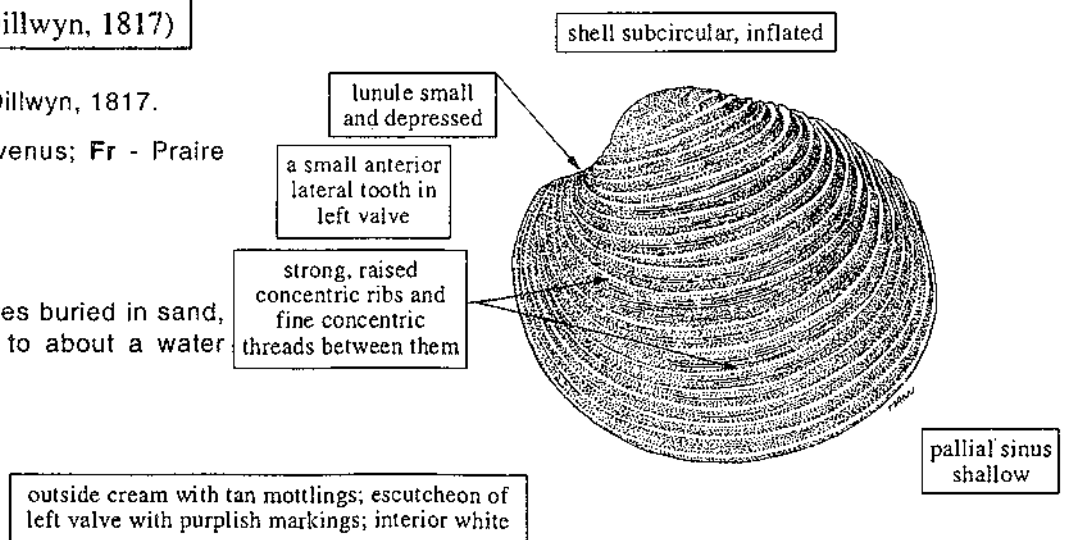
Synonyms: *Venus rigida* Dillwyn, 1817.

FAO names: En - Rigid venus; Fr - Praire rigide; Sp - Venus rigida.

Common names:

Size: To 7 cm.

Habitat and fisheries: Lives buried in sand, from very shallow waters to about a water depth of 60 m.



CEPHALOPODS*

The cephalopods are a resource of growing importance to fisheries, and it is foreseeable that many of the species not exploited at present will be fished and marketed in the near future. Furthermore, as a result of ongoing research work on the rich biological material collected by recent resource surveys, the number of cephalopod species recorded from our area will likely increase, and there will also be substantial changes in the taxonomy of the group. Because cephalopod fisheries are only just beginning, information from the area regarding distribution, ecology, and exploitation of cephalopods is very scarce. In addition, the collection of data by species is severely hampered by difficulties with the identification of families and species in the field. For these reasons, this section is provisional and incomplete, and will be revised in the light of new, more reliable information in the future.

In order to prevent misidentifications at least at the higher taxonomic level, we present diagnoses of all cephalopod families recorded from the area. For each family, all genera and species are mentioned, and those believed to be of present or potential interest to fisheries are treated in more detail.

The Class Cephalopoda is represented in our area by about 40 species belonging to 17 families which are grouped in 3 orders: Sepioidea (cuttlefishes), Teuthoidea (squids), and Octopoda (octopuses). Even though these orders have many features in common, they are morphologically very different and it is preferable to treat them separately. Therefore, the general glossary of technical terms common to all cephalopods is followed by the sequential presentation of the three orders, each with its own families and species.

Note: All morphological features used for the diagnoses of orders and families apply exclusively to species occurring in the area.

GLOSSARY OF TECHNICAL TERMS

Buccal lappet: small, subtriangular flap at the tip of a muscular band that supports the buccal membrane; may bear suckers.

Buccal membrane: thin web of tissue that encircles the mouth, reinforced by 6 to 8 buccal supports.

Buccal membrane connectives: muscular bands that connect the supports of the buccal membrane to the bases of the arms, either on their lower or their upper margin (teuthoid family diagnostic feature).

Calimus: the conical papilla or projection on the hectocotylus of octopods at the proximal end of the sperm groove, distal to the last sucker.

Carpus: the proximal zone of (small) suckers and knobs on the base of the tentacular club.

Cirri: **Arm cirri** are elongate, fleshy, finger-like papillae along the lateral edges of the oral surface of the arms, especially in cirrate octopods. **Body cirri** are fleshy protuberances of the skin that can be erected as papillae, usually over the eyes.

Corneal membrane: the very thin, transparent skin that covers the eyes of myopsid and sepioid cephalopods.

Dactylus: the distal, terminal section of the tentacular club, often characterized by suckers of reduced size.

Distal: away from the body or point of origin; toward the peripheral parts (opposite of "proximal").

Fins: the pair of muscular flaps that arise along the dorsolateral surface of the mantle of sepioids, teuthoids and cirrate octopods; used for locomotion, steering and stabilization.

Fixing apparatus: the mechanism of suckers and knobs on the carpal region of the tentacular club that permits the two clubs to be locked together during the capture of prey.

Foveola: transverse, membranous fold of skin that forms a pocket in the funnel groove of some oegopsid teuthoids (see "Side pockets").

Funnel: the ventral, subconical tube through which water is expelled from the mantle cavity during locomotion and respiration.

Funnel groove: the depression on the posteroventral surface of the head in which lies the anterior portion of the funnel.

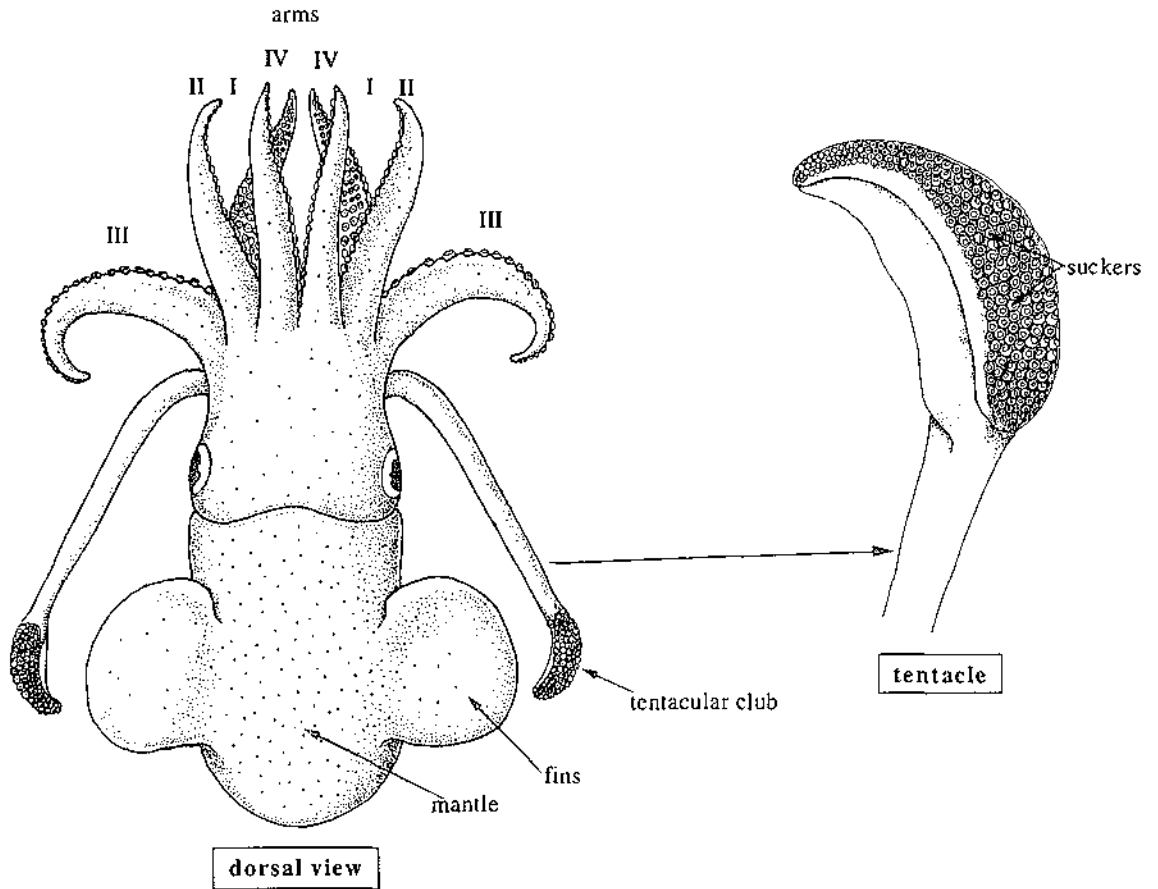
* Based largely on the works of Roper, 1978 (FAO Species Identification Sheets, Western Central Atlantic) and of Roper, Sweeney and Nauen, 1984 (FAO Species Catalogue, Vol. 3, Cephalopods of the World).

- Funnel-locking cartilage:** the cartilaginous groove, pit, pocket, or depression on each ventrolateral side of the posterior part of the funnel that joins with the mantle component to lock the funnel and mantle together during locomotion, so that water is expelled only through the funnel and not around the mantle opening.
- Gill lamellae:** the leaf-like convoluted individual components of the gill through which gas exchange occurs (located in the mantle cavity, usually not visible externally).
- Gladius (or Pen):** the feather or rod-shaped chitinous structure in the dorsal midline of teuthoids and non-sepiid sepioids.
- Hectocotylus:** one (or more) arms of male cephalopods modified for transferring spermatophores to the female; modifications may involve suckers, sucker stalks, protective membranes, trabeculae, etc.
- Hooks:** chitinous, claw-like structures ontogenetically derived from the suckers on the arms and/or clubs of some oegopsid teuthoids.
- Ligula:** the spatulate to spoon-shaped terminal structure of the hectocotylus of octopods, that contains the calimus basally, and usually a series of transverse ridges and grooves on the oral surface.
- Mantle:** the fleshy (muscular) tubular or sac-like body of cephalopods; provides propulsion through jet-like expulsion of water; contains the viscera; also forms an external ventral cavity which houses the gills and allows propulsion by expelling water through the funnel.
- Mantle-locking cartilage:** the cartilaginous ridge, knob or swelling on each side of the ventrolateral inner surface of the mantle that locks into the funnel component of the apparatus during locomotion.
- Manus:** central or “hand” portion of the tentacular club between the dactylus distally and the carpus proximally.
- Ocellus (or eyespot):** a pigmented spot or patch usually consisting of a central locus of concentrated chromatophores surrounded by one or more concentric rings of chromatophores. Ocellae occur in some octopuses, and their normally vivid pigmentation makes them stand out against the background coloration.
- Oral:** in relation to the mouth; the oral side is the one where the mouth is located.
- Pallial:** relative to the mantle.
- Pedicel:** a sort, tubular stalk that supports a sucker in sepioids and teuthoids.
- Photophore:** an organ of greater or lesser complexity that produces and distributes bioluminescence, either intrinsically through biochemical reaction or extrinsically through luminescent bacteria.
- Proximal:** toward the body, or nearest/next to the point of origin or attachment (opposite of “distal”).
- Rachis:** the thickened central axis that usually extends throughout the length of the gladius.
- Side pockets:** small membranous folds of the integument that form pockets lateral to the foveola in some oegopsid teuthoids.
- Suckers:** muscular, suction-cup structures on the arms and tentacles (rarely on the buccal membrane) of cephalopods; some are stalked, placed on muscular rods that contract (squids and cuttlefishes); some are sessile, imbedded without stalks on the oral surface of the arms (octopuses).
- Tail:** the posterior extension of the mantle, frequently elongate. Fins or tapered terminations of fins may extend posteriorly along the tail.
- Tentacles:** elongate, stalked circumoral appendages of cuttlefishes and squids used for prey capture; they end distally in a club with suckers or hooks.
- Tentacular club:** terminal portion of a tentacle; armed with suckers and/or hooks, used for capturing prey.
- Vane:** thin lateral expansion of the gladius that arises from the rachis.
- Water pores:** small orifices at the base of the web of some pelagic octopuses (i.e. *Tremoctopus*).
- Web:** a membranous sheet of greater or lesser extent that spreads between the arms of many octopuses, giving them an umbrella-like appearance when the arms are spread out.

**ORDER SEPIOIDEA
CUTTLEFISHES**

The species occurring in the area are characterized by the following features: a calcareous shell (*Spirula*) or a chitinous shell (*Rossia* and *Semirossia*); 10 circumoral appendages (8 arms and 2 tentacles); tentacles retractable into pockets placed between the third and the fourth pairs of arms; stalked suckers, with chitinous rings; fins free, not fused in the midline posteriorly.

TECHNICAL TERMS AND MEASUREMENTS

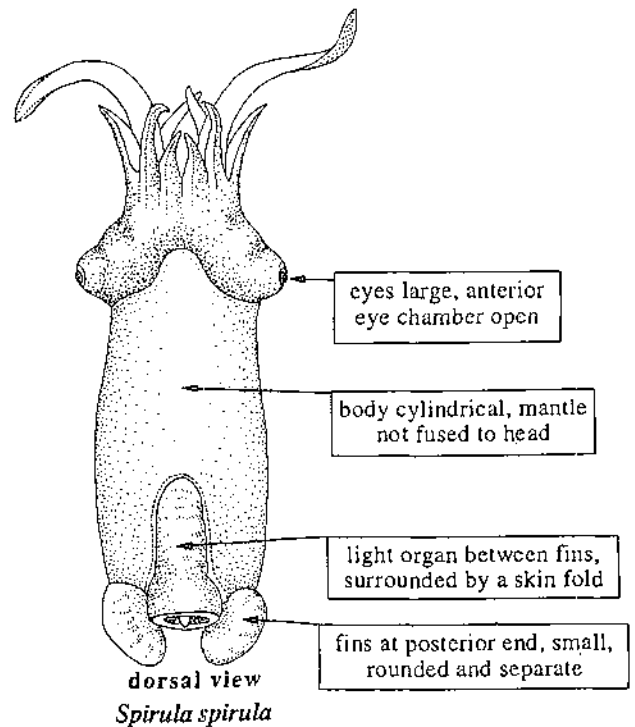


GUIDELINES FOR THE IDENTIFICATION OF FAMILIES

SPIRULIDAE

A single species, *Spirula spirula* Lamarck, 1801, small (to 4.5 cm mantle length), mesopelagic between depths of 500 and 1 000 m in daytime and between 100 and 300 m at night. Of no interest to fisheries.

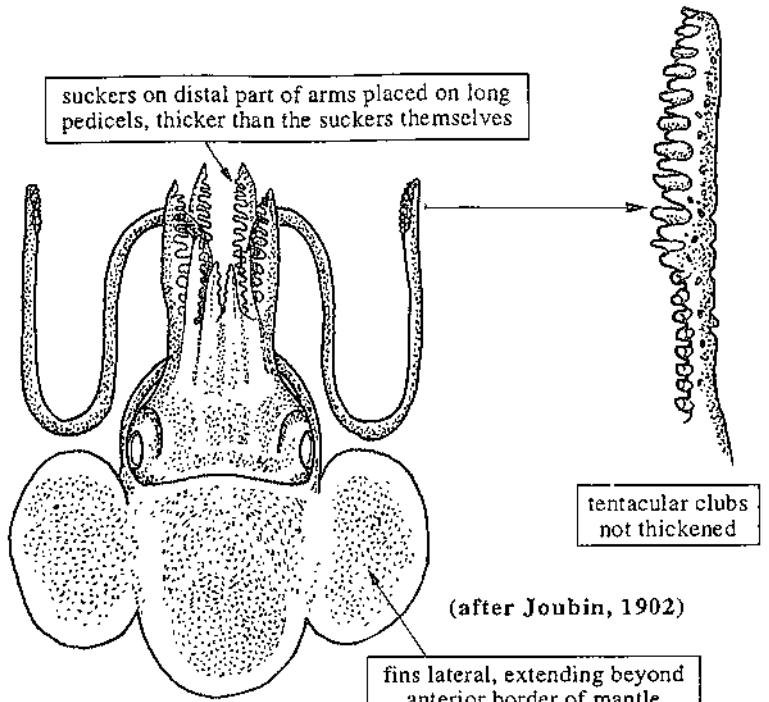
internal shell
coiled, chambered



SEPIOLIDAE

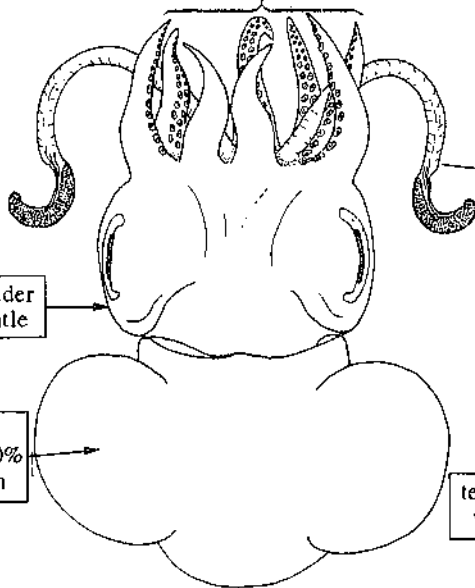
At least 3 species in the area: *Nectoteuthis pourtalesi* Verrill, 1883, benthic-pelagic in deep waters; *Rossia antillensis* Voss, 1955, relatively small (to 7.5 cm mantle length), demersal between about 500 and 700 m depth; and *Semirossia tenera* (Verrill, 1880), small (to 5 cm mantle length), demersal between depths of about 80 and 150 m. None of them is of interest to fisheries at present.

body short and broad; eyes covered by a transparent cornea; mantle not fused to head; fins rounded, placed laterally; internal shell strongly reduced, not calcified

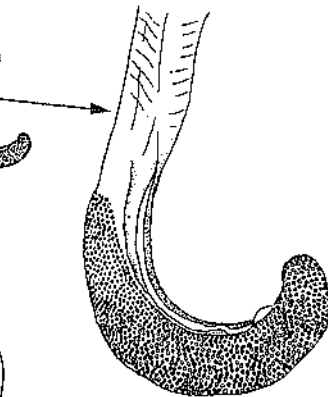


dorsal view
Nectoteuthis pourtalesi

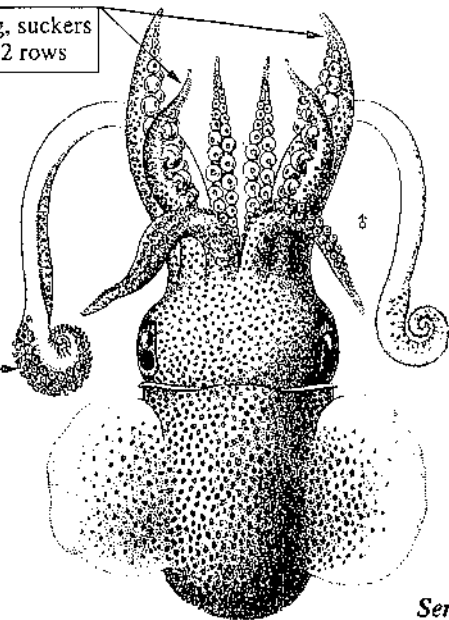
arms very short and robust, with 2 rows of suckers



dorsal view
Rossia antillensis



arms moderately long, suckers unequal in size, in 2 rows



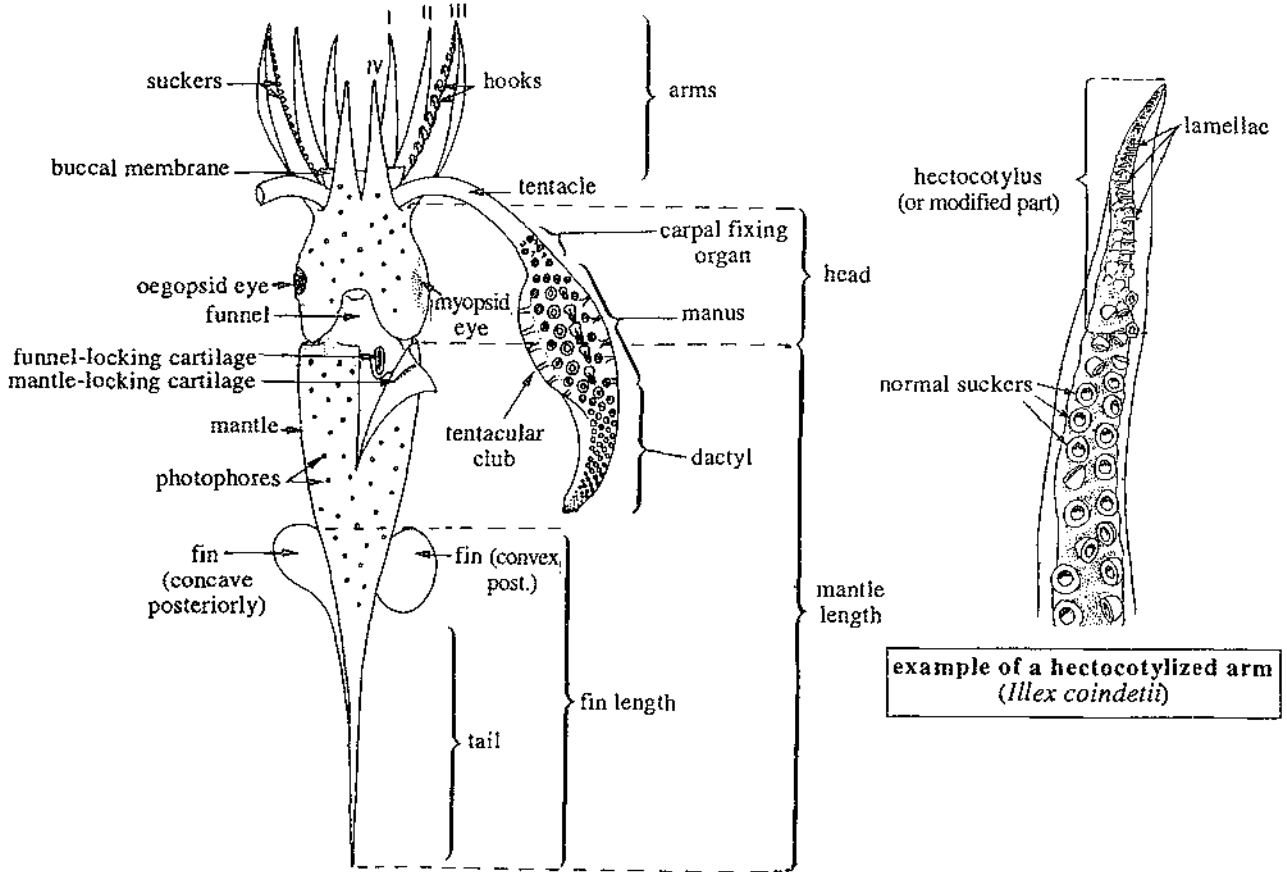
dorsal view
Semirossia tenera

ORDER TEUTHOIDEA

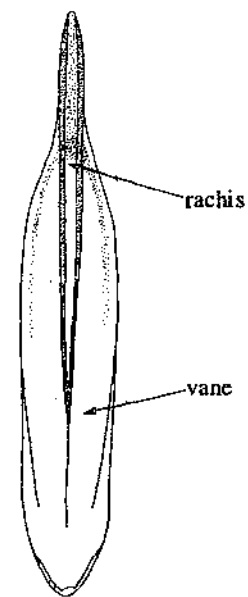
SQUIDS

The species occurring in the area are characterized by the following features: a smooth internal shell or gladius; 10 circumoral appendages (8 arms and 2 tentacles); tentacles contractile but not retractile; stalked suckers, with chitinous rings and/or hooks; fins fused together in the midline posteriorly.

TECHNICAL TERMS AND MEASUREMENTS



basic diagram of a teuthoid (ventral view)



gladius

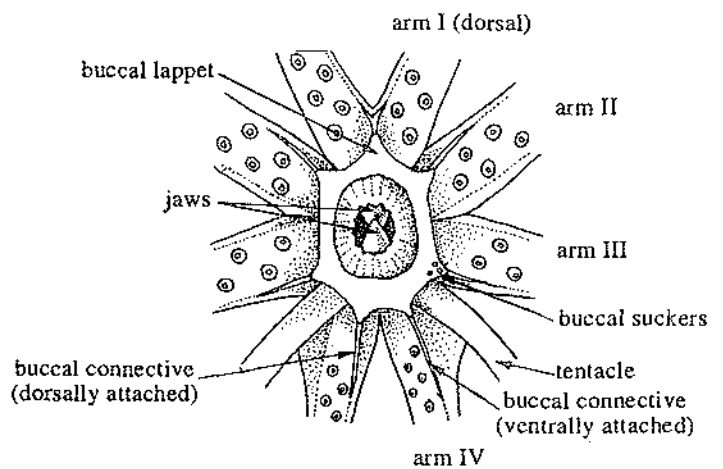


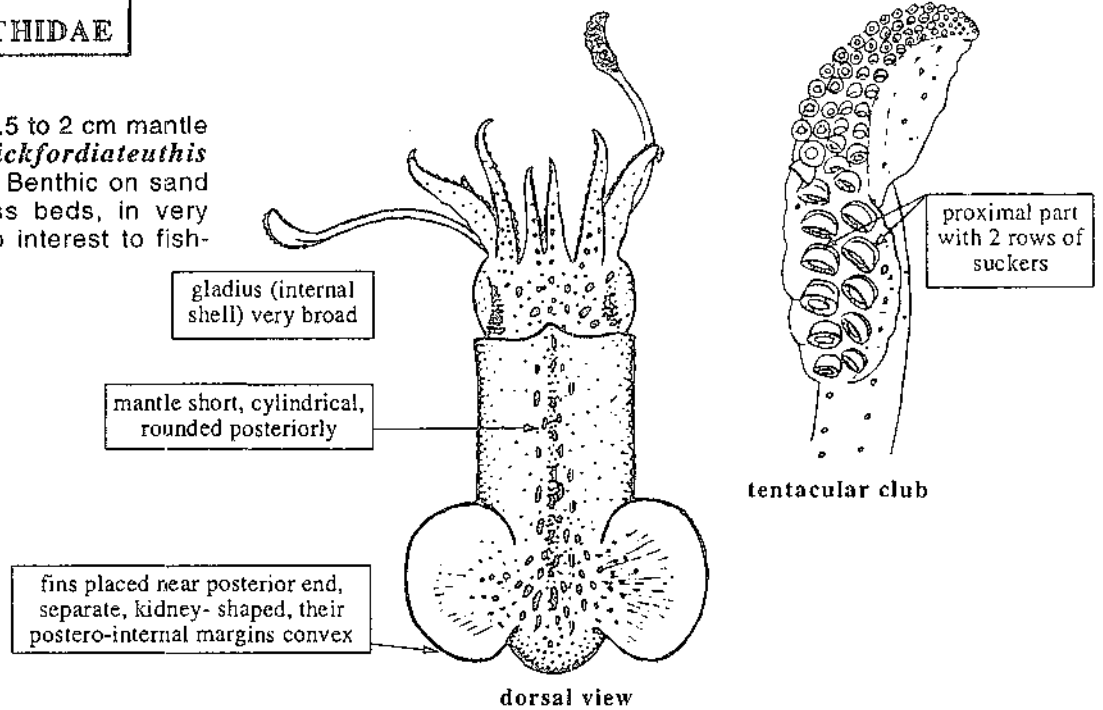
diagram of oral surface of brachial crown and buccal area

GUIDELINES FOR THE IDENTIFICATION OF FAMILIES

SUBORDER MYOPSIDA - Eyes covered by a transparent cornea.

PICKFORDIATEUTHIDAE

A single, very small (1.5 to 2 cm mantle length) species, *Pickfordiateuthis pulchella* Voss, 1953. Benthic on sand bottoms and seagrass beds, in very shallow waters. Of no interest to fisheries.

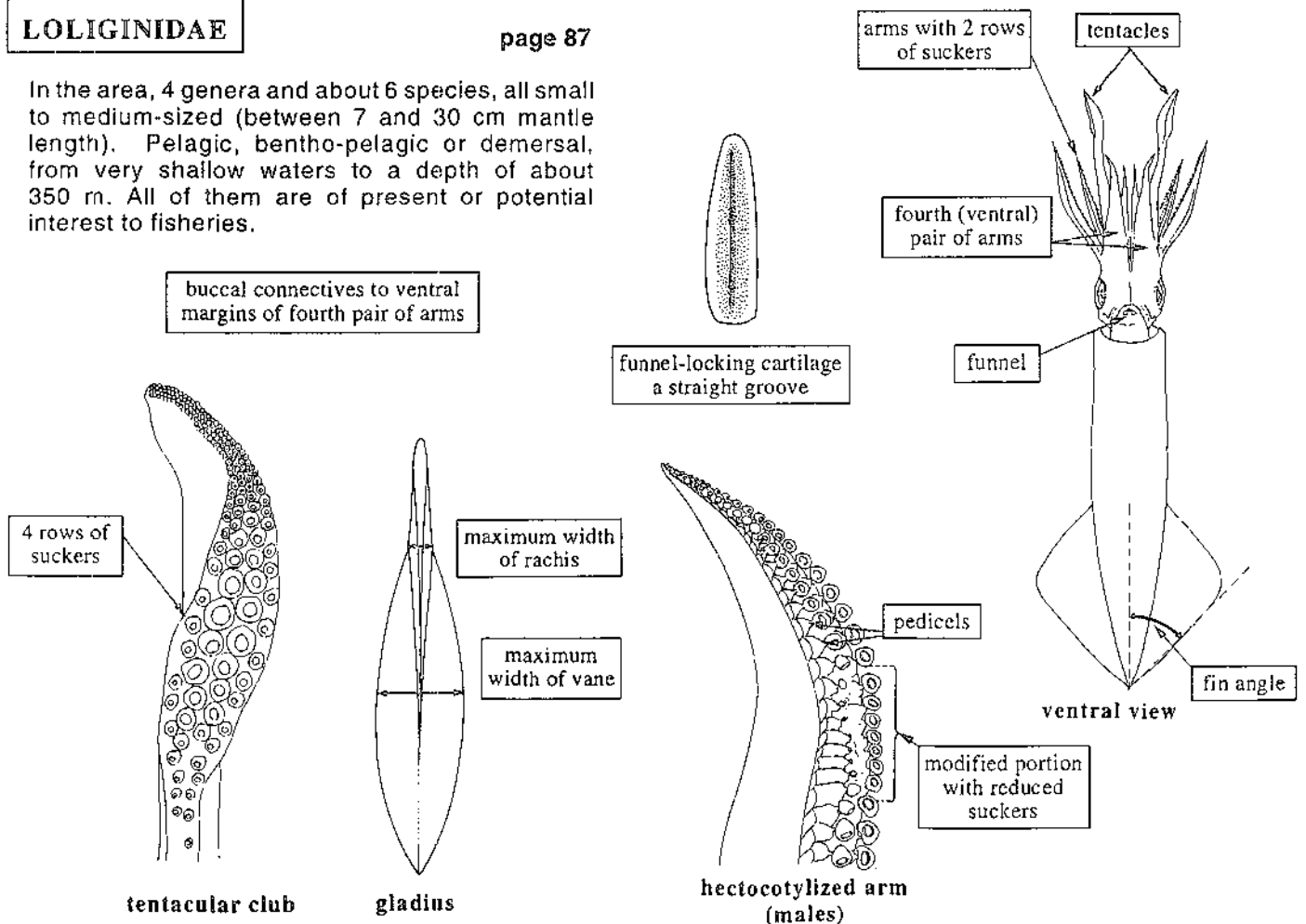


Pickfordiateuthis pulchella

LOLIGINIDAE

page 87

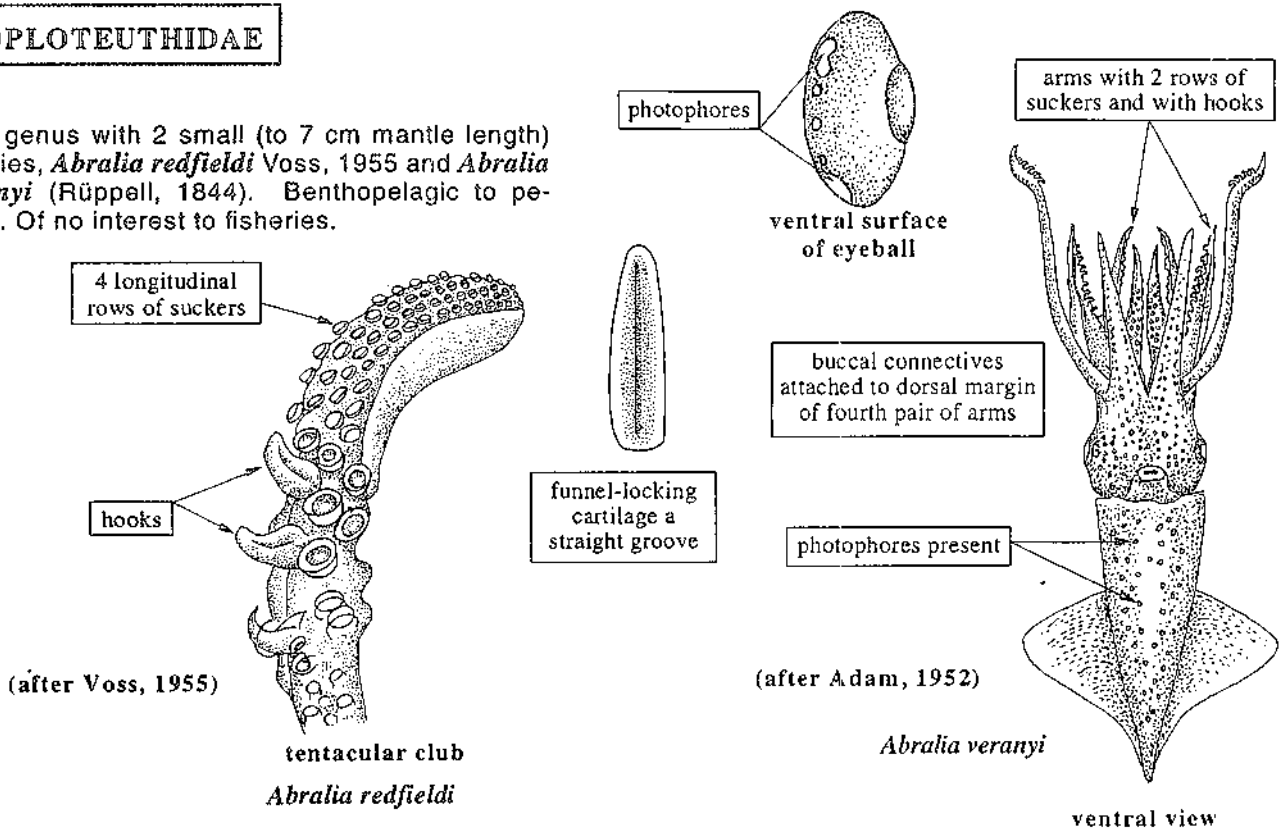
In the area, 4 genera and about 6 species, all small to medium-sized (between 7 and 30 cm mantle length). Pelagic, benthopelagic or demersal, from very shallow waters to a depth of about 350 m. All of them are of present or potential interest to fisheries.



SUBORDER OEGOPSIDA - Anterior eye chamber open, corneal membrane absent.

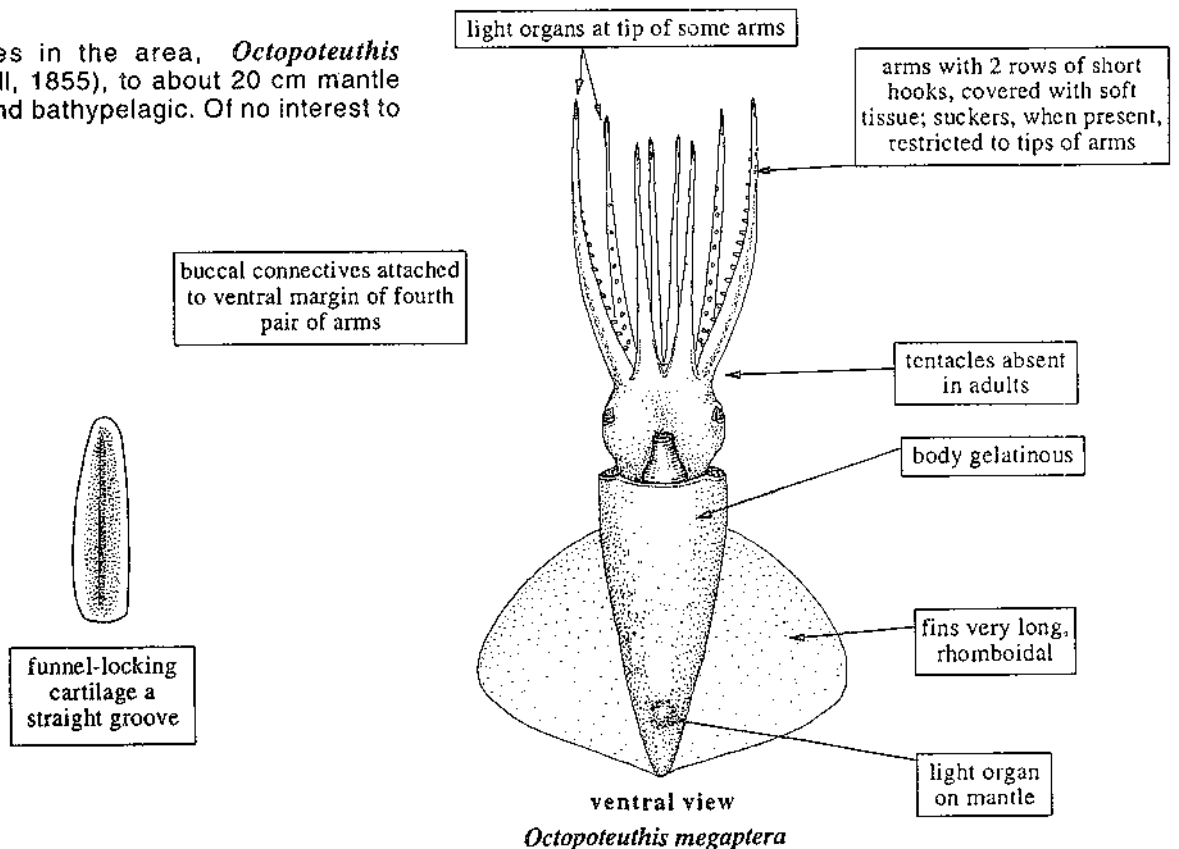
ENOPLOTEUTHIDAE

One genus with 2 small (to 7 cm mantle length) species, *Abralia redfieldi* Voss, 1955 and *Abralia veranyi* (Rüppell, 1844). Benthopelagic to pelagic. Of no interest to fisheries.



OCTOPOTEUTHIDAE

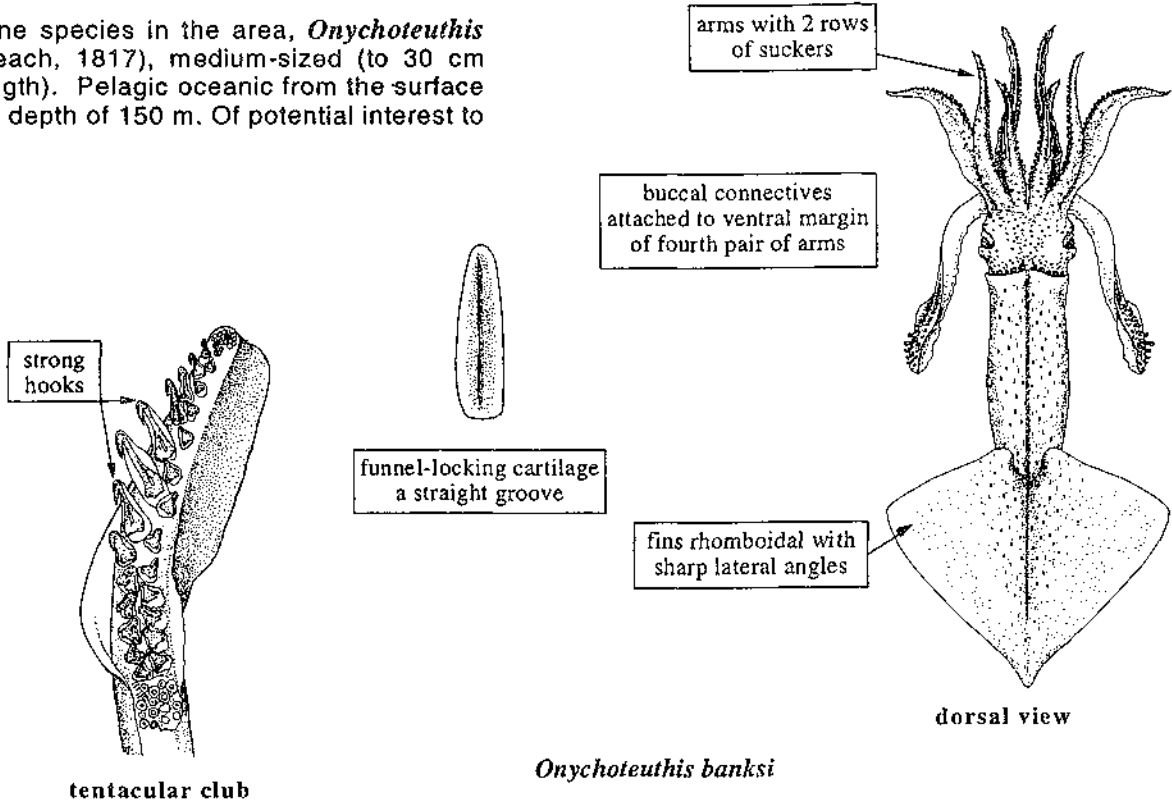
A single species in the area, *Octopoteuthis megaptera* (Verrill, 1855), to about 20 cm mantle length. Meso- and bathypelagic. Of no interest to fisheries.



ONYCHOTEUTHIDAE

page 93

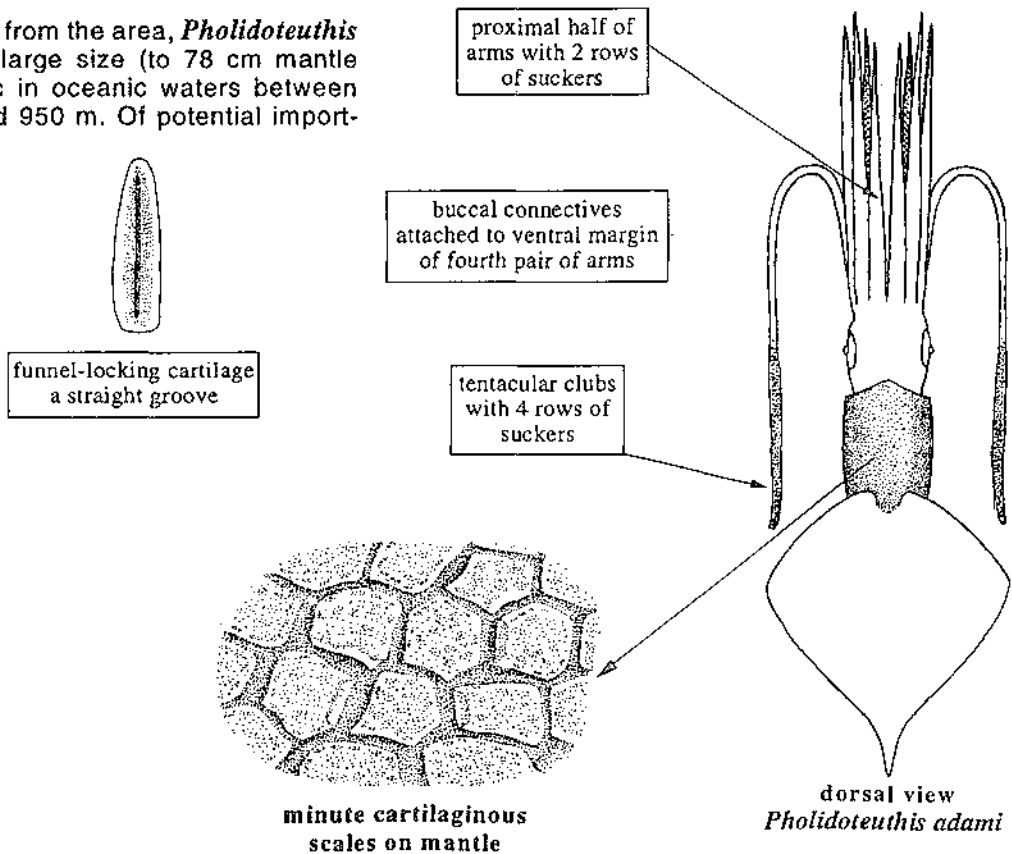
At least one species in the area, *Onychoteuthis banksi* (Leach, 1817), medium-sized (to 30 cm mantle length). Pelagic oceanic from the surface to below a depth of 150 m. Of potential interest to fisheries.



LEPIDOTEUTHIDAE

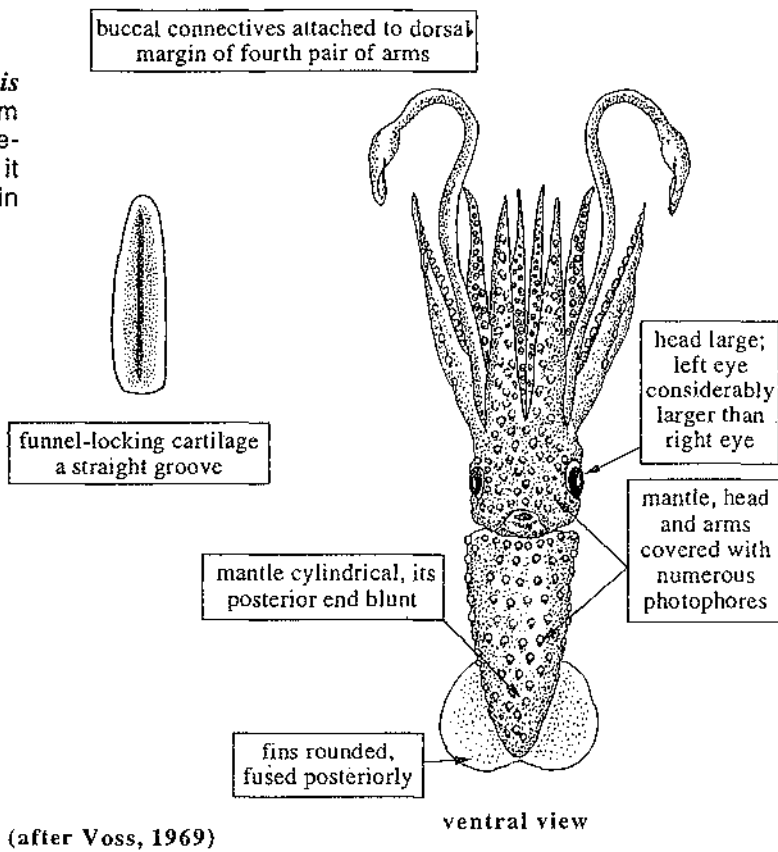
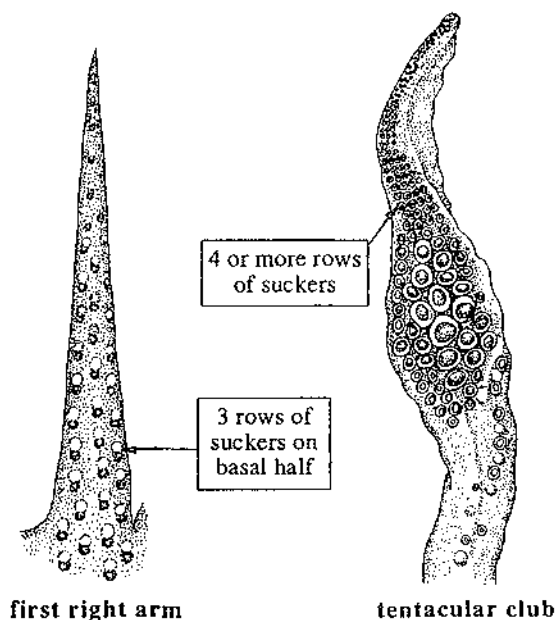
page 87

A single species known from the area, *Pholidoteuthis adami* Voss, 1956, of large size (to 78 cm mantle length). Benthopelagic in oceanic waters between depths of about 80 and 950 m. Of potential importance to fisheries.



HISTIOTEUTHIDAE

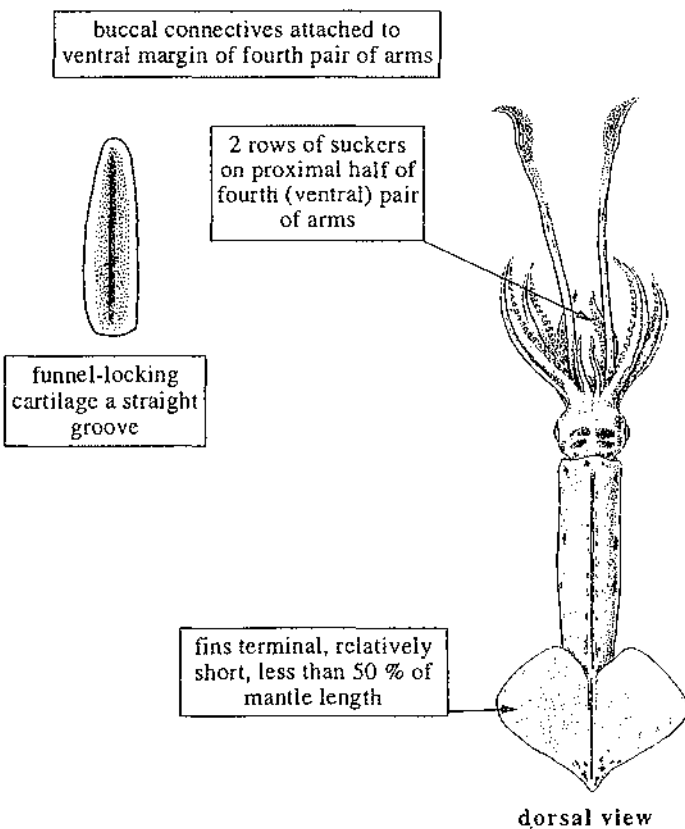
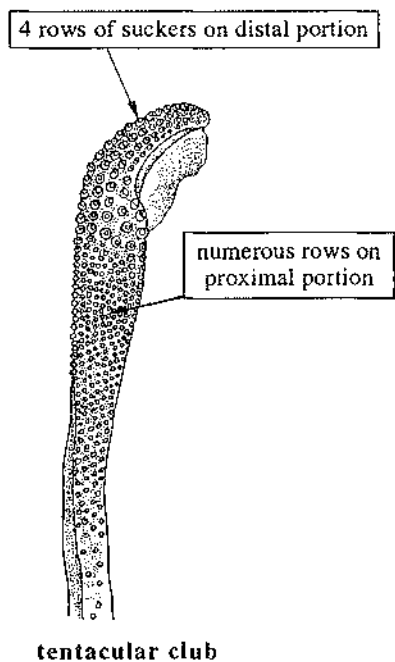
A single species known from the area, *Histioteuthis corona corona* (Voss and Voss, 1962), of medium size (to 16 cm mantle length). Meso- to bathypelagic. At present of no interest to fisheries, but it might eventually become of commercial value in specialized markets.



Histioteuthis corona corona

BRACHIOTEUTHIDAE

A single species known from the area, *Brachioteuthis riisei* (Steenstrup, 1882), of small size (to 3.5 cm mantle length), pelagic oceanic, from the surface to a depth of about 3 000 m. Of no interest to fisheries.

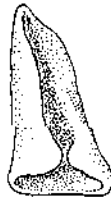


Brachioteuthis riisei

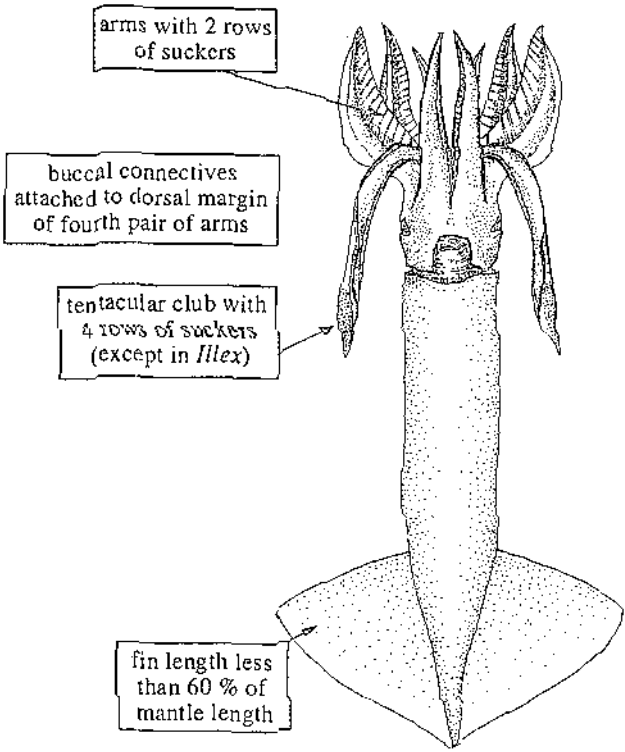
OMMASTREPHIDAE

page 90

In the area, 3 genera and about 4 species, of medium to large size (between 20 and 50 cm mantle length). Pelagic oceanic from the surface to about 1 500 m depth. All species are of present or potential interest to fisheries.



funnel-locking cartilage forming an inverted T



arms with 2 rows of suckers

buccal connectives attached to dorsal margin of fourth pair of arms

tentacular club with 4 rows of suckers (except in *Illex*)

fin length less than 60 % of mantle length

ventral view

THYSANOTEUTHIDAE

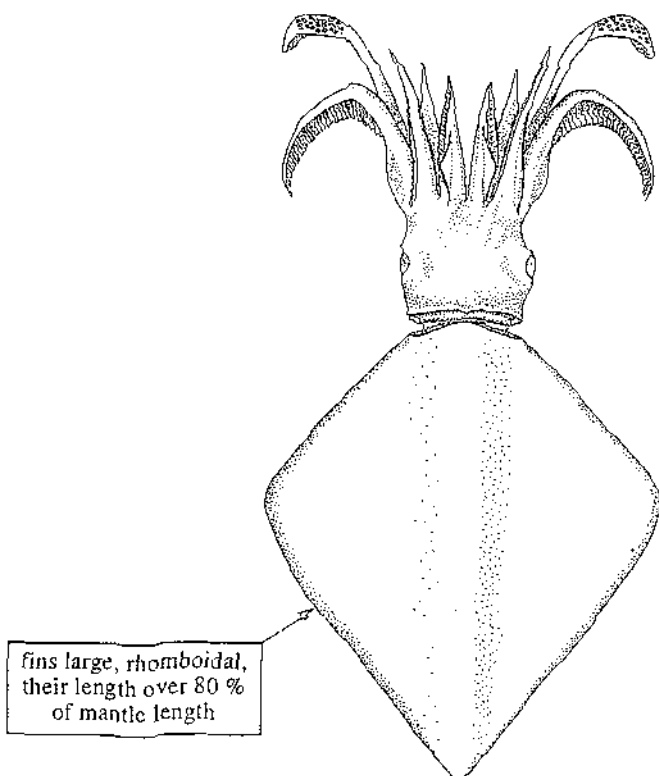
page 93

At least one species in the area, *Thysanoteuthis rhombus* Troschel, 1857, of large size (to 100 cm mantle length). Epipelagic and oceanic, of potential interest to fisheries.



funnel-locking cartilage with a long longitudinal groove and a short transverse groove at its midpoint

buccal connectives attached to ventral margin of fourth pair of arms



fins large, rhomboidal, their length over 80 % of mantle length

dorsal view
Thysanoteuthis rhombus

FAMILIES AND SPECIES OF INTEREST TO FISHERIES

LEPIDOTEUTHIDAE

En: Scaled squids. Fr: Loutènes. Sp: Lurias escamosas.

Genus *Pholidoteuthis* - one species known from the area.

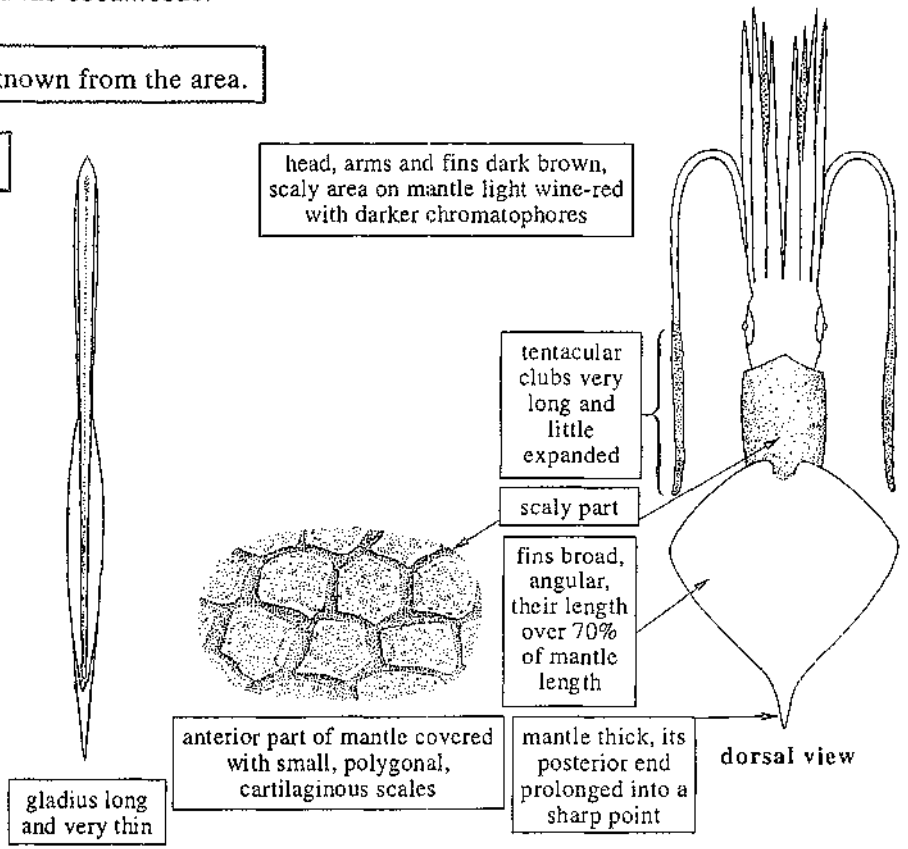
Pholidoteuthis adami Voss, 1956

FAO names: En - Scaled squid; Fr - Loutène commune; Sp - Luria escamosa.
Common names:

Size: Maximum mantle length 78 cm; common to 50 cm.

Distribution and habitat: Eastern coast of USA, Bermuda, Gulf of Mexico, Caribbean sea, Antilles and northern coast of South America to the Guianas. A benthopelagic, oceanic species, found between depths of about 80 and 900 m; forms aggregations during the day, and disperses at night.

Fisheries: Taken as bycatch in industrial trawl fisheries. Probably of potential importance.



LOLIGINIDAE

En: Inshore squids. Fr: Calmars, cassérons, encornets. Sp: Calamares, calamarines, calamarètes.

Genus *Doryteuthis* - one species known from the area.

Doryteuthis plei Blainville, 1823

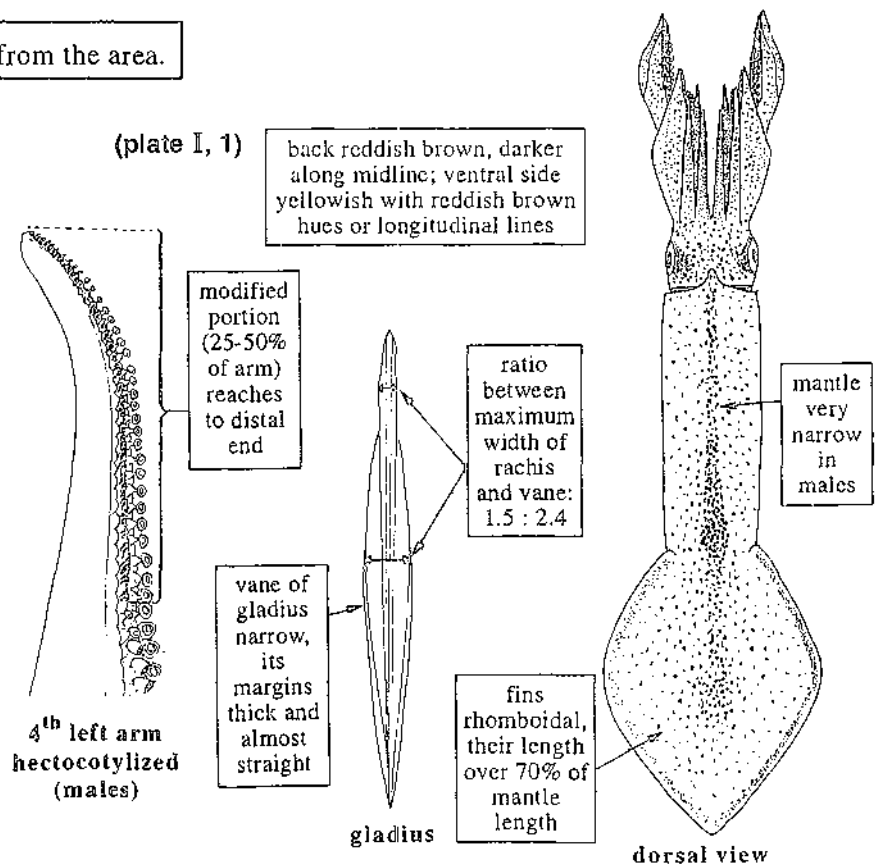
Synonyms: *Loligo plei* Blainville, 1823; *Loligo brasiliensis* Blainville, 1823.

FAO names: En - Slender inshore squid; Fr - Calmar flèche; Sp - Calamar flecha.
Common names:

Size: Maximum mantle length 35 cm (males) and 22 cm (females).

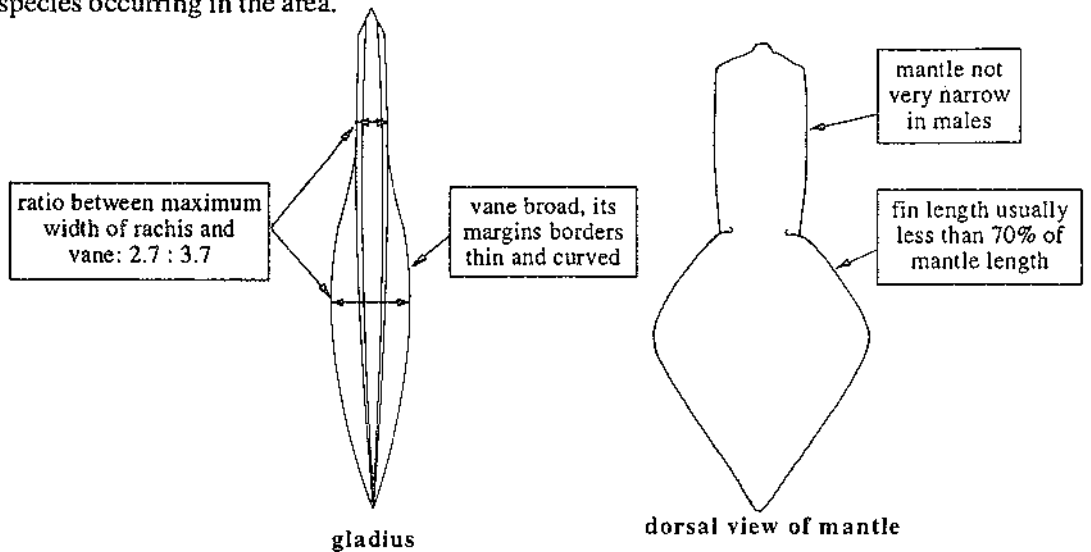
Distribution and habitat: Eastern coast of USA, Gulf of Mexico, Caribbean sea and northern and eastern coasts of South America to southern Brazil. A semipelagic and neritic species, more frequent over the continental shelf, but sometimes attaining depths of about 370 m. Aggregates over the sea bottom by day and ascends to the surface at night.

Fisheries: Taken in industrial trawl fisheries and also, in artisanal fisheries. Marketed fresh and frozen.



LOLIGINIDAE

Genus *Loligo* - about 3 species occurring in the area.



Loligo pealei LeSueur, 1821

(plate I, 2)

Synonyms: *Loligo pallida* Verrill, 1873.

FAO names: En - Longfin inshore squid;

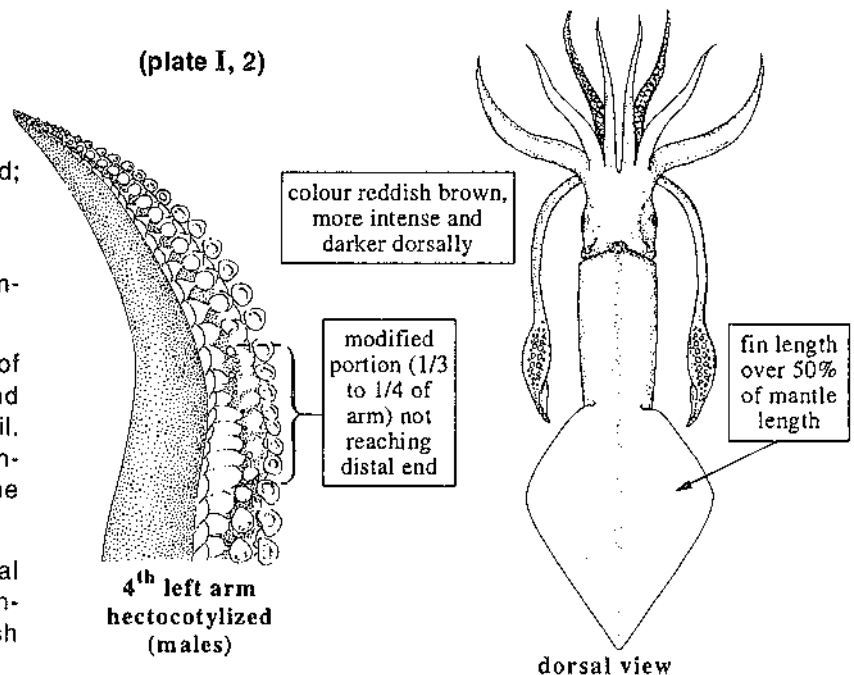
Fr - Calmar totam; Sp - Calamar pálido.

Common names:

Size: Maximum mantle length 50 cm, common to 30 cm.

Distribution and habitat: Eastern coast of USA, Gulf of Mexico, Caribbean sea and northern coast of South America to Brazil. A benthopelagic species found on the continental shelf and the upper part of the slope, to about a depth of 350 m.

Fisheries: Taken as bycatch in industrial trawl fisheries, and also in artisanal fisheries. Regularly exploited, marketed fresh and frozen.



Loligo roperi Cohen, 1976

FAO names: En - Island inshore squid;

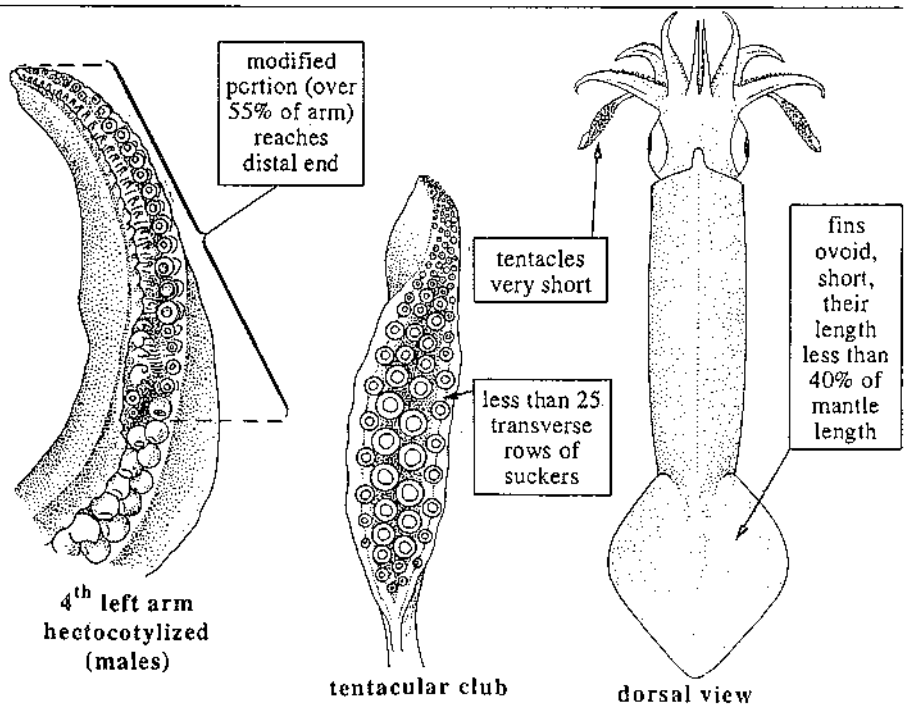
Fr - Calmar créole; Sp - Calamar insular.

Common names:

Size: Maximum mantle length 7.2 cm.

Distribution and habitat: Southern coast of Florida (USA), Cuba, Central America, Colombia and northern parts of Trinidad and Tobago; its presence in other parts of the area has not been confirmed. A benthopelagic species found between depths of 50 and 300 m, apparently more frequent around islands.

Fisheries: Taken as bycatch in industrial trawl fisheries; also in artisanal fisheries, especially at night, using artificial lights. Marketed fresh and frozen.



***Loligo surinamensis* Voss, 1974**

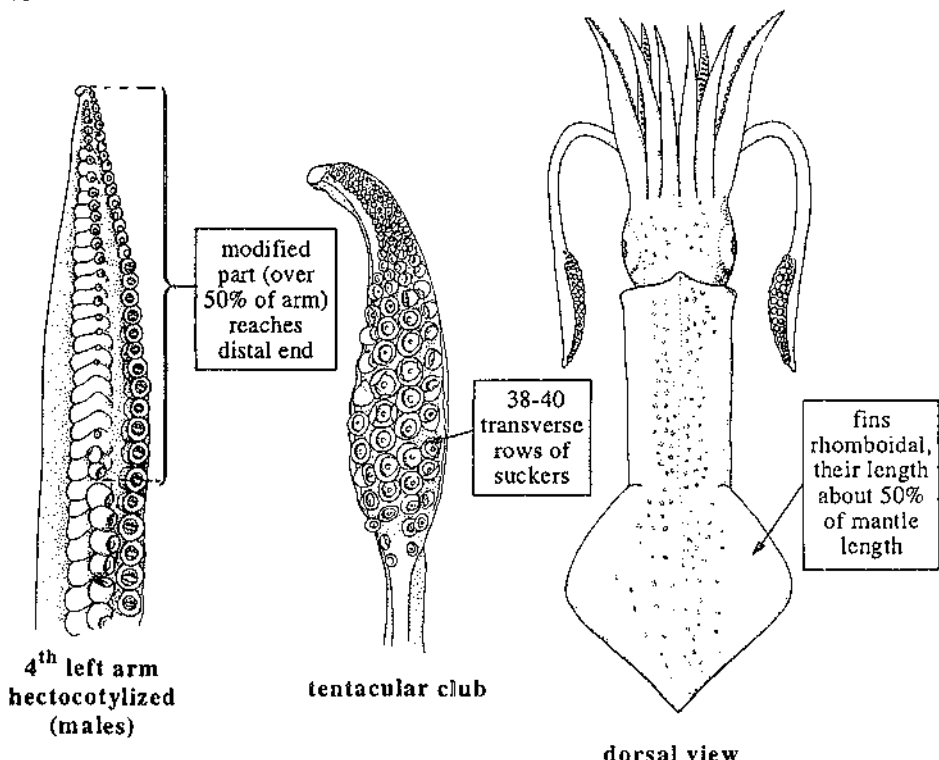
FAO names: En - Suriname squid;
Fr - Calmar du Surinam; Sp - Calamar surinamés.

Common names:

Size: Maximum mantle length 12 cm.

Distribution and habitat: So far, only recorded from the coast of Suriname. A pelagic neritic species found between depths of 25 and 40 m.

Fisheries: Probably taken in artisanal fisheries in Suriname; it could be a species of commercial importance.



Genus *Lolliguncula* - at least one species in the area.

***Lolliguncula brevis* (Blainville, 1823)**

Synonyms: *Loligo brevis* Blainville, 1823; *Loligo brevipinna* LeSueur, 1824; *Loligo hemiptera* Howell, 1868.

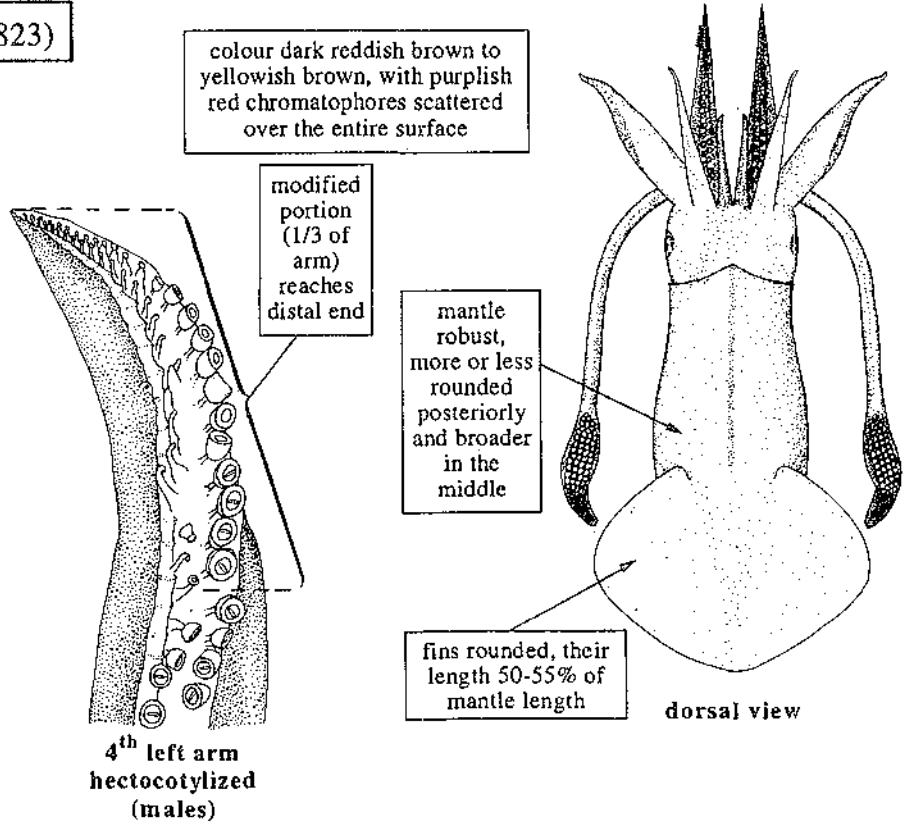
FAO names: En - Thumbstall squid;
Fr - Calmar doigtier; Sp - Calamar dedal.

Common names:

Size: Maximum mantle length 12 cm (males) and 8 cm (females).

Distribution and habitat: Eastern coast of USA, Gulf of Mexico, Greater Antilles, Caribbean sea and northern and eastern coasts of South America to Argentina. A demersal neritic species inhabiting very shallow coastal waters (to about a depth of 20 m) and brackish-water estuaries.

Fisheries: Captured with artisanal nets; marketed locally.



LOLIGINIDAE

Genus *Sepioteuthis* - at least one species occurs in the area.

Sepioteuthis sepioidea (Blainville, 1823)

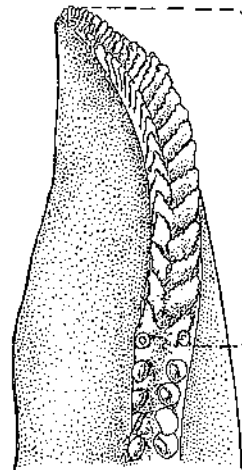
FAO names: En - Caribbean reef squid; Fr - Calmar ris; Sp - Calamar de arrecife.
Common names:

Size: Maximum mantle length 20 cm.

Distribution and habitat: Southern Florida (USA), Antilles, Caribbean sea and northern coast of South America; its presence in the Guianas is not yet confirmed. A coastal pelagic species found between the surface and about a depth of 20 m, more abundant between 3 and 7 m, associated with coral reefs and seagrass beds.

Fisheries: Caught at night with artisanal nets, using artificial lights. Usually marketed fresh.

colour variable from translucent iridescent to greenish brown or reddish brown, sometimes with white-edged bands or spots

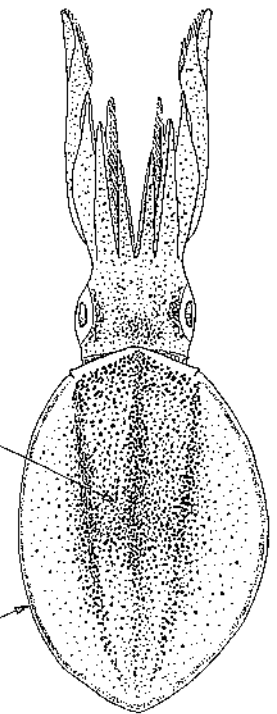


4th left arm hectocotylized (males)

modified portion (1/3 of arm) reaches distal end and lacks suckers (except for 1-2 reduced pairs proximally)

mantle broad, robust, its posterior end blunt

fins rounded, their length 90% of mantle length



OMMASTREPHIDAE

En: Flying squids. Fr: Encornets. Sp: Jibias, potas.

Genus *Illex* - one species known from the area.

Illex coindetii (Verany, 1839)

Synonyms: *Illex illecebrosus coindetii* Pfeffer, 1912.

FAO names: En - Broadtail shortfin squid; Fr - Encornet rouge; Sp - Pota voladora.

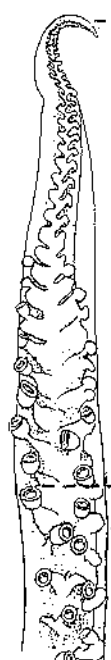
Common names:

Size: Maximum mantle length 20 cm (in the Caribbean).

Distribution and habitat: Eastern coast of Florida (USA), Gulf of Mexico, Antilles, Caribbean sea and northern coast of South America to the Guianas. A benthopelagic oceanic species found between the surface and a depth of 1 000 m, more common between 180 and 450 m; associated to the sea bottom by day.

Fisheries: Taken as bycatch in industrial trawl fisheries. A species of potential importance.

colour reddish to reddish brown, more intense on back



4th left arm hectocotylized (males)

dactyl with 8 longitudinal rows of small suckers

modified portion occupies distal fourth of arm

longer than 4th right arm

tentacular club

mantle broader at anterior end

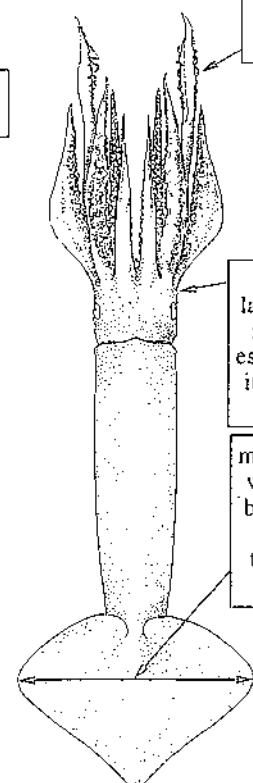
fin angle greater than 50°

ventral view of mantle

arms long

head large and robust, especially in males

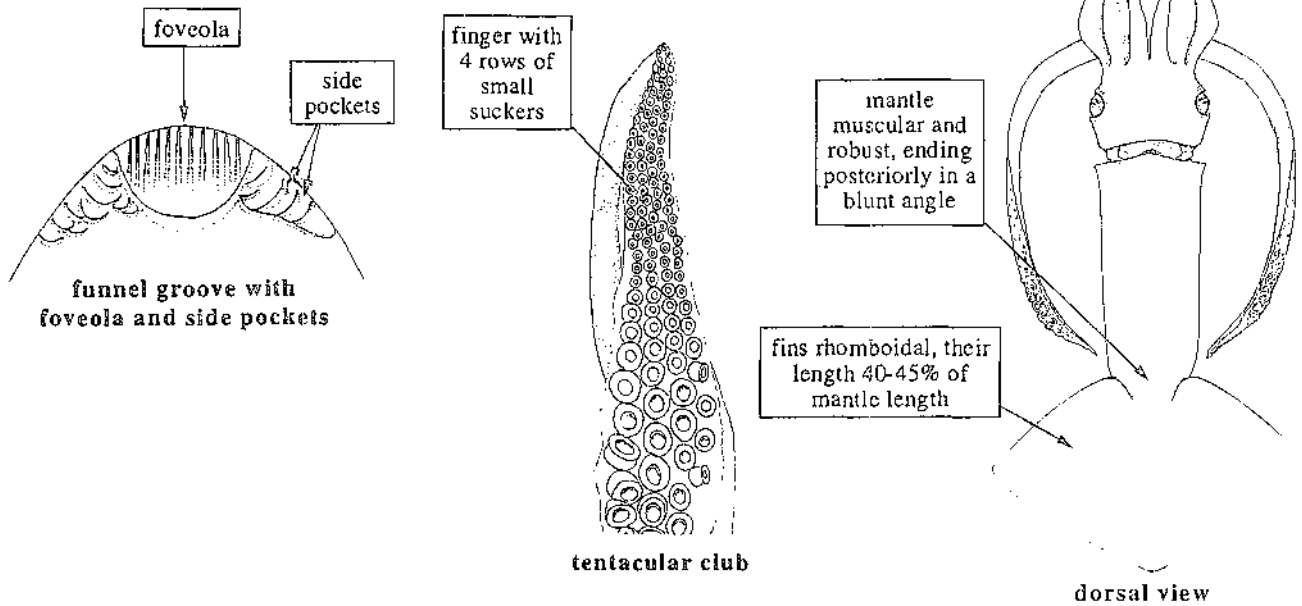
maximum width of both fins greater than fin length



dorsal view

OMMASTREPHIDAE

Genus *Ommastrephes* - 2 species occur in the area.



Ommastrephes bartrami (LeSueur, 1821)

FAO names: En - Neon flying squid; Fr - Encornet volant; Sp - Pota saltadora.

Common names:

Size: Maximum mantle length 50 cm (females); common to 40 cm.

Distribution and habitat: Coasts of Canada and USA, Bermuda, Gulf of Mexico, Antilles, Caribbean sea and northern coast of South America to the Guianas. A pelagic oceanic species found between the surface and a depth of 1500 m.

Fisheries: A species of potential importance.

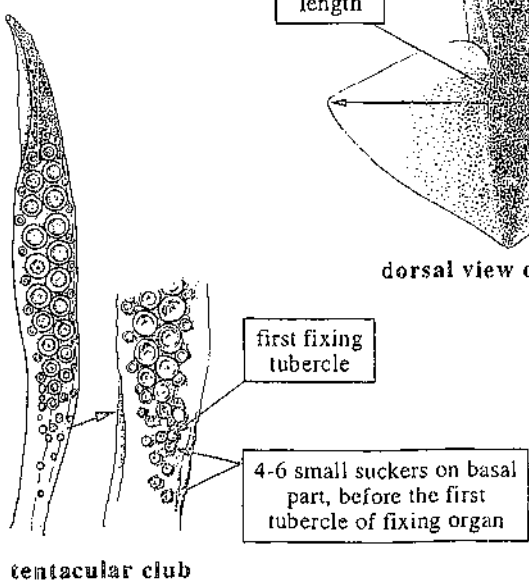
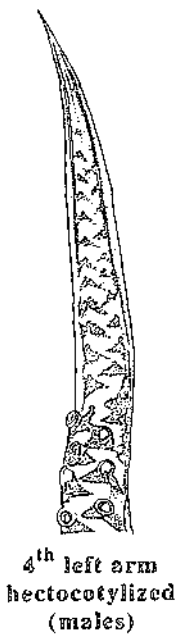
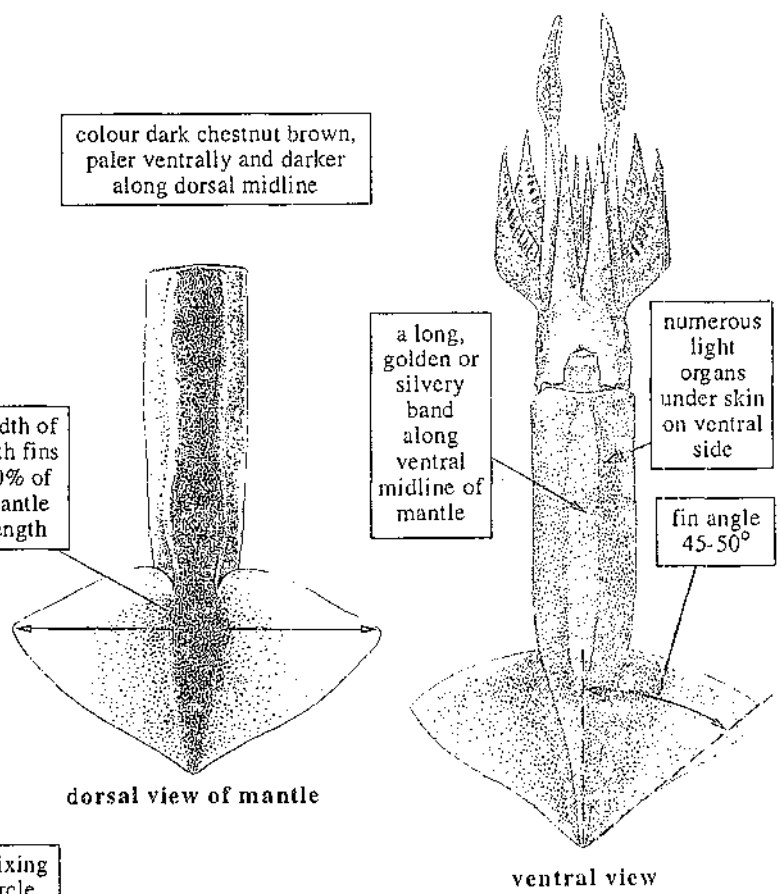
colour dark chestnut brown, paler ventrally and darker along dorsal midline

width of both fins 60% of mantle length

a long, golden or silvery band along ventral midline of mantle

numerous light organs under skin on ventral side

fin angle 45-50°



OMMASTREPHIDAE

***Ommastrephes pteropus* Steenstrup, 1855**

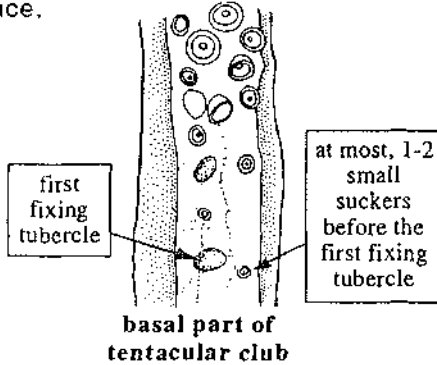
FAO names: En - Orangeback flying squid; Fr - Encornet à dos orange; Sp - Pota naranja.

Common names:

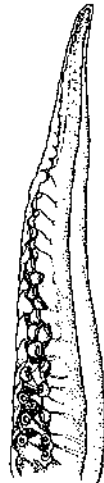
Size: Maximum mantle length 40 cm (females); common to 35 cm.

Distribution and habitat: Eastern coast of USA, Bermuda, Gulf of Mexico, Antilles, Caribbean sea, and northern and eastern coasts of South America to southern Brazil. A pelagic oceanic species found between the surface and a depth of 1 500 m; performs vertical migrations, approaching the surface at night.

Fisheries: Captured with jigs; also taken in bottom trawls. A species of potential importance.

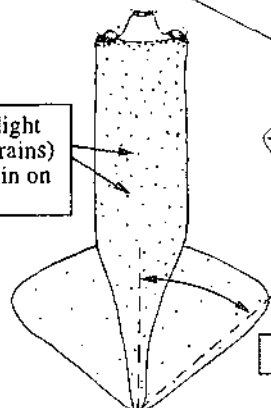


colour dark chestnut brown, paler ventrally, darker along dorsal midline

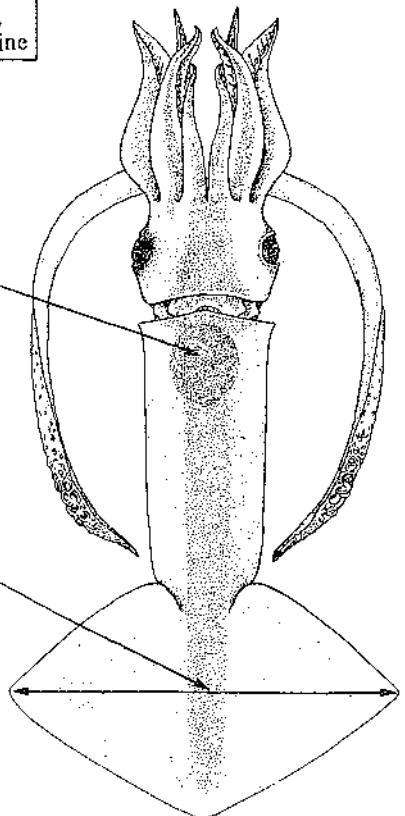


4th left arm hectocotylized (males)

numerous small light organs (like rice grains) scattered under skin on ventral side



ventral view of mantle



Genus *Ornithoteuthis* - one species known from the area.

***Ornithoteuthis antillarum* Adam, 1957**

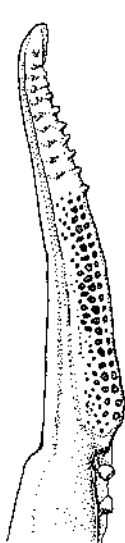
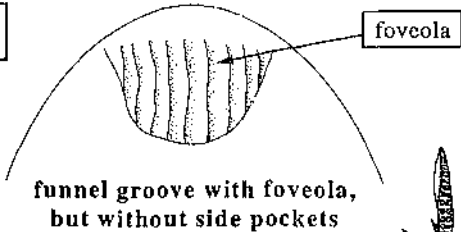
FAO names: En - Atlantic bird squid; Fr - Encornet oiseau; Sp - Pota pájaro.

Common names:

Size: Maximum mantle length 20 cm.

Distribution and habitat: Eastern coast of USA, Bermuda, Gulf of Mexico, Antilles, Caribbean sea and northern coast of South America to Brazil. A pelagic oceanic species found between the surface and a depth of about 1 000 m. Undertakes vertical migrations, approaching the surface at night.

Fisheries: Taken at night, as bycatch in industrial trawl fisheries. A species of potential importance.



4th arm hectocotylized (males)

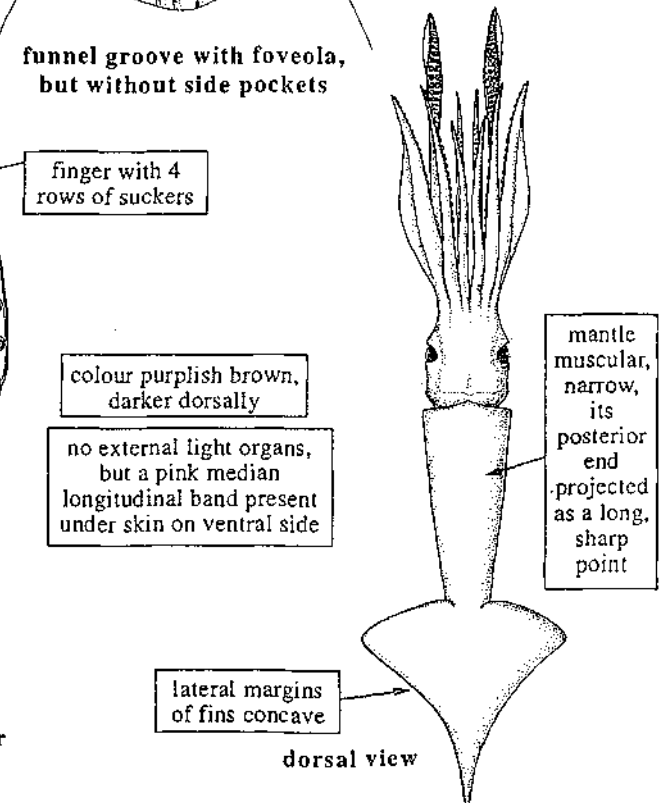


tentacular club

finger with 4 rows of suckers

colour purplish brown, darker dorsally

no external light organs, but a pink median longitudinal band present under skin on ventral side



dorsal view

ONYCHOTEUTHIDAE

En: Hooked squids. **Fr:** Cornets. **Sp:** Lurias, luriones.

Genus *Onychoteuthis* - one species known from the area.

Onychoteuthis banksi (Leach, 1817)

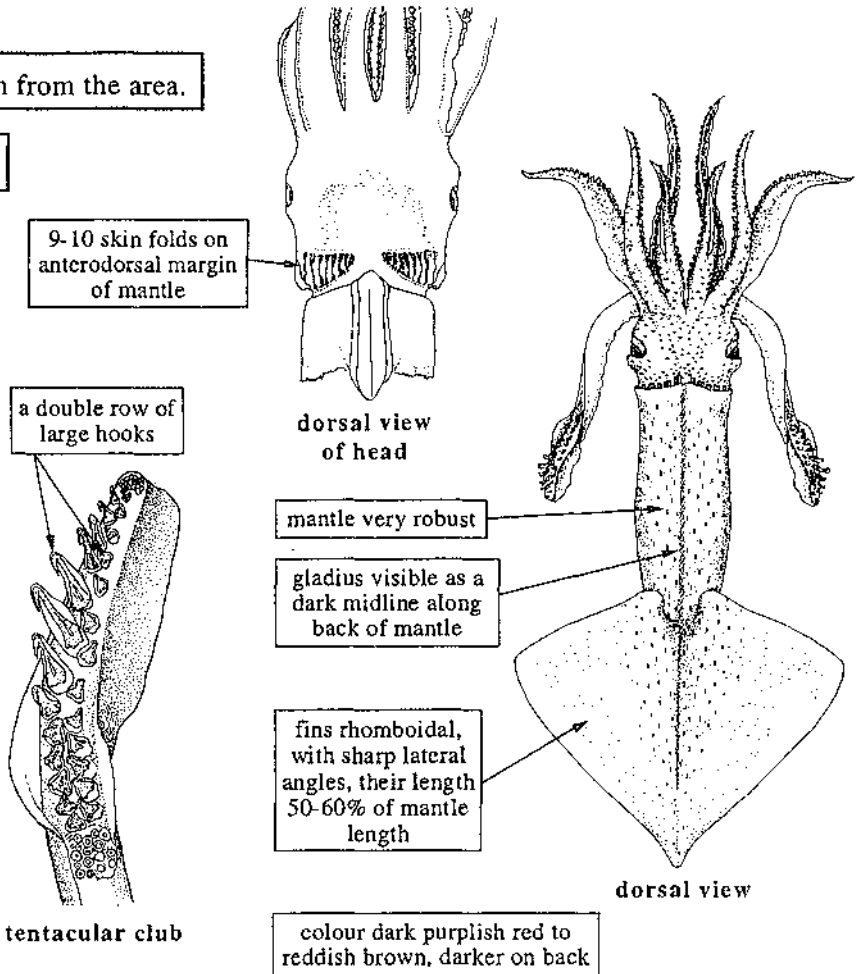
FAO names: **En** - Common clubhook squid; **Fr** - Cornet crochu; **Sp** - Luria ganchuda.

Common names:

Size: Maximum mantle length 30 cm; common to 17 cm.

Distribution and habitat: Coasts of Canada and USA, Bermuda, Gulf of Mexico, Antilles, Caribbean sea, and northern and eastern coasts of South America. A pelagic oceanic species, generally found between the surface and 150 m, but it can attain much greater depths (to 800 m).

Fisheries: Caught at night with nets and jigs, using artificial lights. A species of potential importance.



THYSANOTEUTHIDAE

En: Rhomboid squids. **Fr:** Chipilouas. **Sp:** Chipirones.

Genus *Thysanoteuthis* - one species known from the area.

Thysanoteuthis rhombus Troschel, 1857

Synonyms: *Thysanoteuthis nuchalis* Pfeffer, 1912.

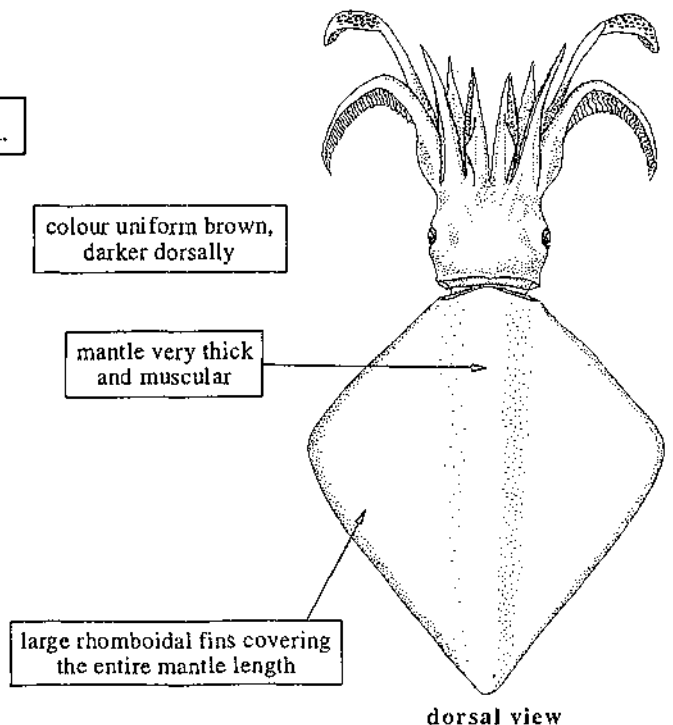
FAO names: **En** - Diamondback squid; **Fr** - Chipiloua commun; **Sp** - Chipirón volantín.

Common names:

Size: Maximum mantle length 100 cm; common to 60 cm.

Distribution and habitat: Eastern coast of USA, Bermuda, Gulf of Mexico, Antilles, Caribbean sea and northern coast of South America to Brazil. An epipelagic oceanic species, often forming small aggregations far offshore.

Fisheries: A species of potential importance.



ORDER OCTOPODA

OCTOPUSES

Shell absent, except in the suborder Cirrata, where it is vestigial; 8 circum-oral arms, tentacles absent; suckers sessile, without chitinous rings; fins absent, except in the suborder Cirrata.

Note: The systematics of this order is currently under revision and hence, the present work is considered as provisional.

TECHNICAL TERMS AND MEASUREMENTS

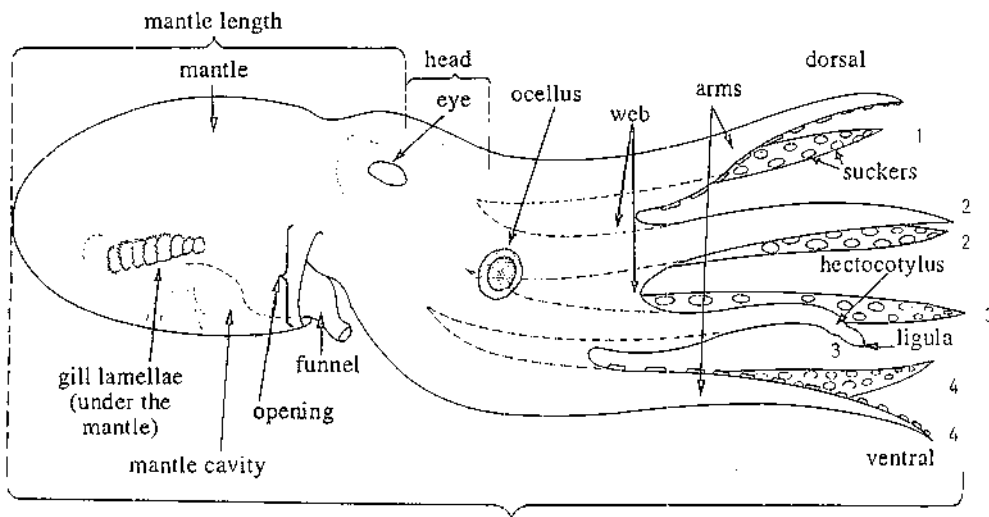
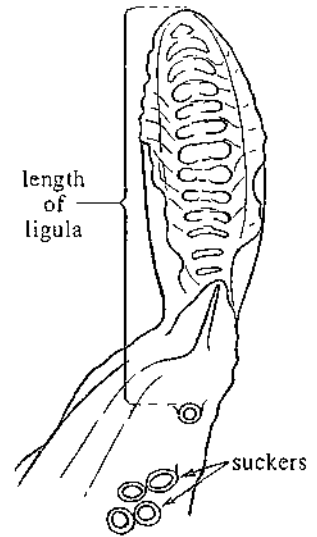


diagram of basic octopus features, lateral view



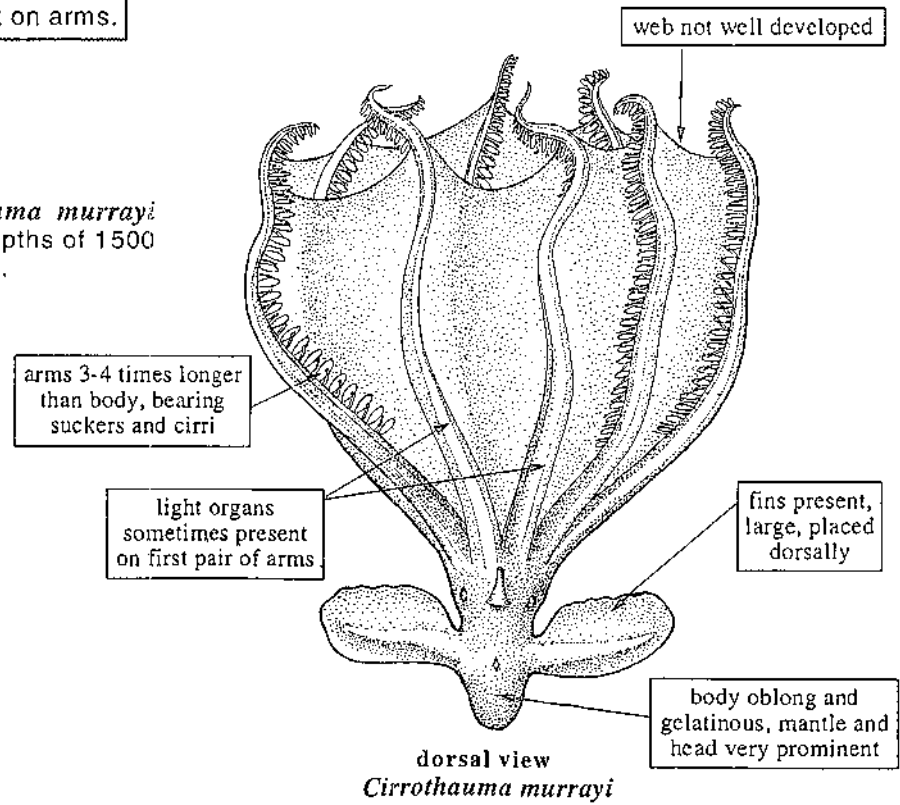
tip of hectocotylized arm (males)

GUIDELINES FOR THE IDENTIFICATION OF FAMILIES

SUBORDER CIRRATA - Cirri present on arms.

CIRROTEUTHIDAE

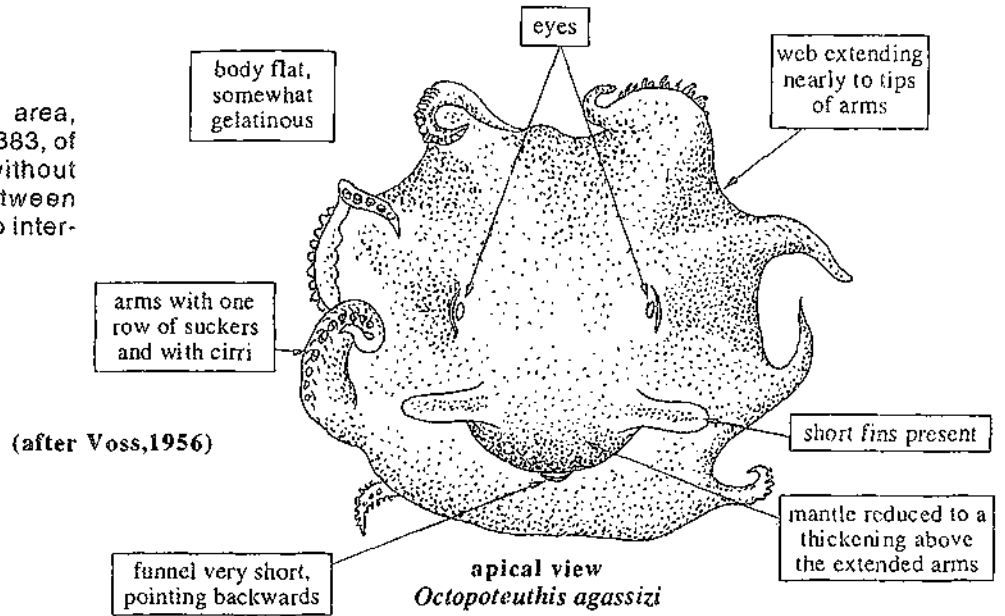
One species in the area, *Cirrothauma murrayi* Chun, 1911, bathypelagic between depths of 1500 and 4500m. Of no interest to fisheries.



dorsal view
Cirrothauma murrayi

OPISTHOTEUTHIDAE

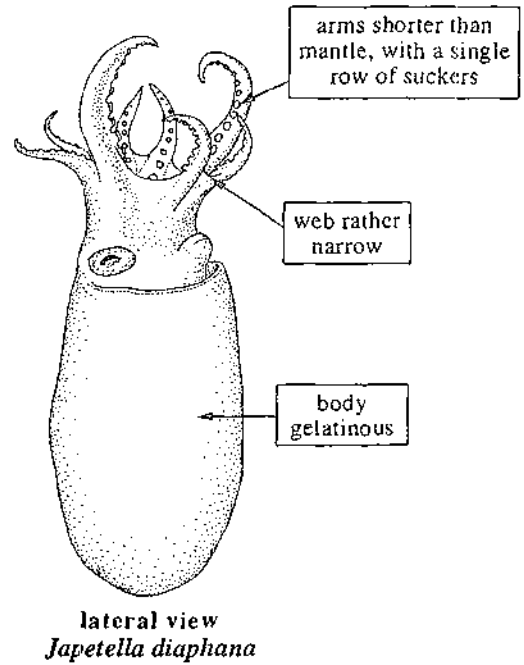
One species known from the area, *Opisthoteuthis agassizi* Verril, 1883, of small size (body diameter without arms to 80 cm), benthic between depths of 120 and 2200 m. Of no interest to fisheries.



SUBORDER INCIRRATA - Arms without cirri.

BOLITAENIDAE

Several medium-sized species are probably found in the area. Meso- and bathypelagic. Of no interest to fisheries.

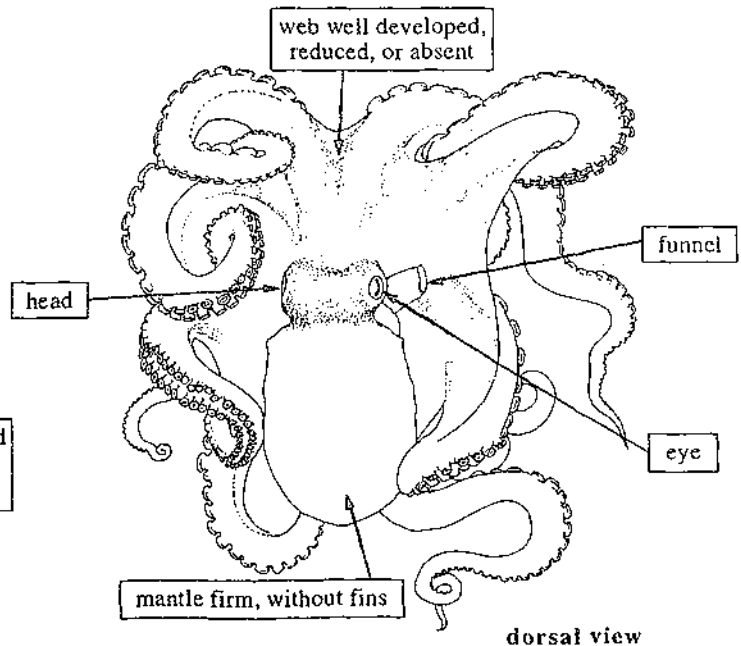


OCTOPODIDAE

page 97

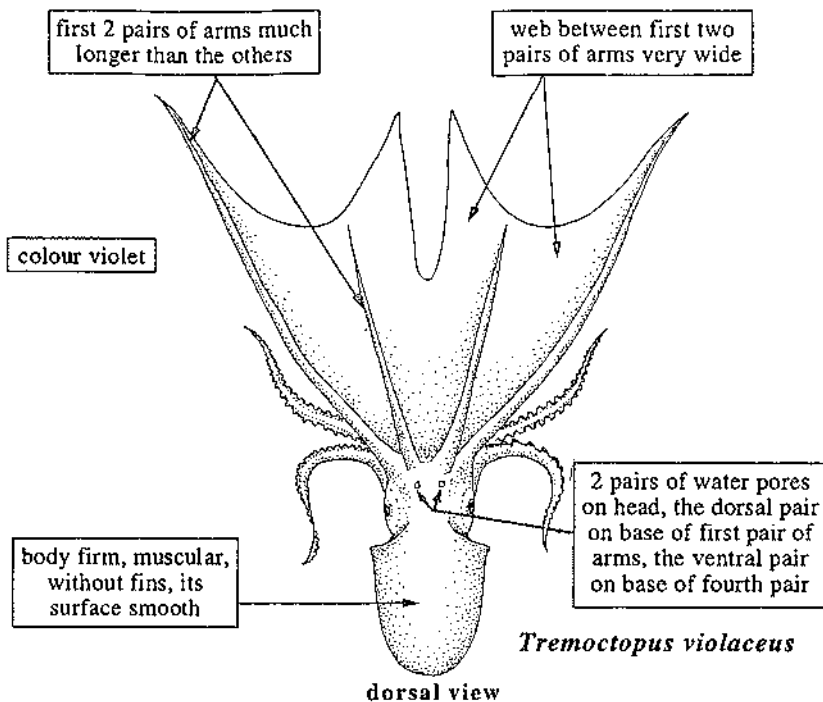
At least 7 genera and 16 small to medium-sized species in the area. Benthic in coastal marine waters. Several of them are of interest to fisheries.

third right or left arm hectocotylized in males, its distal end spoon-shaped, not filamentous



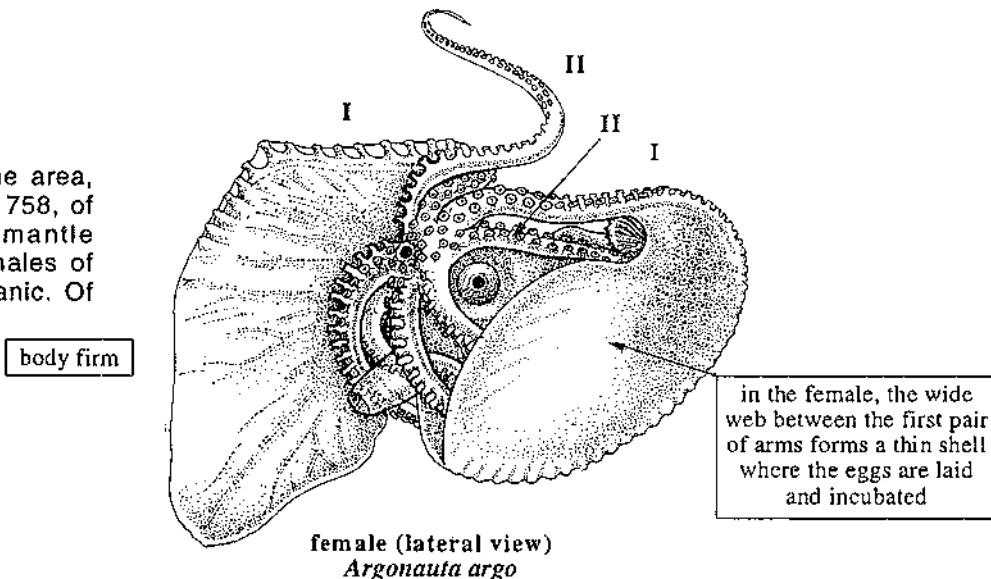
TREMOCTOPODIDAE

One species known from the area, *Tremoctopus violaceus* Delle Chiaje, 1830, of large size (females to 200 cm total length). Pelagic, migrating to the water surface at night. Presently of no interest to fisheries.



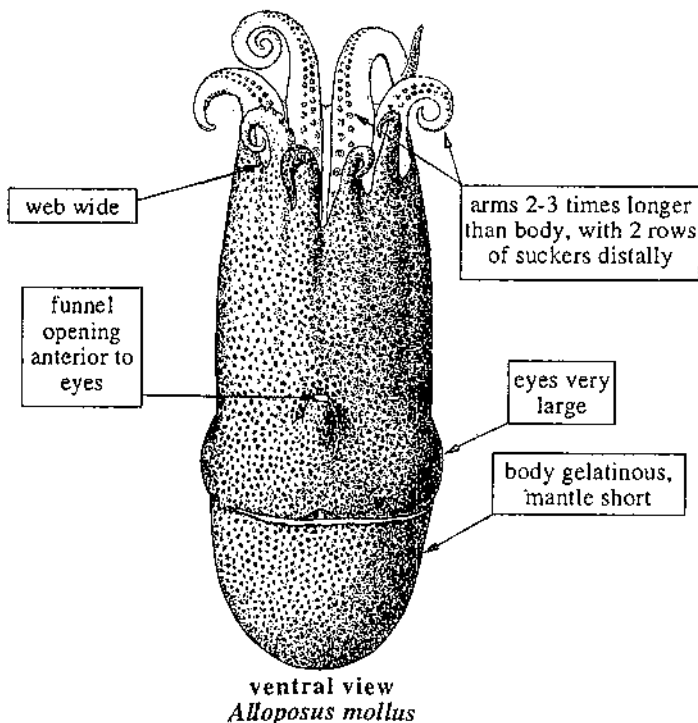
ARGONAUTIDAE

One species known from the area, *Argonauta argo* Linnaeus, 1758, of medium size (maximum mantle length in females 12 cm, males of dwarf size). Epipelagic oceanic. Of no interest to fisheries.



ALLOPOSIDAE

A single species, *Alloposus mollis* Verrill, 1880, of large size (to 200 cm total length and 40 cm mantle length). Pelagic, from great depths to the surface (at night). Of no interest to fisheries.



FAMILIES AND SPECIES OF INTEREST TO FISHERIES

OCTOPODIDAE

En: Octopuses. Fr: Pieuvres, poulpes. Sp: Pulpos, pulpitos.

Genus *Octopus* - at least 8 species occur in the area.

» mantle firm, more or less muscular; hectocotylus well developed, with distinct ligula and calamus; web relatively narrow; 5-13 gill lamellae; ocelli (eyespot), when present, restricted to the web; often a colour pattern of spots and stripes.

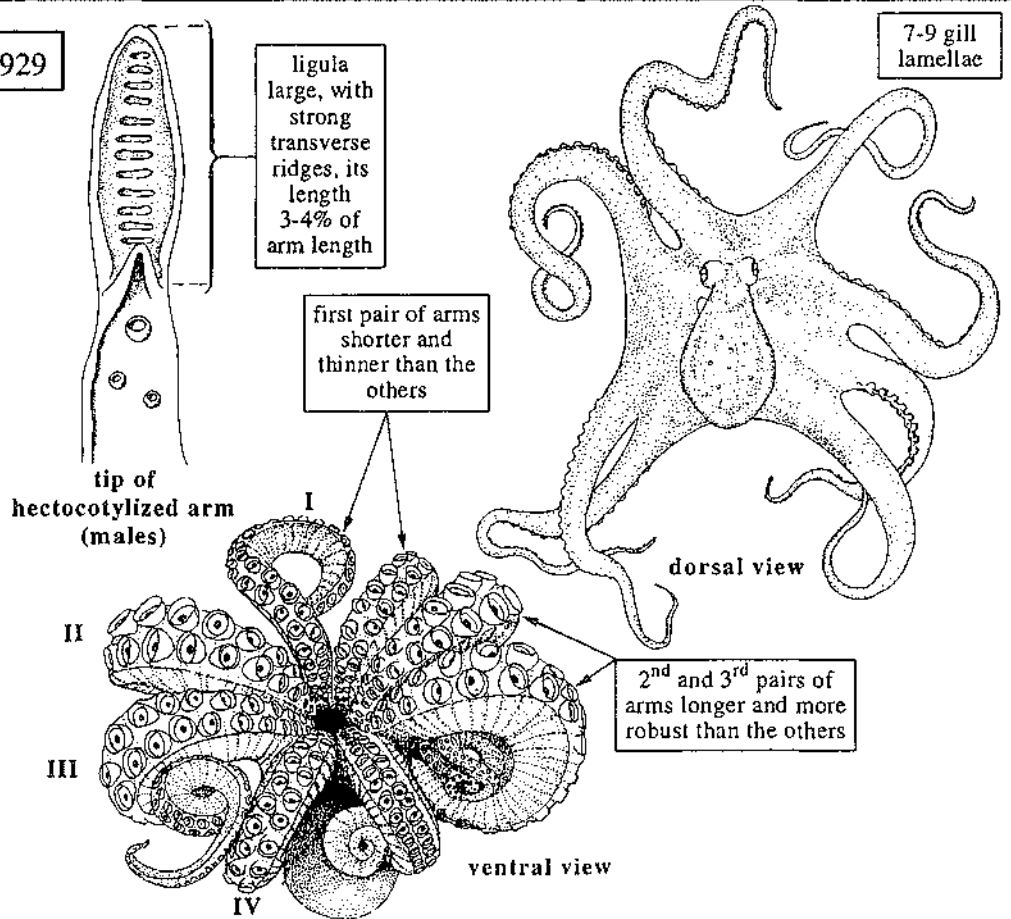
Octopus briareus Robson, 1929

FAO names: En - Caribbean reef octopus; Fr - Poulpe ris; Sp - Pulpo de arrecife.
Common names:

Size: Maximum total length recorded from the area 60 cm; common to 40 cm.

Distribution and habitat: Southern coast of Florida (USA), Antilles and northern coast of South America to Brazil. A benthic species found in very shallow waters, frequent in coral reefs, but also on rocky/sandy bottoms and seagrass beds.

Fisheries: Exploited by artisanal fisheries, mainly with pots and "longanizas"; also collected by hand (scuba diving).



Octopus burryi Voss, 1950

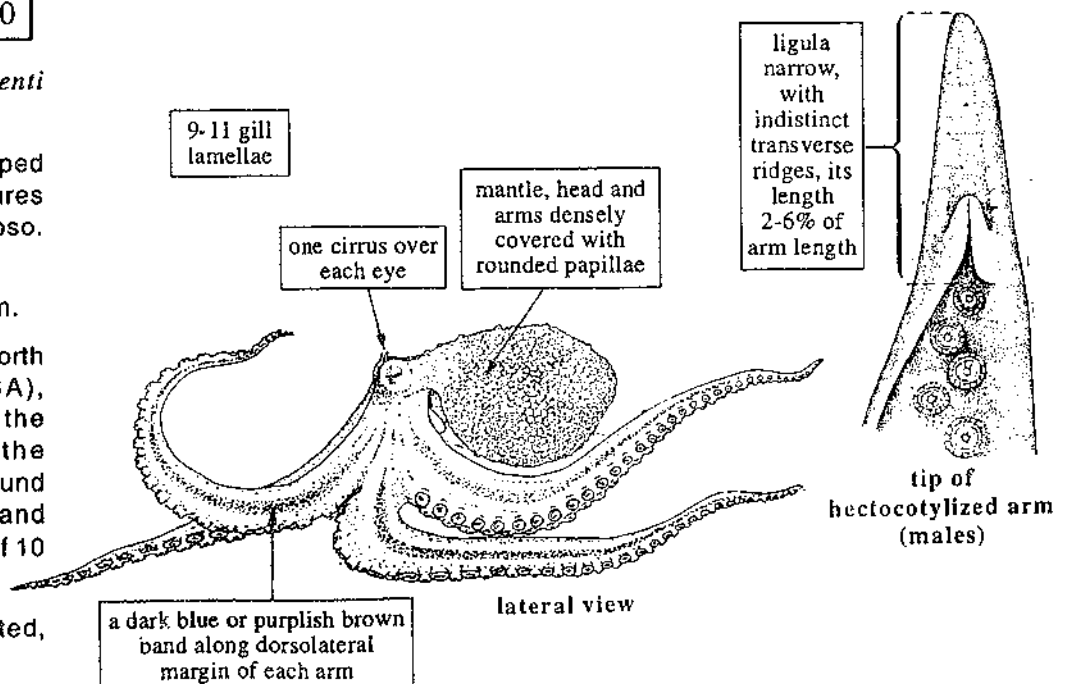
Synonyms: *Octopus vincenti* Pickford, 1955.

FAO names: En - Brownstriped octopus; Fr - Poulpe a rayures bleues; Sp - Pulpo granuloso.
Common names:

Size: Max. mantle length 7 cm.

Distribution and habitat: North Carolina and Florida (USA), Yucatan (Mexico), part of the Antilles, Venezuela and the Guianas. A benthic species found on bottoms of sand, shell and coral debris between depths of 10 and 200 m.

Fisheries: Regularly exploited, especially by trawl fisheries.



OCTOPODIDAE

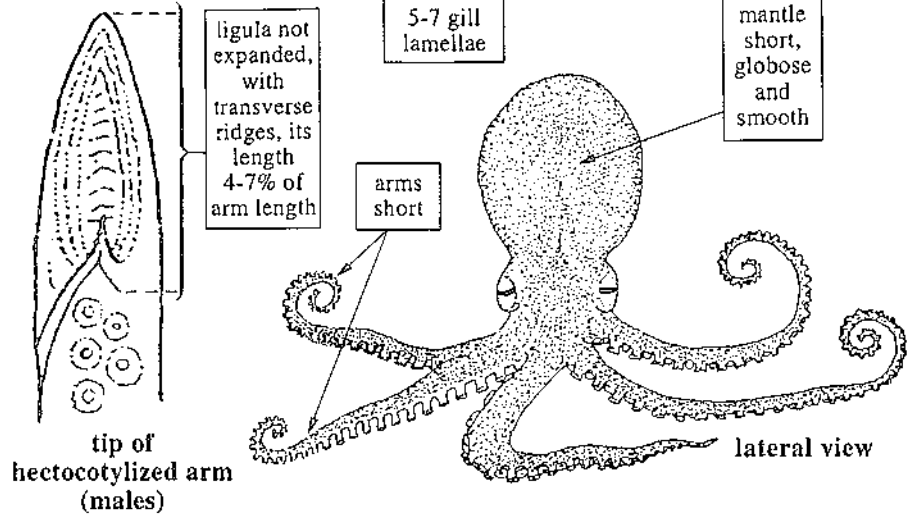
Octopus joubini Robson, 1929

FAO names: En - Pigmy octopus; Fr - Poulpe pygmé; Sp - Pulpo pigmeo.
Common names:

Size: Maximum length 15 cm.

Distribution and habitat: Florida (USA), Gulf of Mexico, Lesser Antilles, Caribbean sea and the Guianas. A benthic species found on bottoms of muddy sand and shell debris, and on seagrass beds, often between depths of 2 and 20 m, but it may occur to 80 m.

Fisheries: Regularly exploited by both, artisanal and trawl fisheries.

*Octopus macropus* Risso, 1826

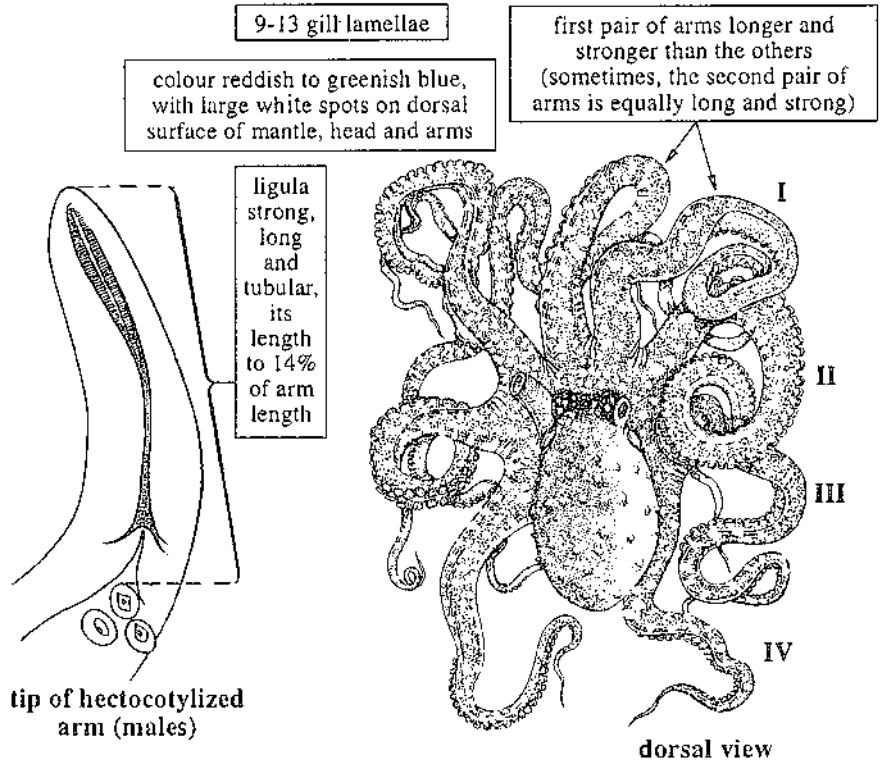
Synonyms: *Octopus longimanus* Orbigny, 1840; *Octopus bermudensis* Hoyle, 1885; *Octopus chromatus* Heilprins, 1888.

FAO names: En - White-spotted octopus; Fr - Poulpe tacheté; Sp - Pulpo manchado.
Common names:

Size: Maximum total length over 120 cm; common to 60 cm.

Distribution and habitat: Florida (USA), Antilles, Caribbean sea, the Guianas and northern and northeastern coasts of Brazil. A benthic species found on coral reefs and on other hard bottoms, from the shoreline to about a depth of 20 m.

Fisheries: Regularly exploited by artisanal fisheries, mainly with pots, "longanizas" and hooks; also as bycatch in the trawl fishery for shrimps. Often confused with *Octopus vulgaris*.

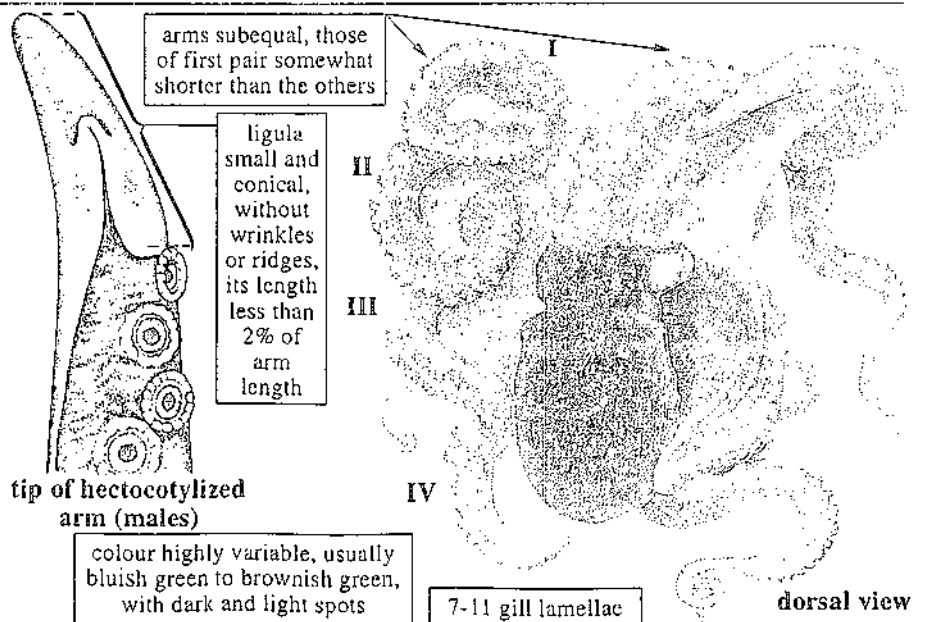
*Octopus vulgaris* Cuvier, 1797

Names. FAO: En - Common octopus; Fr - Pieuvre; Sp - Pulpo común.
Common names:

Size: Maximum total length 130 cm, common in the area, 50 cm.

Distribution and habitat: From New York (USA), through the Gulf of Mexico, the Antilles and the Caribbean sea, to Brazil. A benthic species found on rocky bottoms, coral reefs and seagrass beds, from the shoreline to a depth of about 200 m.

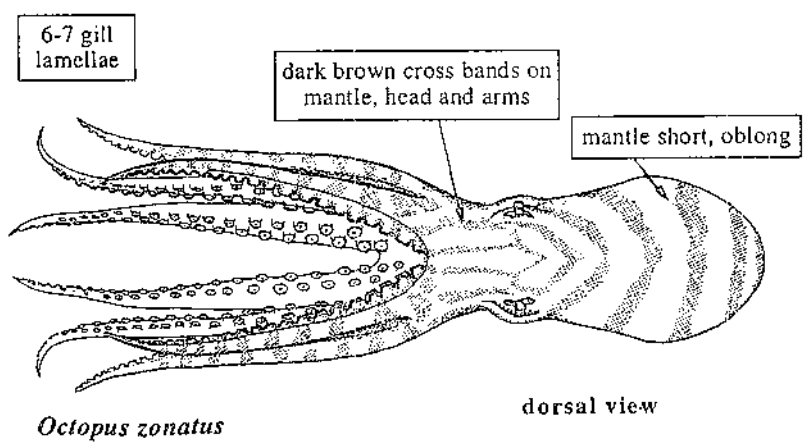
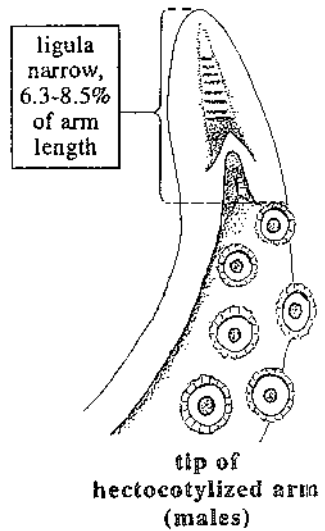
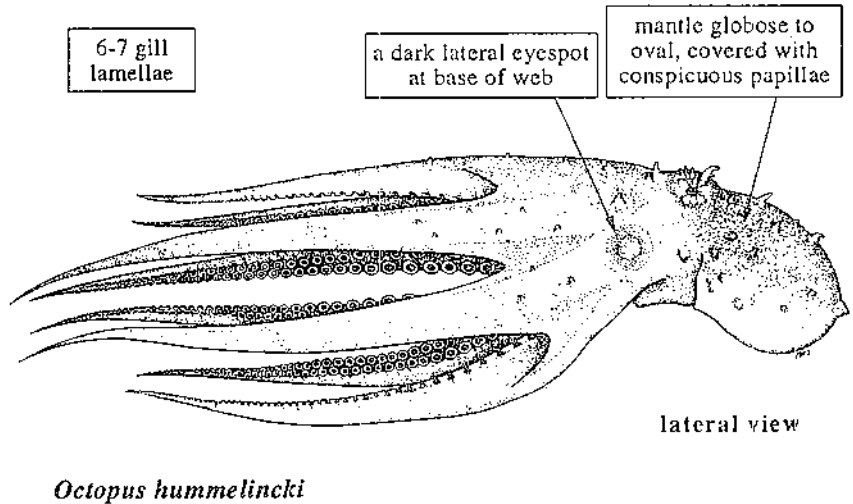
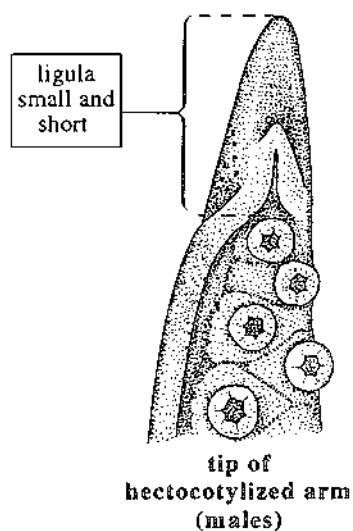
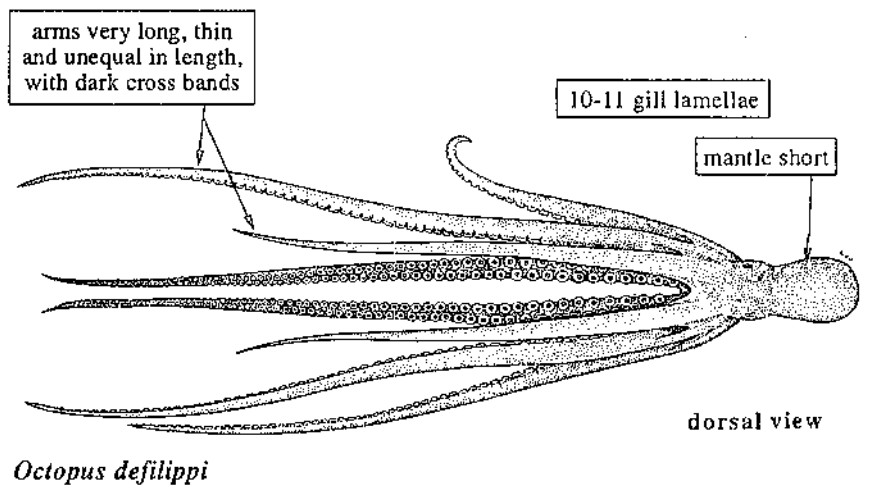
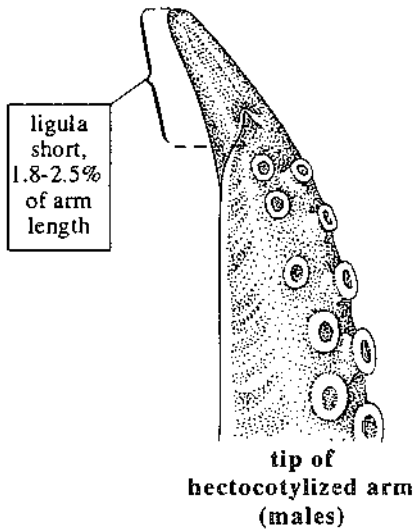
Fisheries: Regularly exploited by artisanal fisheries (with pots, "longanizas", hooks, scuba diving), but mainly by trawl fisheries.



OCTOPODIDAE

Other species:

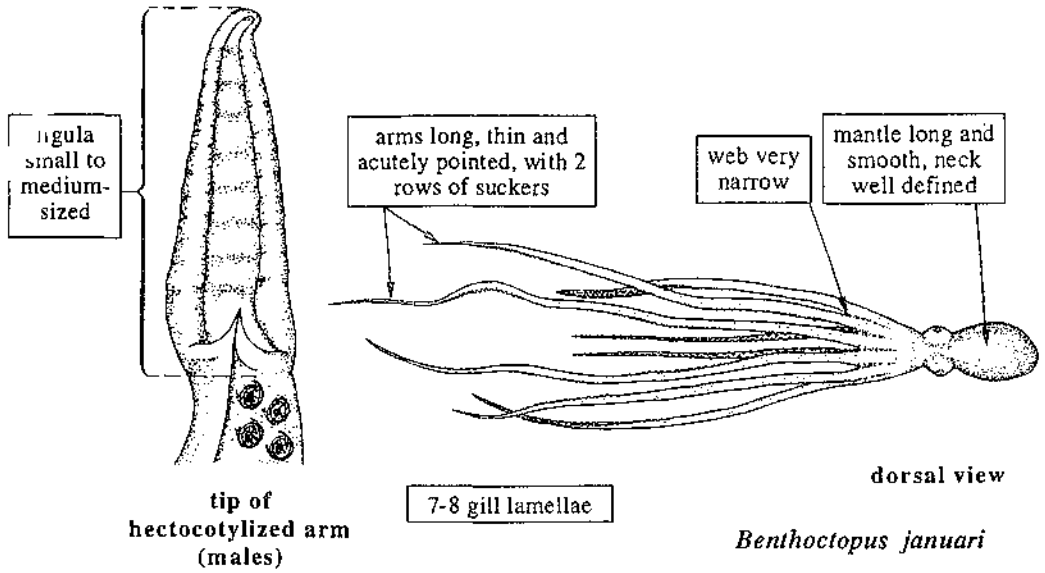
Octopus defilippi Verary, 1851 (to 9 cm mantle length, benthic on sandy and muddy bottoms, between depths of 3 and 200 m); *Octopus hummelincki* Adam, 1936 (to 7 cm mantle length, usually only to 3 cm, benthic on coral reefs and bottoms of sand and shell debris, from the shoreline to a depth of 200 m); *Octopus zonatus* Voss, 1968 (to 3 cm mantle length, benthic between 30 and 75 m depth). At present, these species are of little interest to fisheries because of their small average size.



OCTOPODIDAE

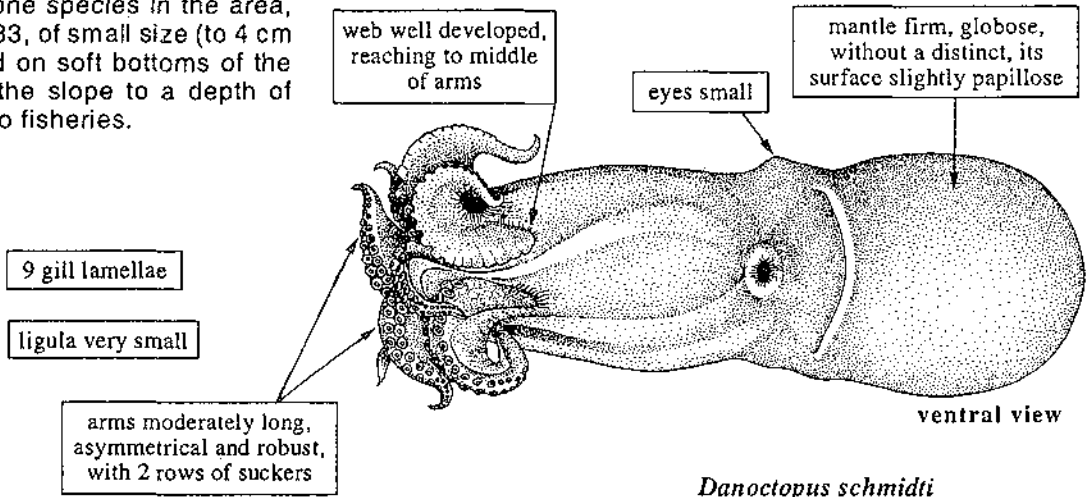
Other genera:

Benthoctopus - at least 2 species in the area, *B. januari* (Hoyle, 1885) and *B. oregonae* Toll, 1981, both of small size (to 7 cm mantle length). Found on soft bottoms between 400 and 600 m depths. Of no interest to fisheries.



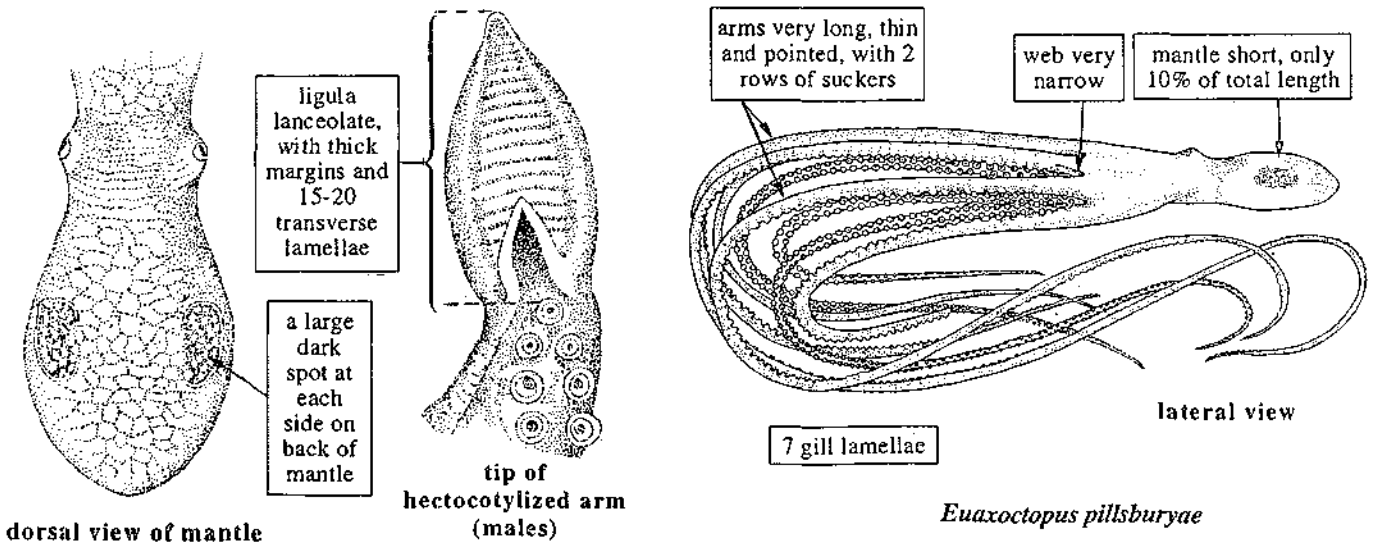
Benthoctopus januari

Danoctopus - at least one species in the area, *D. schmidti* Joubin, 1933, of small size (to 4 cm mantle length). Found on soft bottoms of the continental shelf and the slope to a depth of 600 m. Of no interest to fisheries.



Danoctopus schmidti

Euaxoctopus - at least one species in the area, *E. pillsburyae* Voss, 1975, of small size (to 3 cm mantle length and 20 cm total length). Found on soft bottoms between depths of 20 and 60 m. Presently of no interest to fisheries.

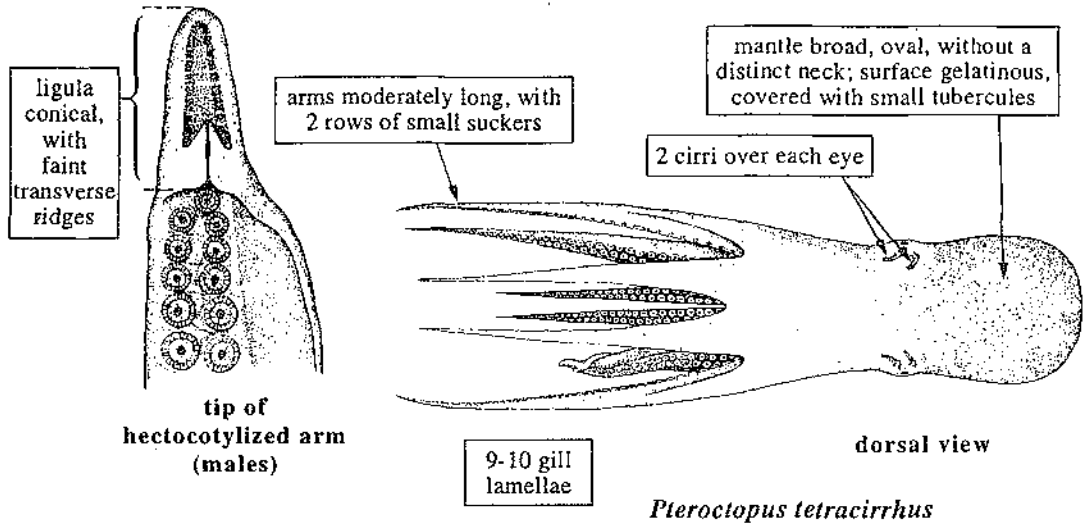


Euaxoctopus pillsburyae

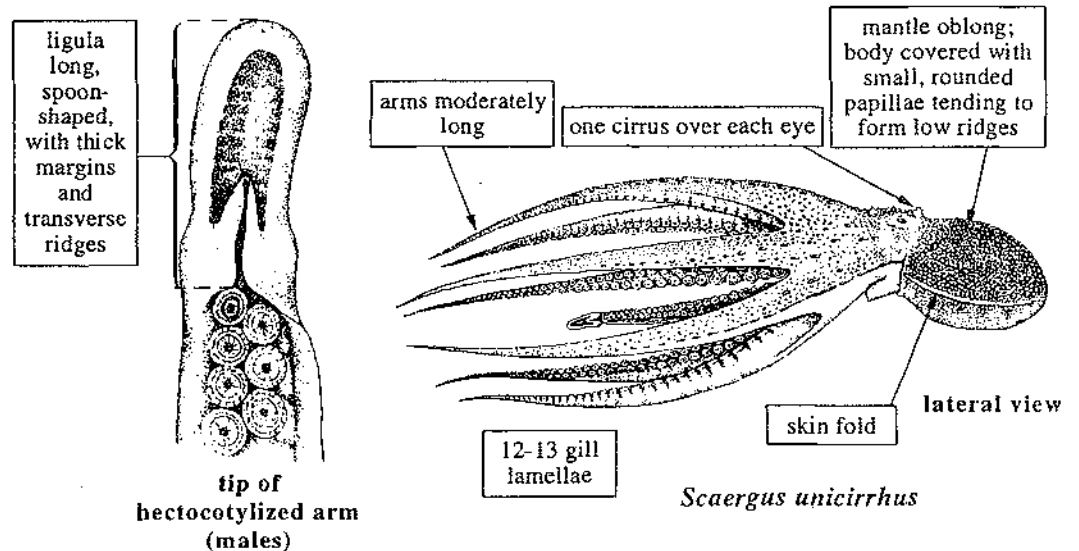
OCTOPODIDAE

Other genera:

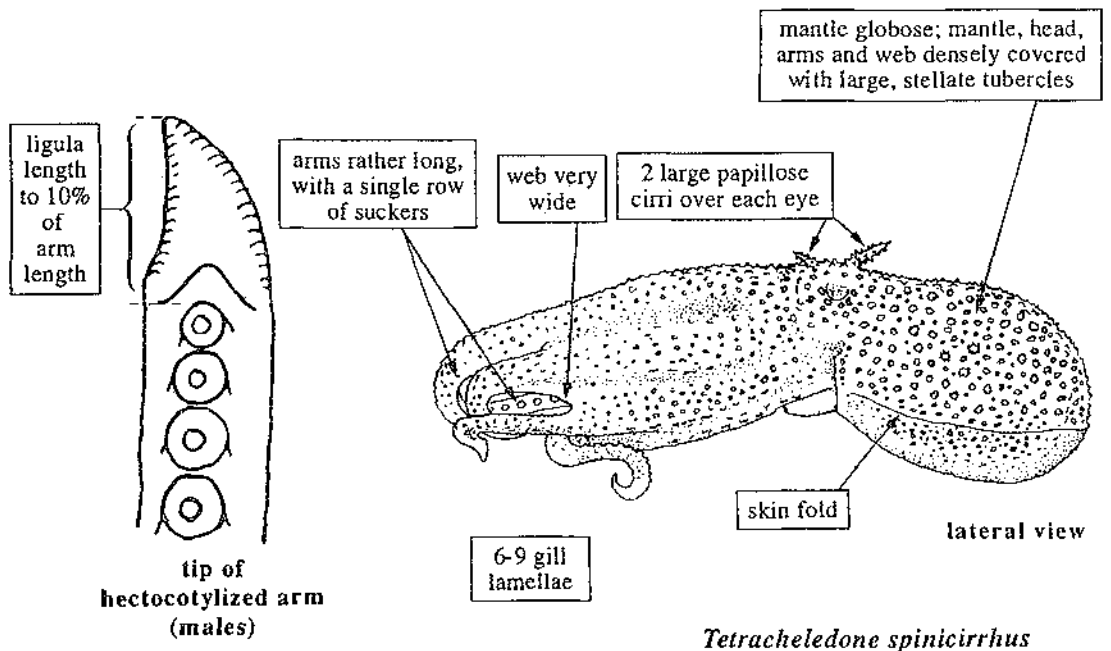
Pteroctopus - at least one species in the area, *P. tetracirrhus* (Delie Chiaje, 1830), of medium size (to 13 cm mantle length and 28 cm total length). Found on muddy bottoms between depths of 25 and 720 m depth. Of no interest to fisheries.



Scaergus - a single species in the area, *S. unicirrhus* (Orbigny, 1840), of small size (to 6 cm mantle length). Found on coralline and sandy bottoms between depths of 100 and 800 m. Of no interest to fisheries.



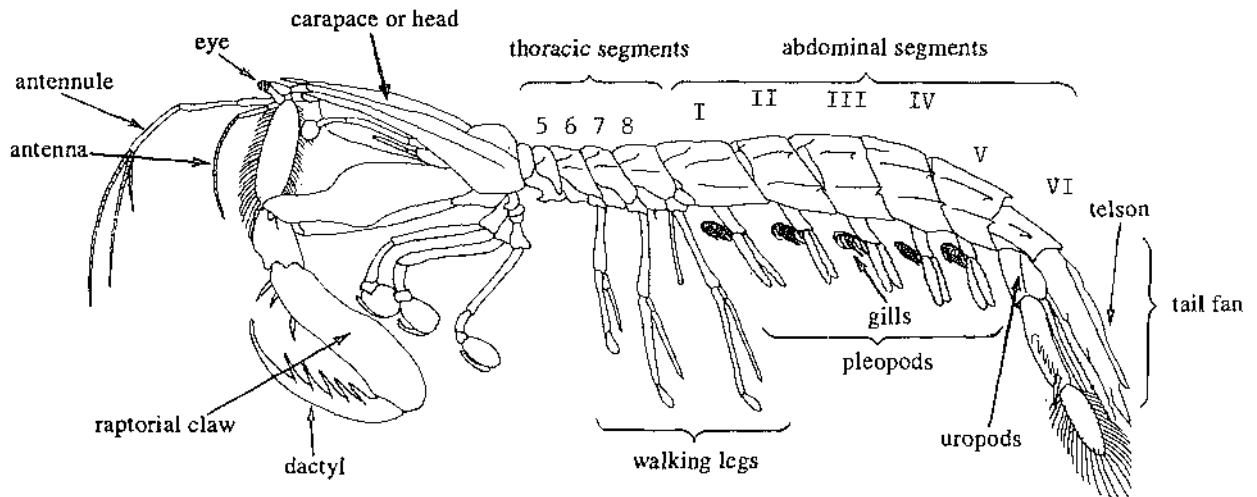
Tetracheledone - a single species in the area, *T. spinicirrhus* Voss, 1955, of small size (to 10 cm mantle length). Found on soft bottoms between depths of 200 and 400 m.



STOMATOPODS

The Order Stomatopoda, or mantis shrimps, comprises a group of small to large, shrimp-like to lobster-like crustaceans. They have large movable eyes, a very short head or carapace covering only a third of the body, only 3 pairs of walking legs, a long flattened tail (including thoracic and abdominal segments) with a well developed tail fan, and large, conspicuous "raptorial" claws (second pair of thoracic legs) resembling those of a praying mantis. Although at least 22 stomatopod species occur in our area, only two of them may be considered of present or potential interest to fisheries, because of their large size.

TECHNICAL TERMS AND MEASUREMENTS



lateral view

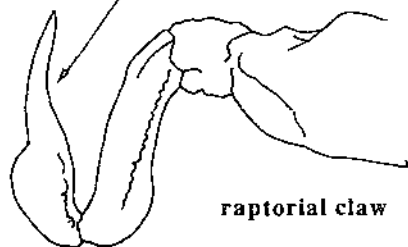
(from Manning, 1978)

GUIDELINES FOR THE IDENTIFICATION OF FAMILIES

GONODACTYLIDAE

One genus with 2 species in the area, of no interest to fisheries.

dactyl usually toothless, inflated at base

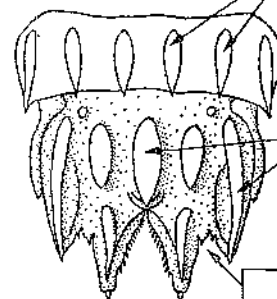


raptorial claw

sixth abdominal segment with longitudinal crests

telson with a distinct median crest and numerous longitudinal lateral crests

no more than 2 intermediate denticles



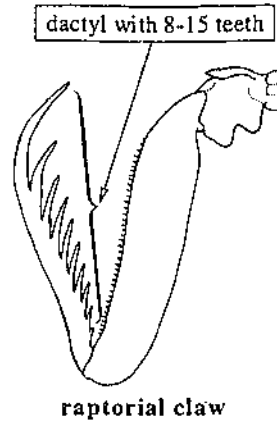
posterior end (lateral view)

(from Manning, 1961)

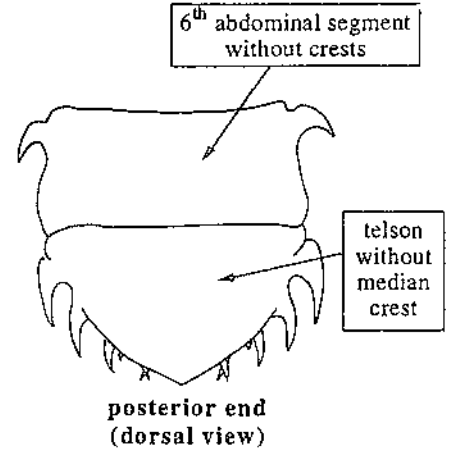
LYSIOSQUILLIDAE

page 105

There are 3 genera and 5 species in the area, only one of which is of interest to fisheries.



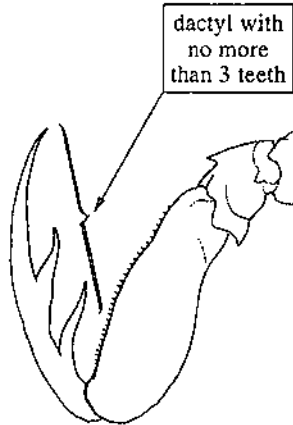
raptorial claw



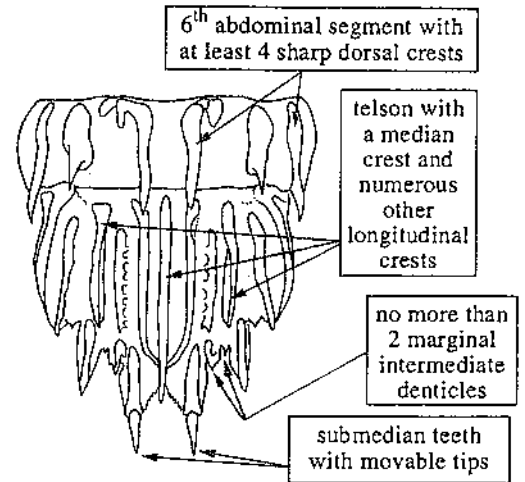
posterior end (dorsal view)

PSEUDOSQUILLIDAE

There are 2 genera in the area, each with one species, of no interest to fisheries.



raptorial claw

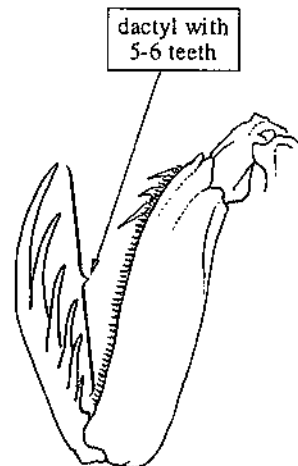


posterior end (dorsal view)

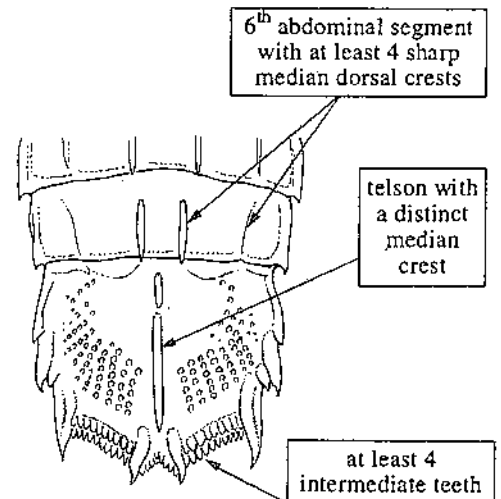
SQUILLIDAE

page 105

There are 3 genera and 13 species in the area, only one of which is of interest to fisheries.



raptorial claw



posterior end (dorsal view)

FAMILIES AND SPECIES OF INTEREST TO FISHERIES

LYSIOSQUILLIDAE

Genus *Lysiosquilla* - 2 species in the area, only one of interest to fisheries.

Lysiosquilla scabricauda (Lamarck, 1818)

FAO names: En - Smooth mantis shrimp; Fr - Squille douce; Sp - Galera lisa.
Common names:

Size: Maximum total length over 30 cm; common to 25 cm.

Distribution and habitat: Throughout the area. A demersal species occurring over soft bottoms, between depths of 2 and 40 m.

Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps. Of potential commercial importance.

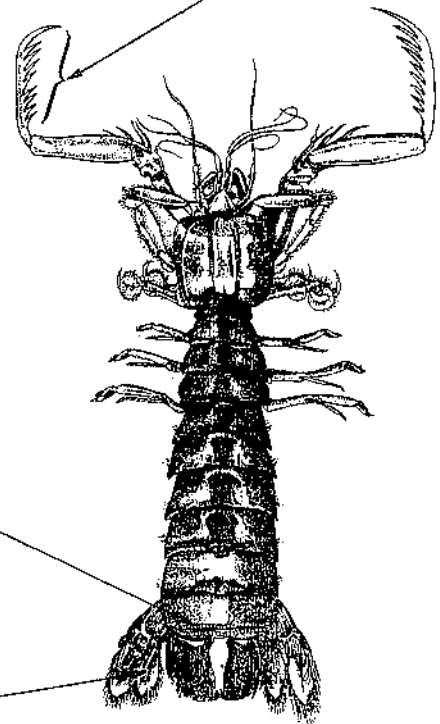
raptorial claws very large, often longer than carapace and usually armed with 9-10 long and sharp teeth

body smooth, without longitudinal crest

body with conspicuous light and dark stripes

6th abdominal segment and telson with numerous spines and tubercles

endopodite of uropod elongate



SQUILLIDAE

Genus *Squilla* - 9 species in the area, only one of interest to fisheries.

Squilla empusa Say, 1818

FAO names: En - Rough mantis shrimp; Fr - Squille rugueuse; Sp - Galera carenada.
Common names:

Size: Maximum 18.5 cm; common to 15 cm.

Distribution and habitat: Throughout the area. A demersal species occurring over soft bottoms in shallow waters of the continental shelf.

Fisheries: Taken frequently as bycatch in industrial trawl fisheries for shrimps. Of potential commercial importance.

rostral plate broad, subquadrate or trapezoidal, with a median crest

median crest of carapace bifurcate anteriorly

raptorial claws strong, each with 6 sharp teeth

body with longitudinal crest

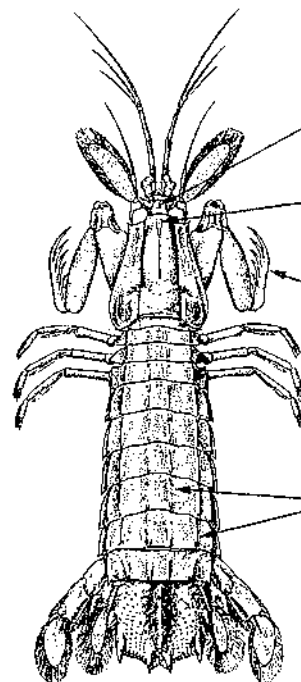
lateral processes of 5th thoracic segment ending in a sharp, forward-curving point

6th and 7th segments tapering posteriorly



5th to 7th thoracic segments (dorsal view)

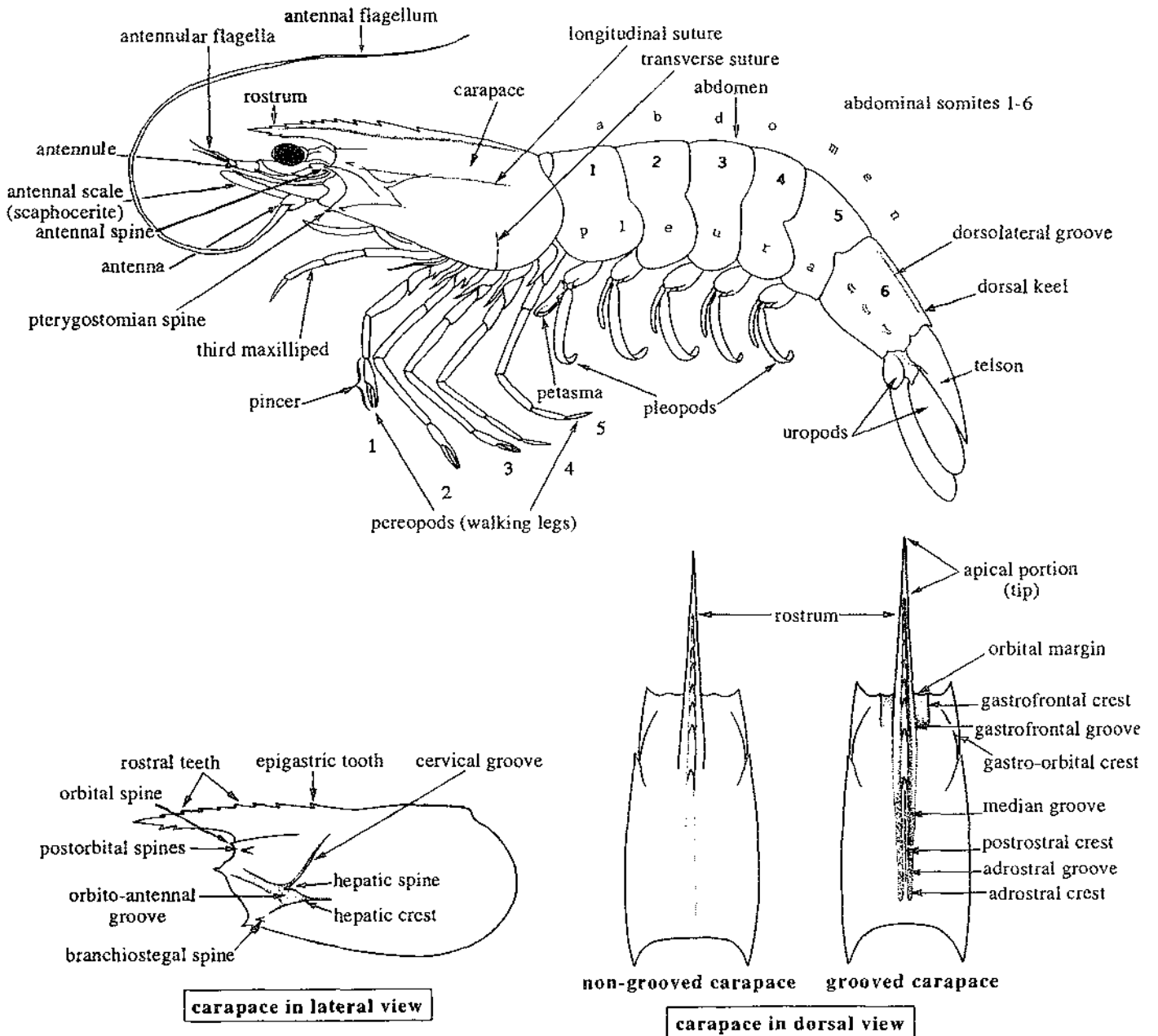
colour highly variable, poorly defined; eyes light green



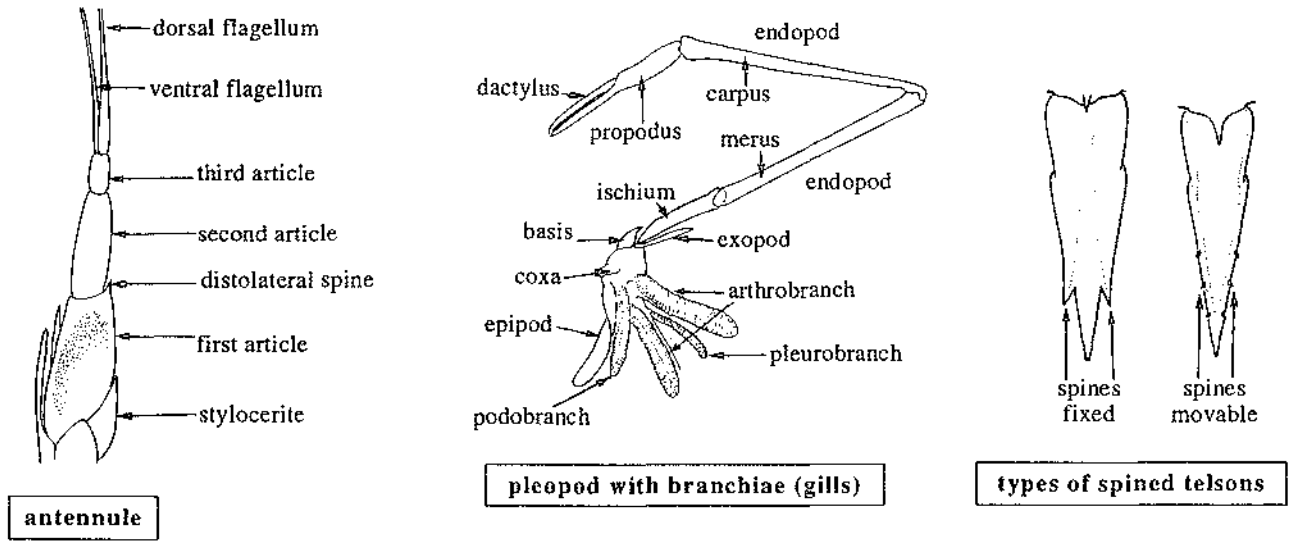
SHRIMPS

Shrimps are the most valuable fishery resource of the area. They are the target of an intensive traditional trawl fishery operating from small to medium-sized boats, mostly in shallow water. The shrimp species are marketed out of these landings almost exclusively, while the abundant and highly diverse bycatch of finfish is often discarded. Most of the commercially valuable shrimps belong to the family Penaeidae, but there are also other families that include species of interest to fisheries. The annual catch of shrimps officially recorded from the area fluctuates around 20 000 t. Catch statistics collected in the various countries bordering the area rarely register separate data by species, and it is therefore difficult to quantify the contribution of the various species to the total catch. In the last decade, exploratory fishing operations have revealed the presence, off the Guianas, of some commercial shrimp species hitherto known only from the Gulf of Mexico or from the eastern Atlantic. These species, whose fisheries potential in the area is still unknown, have also been included in the present field guide.

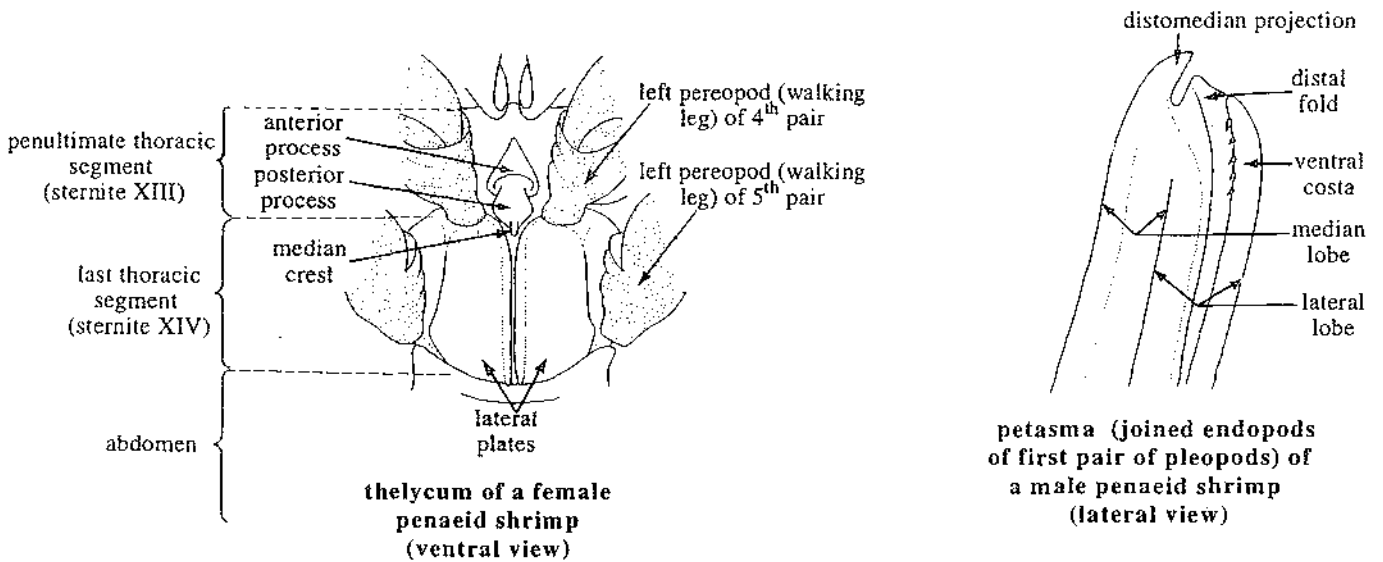
TECHNICAL TERMS



(from Pérez-Farfante, 1978)



In most shrimps, the sexes are separate. In some species of the Suborder Penaeidea, the females possess sperm receptacles on the ventral side of the last thoracic segment (between the last pairs of pereopods), where the males deposit the sacs carrying the sperm, whereas in others, the females exhibit protuberances and grooves for the attachment of such sacs. Either genital modification is called the thelycum and the sperm remain there until the eggs are released. In the males there is a petasma formed by the longitudinally folded endopods of the first pair of pleopods. Most male shrimps bear an appendix masculina, a lappet borne on the endopod of the second pair of pleopods, the presence or absence of which constitutes a ready means for distinguishing males from females. In many shrimps, an appendix interna (slender rod or blade) occurs adjacent to the appendix masculina. In some shrimp families, the morphology of reproductive organs is of great value in species identification, and in such cases (especially in some species of Penaeidae) the utilization of these features appears inevitable. The examination of these organs is not difficult, but it must be performed with the aid of a magnifying glass. The basic structure of thelycum and petasma are briefly illustrated in the following section.

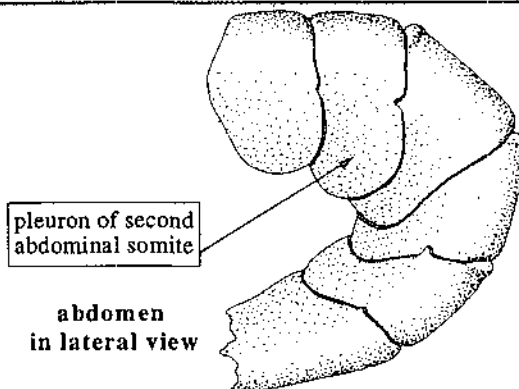


GUIDELINES FOR THE IDENTIFICATION OF FAMILIES

More than 25 shrimp families have been reported from this area, but most of them do not include species of interest to fisheries. Since the identification of shrimp families is based mostly on highly complex morphological and anatomical features, not easily verifiable by non-specialized workers, it was decided to simplify the present guidelines by restricting them to the 9 families that include species of present or potential interest to fisheries. These families are grouped under two easily distinguishable suborders.

SUBORDER PENAEIDEA (or DENDROBRANCHIATA)

Pleura of second abdominal somite overlapping those of third, but not those of first somite. First three pairs of pereopods with almost equal pincers, except in the families Sergestidae and Luciferidae which in turn lack pincers on the first pair of legs. Females never carry eggs under abdomen.

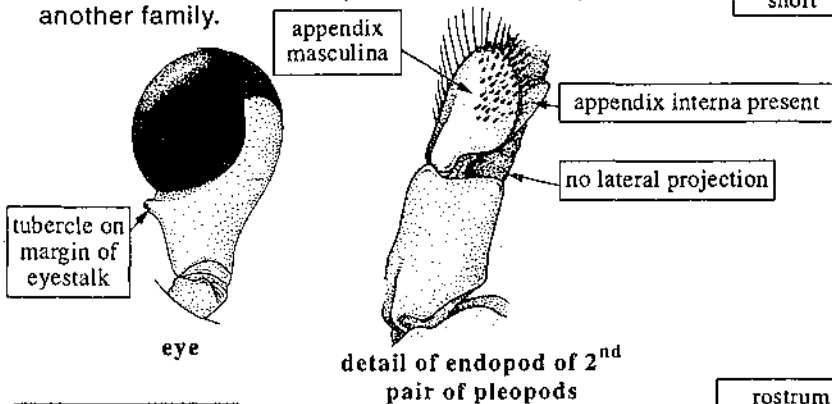
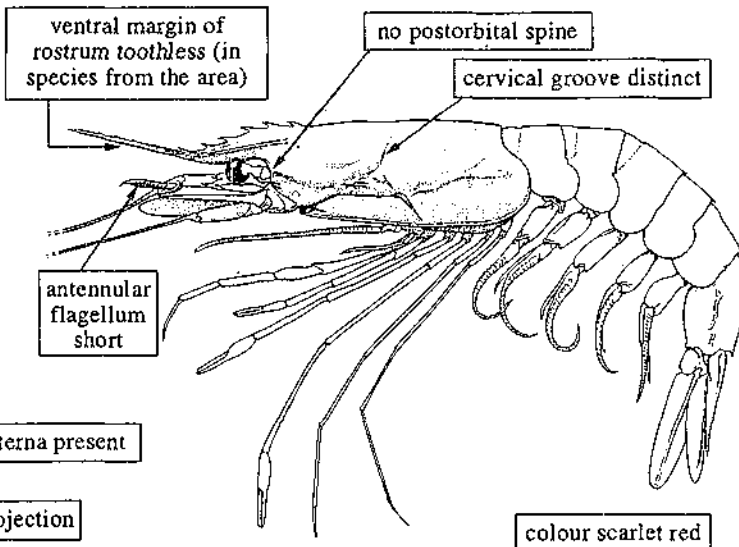


ARISTEIDAE

page 113

There are 3 genera in the area, each with one species of interest to fisheries. Marine species occurring on soft bottoms, mainly of the continental slope, from depths of about 250 to over 1 300 m.

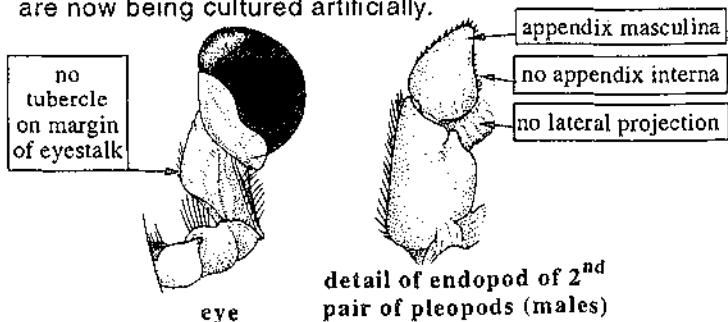
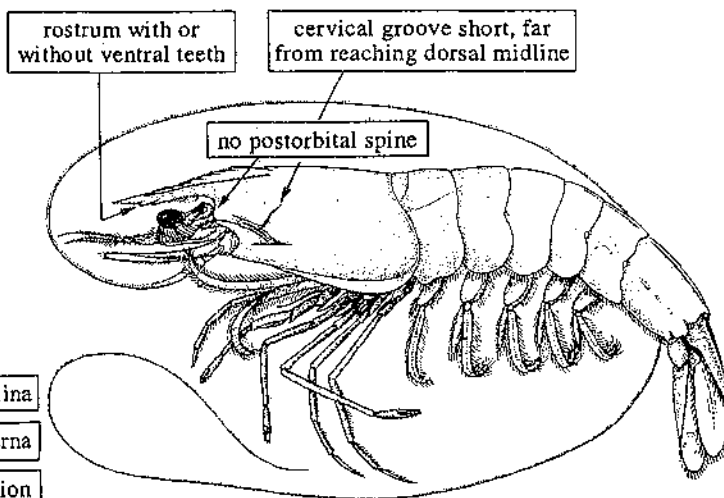
Note: are excluded the genera *Bentheogannema* and *Gennadas*, nowadays considered as part of another family.



PENAEIDAE

page 123

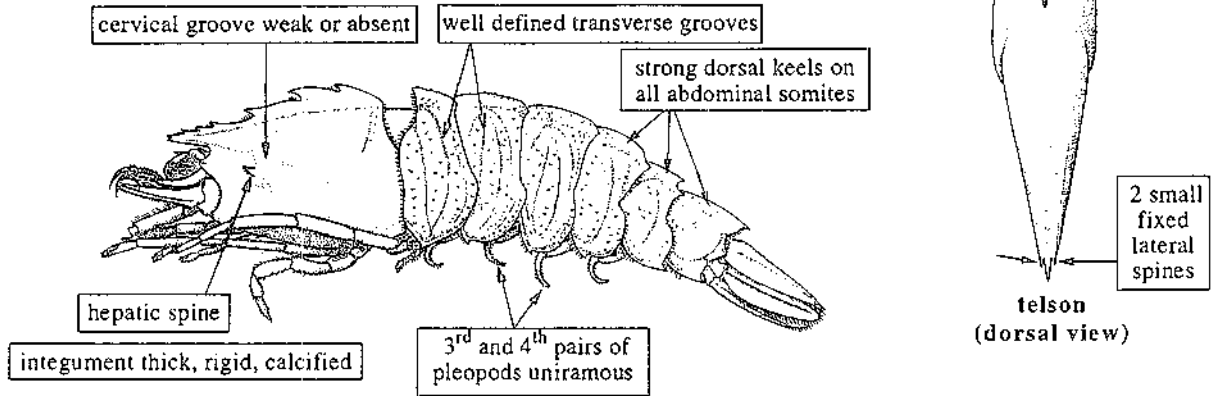
There are 5 genera and 9 species of interest to fisheries in the area. Adults usually marine, occurring on soft bottoms of the continental shelf and slope, to about a depth of 700 m. The larvae and juveniles of some species (e.g. those of the genus *Penaeus*) occur in brackish waters of coastal lagoons and river estuaries. This is the family including the most valuable commercial shrimp species of the area. Some of them are now being cultured artificially.



SICYONIIDAE

page 128

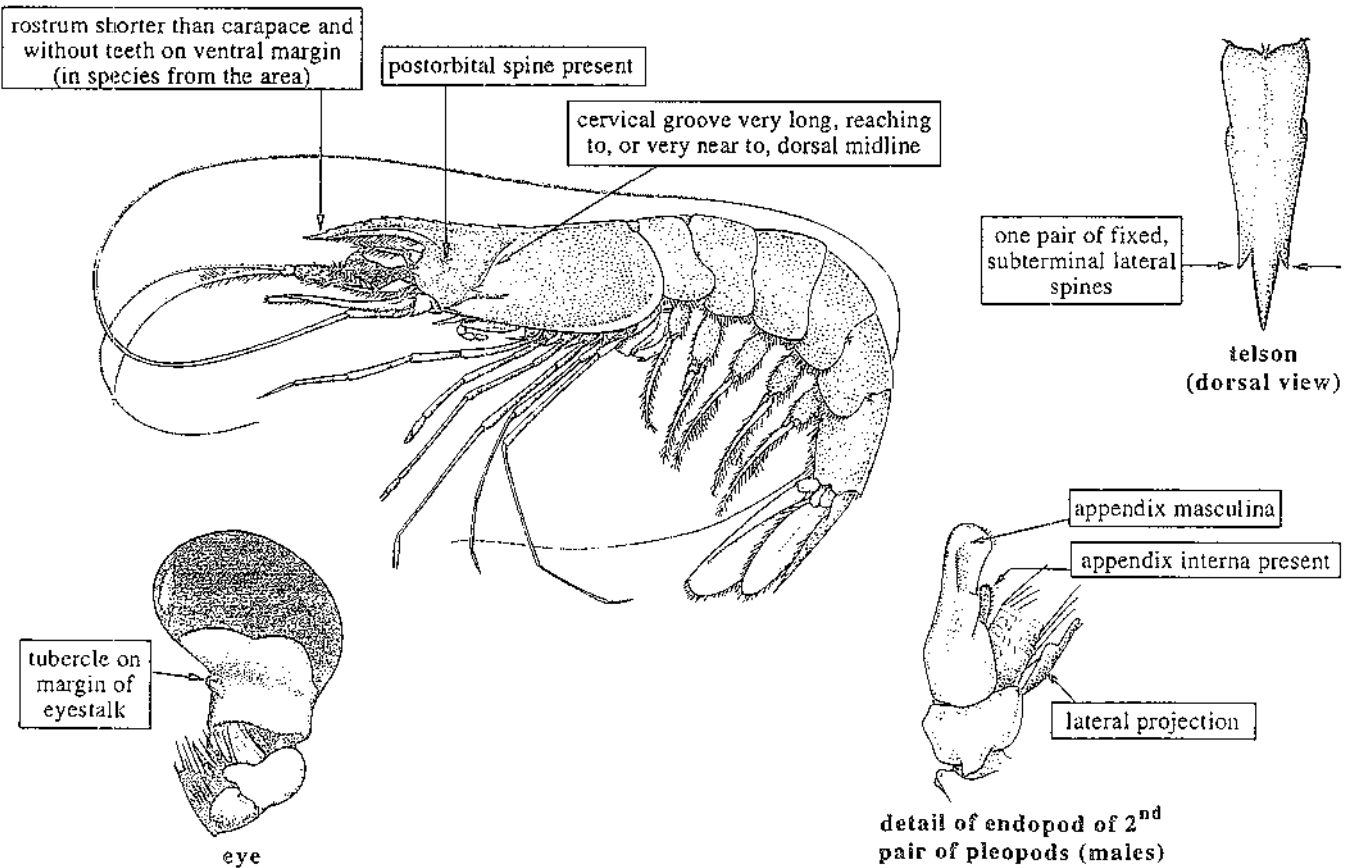
One genus with 4 species of interest to fisheries in the area. Marine species, usually occurring in shallow water, in the sublittoral zone and on the continental shelf.



SOLENO CERIDAE

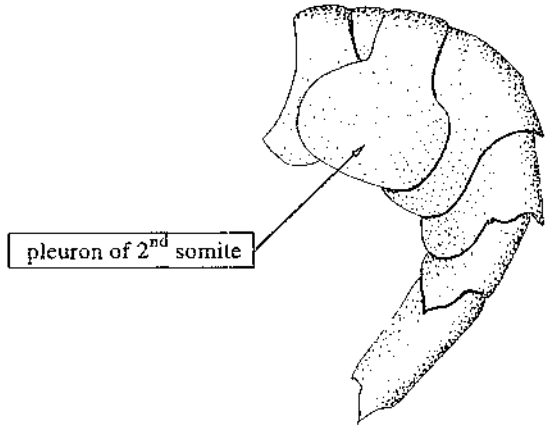
page 130

At least 3 species in 3 genera of interest to fisheries in the area. Marine species occurring on soft bottoms of the continental shelf and slope, from about depths of 20 to over 900 m.



SUBORDER CARIDEA

Pleura of second abdominal somite overlapping those of third and first somites. Only the first and second pairs of pereopods (in some cases only the second) ending in pincers. The females carry the eggs under the abdomen.

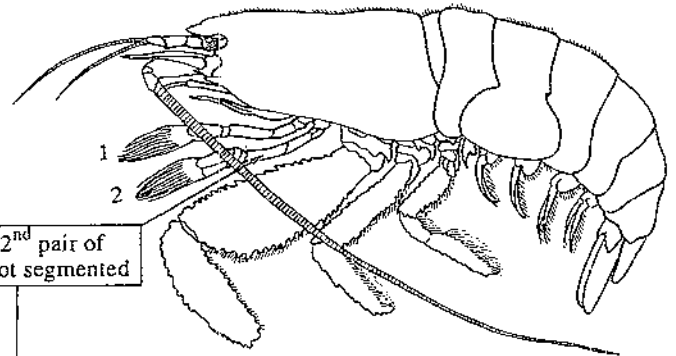


abdomen in lateral view

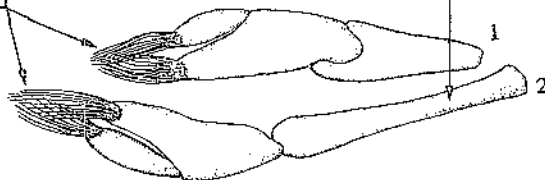
ATYIDAE

page 114

One species of interest to fisheries in the area. Typically freshwater species, some of which penetrate brackish and (rarely) coastal marine waters.



fingers of pincers of 1st 2 pairs of pereopods ending in a sort of "brushes" consisting of long bristles

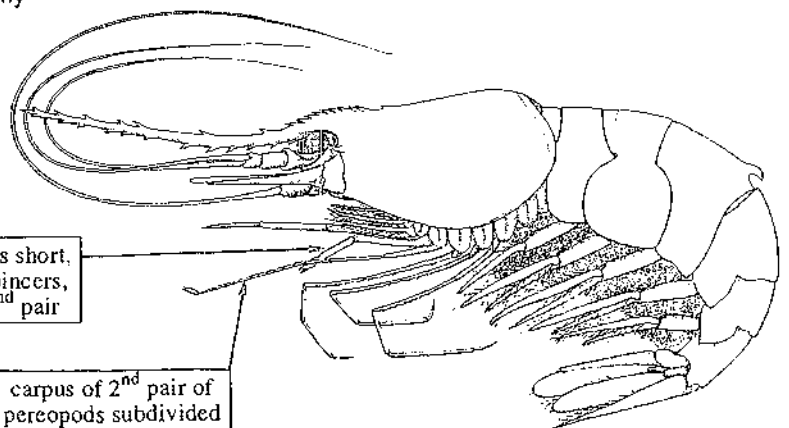


carpus of 2nd pair of pereopods not segmented

HIPPOLYTIDAE

page 115

A single species of interest to fisheries in the area. Marine and brackish-water species, usually occurring on bottoms of the continental shelf.



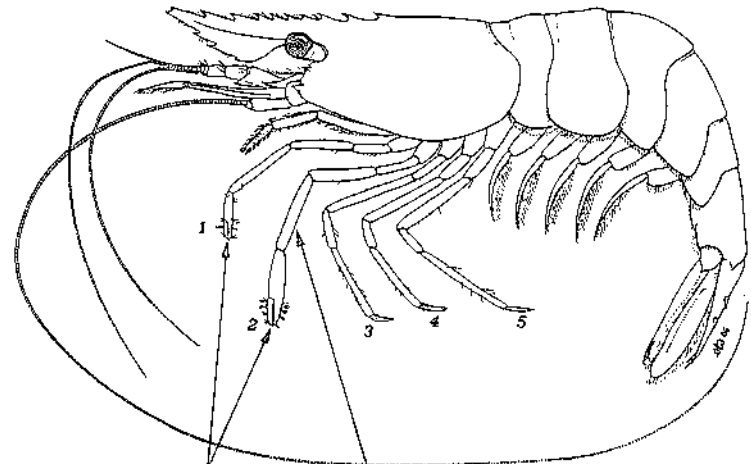
1st pair of pereopods short, with well defined pincers, and stouter than 2nd pair

carpus of 2nd pair of pereopods subdivided in 2 or more articles

PALAEEMONIDAE

page 115

About 8 species in 3 genera of interest to fisheries in brackish and marine waters of the area. Most species of this family are restricted to freshwater.



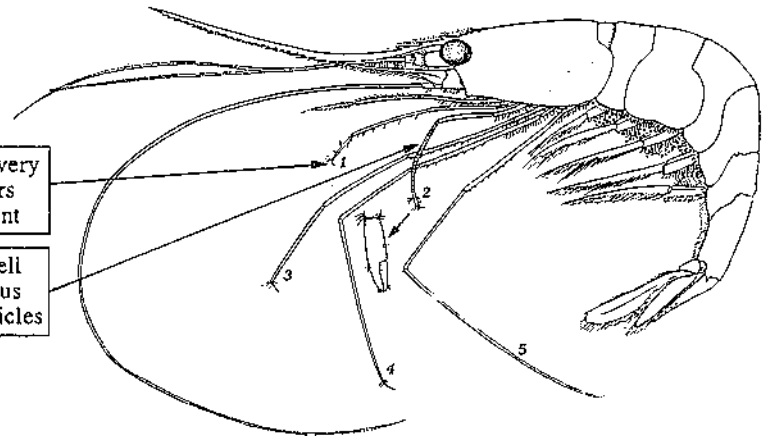
1st and 2nd pairs of pereopods with well defined pincers

2nd pair of pereopods larger and stouter than the 1st pair, often extremely large and stout in adult males; carpus not segmented

PANDALIDAE

page 120

One genus with 2 species of interest to fisheries in the area. Marine species usually occurring on soft bottoms of the continental shelf and slope, from depths of about 50 to over 1 300 m.



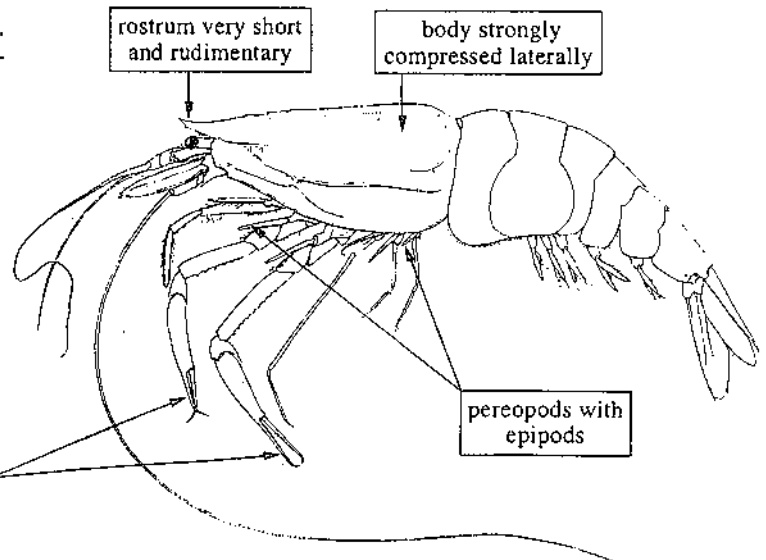
1st pair of pereopods very slender, their pincers microscopic or absent

2nd pair of pereopods with well developed pincers; their carpus subdivided into many small articles

PASIPHAEIDAE

page 122

One species of interest to fisheries in the area. Marine species occurring mainly on the continental slope to depths of over 1 000 m.



rostrum very short and rudimentary

body strongly compressed laterally

pereopods with epipods

1st and 2nd pairs of pereopods larger than the other pairs, with well defined pincers; fingers small with a cutting, pectinate edge

FAMILIES AND SPECIES OF INTEREST TO FISHERIES

ARISTEIDAE

Genus *Aristaeomorpha* - one species of interest to fisheries in the area.

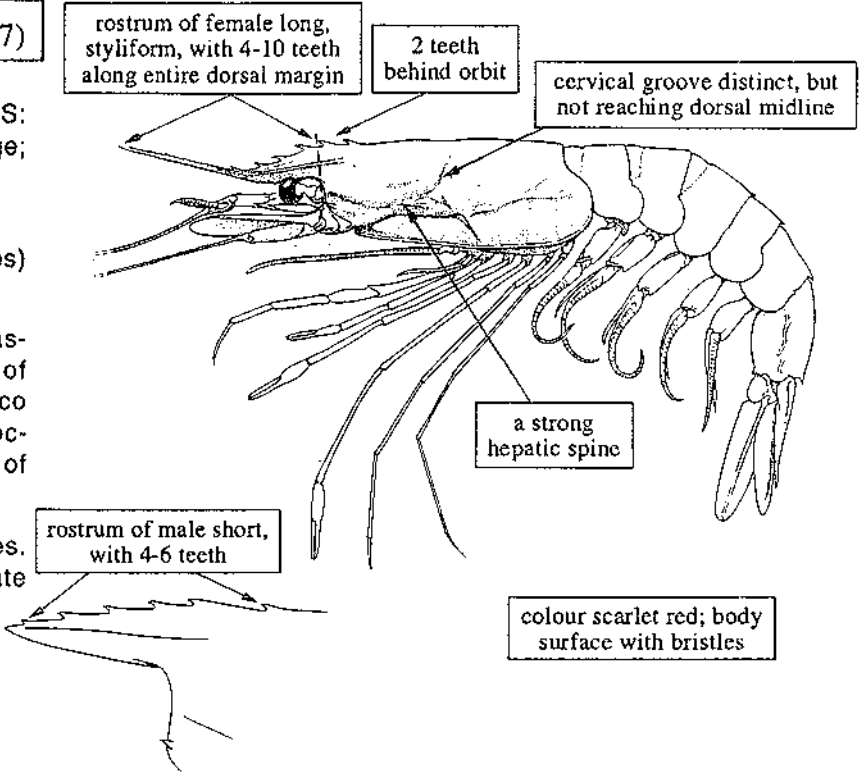
Aristaeomorpha foliacea (Risso, 1827)

FAO names: En - Giant red shrimp (AFS: Giant gamba prawn); Fr - Gambon rouge; Sp - Langostino moruno.
Common names:

Size: Maximum total length 22.5 cm (females) and 17 cm (males).

Distribution and habitat: From southern Massachusetts (USA) to the northern coast of South America, including the Gulf of Mexico and the Caribbean sea. A marine species occurring on muddy bottoms between depths of 170 and 1 300 m.

Fisheries: Taken in industrial trawl fisheries. Marketed locally, fresh or frozen. No separate statistics.



Genus *Aristeus* - one species of interest to fisheries in the area.

Aristeus antillensis Milne Edwards and Bouvier, 1909

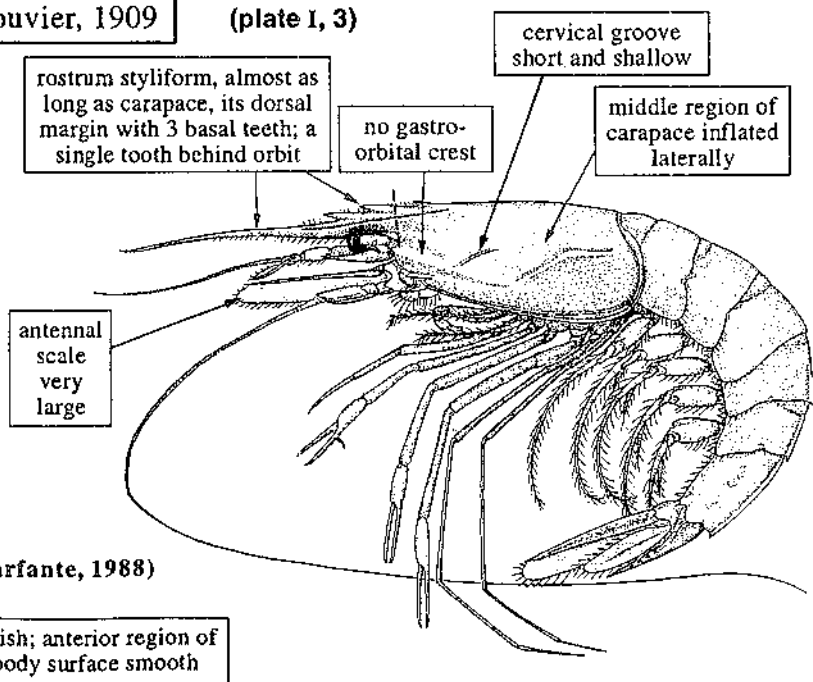
(plate 1, 3)

FAO names: En - Purplehead gamba prawn; Fr - Crevette pourprée; Sp - Gamba purpúrea.
Common names:

Size: Maximum total length 19.3 cm (females) and 11.2 cm (males).

Distribution and habitat: From North Carolina (USA) to Suriname, including the Gulf of Mexico and the Caribbean sea. Occurs on soft bottoms between depths of about 200 and 820 m.

Fisheries: Taken in industrial trawl fisheries off the Guianas. No separate statistics and no information on commercial importance.



(from Pérez-Farfante, 1988)

ARISTEIDAE

Genus *Plesiopenaeus* - one species of interest to fisheries in the area.

Plesiopenaeus edwardsianus (Johnson, 1868)

(plate I, 4)

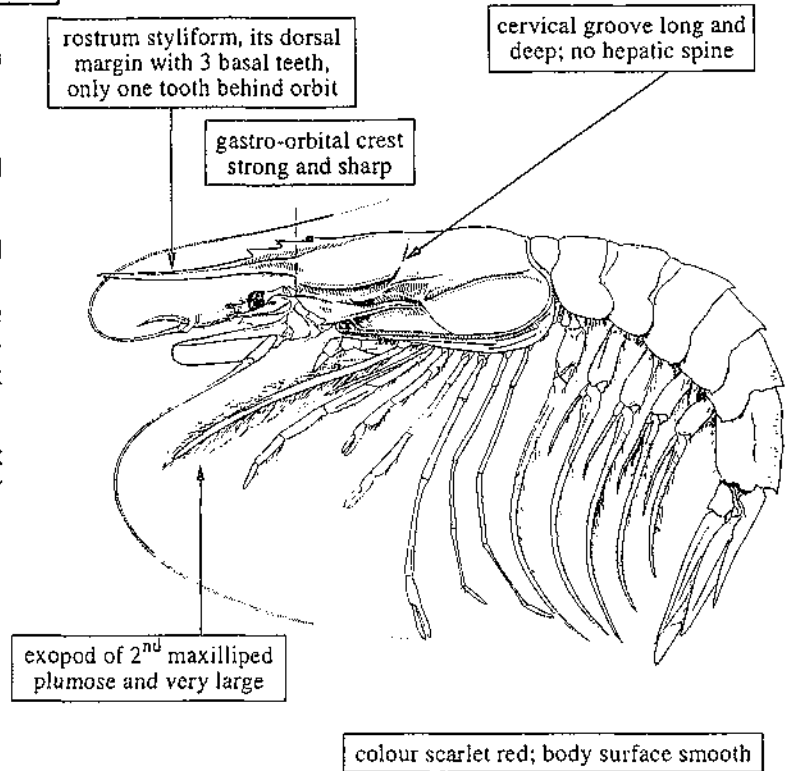
FAO names: En - Scarlet shrimp; Fr - Gambon écarlat; Sp - Gamba carabinero.

Common names:

Size: Maximum total length 33.4 cm (females) and 19.3 cm (males).

Distribution and habitat: From Newfoundland (Canada) to the northern coast of South America, including the Gulf of Mexico and the Caribbean sea. A marine species occurring on muddy bottoms from depths of about 270 to 1850 m, but more common between 400 and 900 m.

Fisheries: Taken in industrial trawl fisheries, but in very small quantities. Marketed locally, fresh or frozen. No separate statistics.



ATYIDAE

Genus *Atya* - one species of interest to fisheries in the area.

Atya scabra (Leach, 1815)

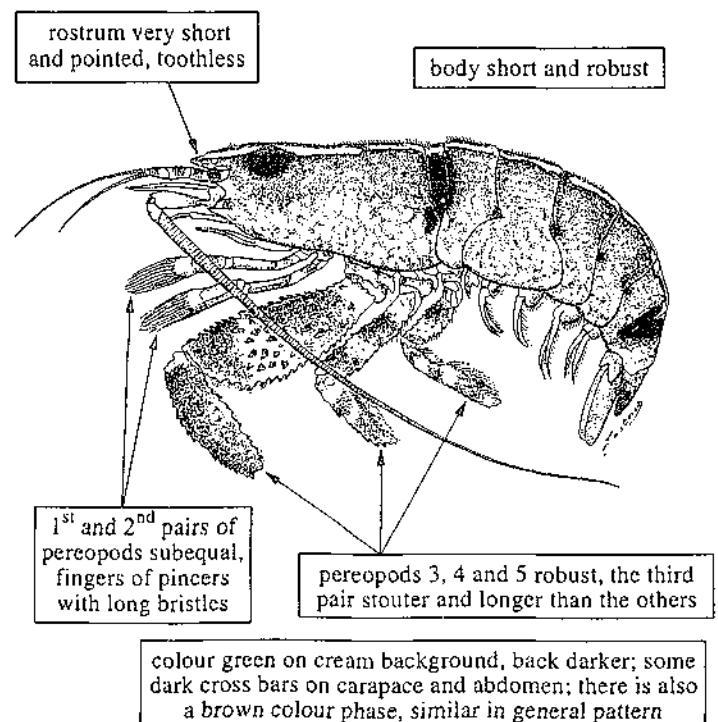
FAO names: En - Camacuto shrimp; Fr - Saltarelle camacuto; Sp - Camarón camacuto.

Common names:

Size: Maximum total length 9.8 cm (males) and 6.5 cm (females); maximum carapace length 4.6 cm (males) and 3 cm (females).

Distribution and habitat: Antilles, from Cuba to Curaçao and Trinidad, and Atlantic coasts of Central and South America, from Tamaulipas (Mexico) to Santa Catarina (Brazil). A freshwater species that invades brackish-water and marine habitats. Occurs in relatively shallow water, on rocky substrates.

Fisheries: Caught manually or with hand nets. Not abundant.



HIPPOLYTIDAE

Genus *Exhippolysmata* - one species of interest to fisheries in the area.

Exhippolysmata oplophoroides (Holthuis, 1948)

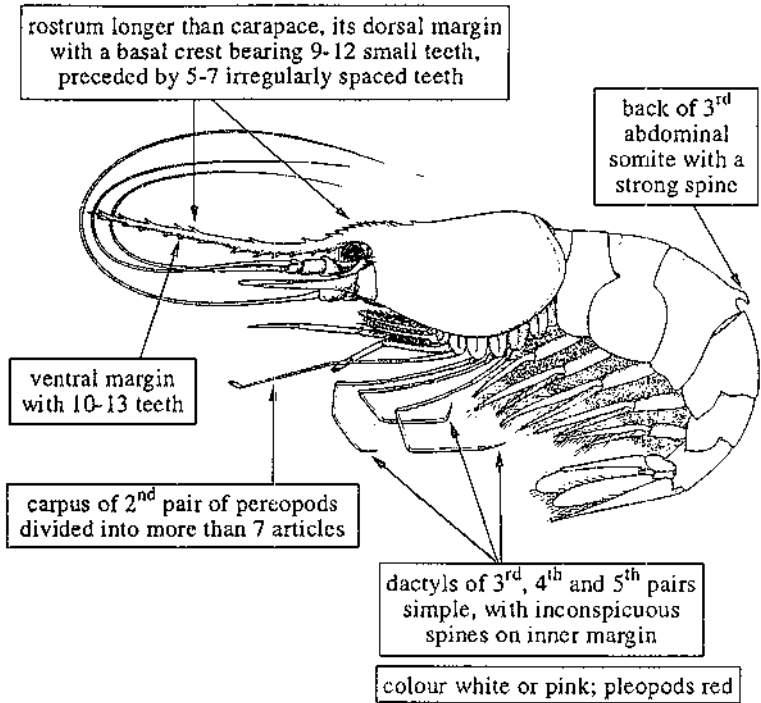
FAO names: En - Cock shrimp (AFS: Redleg hump-back shrimp); Fr - Crevette buhotte; Sp - Camarón gallo.

Common names:

Size: Maximum total length 8 cm.

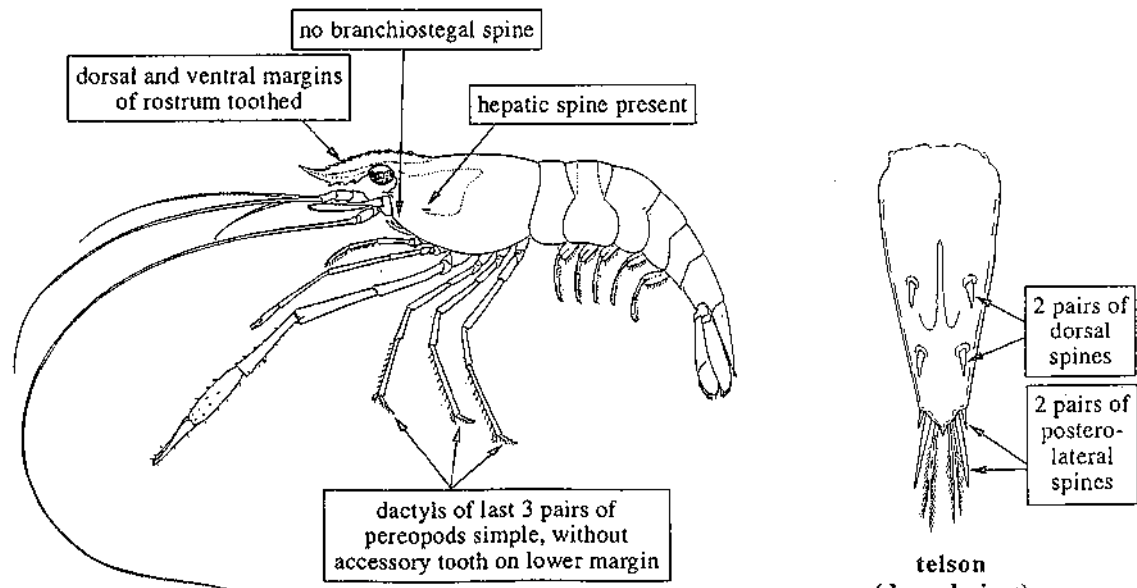
Distribution and habitat: From North Carolina (USA) to Santa Catarina (Brazil). Occurs in marine and brackish waters, on mud or sandy mud bottoms, from depths of 10 to 45 m.

Fisheries: Caught manually or with nets from small boats; also in coastal trawl fisheries, always together with *Nematopalaemon schmitti*, but less abundant than the latter species.



PALAEEMONIDAE

Genus *Macrobrachium* - species inhabiting predominantly freshwater; only about 5 of them occasionally enter brackish waters occasionally as adults.



(from Holthuis, 1952)

PALAEEMONIDAE

Macrobrachium acanthurus (Wiegmann, 1836)

FAO names: En - Cinnamon river prawn (AFS: Cinnamon river shrimp); Fr - Bouquet canelle; Sp - Camarón canela.

Common names:

Size: Maximum total length 16.6 cm (males) and 11 cm (females); maximum carapace length 3.64 cm (males) and 2.06 cm (females).

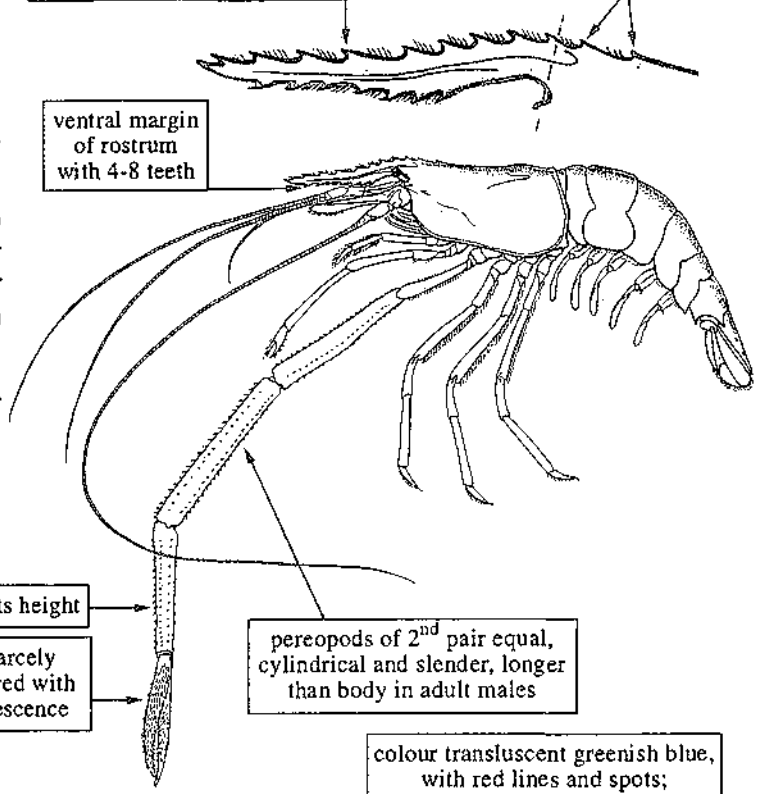
Distribution and habitat: From North Carolina (USA) to Rio Grande do Sul (Brazil). A typically freshwater species invading meso- and oligosaline brackish-water habitats, mainly in coastal river mouths. Occurs on muddy bottoms.

Fisheries: Caught manually or with cast nets. Consumed locally.

rostrum almost straight in adult males, extending beyond tip of scaphocerite, its dorsal margin with 8-11 regularly spaced teeth

usually 2 teeth behind orbit

ventral margin of rostrum with 4-8 teeth

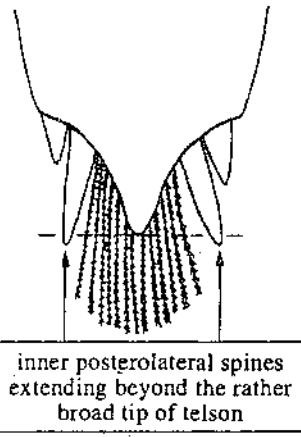


pereopods of 2nd pair equal, cylindrical and slender, longer than body in adult males

colour translucent greenish blue, with red lines and spots; sometimes, red cross bars

length of palm 4.5-6.0 times its height

fingers slender and scarcely shorter than palm, covered with dense, dark brown pubescence



inner posterolateral spines extending beyond the rather broad tip of telson

Macrobrachium amazonicum (Heller, 1862)

FAO names: En - Amazon river prawn; Fr - Bouquet amazonien; Sp - Camarón amazónico.

Common names:

Size: Maximum total length 15 cm.

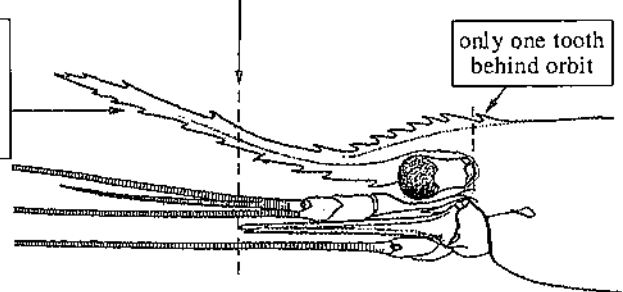
Distribution and habitat: From Venezuela to Paraguay. A species inhabiting freshwater and brackish-water habitats.

Fisheries: Caught manually or with small nets. Consumed locally.

rostrum long, slender, upward-directed, clearly extending beyond the scaphocerite, its dorsal margin with 9-12 teeth, the 7 posterior close-set on a basal crest, the others well spaced

only one tooth behind orbit

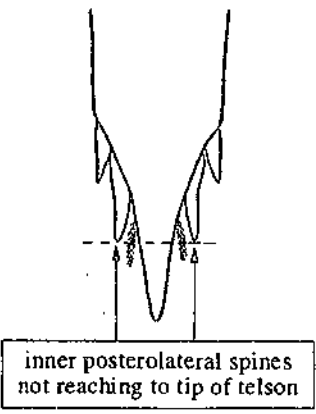
ventral margin of rostrum with 8-12 teeth



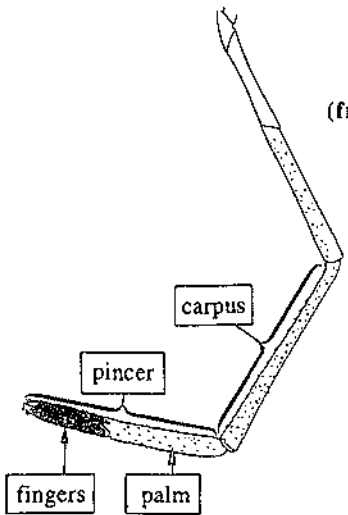
colour translucent light grey

(from Holthuis, 1952)

2nd pair of pereopods large in adult males, carpus as long as, or longer than, pincer; fingers approximately 3/4 of palm length and covered by a dense brown pubescence, except at tips



inner posterolateral spines not reaching to tip of telson



PALAEMONIDAE

***Macrobrachium carcinus* (Linnaeus, 1758)**

FAO names: En - Painted river prawn (AFS: Bigclaw river shrimp); Fr - Bouquet pintade; Sp - Camarón pintado.

Common names:

Size: Maximum total length 25.7 cm (males) and 17 cm (females).

Distribution and habitat: From Florida (USA) to Santa Catarina (Brazil), including the Gulf of Mexico and the Caribbean sea. Inhabits mainly freshwater, but the adults are also found in brackish waters; occurs on sandy and rocky bottoms.

Fisheries: Caught manually and with small nets. Consumed locally.

pereopods of 2nd pair almost equal and very large; pincers with slender, crossed fingers somewhat shorter than palm; length of palm about 4 times its height

fingers

ventral margin of rostrum with 3-4 teeth

rostrum short and curved, falling short of, or extending just beyond, tip of scaphocerite; dorsal margin with 11-14 more or less regularly spaced teeth

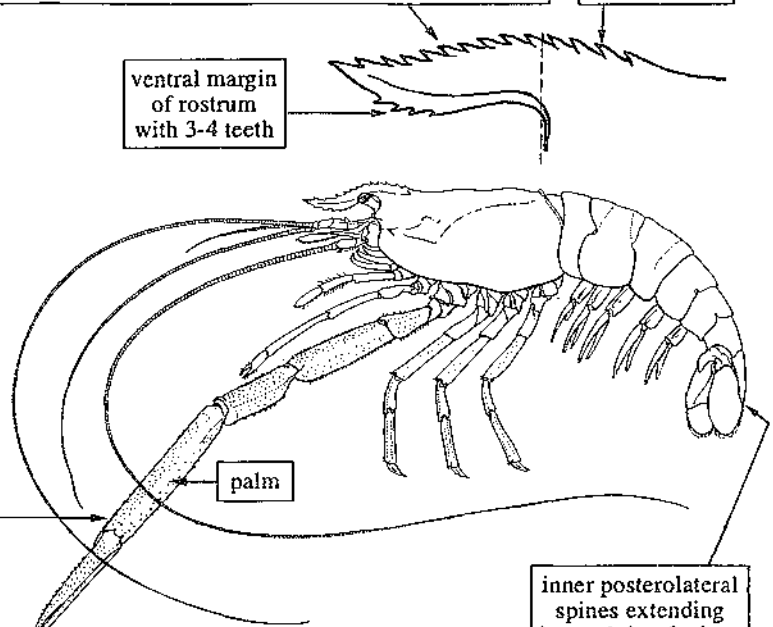
4-6 teeth behind orbit

palm

inner posterolateral spines extending beyond tip of telson in young, but falling short of tip in large adults

colour brown to dark blue suffused with green, grey and yellow; a dark brown stripe along dorsal midline and another 3 along each side of carapace; abdomen with 2 longitudinal dark stripes; pincers of 2nd pair of pereopods dark brown

(from Holthuis, 1952)



***Macrobrachium olfersii* (Wiegmann, 1836)**

FAO names: En - Buchura river prawn (AFS: Bristled river shrimp); Fr - Bouquet buchura; Sp - Camarón buchura.

Common names:

Size: Maximum total length 9 cm.

Distribution and habitat: From North Carolina, Texas, Florida (USA) and Mexico to Santa Catarina (Brazil). A species occurring mainly in freshwater, but the adults may also be found in brackish waters; occurs on sandy and rocky bottoms.

Fisheries: Caught manually or with small nets. Consumed locally.

palm of larger pincer greatly inflated in adult males, its length 1.5 times the height, ventral margin strongly convex

fingers about as long as palm; palm and fingers entirely spinose

rostrum straight or slightly curved, not reaching to, or extending just beyond, tip of scaphocerite; dorsal margin with 11-15 regularly spaced teeth

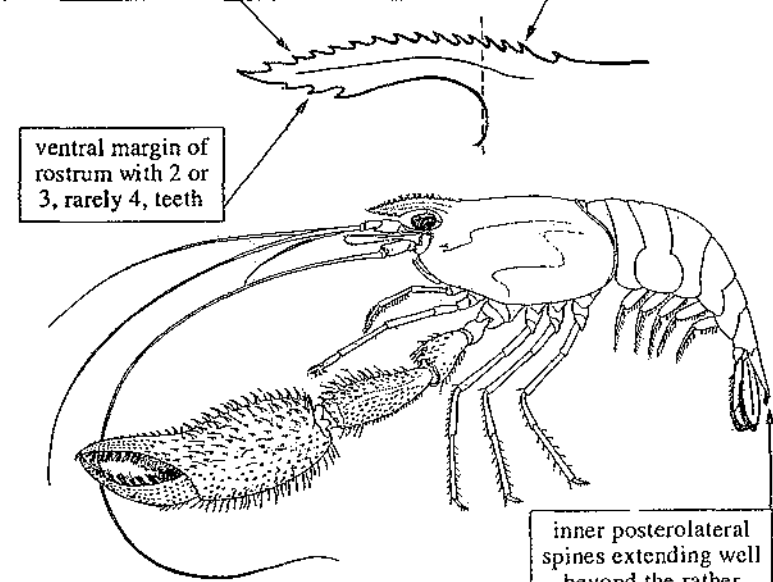
4-5 teeth behind orbit

ventral margin of rostrum with 2 or 3, rarely 4, teeth

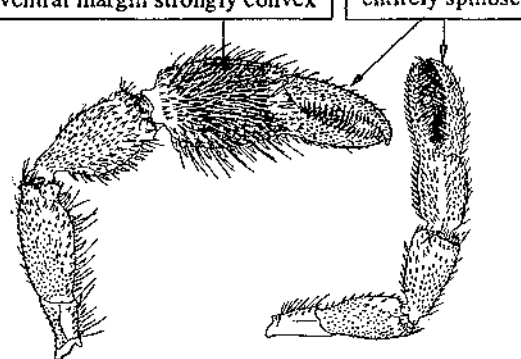
inner posterolateral spines extending well beyond the rather narrow tip of telson

colour dark brown, highly variable, sometimes with darker lines or dots; juveniles bluish green or blackish brown

(from Holthuis, 1952)



pereopods of 2nd pair very unequal, both in shape and size



PALAEEMONIDAE

***Macrobrachium surinamicum* Holthuis, 1948**

FAO names: En - Suriname river prawn; Fr - Bouquet du Surinam; Sp - Camarón del Suriname.

Common names:

Size: Maximum total length 5.5 cm (males) and 4.1 cm (females).

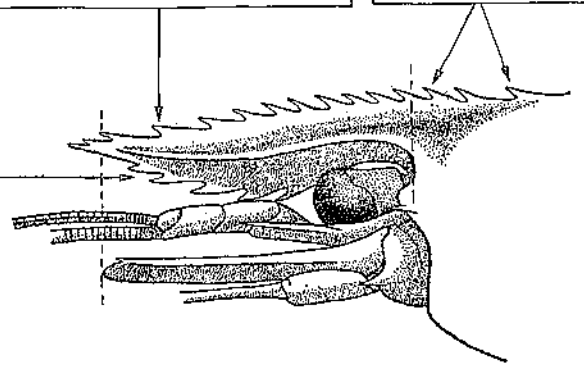
Distribution and habitat: Colombia, Venezuela and the Guianas. Occurs in low-salinity waters, mainly in river mouths.

Fisheries: Caught with small nets. Consumed locally.

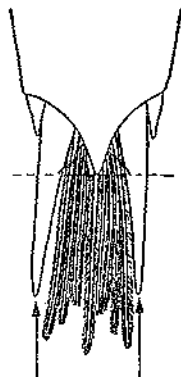
rostrum straight, its tip slightly upward-curved, reaching to, or just beyond, tip of scaphocerite; dorsal margin with 12-16 regularly spaced teeth

3-4 teeth behind orbit

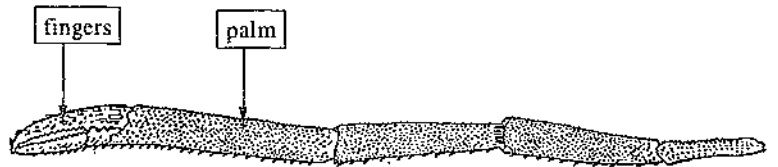
ventral margin of rostrum with 4-6 teeth



(from Holthuis, 1952)



inner posterolateral spines extending well beyond tip of telson



pereopods of 2nd pair equal in shape and size; pincers slender; in adult males, the fingers attain 4/7 of palm length; length of palm up to 5.4 times its height

Genus *Nematopalaemon* - one species of interest to fisheries in the area.

***Nematopalaemon schmitti* (Holthuis, 1950)**

FAO names: En - Whitebelly prawn; Fr - Bouquet cuac; Sp - Camarón cuac.

Common names:

Size: Maximum total length 8 cm.

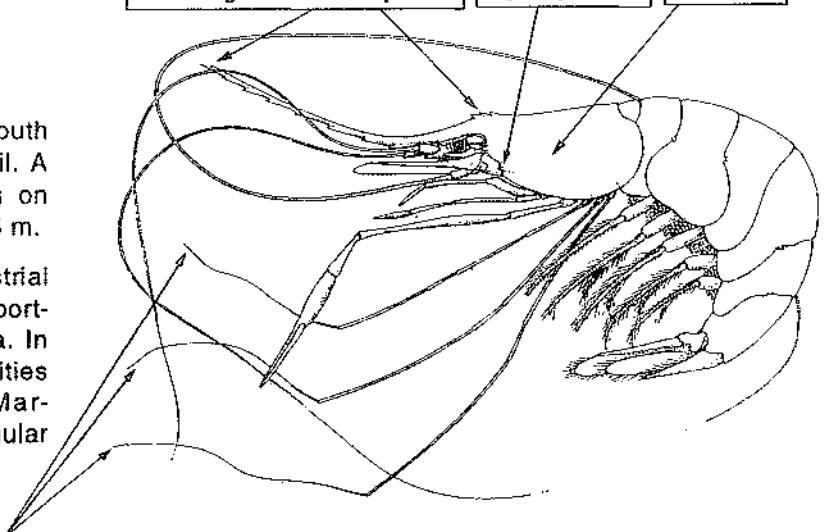
Distribution and habitat: Northern coast of South America, from Venezuela to northeastern Brazil. A marine and brackish-water species occurring on muddy or sandy bottoms, from depths of 5 to 75 m.

Fisheries: Taken with handnets and in the industrial trawl fisheries. A species of great commercial importance in Guyana, Suriname and French Guiana. In Guyana and Suriname it is caught in great quantities together with *Exhippolysmata oplophoroides*. Marketed locally, fresh or dried; somewhat less popular in French Guiana. No separate statistics.

rostrum very long (longer than carapace) and curved, its dorsal margin with a prominent basal crest armed with 3-5 teeth; a single tooth near tip

branchiostegal spine present

no hepatic spine



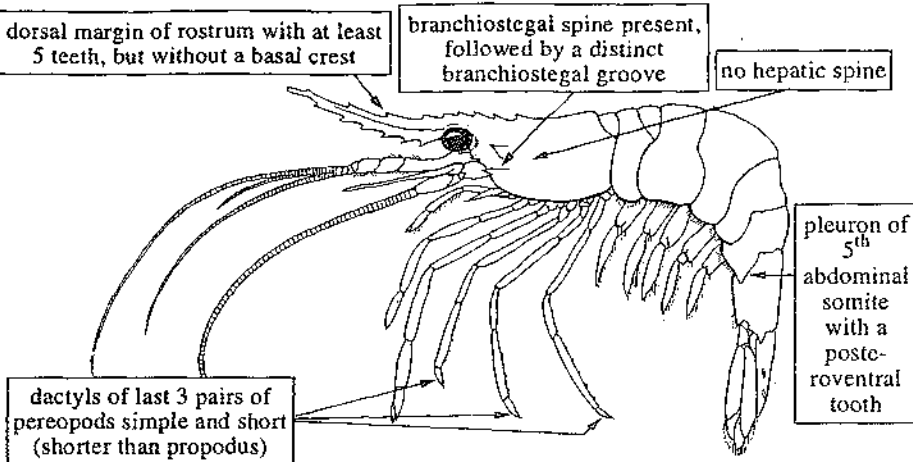
last 3 pairs of pereopods very long, their dactyls simple and slender, longer than the carpus plus propodus

colour white with reddish spots

PALAEMONIDAE

Genus *Palaemon* - 2 species of interest to fisheries in marine and brackish waters of the area.

(from Abele and Kim, 1986)



***Palaemon northropi* (Rankin, 1898)**

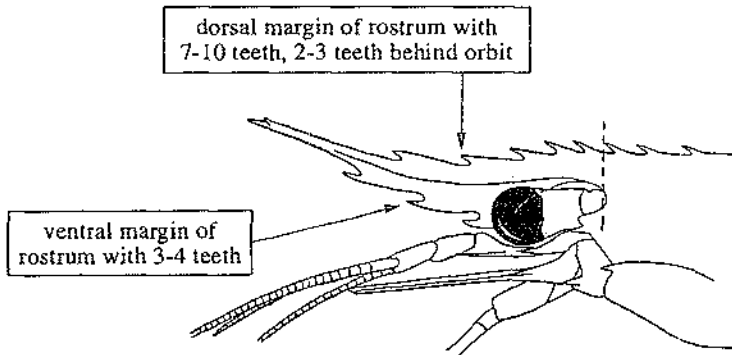
FAO names: En - Caribbean bait prawn; Fr - Crevette zélateur caraibe; Sp - Camarón cebador.

Common names:

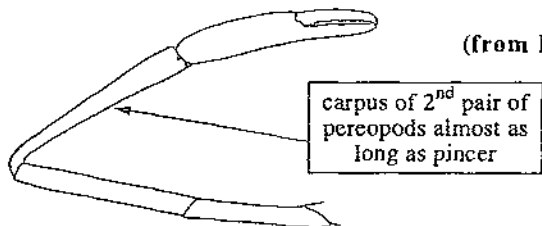
Size: Maximum total length 3.8 cm (females) and 3.3 cm (males).

Distribution and habitat: From Bermudas and Florida (USA) to Uruguay. A marine species occurring in shallow water, on muddy bottoms, mainly among mangrove roots.

Fisheries: Caught with small nets. Of secondary commercial importance; marketed locally.



(from Holthuis, 1952)



6th abdominal somite shorter than telson and about 1.5 times longer than the 5th somite

inner posterolateral spines extending beyond tip of telson

body translucent white, with some reddish brown lines on abdominal somites and sides of carapace

***Palaemon pandaliformis* (Stimpson, 1871)**

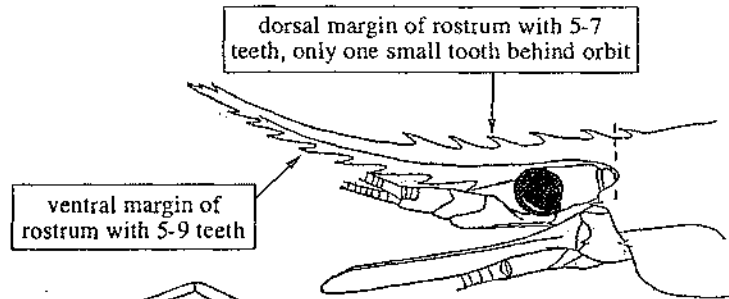
FAO names: En - Potitinga prawn; Fr - Bouquet potitinga; Sp - Camarón potitinga.

Common names:

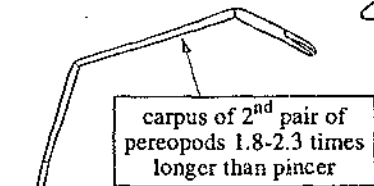
Size: Maximum total length 4.3 cm (females) and 3.8 cm (males).

Distribution and habitat: From Guatemala to southern Brazil, including the Antilles. Occurs on muddy bottoms in freshwater and in brackish waters.

Fisheries: Caught with small, artisanal nets. Of secondary commercial importance; marketed locally.



(from Holthuis, 1952)



inner posterolateral spines clearly extending beyond the very sharp tip of telson

6th abdominal somite as long as telson and about twice as long as 5th somite

PANDALIDAE

Genus *Heterocarpus* - one species of interest to fisheries in the area.

Heterocarpus ensifer A. Milne Edwards, 1881

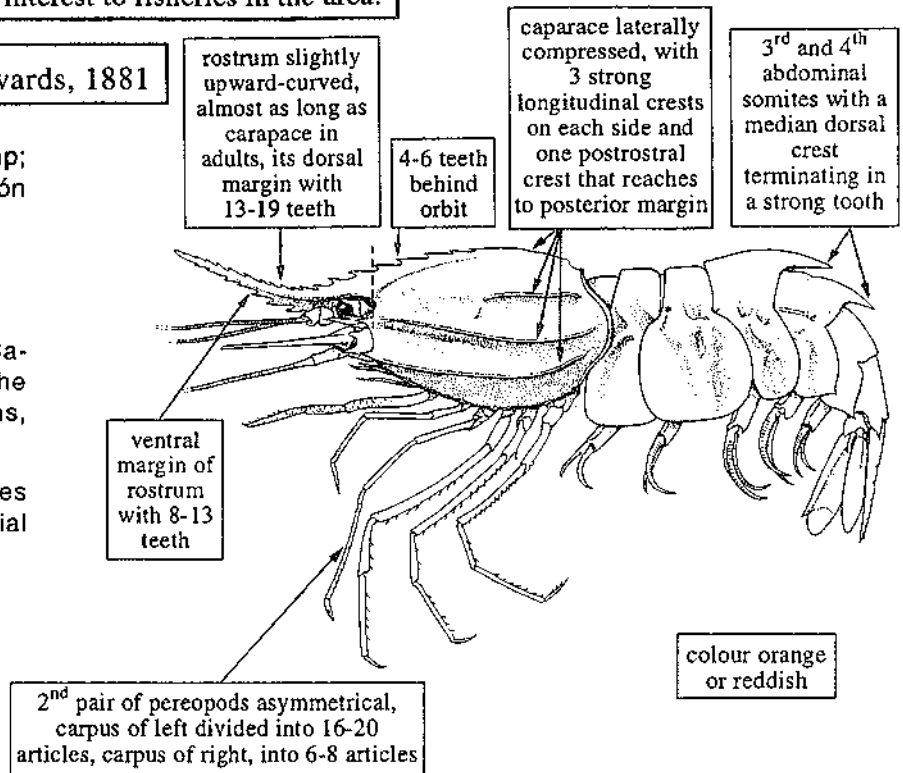
FAO names: En - Armed nylon shrimp;
Fr - Crevette nylon armée; Sp - Camarón
nailón armado.

Common names:

Size: Maximum total length 12.4 cm.

Distribution and habitat: From North Carolina (USA) to the Guianas, including the Caribbean sea. Occurs on muddy bottoms, from depths of 140 to 880 m.

Fisheries: Taken in industrial trawl fisheries off Suriname. No data about its commercial importance.



Genus *Plesionika* - 4 species of interest to fisheries in the area.

» ventral margin of rostrum with numerous, very small teeth; carapace with a postrostral crest confined to anterior region, and without lateral crests; second pair of pereopods with carpus divided into more than 3 articles.

Plesionika acanthonotus (S.I.Smith, 1882)

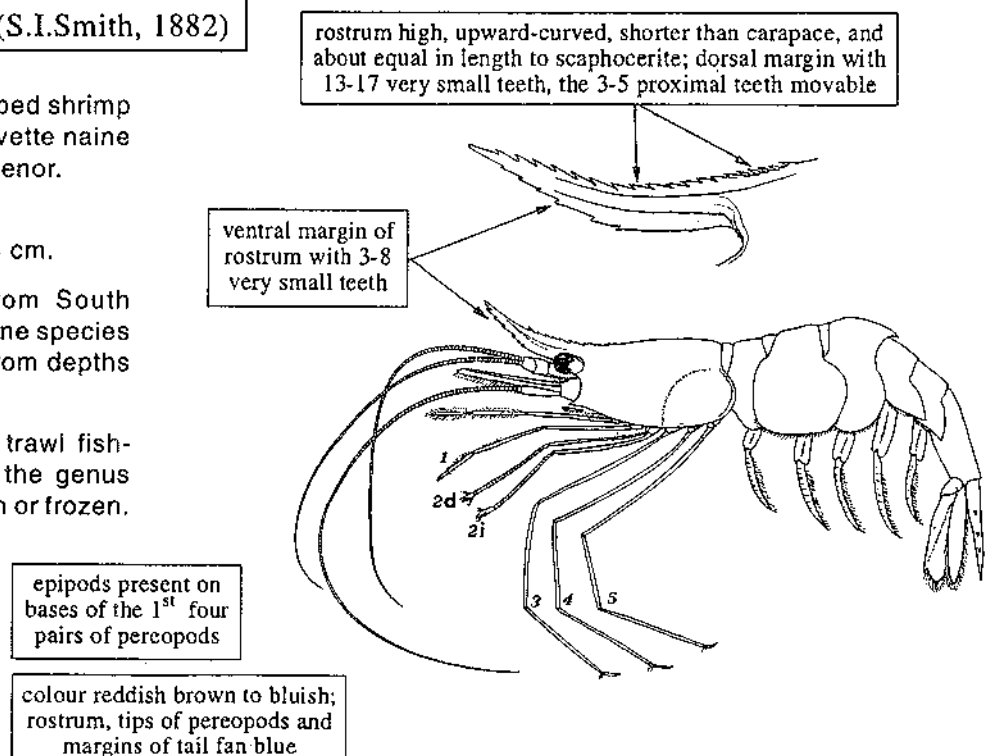
FAO names: En - Lesser striped shrimp (AFS: Striped shrimp); Fr - Crevette naine rayée; Sp - Camarón rayado menor.

Common names:

Size: Maximum total length 8.4 cm.

Distribution and habitat: From South Carolina (USA) to Brazil. A marine species occurring on muddy bottoms, from depths of 190 to 1 350 m.

Fisheries: Taken in industrial trawl fisheries together with species of the genus *Penaeus*. Marketed locally, fresh or frozen.



PANDALIDAE

Plesionika edwardsii (Brandt, 1851)

FAO names: En - Striped soldier shrimp (AFS: Soldier striped shrimp); Fr - Crevette Édouard; Sp - Camarón soldado rayado.

Common names:

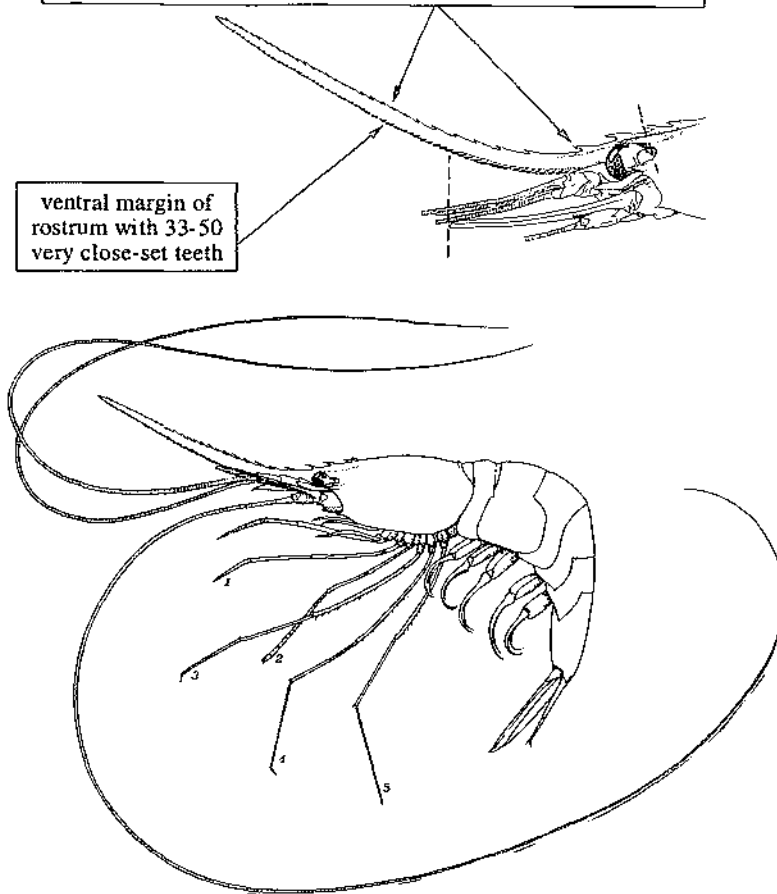
Size: Maximum total length 16.6 cm.

Distribution and habitat: From North Carolina (USA) to Suriname, including the Gulf of Mexico and the Antilles. Occurs on muddy bottoms, from depths of 50 to 690 m.

Fisheries: Recorded from exploratory fisheries off the Guianas, where it is probably taken in industrial trawl fisheries. No information about its commercial importance.

rostrum styliform, very long, more than twice the length of scaphocerite, and slightly curved upwards; dorsal margin with 28-34 very close-set teeth, except on the basal part, where they are larger and more widely spaced; 1-3 teeth behind orbit

ventral margin of rostrum with 33-50 very close-set teeth



epipods present on bases of 1st pairs of pereopods

colour reddish, back of abdomen with dark red longitudinal stripes; eggs blue

Plesionika ensis (A. Milne Edwards, 1881)

FAO names: En - Striped gladiator shrimp (AFS: Gladiator striped shrimp); Fr - Crevette gladiateur rayée; Sp - Camarón gladiator.

Common names:

Size: Maximum total length 12 cm.

Distribution and habitat: Florida (USA), western part of the Gulf of Mexico, Antilles, the Guianas, and Brazil. A marine species occurring on muddy bottoms, from depths of 100 to 1 250 m.

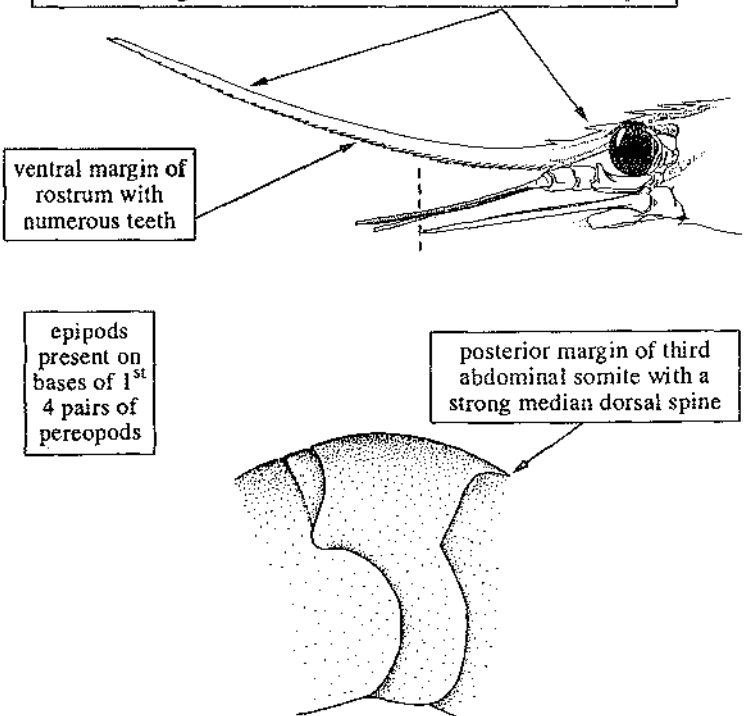
Fisheries: Taken in industrial trawl fisheries. No data on its commercial importance, but probably marketed locally together with other species.

rostrum styliform, upward-curved, much longer than carapace and exceeding scaphocerite by more than twice its length; dorsal margin with 4-6 teeth at base and 1 tooth near tip

ventral margin of rostrum with numerous teeth

epipods present on bases of 1st 4 pairs of pereopods

posterior margin of third abdominal somite with a strong median dorsal spine



PANDALIDAE

Plesionika longicauda (Rathbun, 1901)

Synonyms: *Parapandalus longicauda* (Rathbun, 1901).

FAO names: En - Longtail shrimp; Fr - Crevette queue longue; Sp - Camarón coludo.

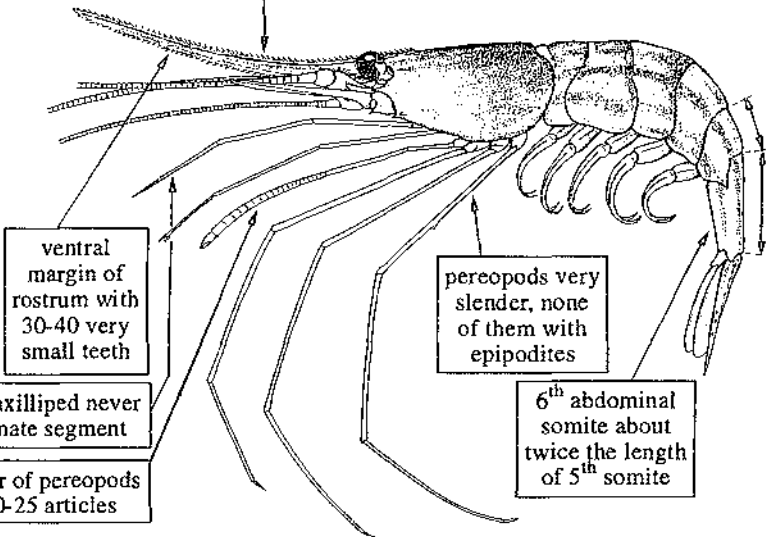
Common names:

Size: Maximum total length over 8 cm.

Distribution and habitat: Gulf of Mexico, Caribbean sea, and coasts of the Guianas. Occurs on soft bottoms, from depths of 55 to 410 m.

Fisheries: Taken in industrial trawl fisheries off Suriname. No data about its commercial importance.

rostrum long, slender and upward-directed, almost twice as long as carapace, its dorsal margin with 40-60 very small teeth



ventral margin of rostrum with 30-40 very small teeth

pereopods very slender, none of them with epipodites

6th abdominal somite about twice the length of 5th somite

last segment of 3rd maxilliped never shorter than penultimate segment

carpus of 2nd pair of pereopods divided into 20-25 articles

colour reddish, abdomen with bright red longitudinal lines

PASIPHAEIDAE

Genus *Glyphus* - one species of interest to fisheries in the area.

Glyphus marsupialis Filhol, 1884

FAO names: En - Kangaroo shrimp; Fr - Crevette kangourou; Sp - Camarón canguro.

Common names:

Size: Maximum total length 16.7 cm.

Distribution and habitat: French Guiana and Suriname. Occurs on sandy mud bottoms from depths of 400 to 1 160 m.

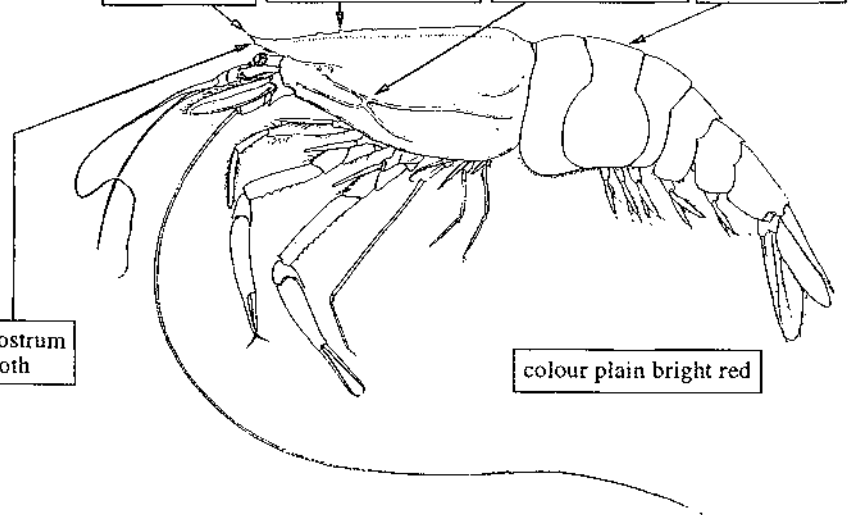
Fisheries: Recorded from exploratory fisheries off French Guiana and Suriname; probably taken in industrial trawl fisheries, along with other species. A few years ago this species was only known from the eastern Atlantic.

rostrum very short, slightly upward-curved, its dorsal margin smooth and toothless

rostrum prolonged backwards on carapace, forming a strong median dorsal crest that ends on posterior carapace margin and bearing 4-8 teeth which tend to disappear with age

sides of carapace with several longitudinal and transversal crests forming a sort of horizontally disposed "H"

2nd to 6th abdominal somites with a median dorsal crest



ventral margin of rostrum with a single tooth

colour plain bright red

PENAEIDAE

Genus *Parapenaeus* - one species of interest to fisheries in the area.

Parapenaeus politus Smith, 1881

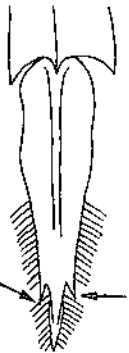
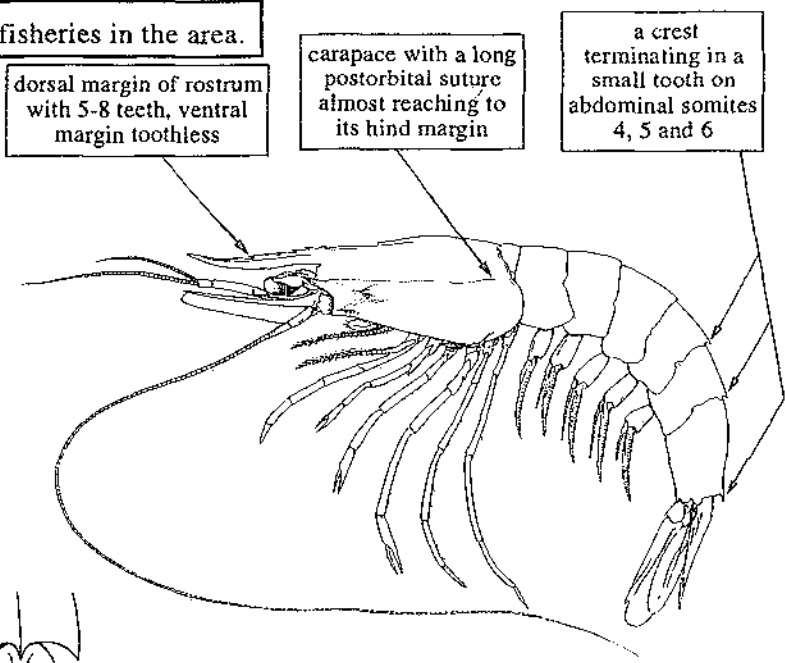
FAO names: En - Rose shrimp; Fr - Crevette rose; Sp - Gamba rosada.

Common names:

Size: Maximum total length 12.5 cm (females) and 10 cm (males).

Distribution and habitat: In the western Atlantic, from Massachusetts (USA) to the Gulf of Paria (Venezuela). A marine species occurring on mud and sandy mud bottoms, from depths of 3 to 752 m, apparently more abundant between 65 and 275 m.

Fisheries: Taken in industrial trawl fisheries. Marketed locally, fresh or frozen. No separate statistics.



telson tridentate (with a median tip and 2 small, fixed lateral spines)

colour translucent pink or salmon, with very conspicuous red stripes and spots (sometimes interspread with bright yellow)

Genus *Penaeopsis* - one species of interest to fisheries in the area.

Penaeopsis serrata Bate, 1881

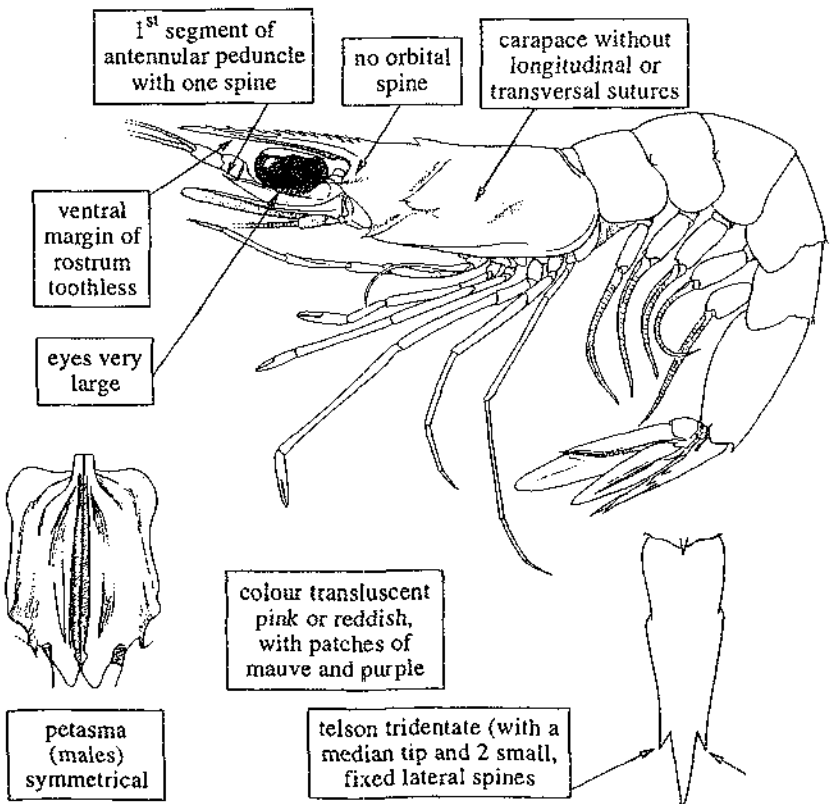
FAO names: En - Megalops shrimp (AFS: Pinkspeckled shrimp); Fr - Crevette megalops; Sp - Camarón megalops.

Common names:

Size: Maximum total length 15 cm (females) and 12 cm (males), possibly to 22.5 cm; maximum carapace length 5.4 cm (females) and 3.7 cm (males).

Distribution and habitat: From Massachusetts (USA) to Rio Grande do Sul (Brazil), including the Bahamas, Gulf of Mexico, and Caribbean sea. A marine species occurring on sandy and muddy bottoms, from depths of 120 to 750 m, most abundant between 300 and 450 m.

Fisheries: Taken in industrial trawl fisheries, but in relatively small quantities. Marketed locally, fresh or frozen. No separate statistics.



1st segment of antennular peduncle with one spine

no orbital spine

carapace without longitudinal or transversal sutures

ventral margin of rostrum toothless

eyes very large

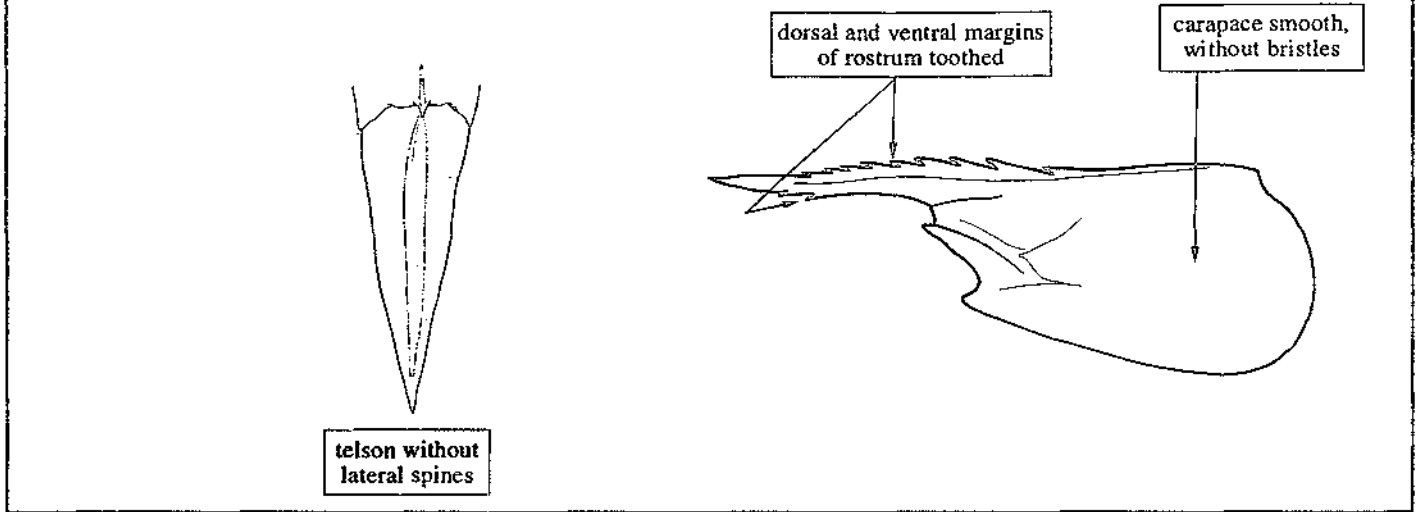
colour translucent pink or reddish, with patches of mauve and purple

petasma (males) symmetrical

telson tridentate (with a median tip and 2 small, fixed lateral spines)

PENAEIDAE

Genus *Penaeus* - 4 species of great interest to fisheries in the area.



Penaeus (Farfantepenaeus) brasiliensis Latreille, 1817 (plate I, 5)

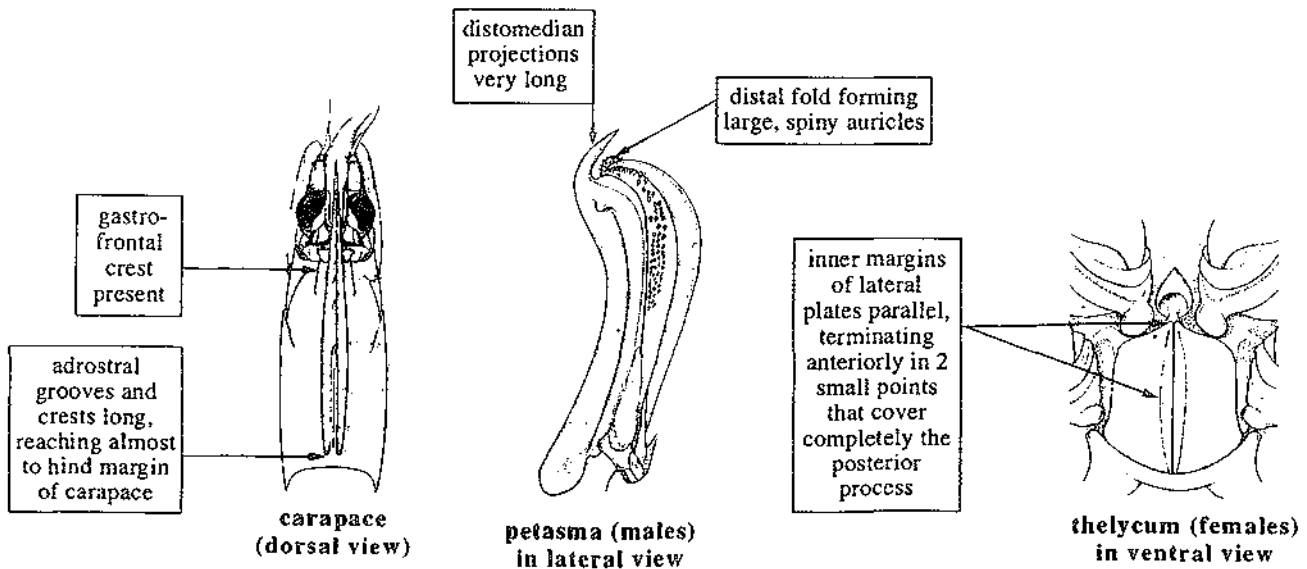
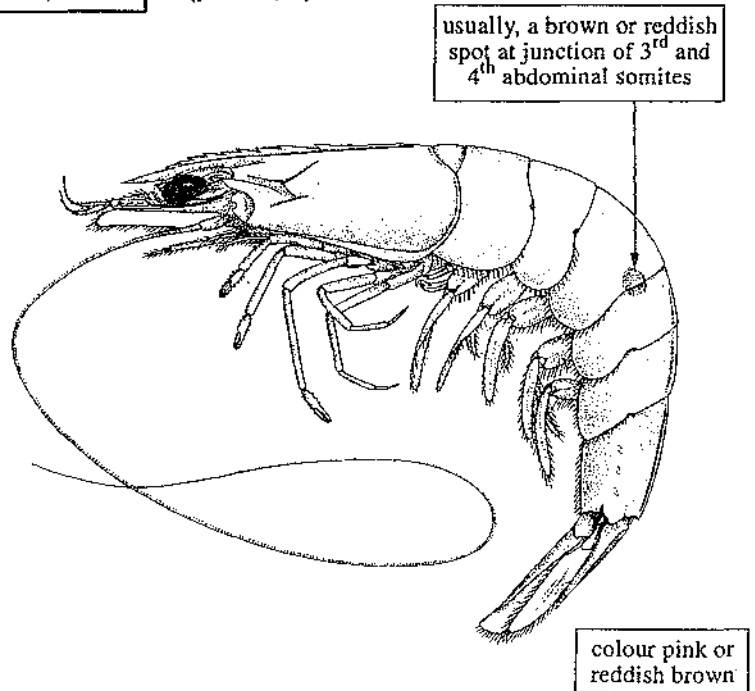
FAO names: En - Redspotted shrimp (AFS: Pinkspotted shrimp); Fr - Crevette royale rose; Sp - Camarón rosado con manchas.

Common names:

Size: Maximum total length 25 cm (females) and 19.1 cm (males).

Distribution and habitat: From North Carolina (USA) to Río Grande do Sul (Brazil), including the Bermudas, Gulf of Mexico, and Caribbean sea (Antilles as well as continental coasts). Occurs on mud and sandy mud bottoms, from about depths of 3 to 365 m, but is most abundant between 45 and 65 m. The juveniles inhabit brackish waters while the adults are marine.

Fisheries: Taken in industrial trawl fisheries. In 1989, landings amounted to about 1940 t in Venezuela and to about 200 t in French Guiana. Marketed mostly frozen, but also fresh and canned; a large part of the production is exported.



Penaeus (Farfantepenaeus) notialis Pérez-Farfante, 1967

(plate I, 6)

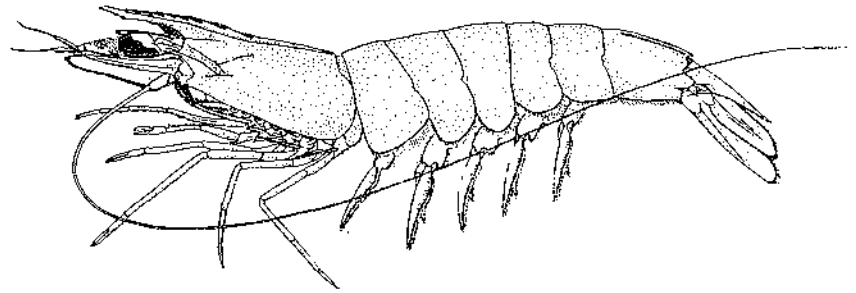
FAO names: En - Southern pink shrimp; Fr - Crevette rodché du sud; Sp - Camarón rosado sureño.

Common names:

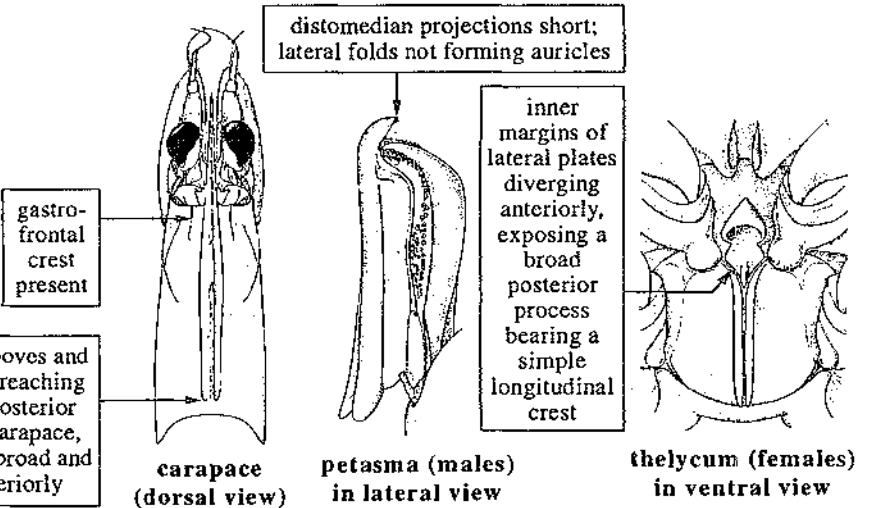
Size: Maximum total length 20 cm (females) and 17.5 cm (males); maximum carapace length 4.8 cm (females) and 4.1 cm (males).

Distribution and habitat: Greater Antilles, from Cuba to the Virgin islands, and continental coast from Quintana Roo (Mexico) through Central America and northern coast of South America to at least Cabo Frio (Brazil). Occurs on mud and sandy mud bottoms, as well as on sand patches among rocks, from about depths of 3 to 100 m, but is more common between 3 and 50 m. The juveniles live in brackish-water estuaries, while the adults are marine.

Fisheries: Taken in industrial trawl fisheries. Marketed frozen, fresh and canned. In Venezuela this is one of the most important shrimp species, but it is not recorded separately in fishery statistics.



colour light tan, yellowish or pink; usually no dark blotch at junction of 3rd and 4th abdominal somites



gastro-frontal crest present

distomedian projections short; lateral folds not forming auricles

inner margins of lateral plates diverging anteriorly, exposing a broad posterior process bearing a simple longitudinal crest

adrostral grooves and crests long, reaching almost to posterior margin of carapace, the grooves broad and deep posteriorly

carapace (dorsal view)

petasma (males) in lateral view

thelycum (females) in ventral view

Penaeus (Litopenaeus) schmitti Burkenroad, 1936

(plate I, 7)

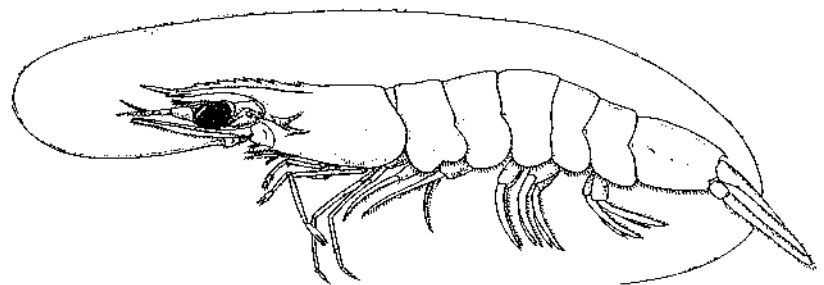
FAO names: En - Southern white shrimp; Fr - Crevette ligubam du sud; Sp - Camarón blanco sureño.

Common names:

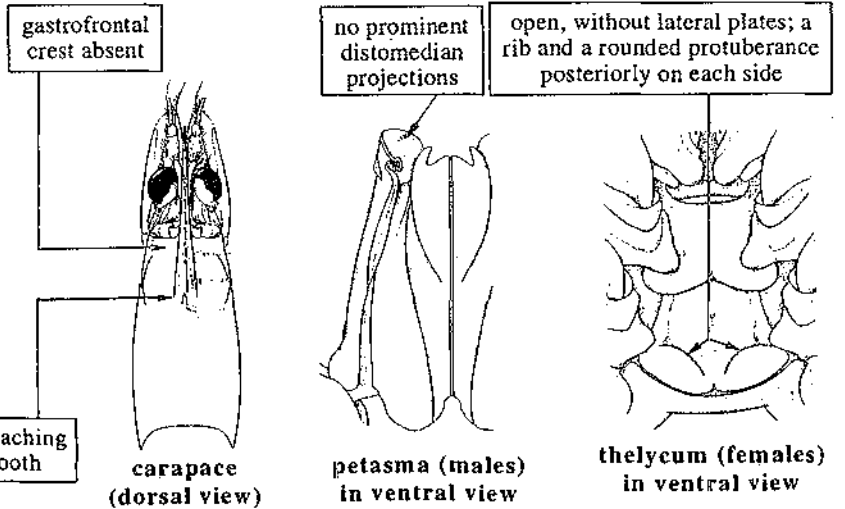
Size: Maximum total length 23.5 cm (females) and 17.5 cm (males).

Distribution and habitat: Greater Antilles, from Cuba to the Virgin islands, and along the continental coast from Belize to Laguna (Brazil). Occurs on soft, muddy, and sometimes sandy, bottoms, from depths of 2 to about 50 m. The adults are marine, and the juveniles live in estuaries.

Fisheries: Taken mainly in shallow water, with trawls operated manually from small boats, and in deeper water by industrial trawlers operating with the "Florida" type of trawl. In 1989, landings in Venezuela were estimated at 3 350 t. Marketed mostly frozen and fresh, a small part (about 2 t) is salted. Most of the production is exported. In French Guiana landings are rather poor. In Venezuela, some companies have initiated culture activities for this species.



colour usually white or translucent bluish grey, sometimes tinged with green or yellow; juveniles with blue spots



gastrofrontal crest absent

no prominent distomedian projections

open, without lateral plates; a rib and a rounded protuberance posteriorly on each side

adrostral grooves and crests short, reaching to, or slightly beyond, epigastric tooth

carapace (dorsal view)

petasma (males) in ventral view

thelycum (females) in ventral view

Penaeus (Farfantepenaeus) subtilis Pérez-Farfante, 1967

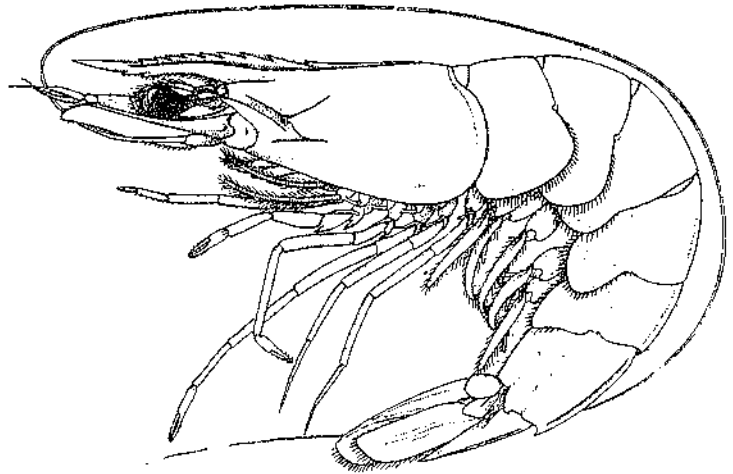
(plate I, 8)

FAO names: En - Southern brown shrimp; Fr - Crevette café; Sp - Camarón café sureño.
Common names:

Size: Maximum total length 20.5 cm (females) and 15.2 cm (males); maximum carapace length 5.5 cm (females) and 3.6 cm (males).

Distribution and habitat: From the southern part of the Greater Antilles and Honduras to the State of Rio de Janeiro (Brazil), including the Atlantic coast of Central America and the northern coast of South America. Occurs on mud and sandy mud bottoms with shell fragments, from depths of 1 to 190 m. The adults are marine, while the juveniles live in marine and estuarine waters; occasionally found in hypersaline lagoons.

Fisheries: Taken in industrial trawl fisheries. In 1989, landings amounted to about 970 t in Venezuela and to about 3500 t in French Guiana. Marketed mostly frozen, but also fresh and canned. Most of the production is exported.



colour usually brown, sometimes greyish or yellowish

distomedian projections short, lateral folds not forming auricles



carapace (dorsal view)

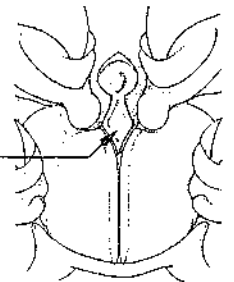
gastrofrontal crest present

adrostral grooves and crests relatively short, extending beyond epigastric tooth, but never near posterior margin of carapace; posterior extensions of grooves narrow



petasma (males) in lateral view

inner margins of lateral plates diverging anteriorly, exposing a posterior process with an anteriorly bifurcate crest



thelycum (females) in ventral view

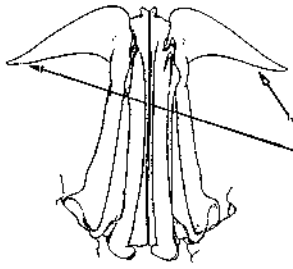
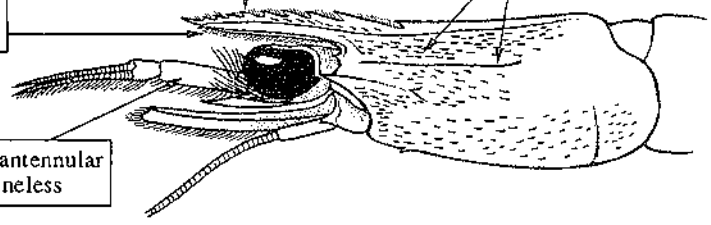
Genus *Trachypenaeus* - 2 species of interest to fisheries in the area.

dorsal margin of rostrum with 7-9 teeth distributed along its entire length

carapace with longitudinal sutures, its back and anterior regions hairy

ventral margin of rostrum toothless

first segment of antennular peduncle spineless



petasma (males) in ventral view

2 large, horn-like lateral projections

PENAEIDAE

Trachypenaeus constrictus (Stimpson, 1874)

FAO names: En - Roughneck shrimp; Fr - Crevette gambri; Sp - Camarón fijador.

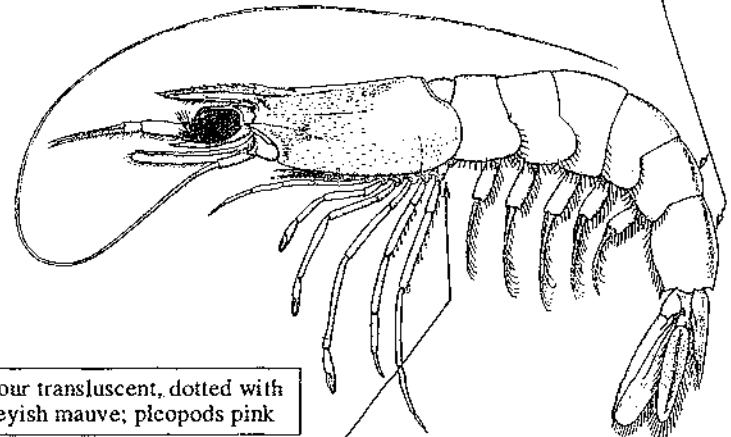
Common names:

Size: Maximum total length 9.3 cm (females) and 7.1 cm (males).

Distribution and habitat: From Chesapeake Bay (USA) to Santa Catarina (Brazil), including the Gulf of Mexico, Bermuda, Cuba, Puerto Rico, and Suriname. A marine species occurring on sandy or muddy bottoms with shell fragments, from very shallow water to a depth of about 90 m.

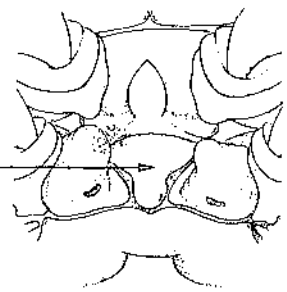
Fisheries: Taken in industrial trawl fisheries, together with species of the genus *Penaeus*; also with handnets. Marketed locally. No separate statistics.

abdomen smooth, except for a narrow fringe of bristles at both sides of median dorsal crest on the last 2 somites

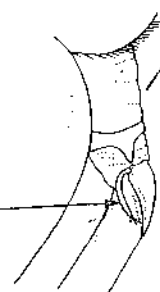


colour translucent, dotted with greyish mauve; pleopods pink

posterior thoracic region (sternite XIV) in males bearing a cup-shaped prominence, narrow posteriorly and with wavy lateral margins (ventral view)

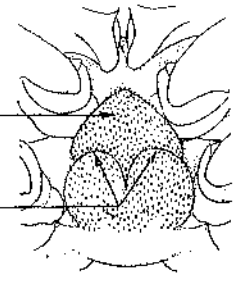


exopod of last pair of pereopods long



anterior margin of central process angular or convex

anterior margins of lateral plates convex



telycum (females) showing bristles on ventral surface

Trachypenaeus similis (Smith, 1885)

(plate II, 9)

FAO names: En - Yellow roughneck shrimp (AFS: Roughback shrimp); Fr - Crevette gambri jaune; Sp - Camarón fijador amarillo.

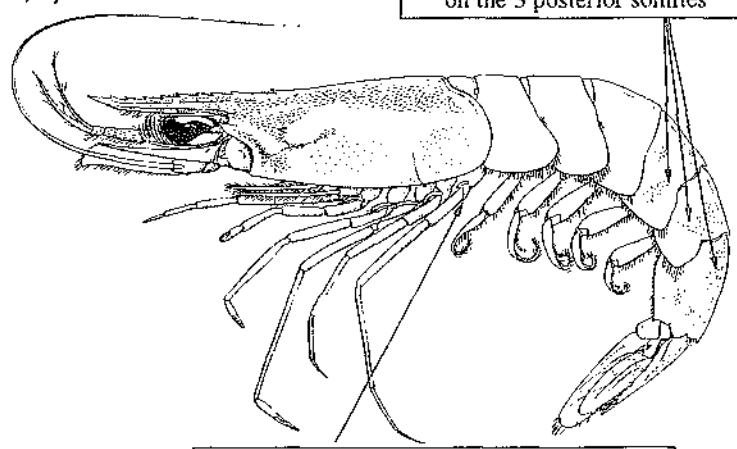
Common names:

Size: Maximum total length 10.4 cm (females) and 7.2 cm (males).

Distribution and habitat: From the western tip of Florida (USA) to northern Brazil, including the Gulf of Mexico and the Caribbean sea. A marine species occurring on muddy and sandy bottoms, from depths of 2 to about 100 m.

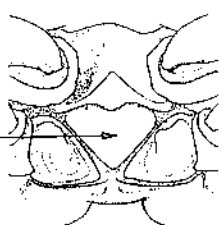
Fisheries: Taken in industrial trawl fisheries, together with species of the genus *Penaeus*; also with handnets. Marketed locally. No separate statistics.

abdomen with patches of bristles on the 3 posterior somites

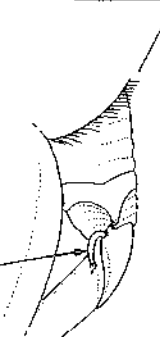


colour translucent, dotted with yellowish orange; pleopods orange red with white dots

ventral surface of posterior thoracic region (sternite XIV) in males bearing a triangular prominence with straight lateral margins

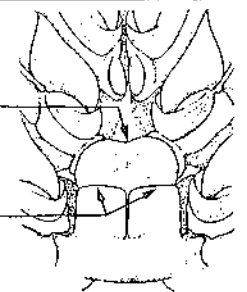


exopodite of last pair of pereopods relatively short



anterior margin of central process straight or concave

margins of lateral plates straight



telycum (females) without bristles on ventral surface

Genus *Xiphopenaeus* - one species of interest to fisheries in the area.

Xiphopenaeus kroyeri (Heller, 1862)

(plate II, 10)

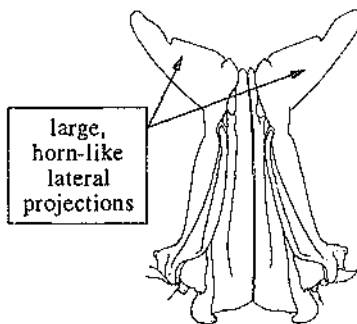
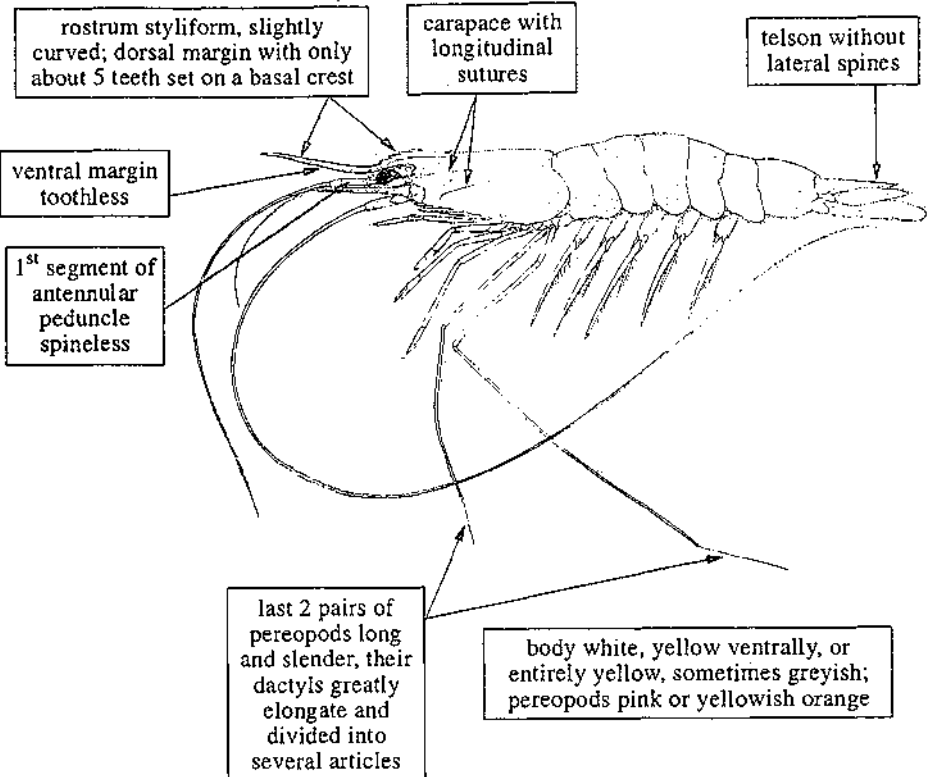
FAO names: En - Atlantic seabob (AFS: Seabob); Fr - Crevette seabob; Sp - Camarón siete barbas.

Common names:

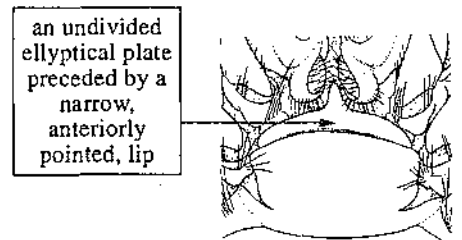
Size: Maximum total length 14 cm (females) and 11.5 cm (males).

Distribution and habitat: From North Carolina (USA) to the State of Santa Catarina (Brazil), including the Gulf of Mexico and the Caribbean sea. Occurs on muddy and sandy bottoms, from depths of 1 to 70 m, but is more abundant to about 30 m. A marine species that may enter brackish waters and, exceptionally, freshwater; more abundant in the vicinity of river estuaries and deltas.

Fisheries: Taken in industrial trawl fisheries. A species of commercial importance in the area because of its great abundance, despite its small size. In the Guianas, this is the most common among the shrimp species marketed locally. In 1989, recorded landings amounted to about 3 500 t in Guyana and to about 10 t in French Guiana. In Venezuela it is caught together with *Penaeus schmitti* in the vicinity of the Orinoco delta, but in Government statistics it is included in the category "various shrimp species". Marketed fresh, headed and peeled.



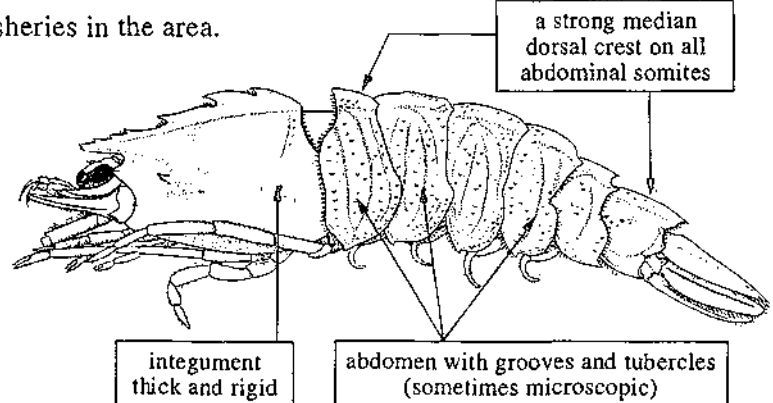
petasma (males) in ventral view



thelycum (females) in ventral view

SICYONIIDAE

Genus *Sicyonia* - 4 species of interest to fisheries in the area.



SICYONIIDAE

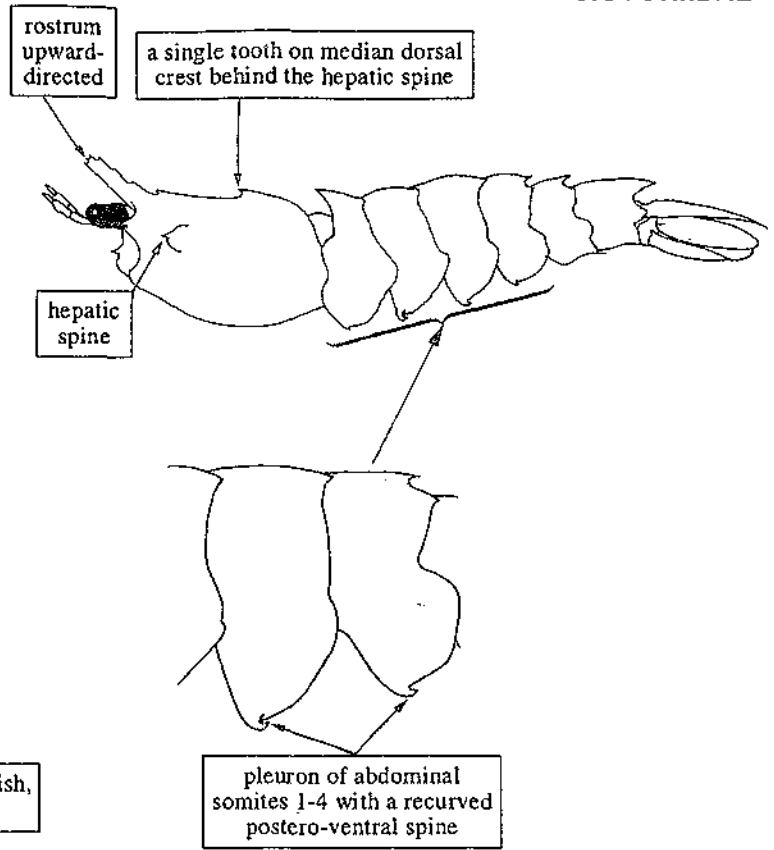
Sicyonia burkenroadi Cobb, 1971

FAO names: En - Burkenroad's rock shrimp; Fr - Crevette de Burkenroad; Sp - Camarón de Burkenroad.

Common names:

Distribution and habitat: From Cape Lookout, North Carolina (USA), through the Gulf of Mexico, Puerto Rico, Panama and Colombia to French Guiana. A marine species occurring on mud or sandy mud bottoms with shell fragments, between depths of 30 and 120 m, occasionally to 585 m.

Fisheries: Confused with *S. stimpsoni* which is found more or less on the same fishing grounds. No data on its fisheries potential.



Sicyonia dorsalis Kingsley, 1878

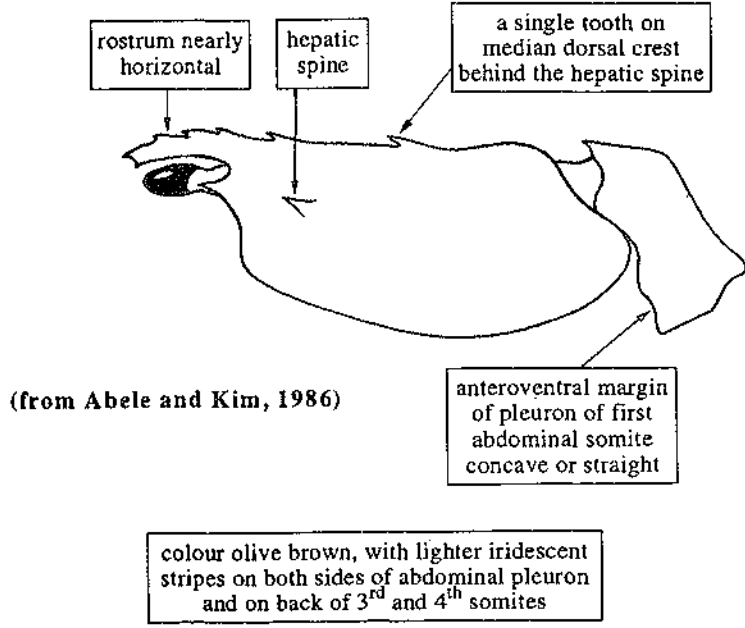
FAO names: En - Lesser rock shrimp; Fr - Boucot nain; Sp - Camaroncito de piedra.

Common names:

Size: Maximum total length 7.5 cm (females) and 6.3 cm (males).

Distribution and habitat: From Cape Hatteras, North Carolina, to Texas (USA), and from Colombia to Santa Catarina (Brazil). A marine species occurring on sandy or muddy bottoms, from about depths of 5 to 160 m.

Fisheries: Taken in industrial trawl fisheries. Of little commercial importance and marketed only locally. No separate statistics.



SICYONIIDAE

Sicyonia stimpsoni Bouvier, 1905

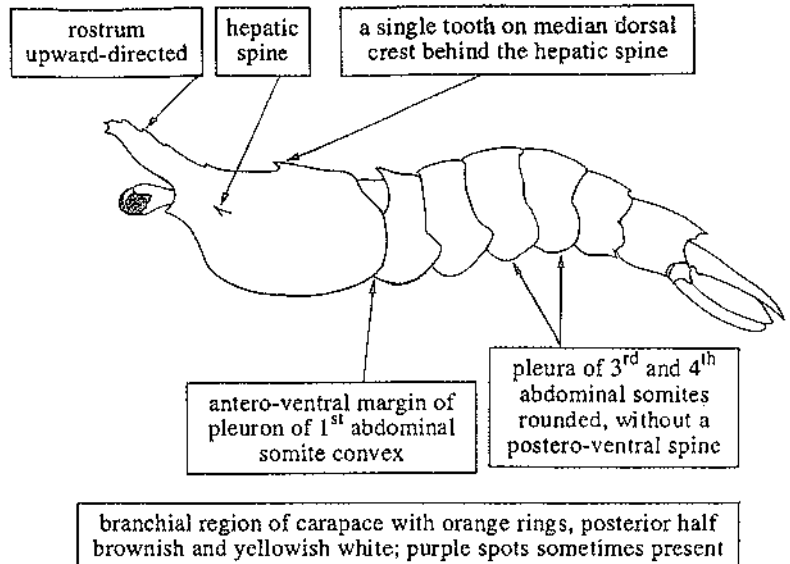
FAO names: En - Eyespot rock shrimp; Fr - Boucot ocellé; Sp - Camarón ocelado.

Common names:

Size: Maximum carapace length 12.4 cm (females) and 10.4 cm (males).

Distribution and habitat: From North Carolina (USA) to Barbados, and coasts of Central and South America, from Panama to Suriname. A marine species occurring on muddy bottoms, from depths of 4 to about 70 m.

Fisheries: Taken in industrial trawl fisheries. Of little commercial importance and only marketed locally. No separate statistics.

*Sicyonia typica* (Boeck, 1864)

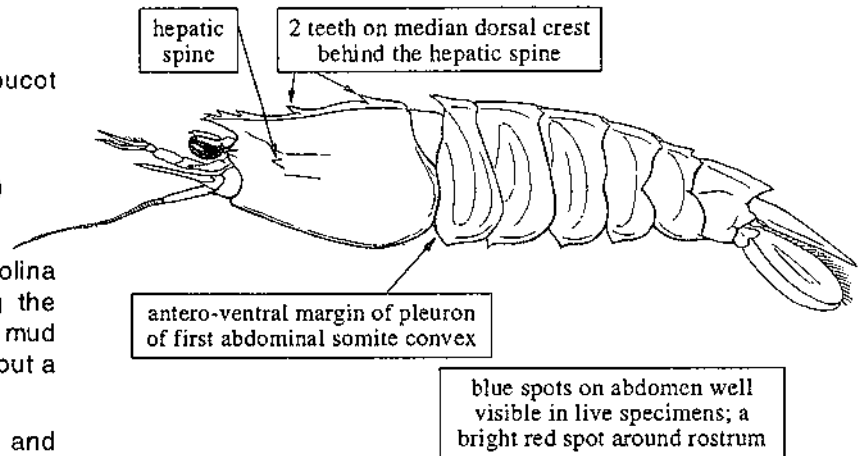
FAO names: En - Kinglet rock shrimp; Fr - Boucot roitelet; Sp - Camarón reyecito.

Common names:

Size: Maximum total length 7.4 cm (females) and 7.7 cm (males).

Distribution and habitat: From North Carolina (USA) to Santa Catarina (Brazil), including the Antilles. A marine species occurring on rocks, mud and seaweeds, from very shallow water to about a depth of 100 m.

Fisheries: Of little commercial importance and only marketed locally. No separate statistics.



SOLENOCERIDAE

Genus *Mesopaeneus* - one species of interest to fisheries in the area.

Mesopaeneus tropicalis (Bouvier, 1905)

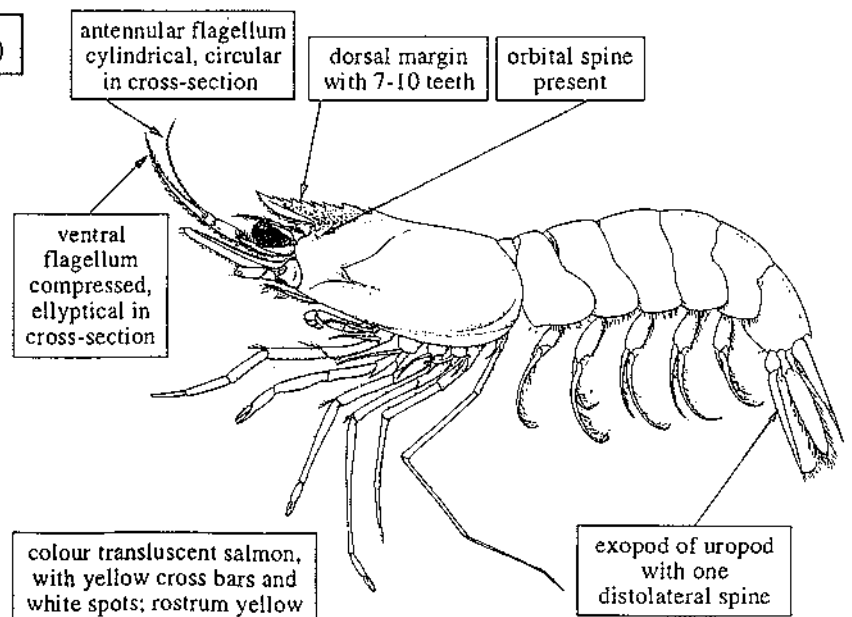
FAO names: En - Salmon shrimp; Fr - Crevette saumon; Sp - Camarón salmón.

Common names:

Size: Maximum total length about 11 cm; maximum carapace length 2.8 cm.

Distribution and habitat: From North Carolina, through Florida (USA), Gulf of Mexico and Caribbean sea to Rio Grande do Sul (Brazil). Found between depths of 30 and 915 m, but apparently more abundant below 200 m.

Fisheries: Taken in industrial trawl fisheries. No data about its fishery potential.



Genus *Pleoticus* - one species of interest to fisheries in the area.

Pleoticus robustus (Smith, 1885)

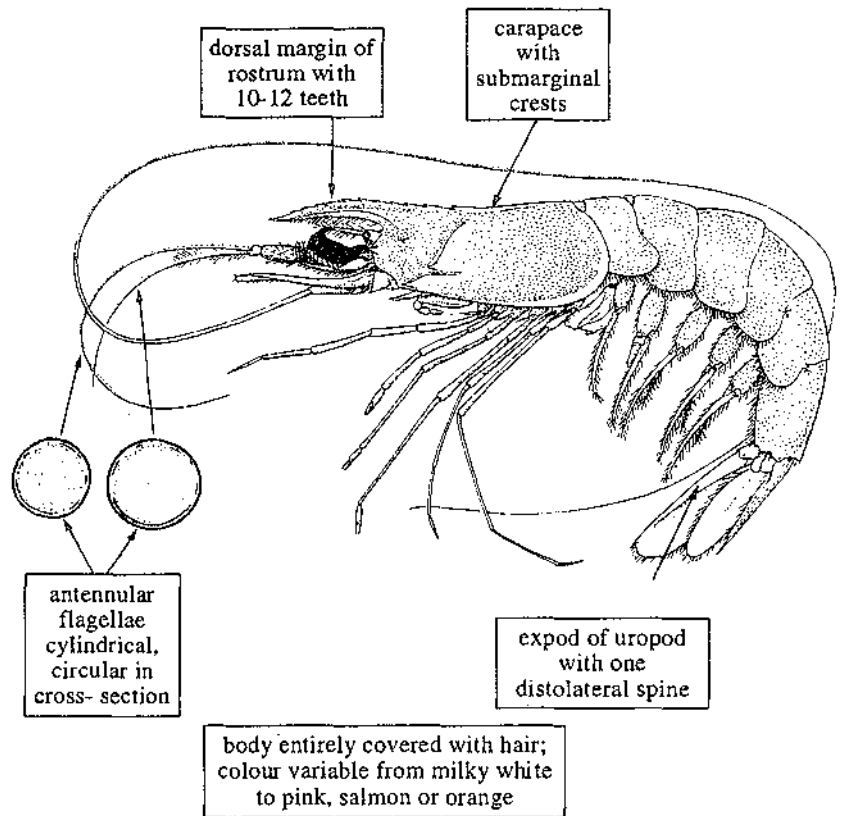
FAO names: En - Royal red shrimp; Fr - Saïcoque royale rouge; Sp - Camarón rojo real.

Common names:

Size: Maximum total length 22.5 cm (females) and 18 cm (males); maximum carapace length 6.1 cm (females) and 4.2 cm (males).

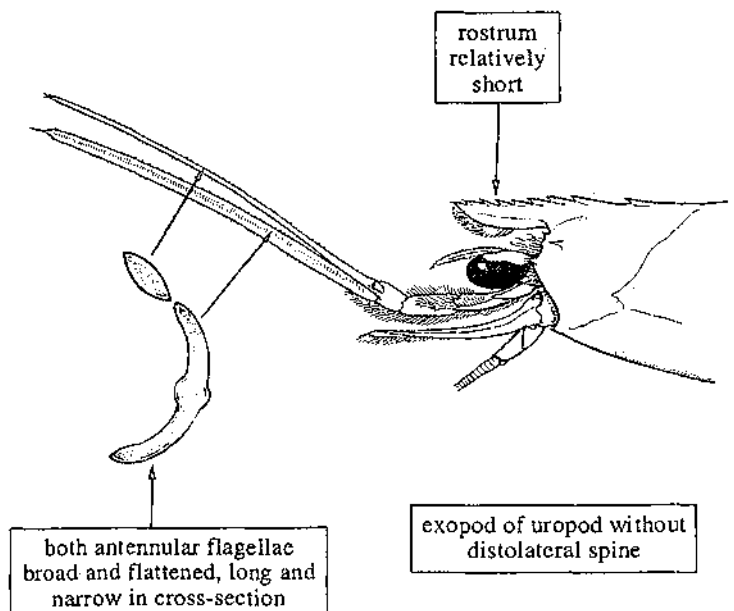
Distribution and habitat: From Massachusetts (USA) through the Gulf of Mexico, coasts of Central America and northern South America to French Guiana, including the Antilles. A marine species occurring on sand, clay, mud and muddy clay bottoms, from about depths of 70 to 915 m, but more abundant between 250 and 475 m.

Fisheries: Taken in industrial trawl fisheries. Found in commercial quantities at temperatures between 9° and 12°C. The landings of this species are rather small. Marketed locally, fresh or frozen. No separate statistics.



Genus *Solenocera*

4 species in the area: *S. acuminata* Pérez-Farfante, 1973, *S. atlantidis* Burkenroad, 1939, *S. geijskesi* Holthuis, 1959, and *S. necopina* Burkenroad, 1939, of little interest to fisheries because of their small average size. Only *S. acuminata* reaches a sufficiently large size (to 4 cm carapace length) to be sold on local markets.

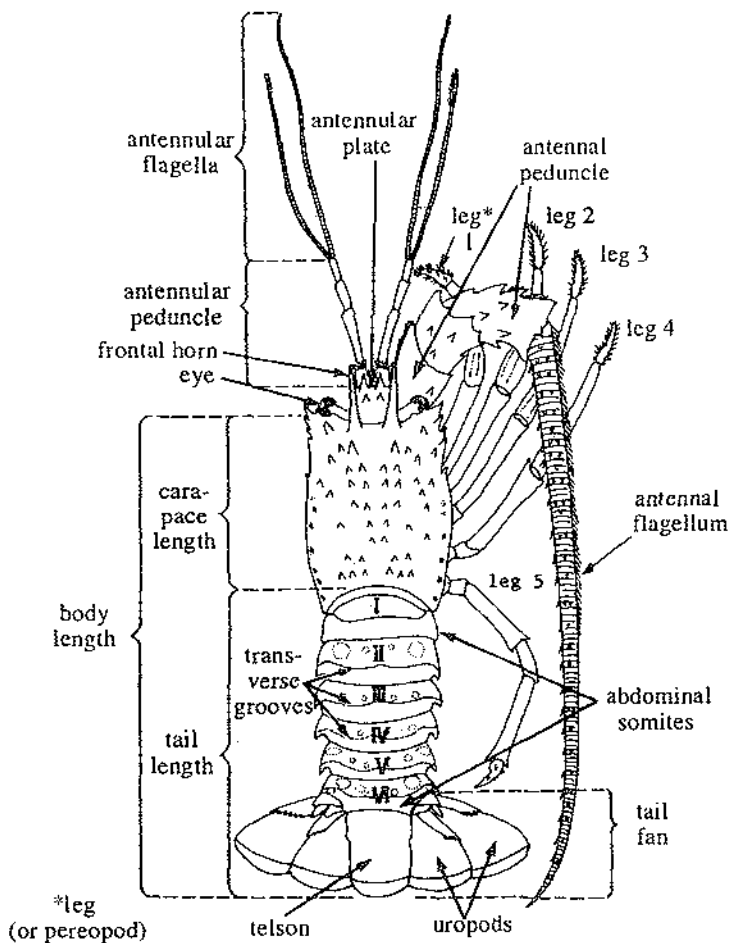


LOBSTERS

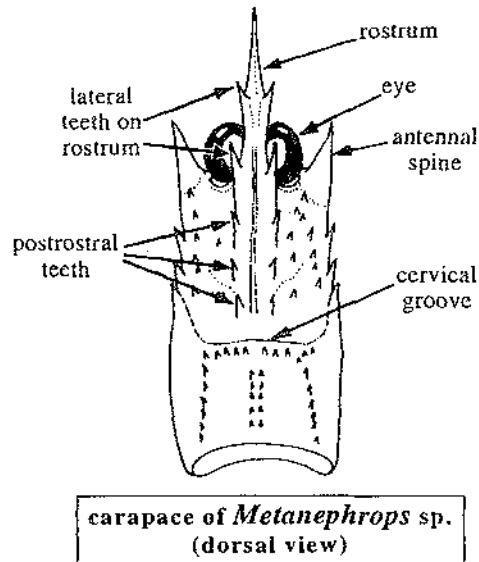
The edible lobsters of the region are represented by a small number of species (about 26) grouped under 6 families and about 15 genera. Although their identification is relatively simple, data on their abundance and depth distribution are insufficient to evaluate the present or potential importance as fishery resources of most species; this is due mainly to the absence of fishery statistics by species in the countries bordering the area.

In order to facilitate the task of fishery workers, we decided to include in this guide all lobster families occurring in the area. Also included are all species that, on the basis of their size, appear to be worthy of a more systematic collection of data and information in the future.

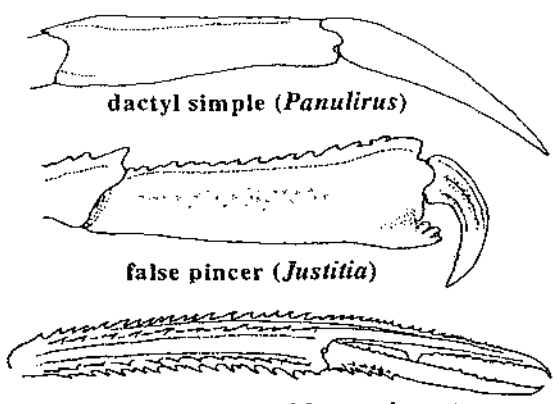
TECHNICAL TERMS AND MEASUREMENTS



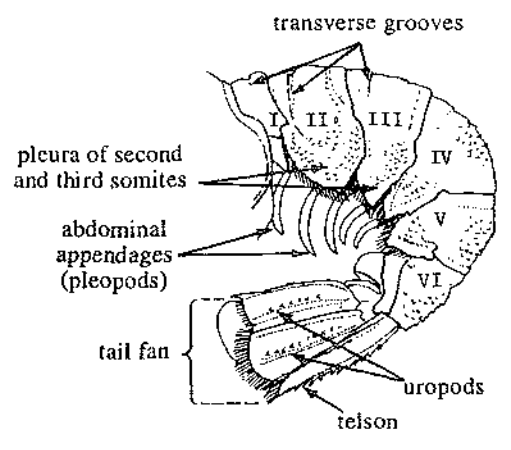
external morphology of a lobster (*Panulirus* sp.)



carapace of *Metanephrops* sp. (dorsal view)



types of terminal segments of 1st pair of legs



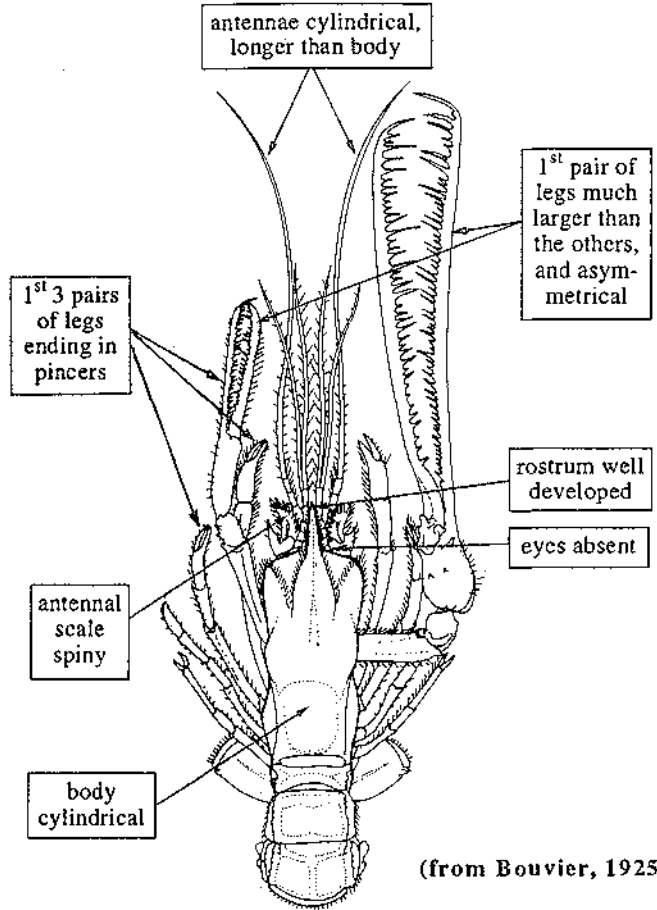
tail (abdomen) in lateral view, somites numbered I-VI

(after Manning, 1978)

GUIDELINES FOR THE IDENTIFICATION OF FAMILIES

THAUMASTOCHELIDAE

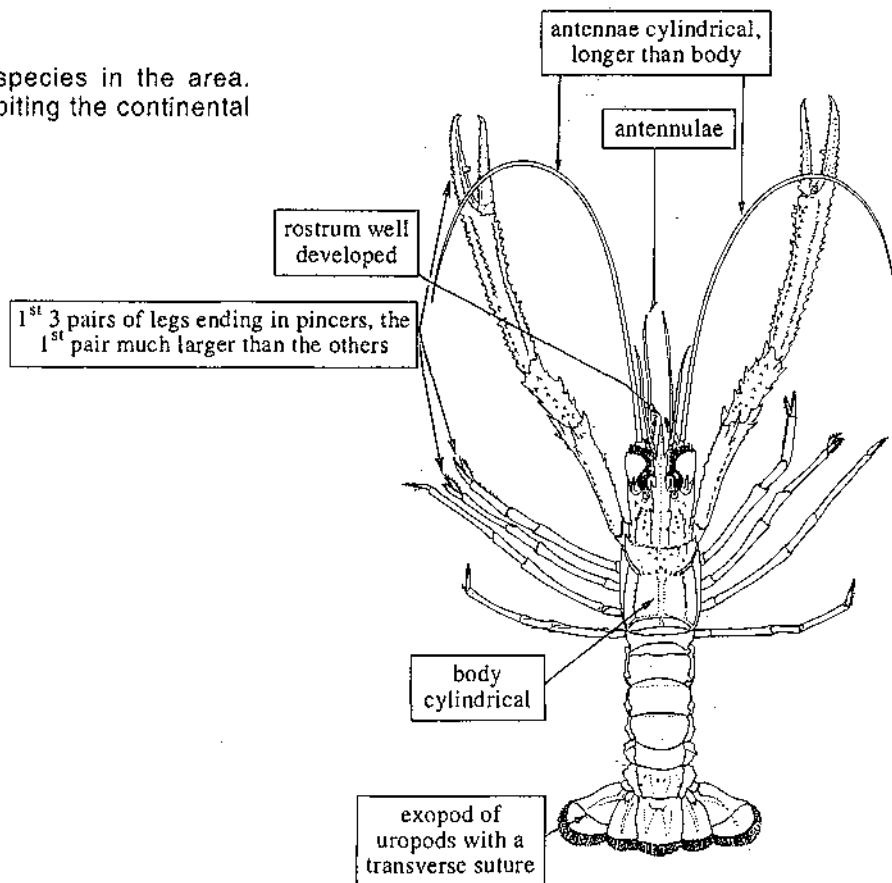
At least one species in the area, *Thaumastocheles zaleucus* (Thomson, 1873). A soft-bodied lobster attaining maximum lengths of 16 cm. Lives on the continental slope between depths of 640 and 1 050 m, and therefore of no interest to fisheries, at least at present.



NEPHROPIDAE

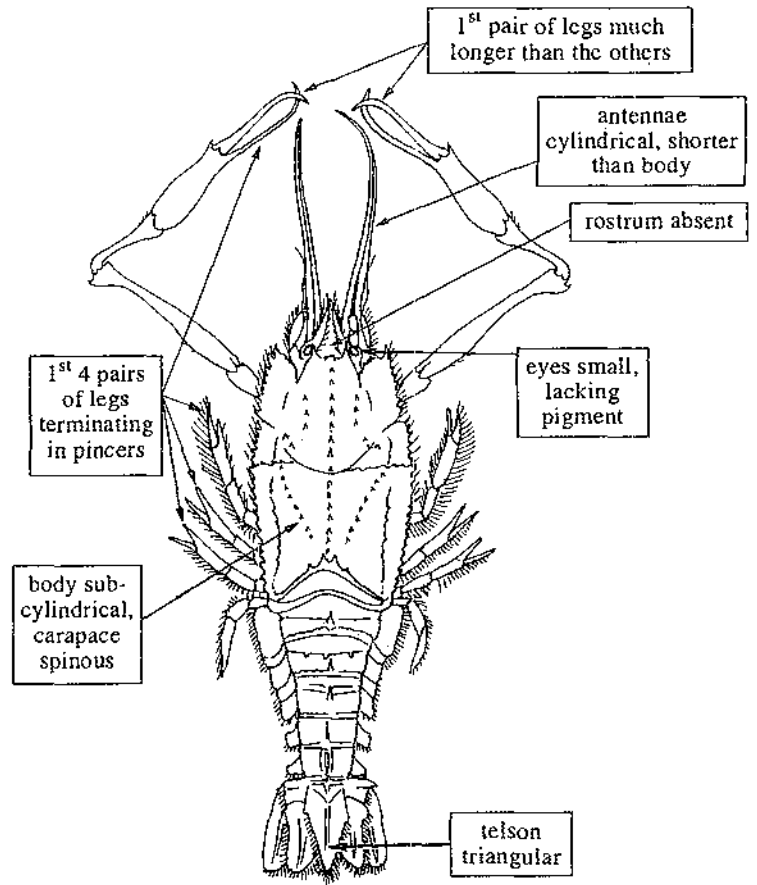
page 137

There are 5 genera and 9 species in the area. Benthic marine lobsters inhabiting the continental shelf and slope.



POLYCHELIDAE

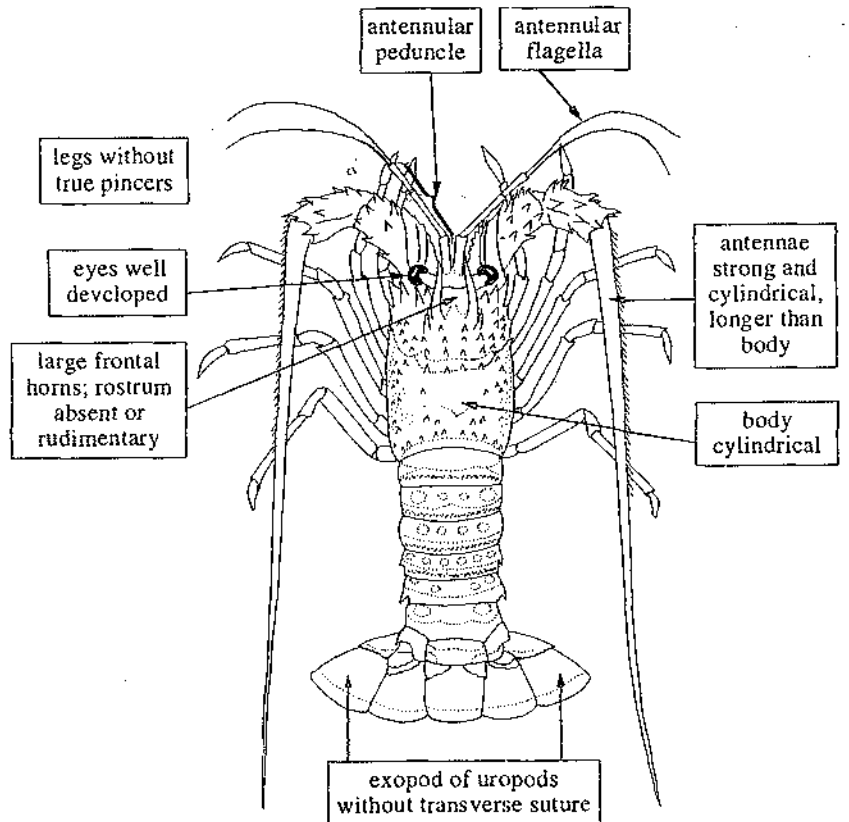
At least 2 genera, each with one species in the area: *Polychelis typhlops* Heller, 1862 (with 2 subspecies) and *Stereomastis sculpta* (S.I. Smith, 1880). Soft-bodied marine species that may reach over 20 cm in length and occur on the continental shelf and slope, from depths of about 100 m to over 2 900 m. Of no interest to fisheries at present, but they may be taken as bycatch in industrial trawl fisheries.



PALINURIDAE

page 142

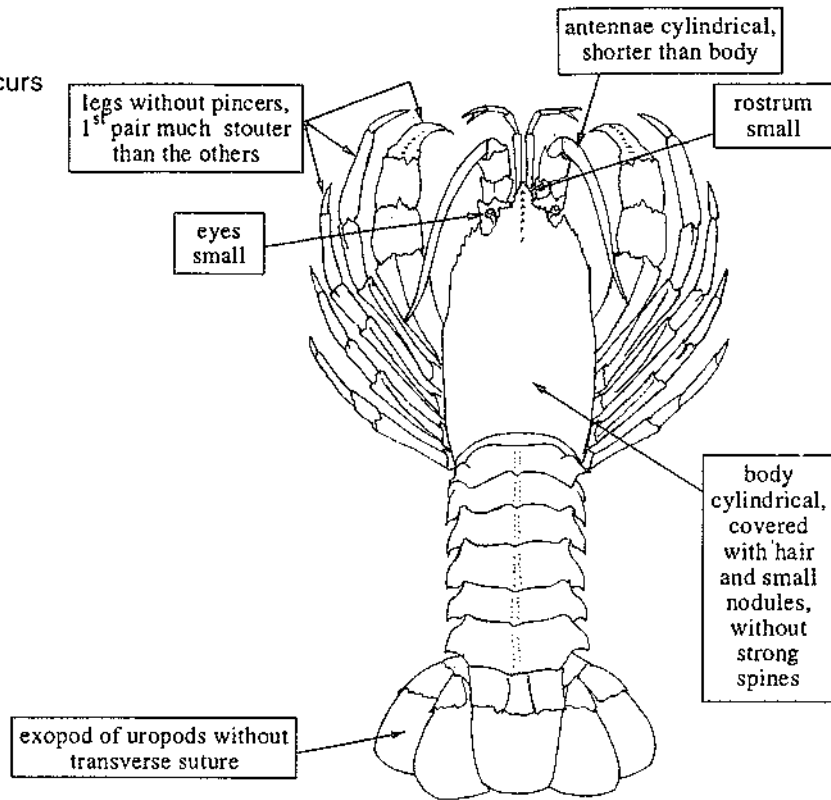
There are 3 genera and 5 species in the area. Benthic marine species usually inhabiting the continental shelf, except one species that may reach depths beyond 1 000 m.



SYNAXIDAE

page 147

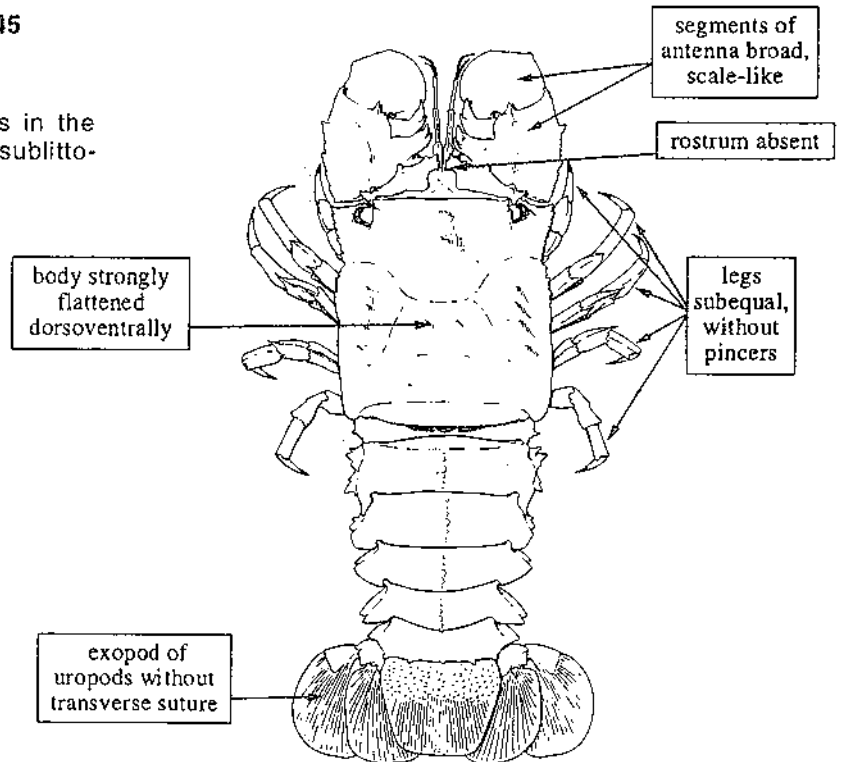
A single species in the area. Occurs in shallow marine waters.



SCYLLARIDAE

page 145

There are 3 genera and about 9 species in the area. Benthic marine lobsters occurring in sublittoral waters and on the continental shelf.



FAMILIES AND SPECIES OF INTEREST TO FISHERIES

NEPHROPIDAE

Genus *Acanthacaris* - a single species in the area.

Acanthacaris caeca (A. Milne Edwards, 1881)

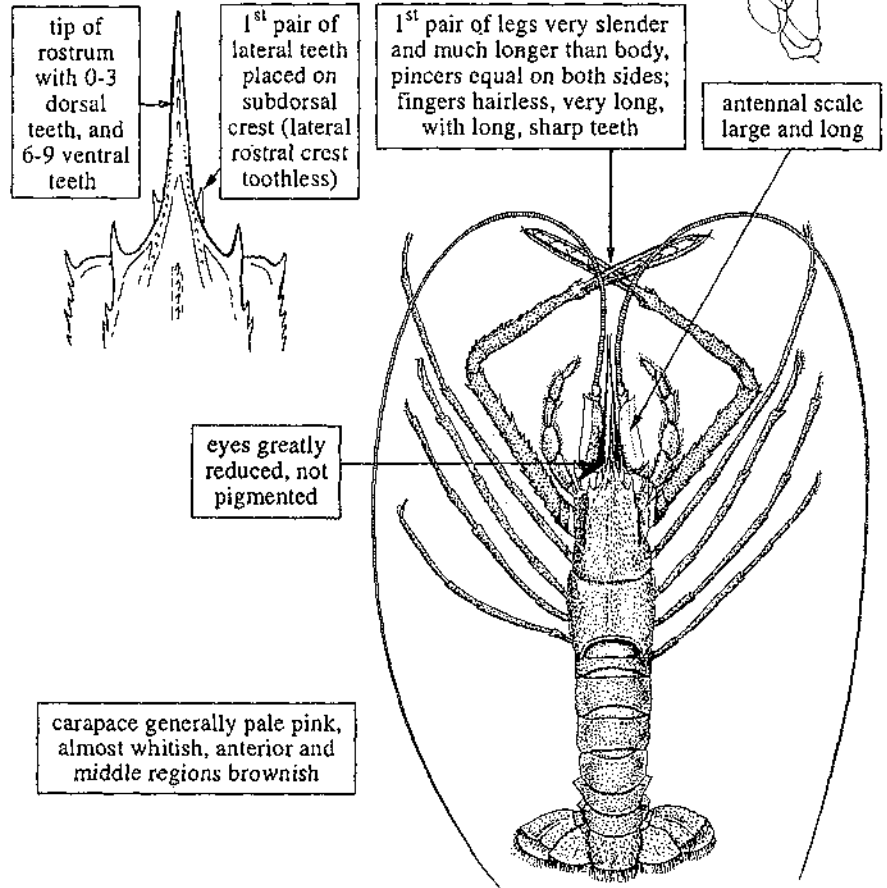
FAO names: En - Atlantic deep-sea lobster; Fr - Langoustin e arganelle; Sp - Cigala de fondo.
Common names:

Size: Maximum total length 40 cm; maximum carapace length 17.3 cm (males) and 14 cm (females).

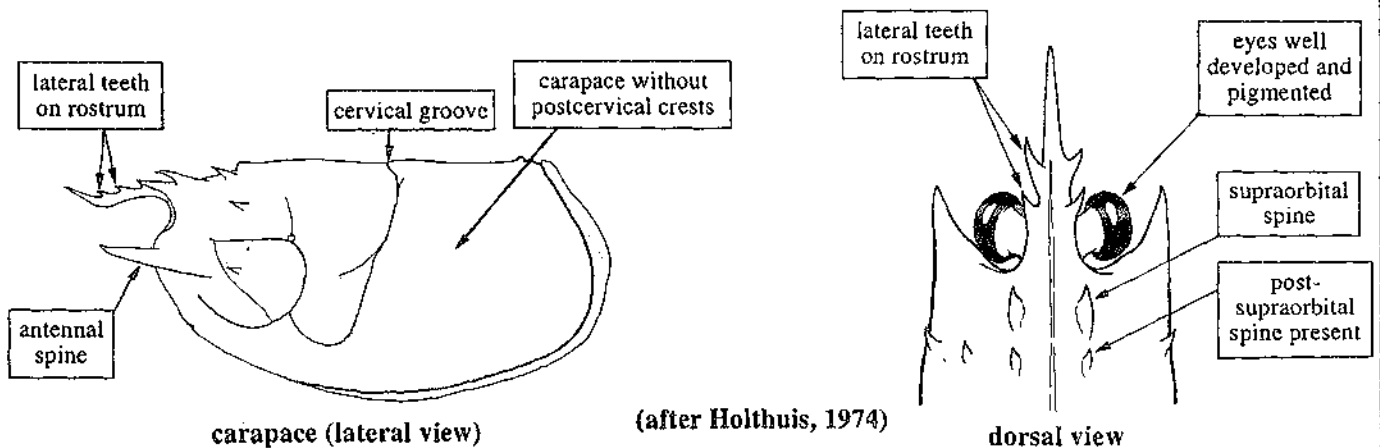
Distribution and habitat: Straits of Florida, Gulf of Mexico and Caribbean sea. A marine species living in holes on muddy or sandy substrate between depths of 290 and 890 m; more abundant between 550 and 835 m.

Fisheries: Not actively fished, but taken as bycatch in industrial trawl fisheries. This species seems to have some fisheries potential in the Caribbean sea. However, at present the trawling fleet is not prepared to operate in deep water where this species is more abundant.

(plate II, 11)



Genus *Eunephrops* - 2 species in the area, only one of interest to fisheries.



NEPHROPIDAE

***Eunephrops bairdii* Smith, 1885**

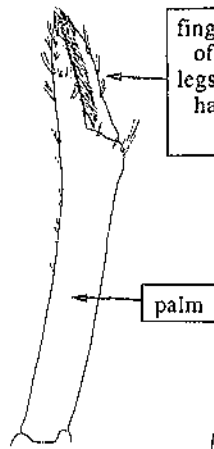
FAO names: En - Red lobsterette; Fr - Langoustine rouge; Sp - Cigala colorada.

Common names:

Size: Maximum total length 20 cm; maximum carapace length 9 cm (males) and 6.9 cm (females).

Distribution and habitat: Western Caribbean sea, off Panama and Colombia. A marine species inhabiting mud bottoms, but also found among fragments of coral and shells. Occurs between depths of 230 and 400 m.

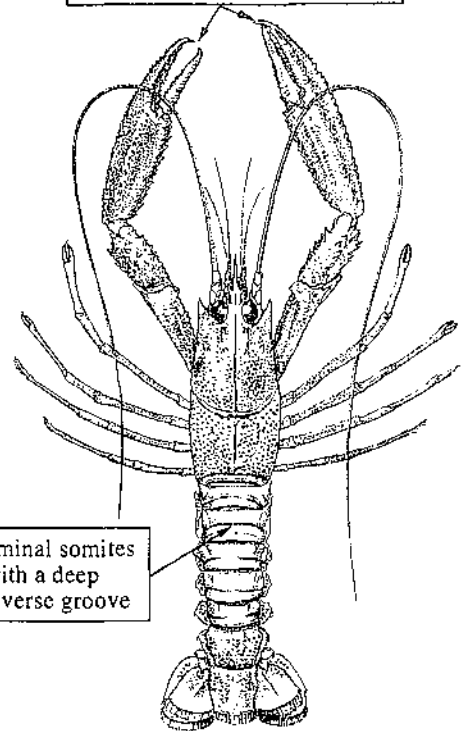
Fisheries: Not actively fished, but taken as bycatch in industrial trawl fisheries. Since trawling vessels at present are not prepared to operate in deep water, it is not possible to assess the true fisheries potential of this species.



finger of pincers of 2nd pair of legs shorter than half the palm length

palm

1st pair of legs long and strong, pincers on both sides equal

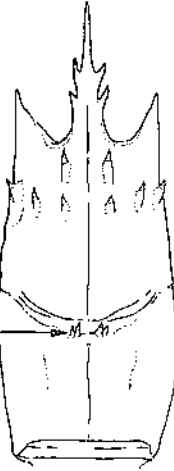


abdominal somites with a deep transverse groove

(after Holthuis, 1974)

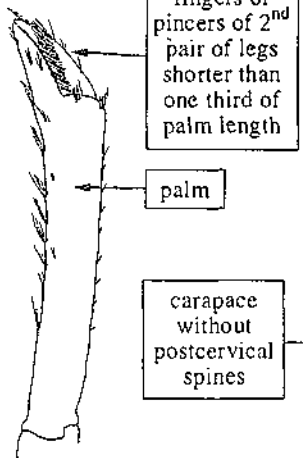
colour red to brownish orange

2 pairs of post-cervical spines behind cervical groove



Other species:

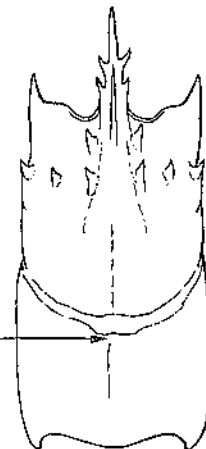
***Eunephrops cadenasi* Chace, 1939**, reaching to about 15 cm in length and occurring in depths between 370 and 590 m; of no interest to fisheries at present.



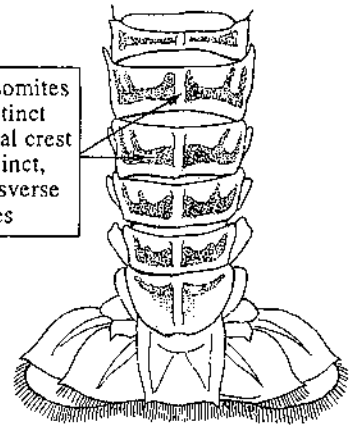
fingers of pincers of 2nd pair of legs shorter than one third of palm length

palm

carapace without postcervical spines



abdominal somites with a distinct median dorsal crest and indistinct, broad, transverse grooves



(after Holthuis, 1974)

colour red, abdomen lighter than carapace

NEPHROPIDAE

Genus *Metanephrops* - a single species in the area.

Metanephrops binghami (Boone, 1927)

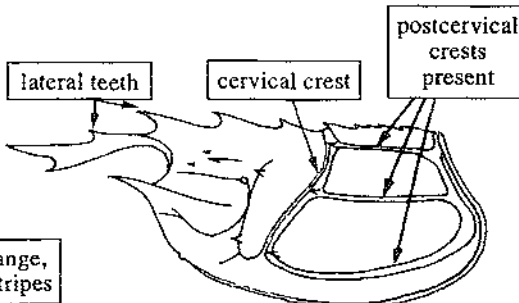
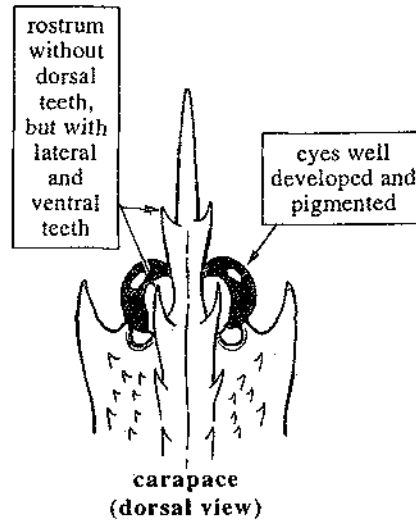
(plate II, 12)

FAO names: En - Caribbean lobster;
Fr - Langoustine des Caraïbes;
Sp - Cigala del Caribe.
Common names:

Size: Maximum total length 16 cm;
maximum carapace length 9.4 cm
(males) and 8.2 cm (females).

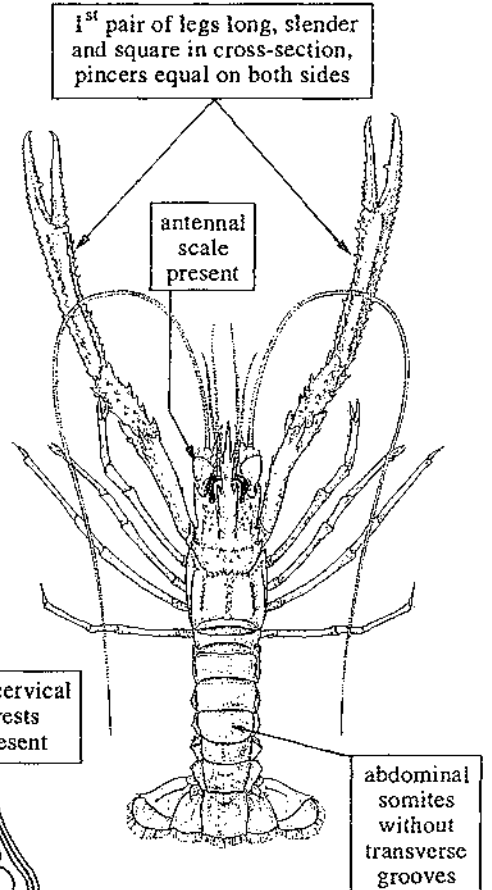
Distribution and habitat: From the Bahamas and southern Florida (USA) to French Guiana, including the Gulf of Mexico and the Caribbean sea. A marine species that has been found on sandy bottoms, sometimes among fragments of coral and shells, between depths of 109 and 703 m, although it is most abundant between 250 and 600 m.

Fisheries: Up to now, only recorded in exploratory trawling operations, especially off Colombia, where it might have some fisheries potential.



carapace pale pink to orange, with 2 transverse white stripes

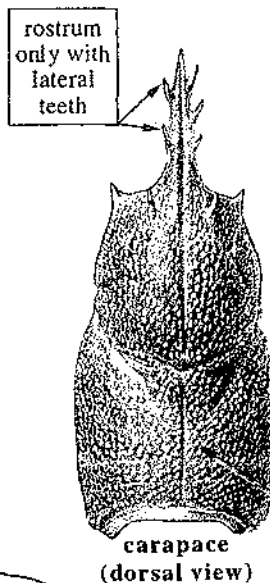
carapace (lateral view)



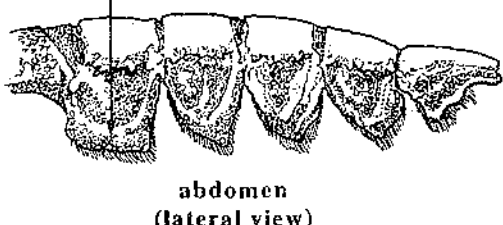
(after Boone, 1927)

Genus *Nephropides*

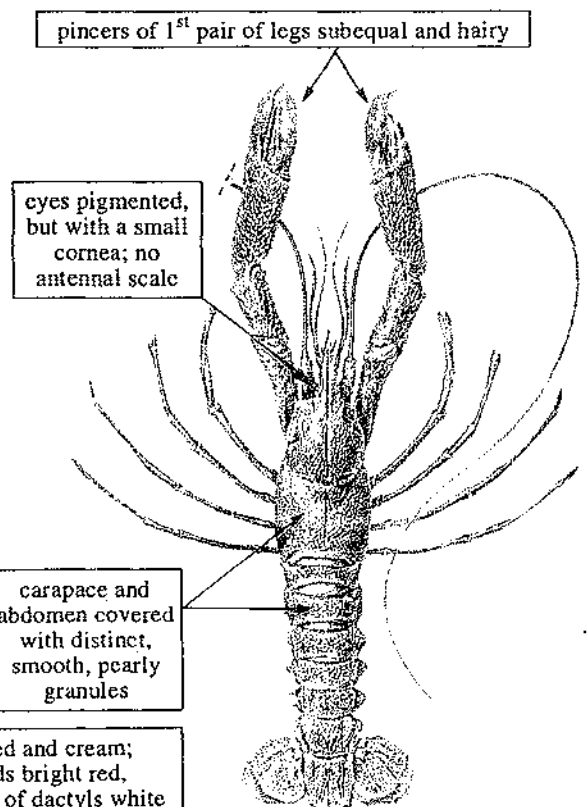
A single species in the area, *Nephropides caribaeus* Manning, 1969, reaching to about 16 cm in length and occurring in deep water (below 500 m depth), and therefore at present of no interest to fisheries.



pleuron of 2nd abdominal somite broad, trapezoid-shaped, with a blunt posteroventral tooth



abdomen (lateral view)



colour red and cream; chelipeds bright red, pubescence of dactyls white

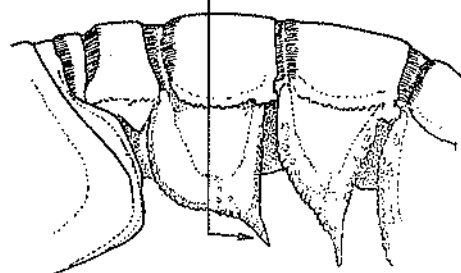
(from Manning, 1969)

Genus *Nephropsis* - 4 species in the area, 2 of interest to fisheries.

antennal scale absent; eyes very small, unpigmented

pincers of 1st pair of legs equal, strong and hairy

pleuron of 2nd abdominal somite with a long, sharp posteroventral tooth

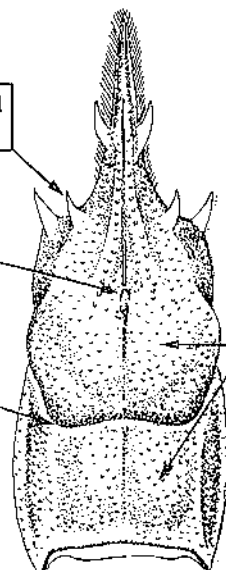


abdomen (lateral view)

supraorbital spine

gastric tubercle

cervical groove



carapace (dorsal view)

body hairy, covered with granules, but not with pearly tubercles

Nephropsis aculeata Smith, 1881

FAO names: En - Florida lobsterette; Fr - Langoustine de Florida; Sp - Cigala de Florida.

Common names:

Size: Maximum total length 10 cm; maximum carapace length 6.8 cm (males) and 6.5 cm (females).

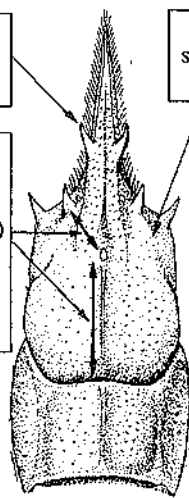
Distribution and habitat: From New Jersey (USA) to French Guiana, including the Gulf of Mexico and the Caribbean sea. A marine species inhabiting bottoms of mud and fine sand, between depths of about 40 and 1 700 m, but most abundant between 200 and 600 m.

Fisheries: No information is available on the fisheries potential of this species within the area. However, exploratory fishing operations have revealed the existence of exploitable populations (outside our area).

rostrum with one pair of lateral teeth

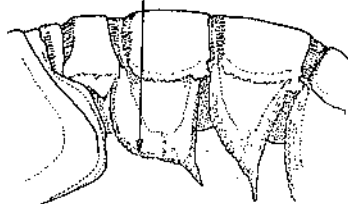
no post-supraorbital spine

distance between gastric tubercle and supraorbital spine half (or less) the distance between gastric tubercle and cervical groove

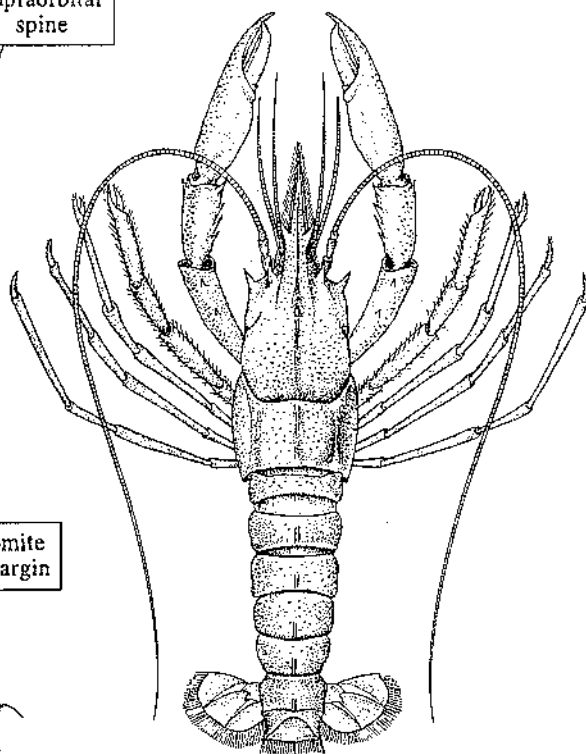


carapace (dorsal view)

pleuron of 2nd abdominal somite without spines on anterior margin



abdomen (lateral view)



colour pale orange to orange brown, with a longitudinal white band

***Nephropsis agassizii* A. Milne Edwards, 1880**

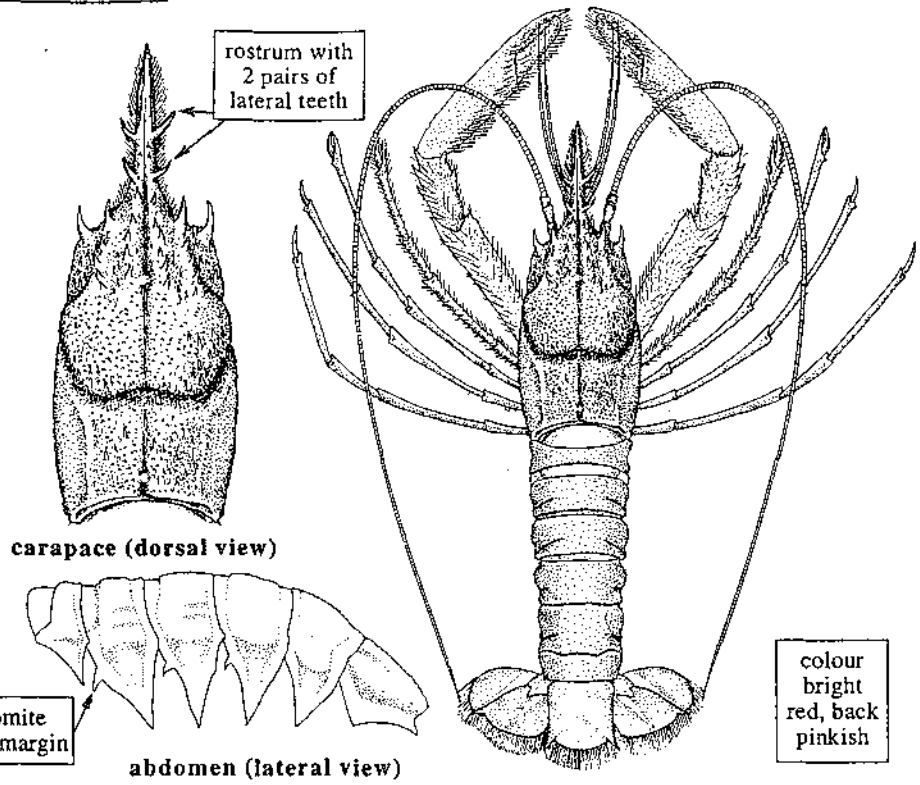
FAO names : En - Prickly lobsterette;
Fr - Langoustine épineuse; Sp - Cigala de grano.

Common names:

Size: Maximum total length 12 cm.

Distribution and habitat: From Massachusetts (USA) and Bermuda to Suriname, including the Gulf of Mexico and the Caribbean sea. Found on bottoms of mud and fine sand, from depths of about 140 to 800 m, but most commonly between 200 and 600 m.

Fisheries: Probably taken in trawl fisheries off French Guiana and Suriname, but nothing is known about its commercial importance. Exploratory fishing operations have revealed the existence of exploitable populations in the Gulf of Mexico.

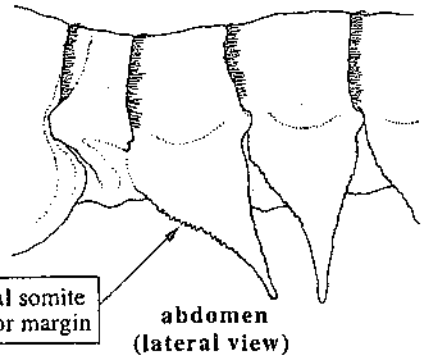


colour bright red, back pinkish

pleuron of 2nd abdominal somite with 1 or 2 spines on anterior margin

Other species:

***Nephropsis neglecta* Holthuis, 1974**, reaching to about 7.5 cm in length and inhabiting sandy bottoms in deep water (between depths of about 650 and 1 230 m). At present of no interest to fisheries.



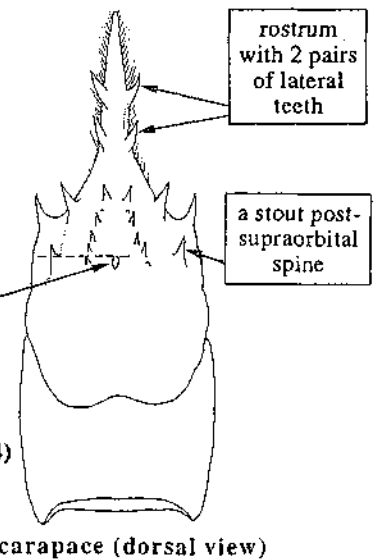
pleuron of 2nd abdominal somite without spines on anterior margin

abdomen (lateral view)

gastric tubercle placed very closely behind post-supraorbital spines

colour red or orange red

(after Holthuis, 1974)

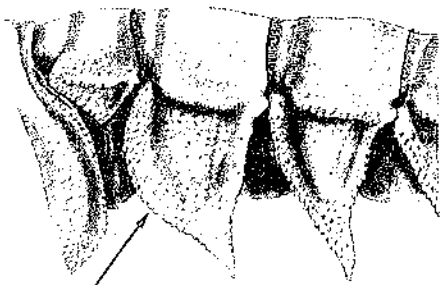


rostrum with 2 pairs of lateral teeth

a stout post-supraorbital spine

carapace (dorsal view)

***Nephropsis rosea* Bate, 1888**, reaching to about 13 cm in length and inhabiting muddy and sandy bottoms between depths of 420 and 1 260 m (most common between 500 and 800 m). Of no interest to fisheries at present, but the results of exploratory fishing suggest that it may become a species of commercial importance in the future.



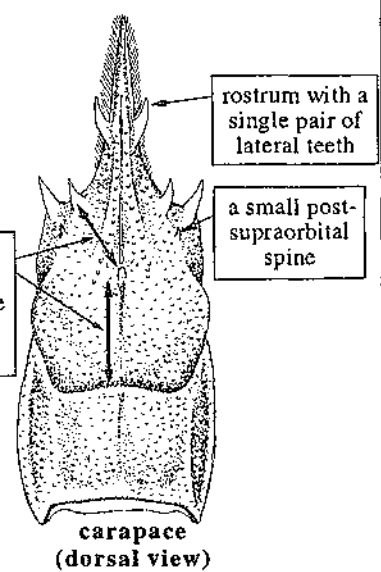
pleuron of 2nd abdominal somite without spines on anterior margin

abdomen (lateral view)

distance between gastric tubercle and supraorbital spine two thirds of distance between gastric tubercle and cervical groove

colour red to orange, paler dorsally

(after Holthuis, 1974)



rostrum with a single pair of lateral teeth

a small post-supraorbital spine

carapace (dorsal view)

PALINURIDAE

Genus *Justitia* - a single species in the area.

Justitia longimanus (H. Milne Edwards, 1837)

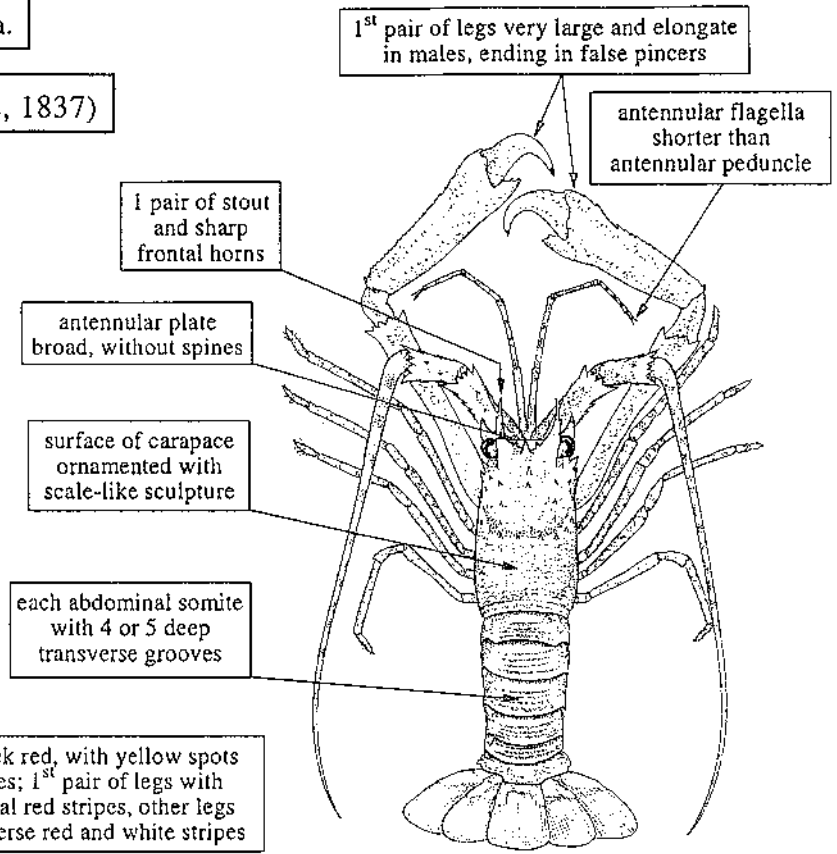
FAO names: En - Longarm spiny lobster; Fr - Langouste des Caraïbes; Sp - Langosta de muelas.

Common names:

Size: Maximum total length 15 cm.

Distribution and habitat: From Bermuda and southern Florida (USA), through most of the Antilles and the Caribbean sea. A marine species that apparently lives in the neighbourhood of coral reefs, between depths of 50 and 100 m.

Fisheries: The only data available come from exploratory fishing operations. Not a common species.



Genus *Palinustus* - a single species in the area.

Palinustus truncatus A. Milne Edwards, 1880

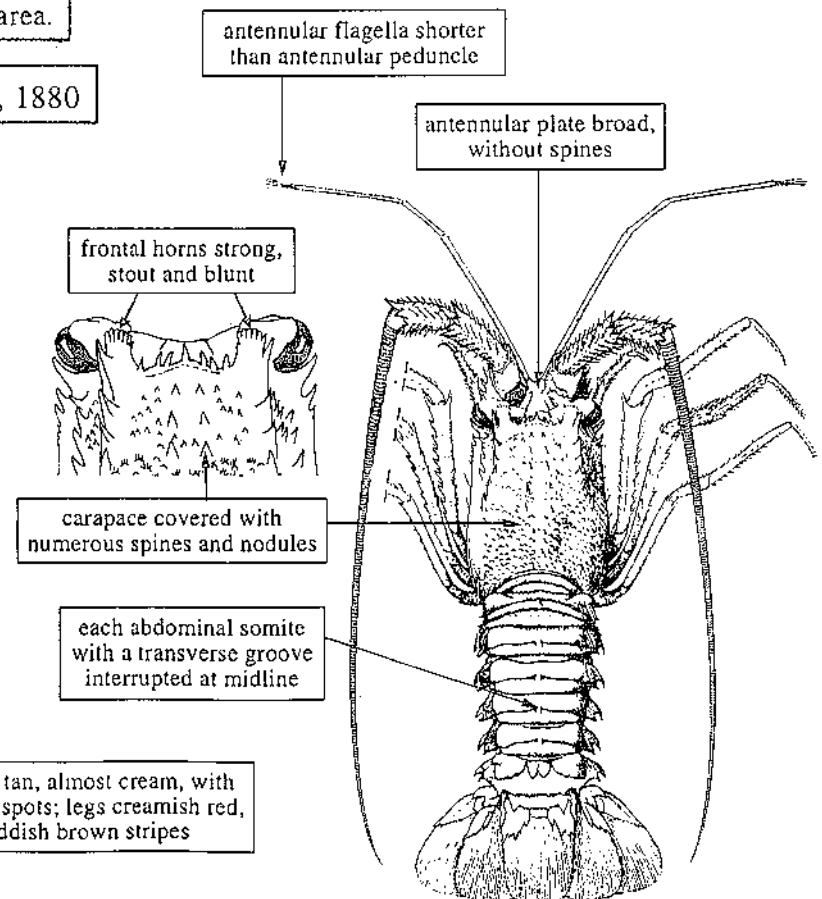
FAO names: En - Blunthorn spiny lobster; Fr - Langouste aliousta; Sp - Langosta ñata.

Common names:

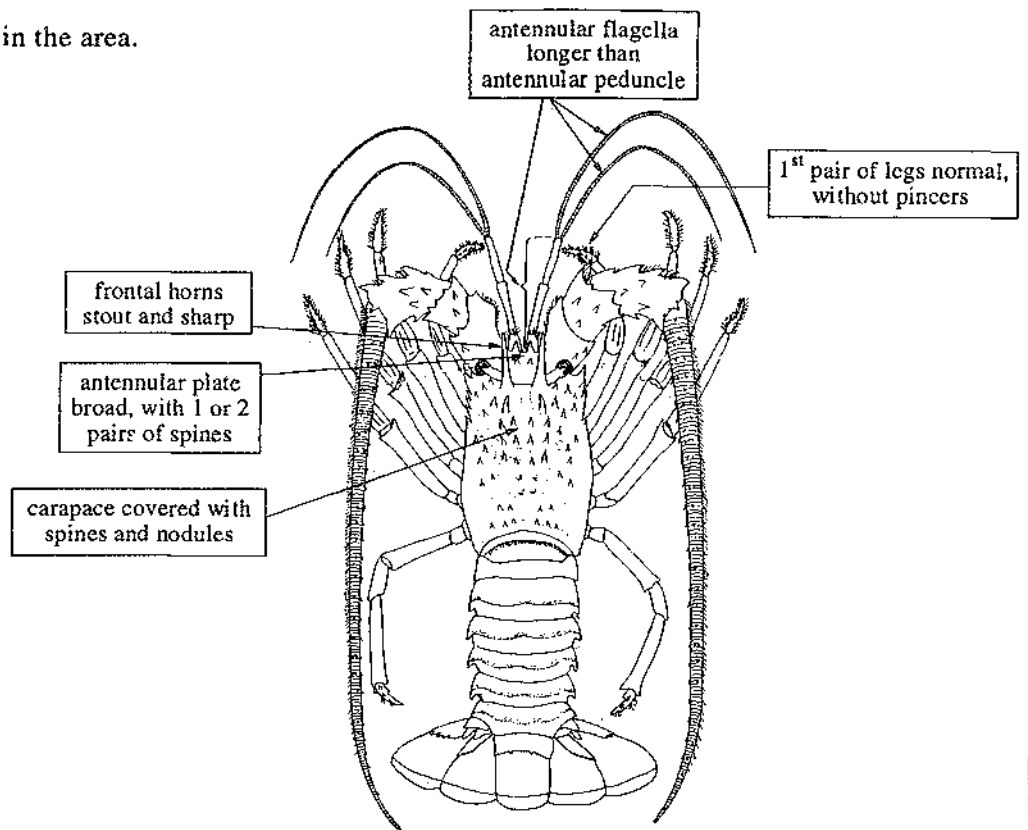
Size: Maximum total length 10 cm.

Distribution and habitat: Carriaco (Grenada), Lesser Antilles, Suriname and Amazon river mouth. A marine species found between depths of 100 and 1 000 m. Habitat unknown.

Fisheries: No information on fisheries. Probably not common.



Genus *Panulirus* - 3 species in the area.



Panulirus argus (Latreille, 1804)

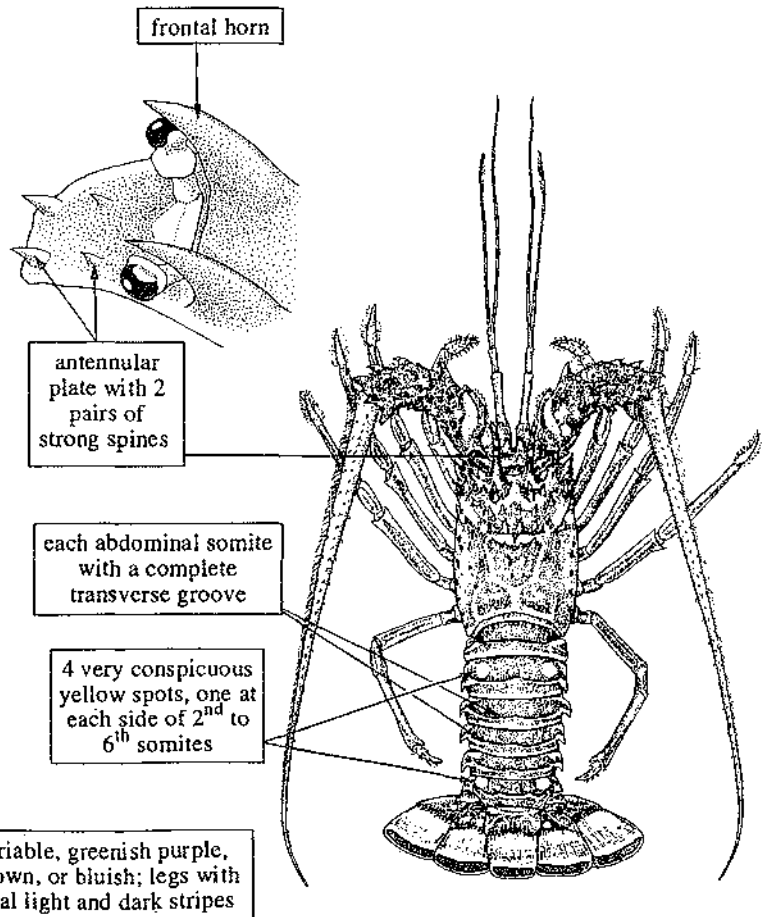
(plate II, 13)

FAO names: En - Caribbean spiny lobster; Fr - Langouste blanche; Sp - Langosta común.
Common names:

Size: Maximum total length 45 cm.

Distribution and habitat: From North Carolina (USA) and Bermuda to Rio de Janeiro (Brazil), including the Gulf of Mexico and the Antilles. A marine species inhabiting shallow waters to a depth of 90 m. Found in sheltered habitats, such as coral reefs or rocky areas.

Fisheries: The most valuable species of lobster in the western Atlantic ocean. It supports important fisheries on coral reef islands of the Caribbean sea. Landings in Venezuela have been estimated at about 800 t (1989). Caught mainly with traps and manually with small nets. Marketed fresh or frozen, much of the production is exported. This species is being cultured experimentally, but so far it has not been possible to produce adults on a commercial scale.



***Panulirus guttatus* (Latreille, 1804)**

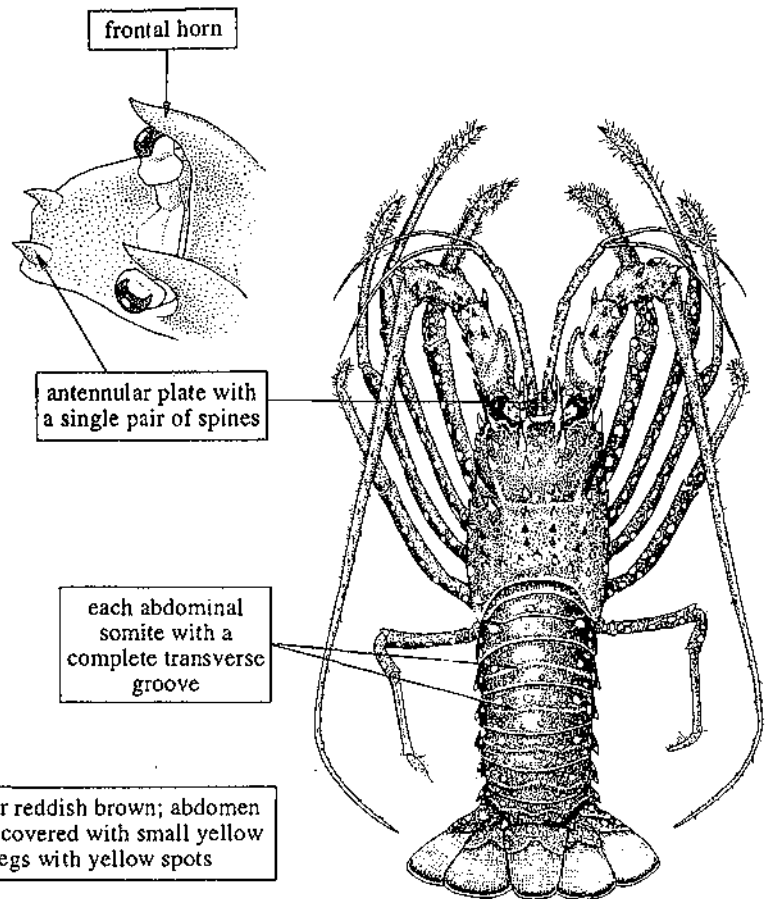
FAO names: En - Spotted spiny lobster;
Fr - Langouste brésilienne; Sp - Langosta moteada.

Common names:

Size: Maximum total length 20 cm.

Distribution and habitat: From Bermuda and Florida (USA) to Brazil, including the Antilles. A marine species inhabiting shallow water among creeks and caves in rocky and coral reef areas.

Fisheries: Caught together with *Panulirus argus*, but of less importance because it is not as abundant and smaller in size.

***Panulirus laeviscauda* (Latreille, 1817)**

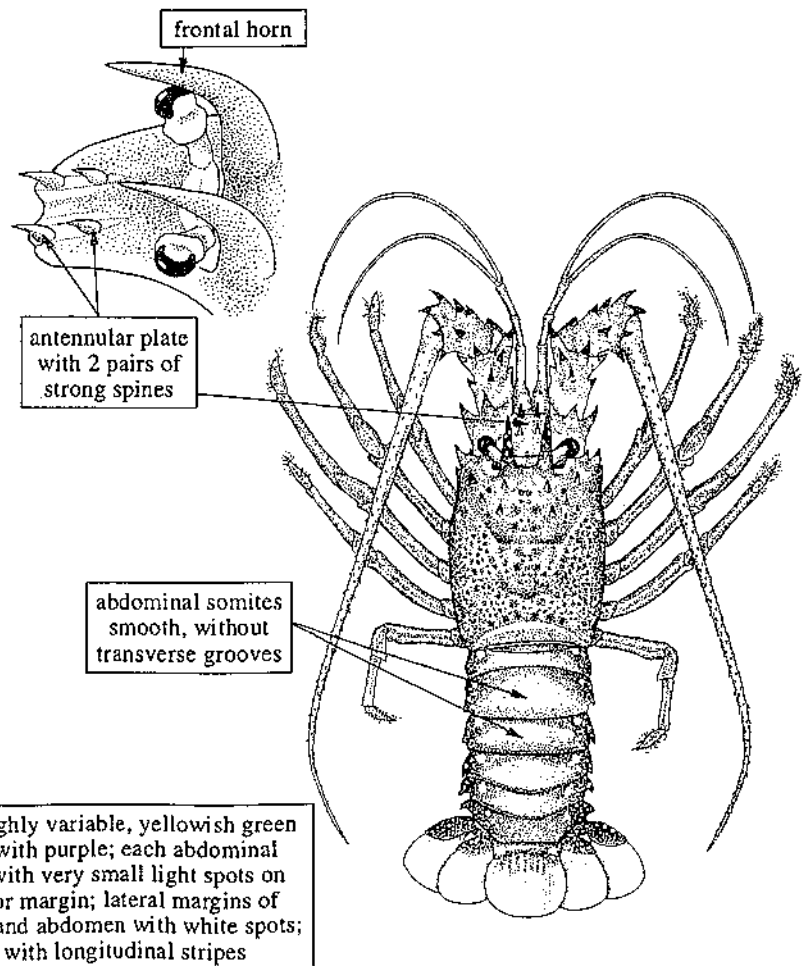
FAO names: En - Smoothtail spiny lobster;
Fr - Langouste indienne; Sp - Langosta verde.

Common names:

Size: Maximum total length 31 cm.

Distribution and habitat: From Bermuda and southern Florida (USA) to the northern coast of Brazil, including probably the entire continental coast of the Caribbean sea and the Antilles. A marine species inhabiting shallow water, in creeks or caves of rocky and coral reef areas.

Fisheries: Caught together with *Panulirus argus*, but of less commercial importance because it is not as abundant and smaller in size.



SCYLLARIDAE

Genus *Parribacus* - a single species in the area.

Parribacus antarcticus (Lund, 1793)

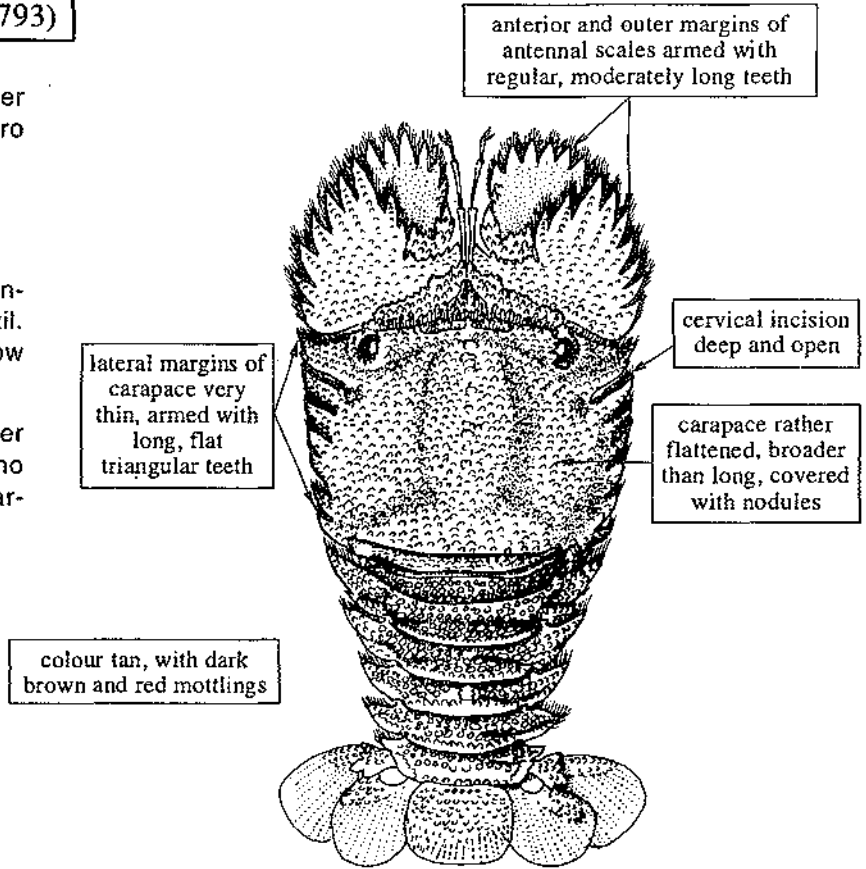
FAO names: En - Sculptured slipper lobster; Fr - Cigale savate; Sp - Cigarro chino.

Common names:

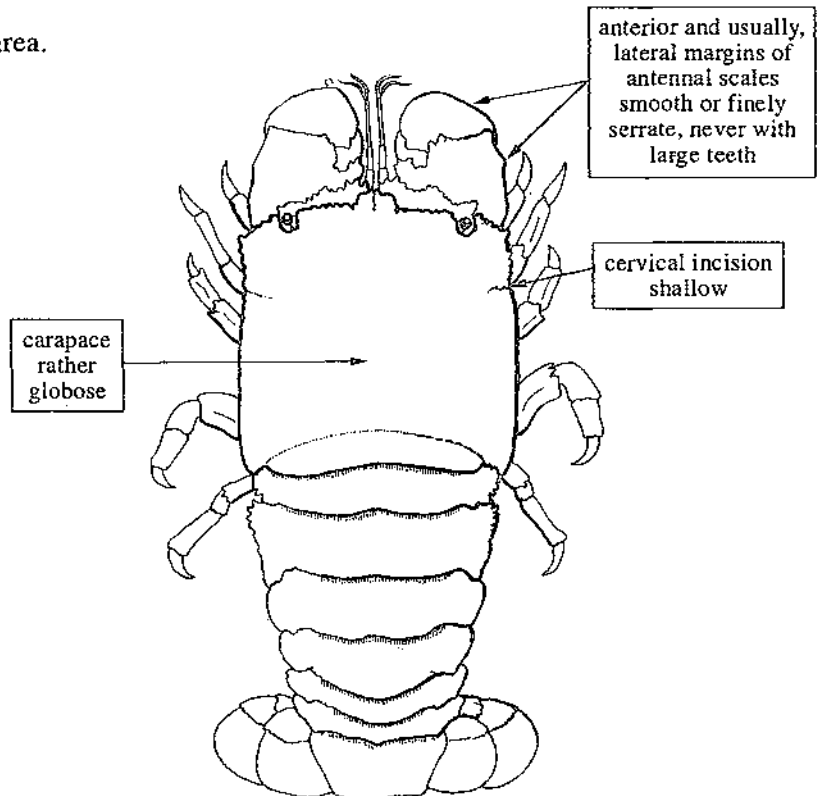
Size: Maximum total length 20 cm.

Distribution and habitat: Western Central Atlantic, from Florida (USA) to Brazil. A marine species occurring in shallow water above a depth of 10 m depth.

Fisheries: Caught incidentally together with *Panulirus argus*, hence there is no organized fishery for this species. Marketed and consumed locally.



Genus *Scyllarides* - 2 species present in the area.



***Scyllarides aequinoctialis* (Lund, 1793)**

FAO names: **En** - Spanish slipper lobster;
Fr - Cigale marie-carogne; **Sp** - Cigarro español.

Common names:

Size: Maximum total length 30 cm.

Distribution and habitat: From Bermuda and South Carolina (USA) through the Gulf of Mexico and the continental coasts of Central America to the northern coast of South America and the Antilles. A marine species occurring mainly in shallow water to a depth of 180 m, predominantly in rocky and coral reef areas.

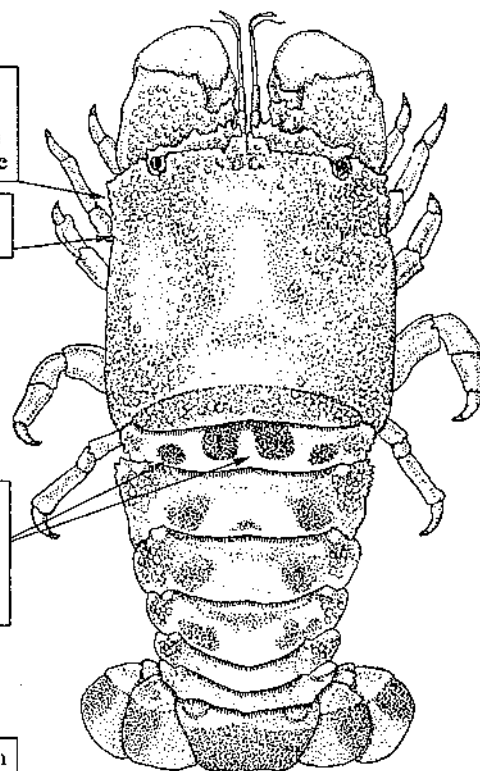
Fisheries: Caught incidentally together with *Panulirus argus* and marketed locally.

lateral margins of carapace not very thin, either smooth or finely denticulate

cervical incision not clearly visible

4 red spots near midline of 1st abdominal somite, the 2 inner ones coalesced dorsally into a horseshoe-shaped blotch

colour highly variable, yellowish brown or orange, with unequal red tubercles and spots

***Scyllarides delfosi* Holthuis, 1960**

(plate II, 14)

FAO names: **En** - Three-spot slipper lobster;
Fr - Cigale à trois taches; **Sp** - Cigarro de tres manchas.

Common names:

Size: Maximum total length 26 cm.

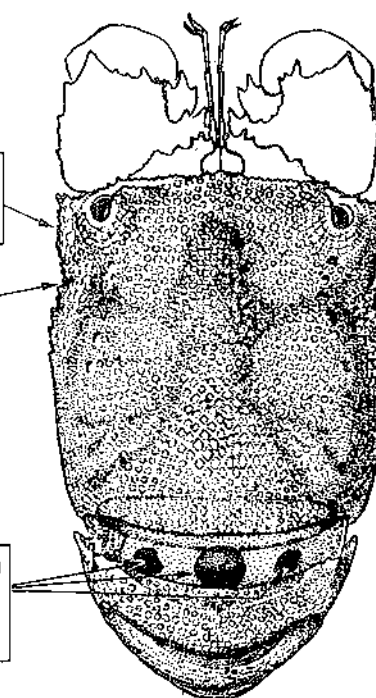
Distribution and habitat: Northern coast of South America, from the State of Sucre (Venezuela) to Brazil. Lives on mud and on shell or coral fragments, from the littoral zone to about 75 m depth.

Fisheries: Taken occasionally in dredges and bottom trawls, but its commercial importance is unknown.

spines on lateral margins of carapace stronger than those on anterior margin

cervical incision well visible

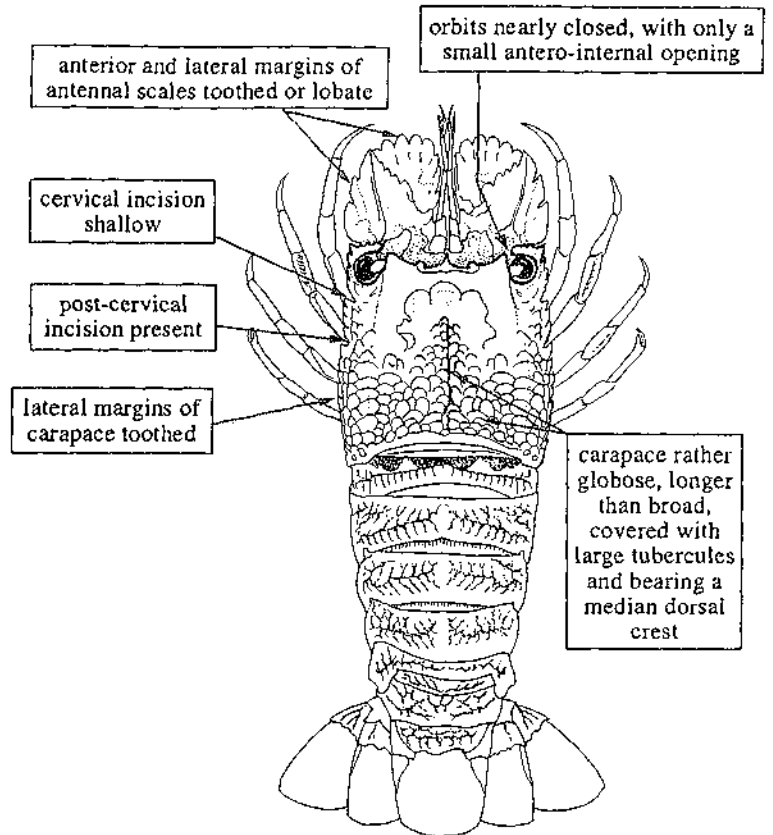
1st abdominal somite with 3 red spots, central spot circular, lateral spots irregular in shape



SCYLLARIDAE

Genus *Scyllarus*

There are 5 species in the area: *Scyllarus americanus* (S.I. Smith, 1869), *Scyllarus chacei* Holthuis, 1960, *Scyllarus depressus* (S.I. Smith, 1881), *Scyllarus faxoni* Bouvier, 1917, and *Scyllarus planorbis* Holthuis, 1969, all too small (less than 8 cm in length) or too rare to be of interest to fisheries.



SYNTAXIDAE

Genus *Palinurellus* - a single species in the area.

Palinurellus gundlachi (Von Martens, 1881)

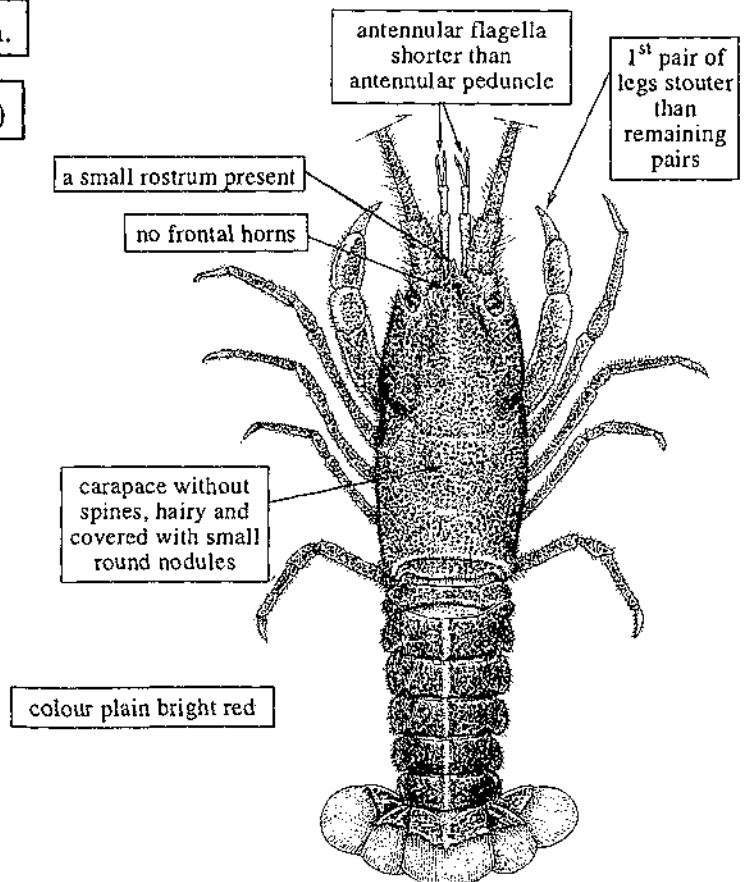
FAO names: En - Furry lobster; Fr - Cacahuète; Sp - Langosteta.

Common names:

Size: Maximum total length 15 cm.

Distribution and habitat: Bermuda, southern Florida (USA) and most of the Antilles. A marine species inhabiting shallow waters, mainly in coral reef areas.

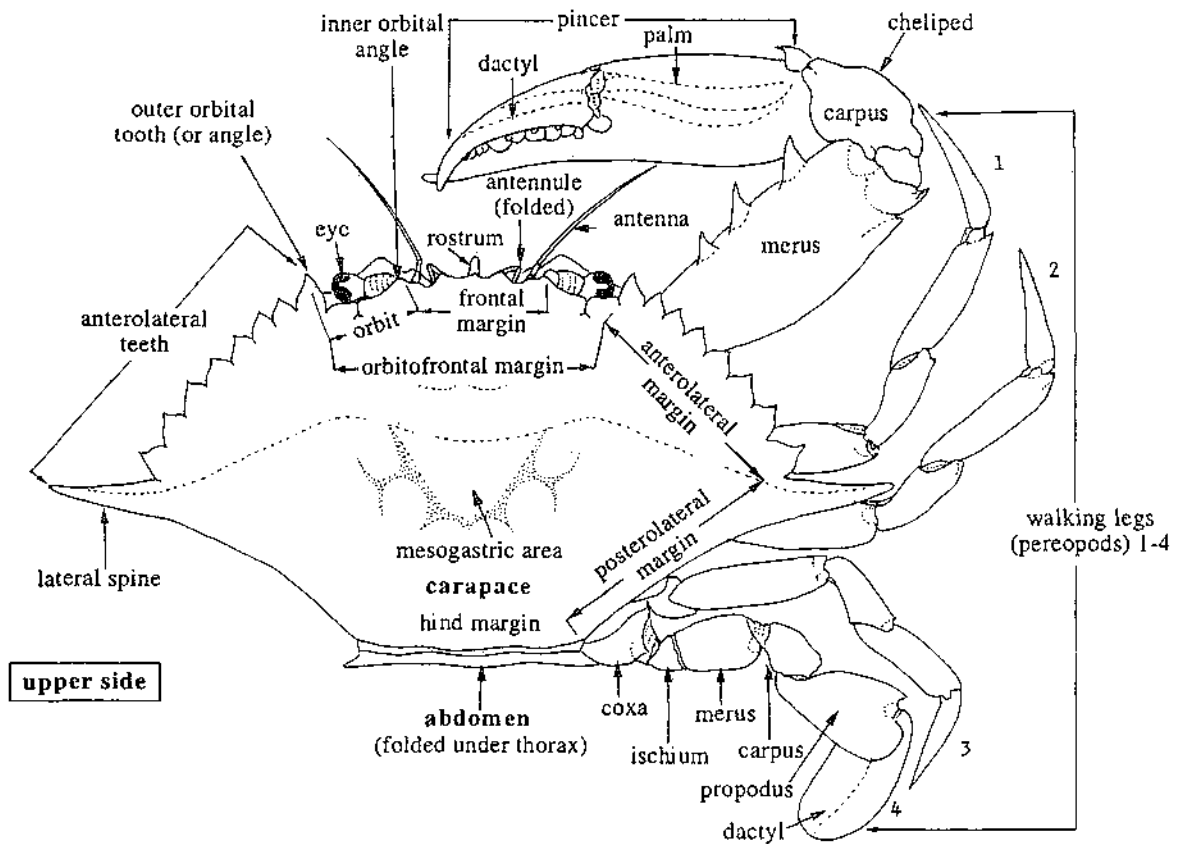
Fisheries: No information available. Apparently not common.



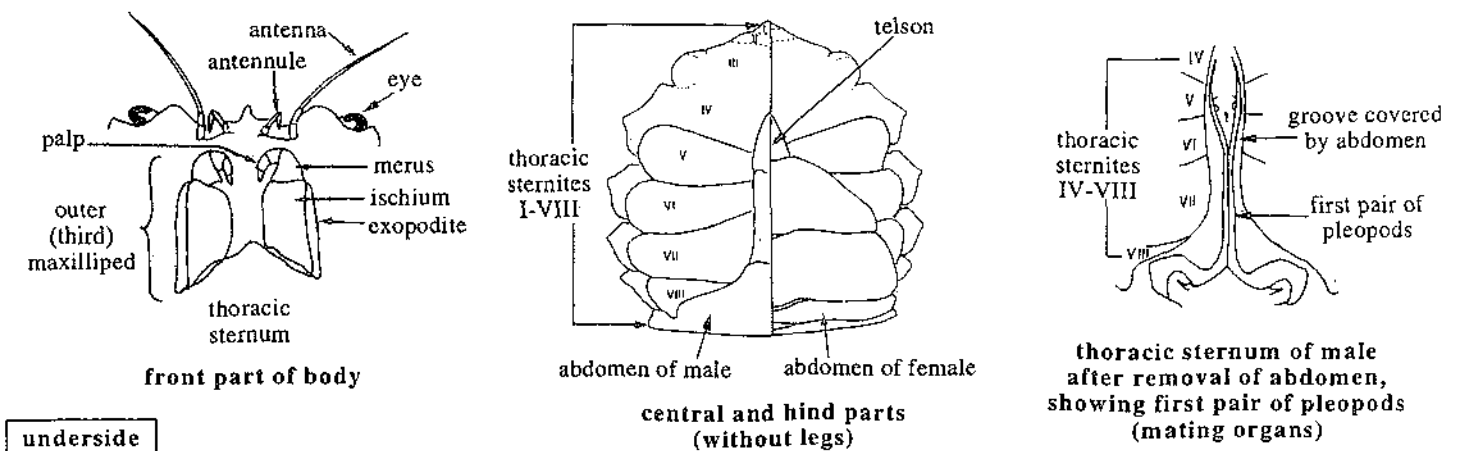
CRABS

Most of the crab species occurring in the area are predominantly potential resources that are scarcely exploited at present. Species occurring on the continental shelf are generally taken as bycatch in the industrial trawl fishery for shrimps, while the littoral and brackish-water species are collected with small nets, traps, and by hand in artisanal fisheries. At present, annual crab landings from the area exceed 6 000 t, and the species most commonly marketed (in particular *Callinectes sapidus*), belong to a single family (Portunidae). However, in the absence of detailed catch statistics by species, it is difficult to make an assessment of the actual commercial importance of each species. Out of the rich crab fauna of the area, at least 23 species belonging to 8 families are known to be currently marketed, or at least consumed locally, and it is probable that this number will increase as a result of the expansion and diversification of regional fisheries activities in the future.

TECHNICAL TERMS AND MEASUREMENTS



(from A. Williams, 1978)



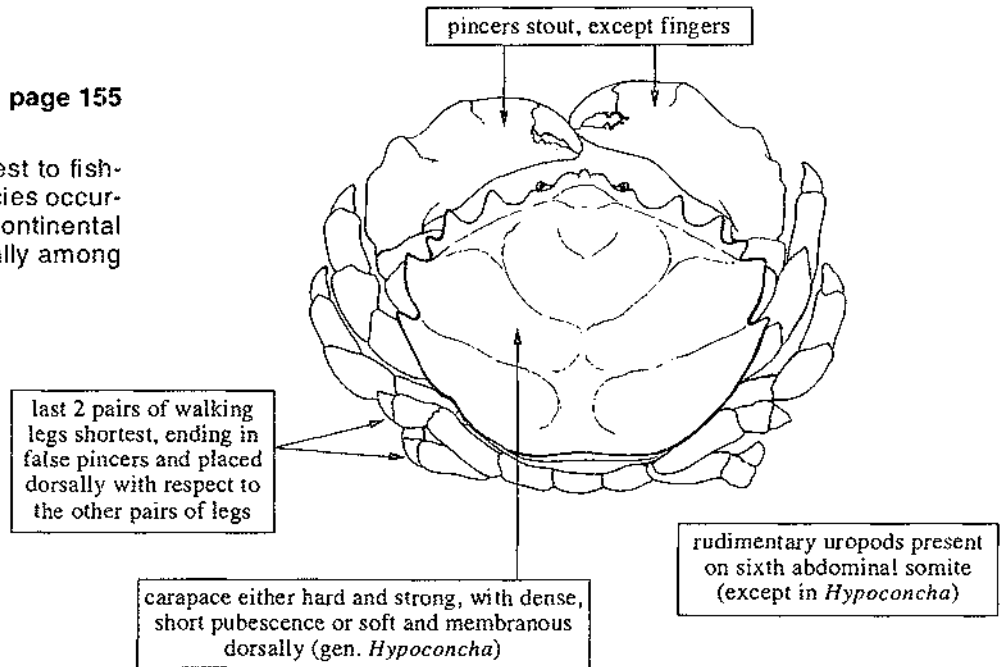
GUIDELINES FOR THE IDENTIFICATION OF FAMILIES

Many of the morphological characters relevant to the identification of crab families are difficult to use without detailed knowledge of the complex anatomy of this group of crustaceans. Assuming that most users of this guide lack specialized training in this field, we decided to simplify the presentation of family diagnoses as far as possible. We hope that these guidelines will nevertheless enable the interested layman to identify correctly at least the 8 families presently known to have species of interest to fisheries.

DROMIIDAE

page 155

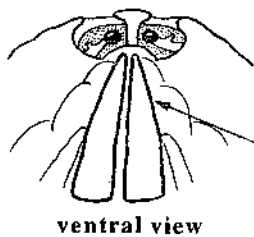
At least one species of interest to fisheries in the area. Marine species occurring in shallow waters of the continental shelf, on rocky bottoms, usually among seaweeds.



CALAPPIDAE

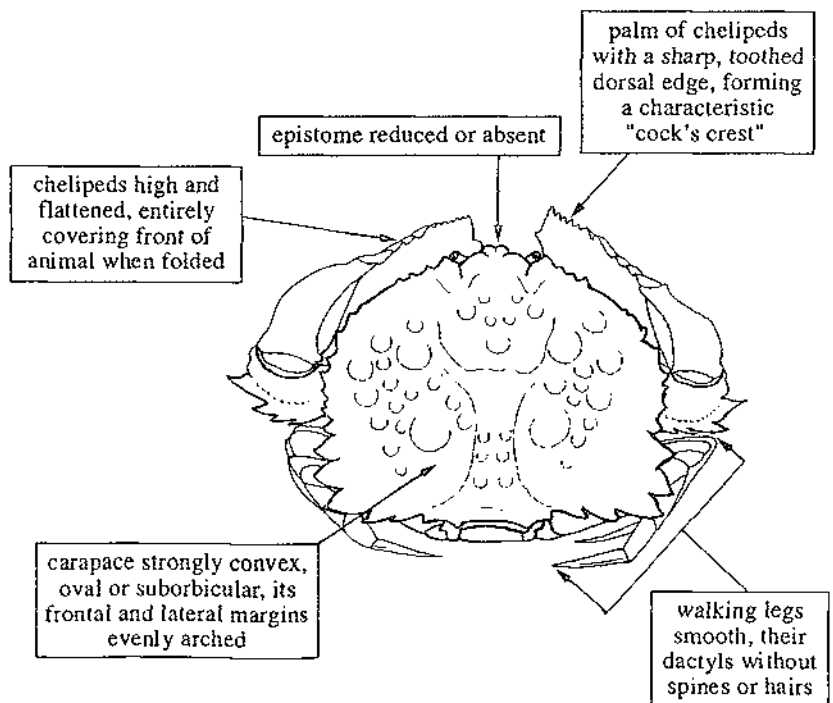
page 153

There are 2 genera and 7 species of interest to fisheries in the area. Marine species, generally found on soft bottoms of the continental shelf.



ventral view

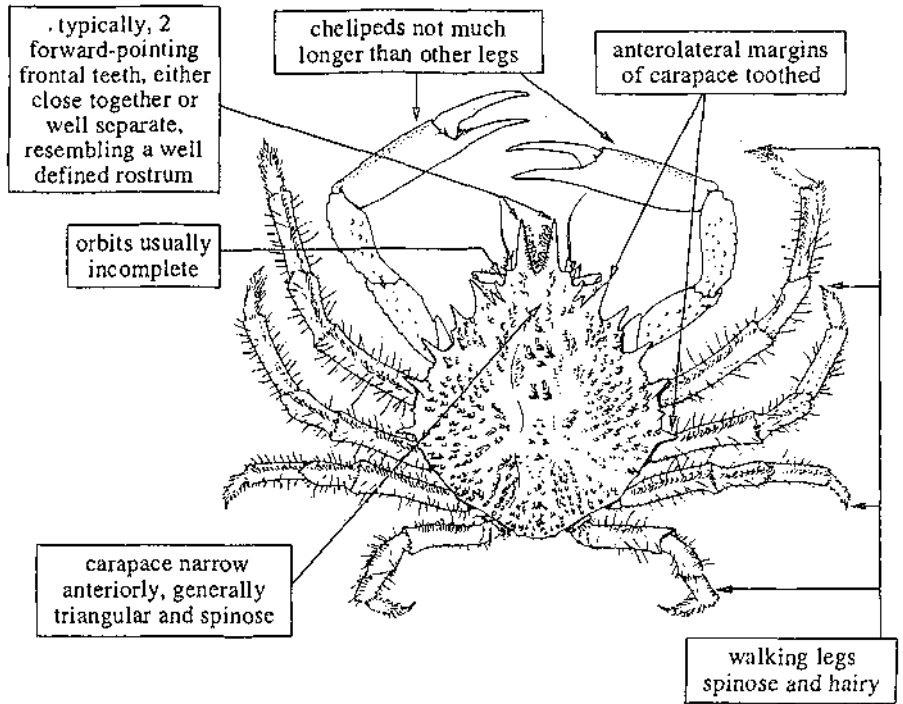
mouth area triangular



MAJIDAE

page 157

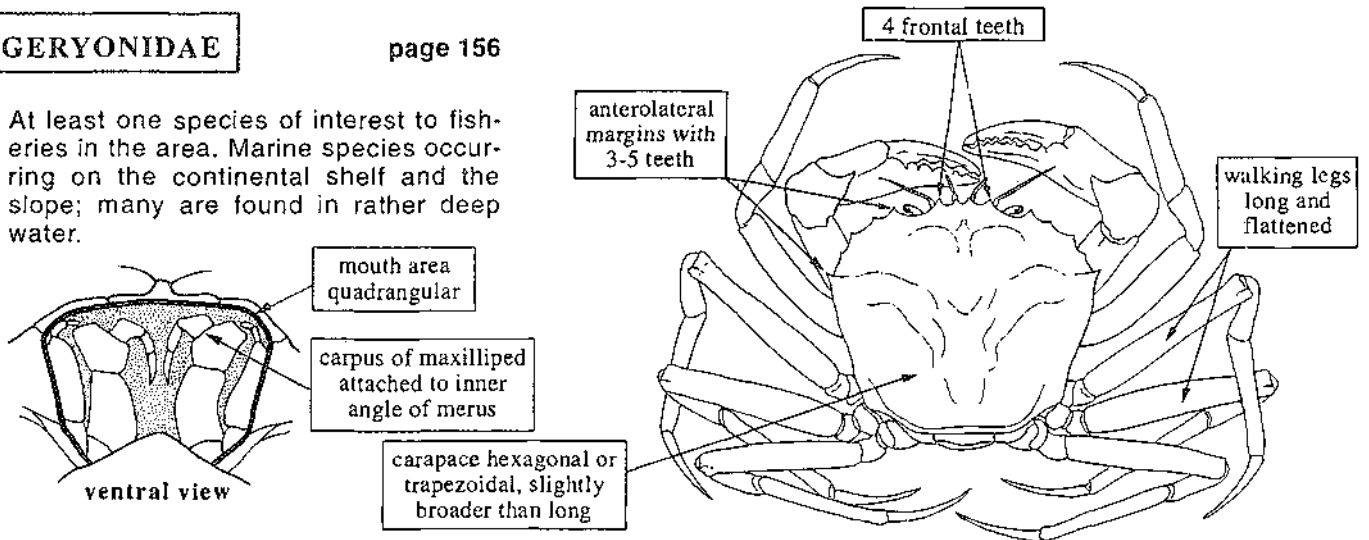
One species of interest to fisheries in the area. Marine species occurring mostly in shallow coastal areas, but some may be found in deeper water, down to the edge of the continental shelf.



GERYONIDAE

page 156

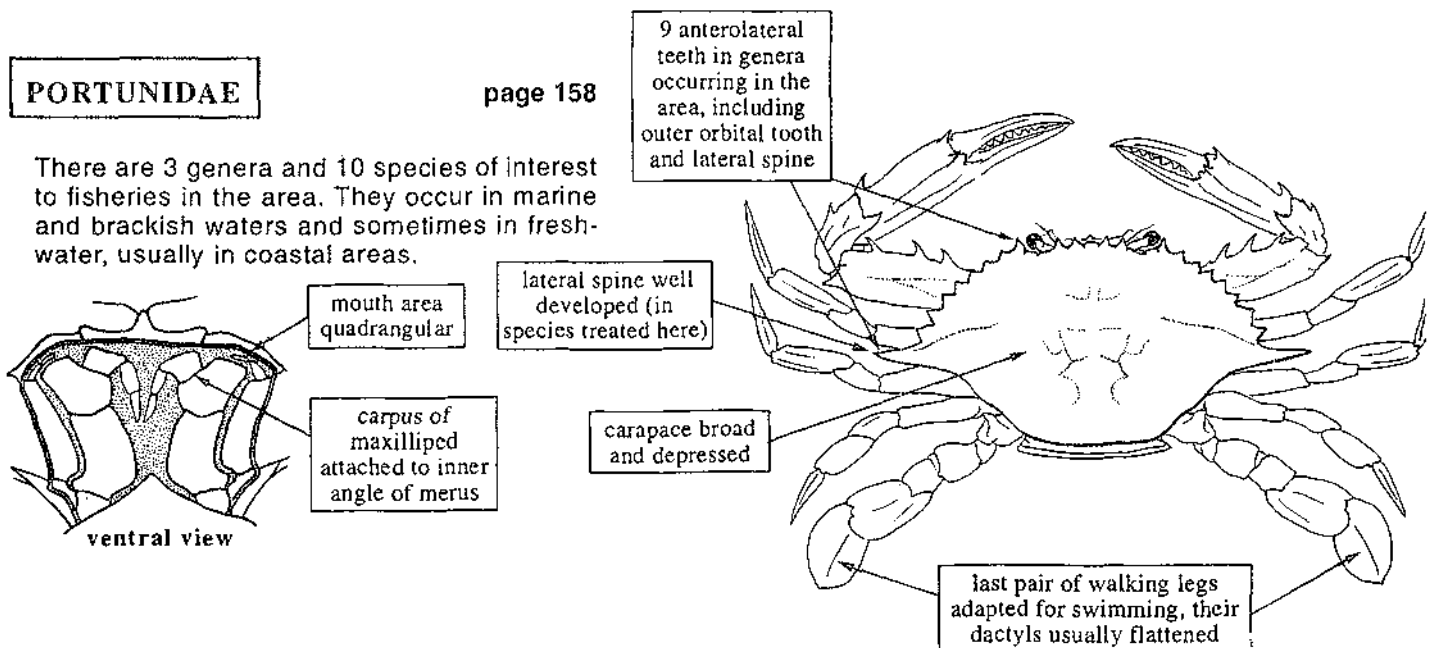
At least one species of interest to fisheries in the area. Marine species occurring on the continental shelf and the slope; many are found in rather deep water.



PORTUNIDAE

page 158

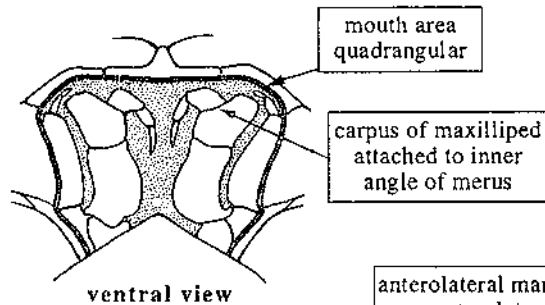
There are 3 genera and 10 species of interest to fisheries in the area. They occur in marine and brackish waters and sometimes in fresh-water, usually in coastal areas.



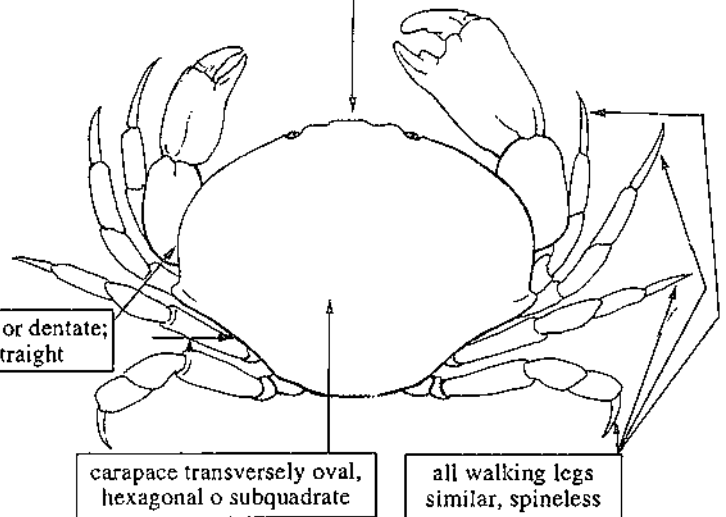
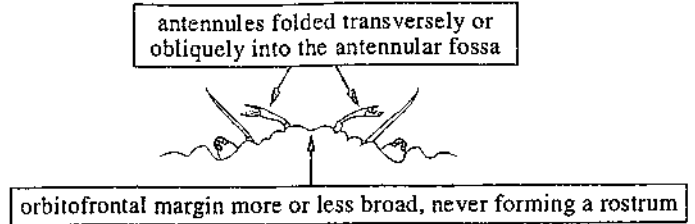
XANTHIDAE

page 169

One species of interest to fisheries in the area. Marine species occurring in shallow marine waters.



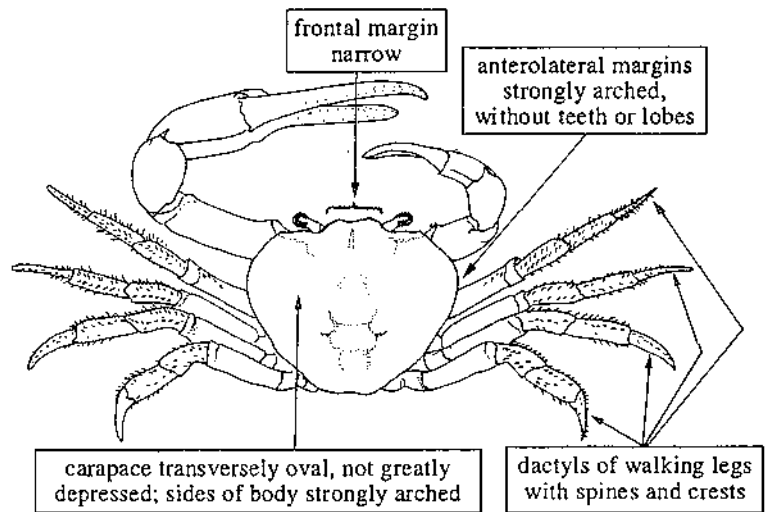
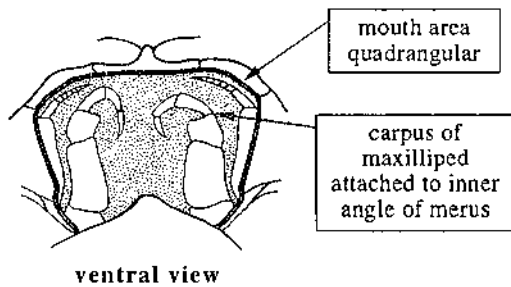
anterolateral margins lobate or dentate; posterolateral margins straight



GECARCINIDAE

page 156

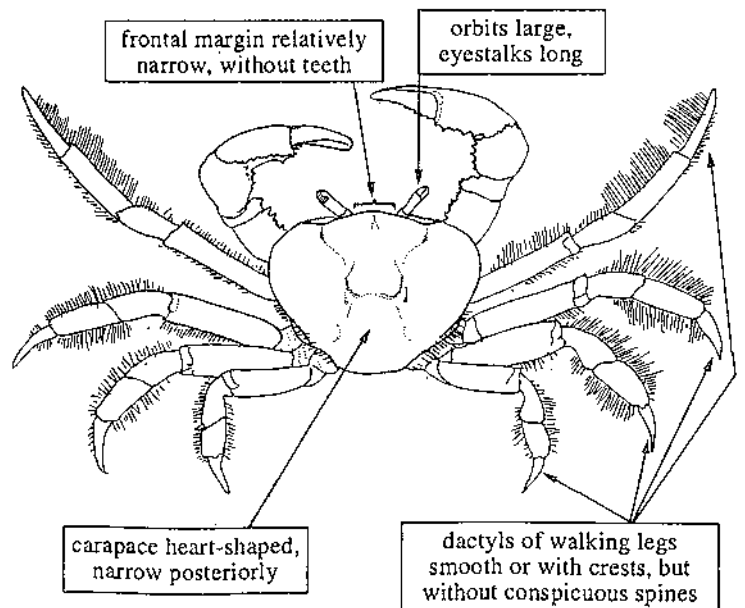
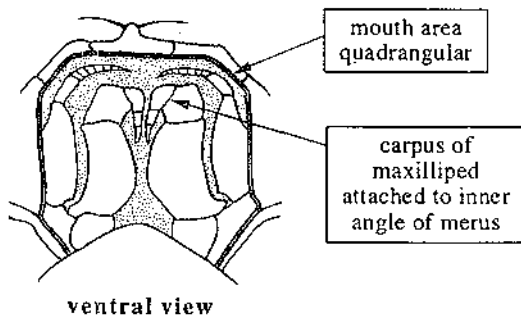
One species of interest to fisheries in the area. Terrestrial species always living in the proximity of water.



OCYPODIDAE

page 157

One species of interest to fisheries in the area. Terrestrial species living in burrows near the coastline.



FAMILIES AND SPECIES OF INTEREST TO FISHERIES

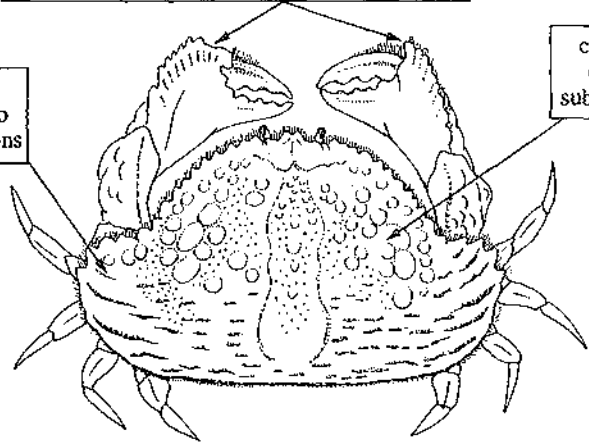
CALAPPIDAE

Genus *Calappa* - at least 5 species of interest to fisheries in the area.

pincers high, short and slightly asymmetric, entirely covering front of body when folded

hind part of carapace expanded at both sides into toothed, wing-like projections

carapace oval or suborbicular



Calappa angusta A. Milne Edwards, 1880

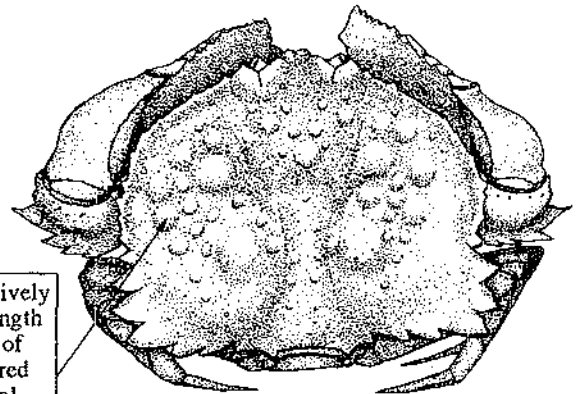
FAO names: **En** - Nodose box crab; **Fr** - Migraine bouclée; **Sp** - Cajeta nodosa.

Common names:

Size: Maximum carapace width at least 4.5 cm (males) and 3.3 cm (females).

Distribution and habitat: From North Carolina (USA) and eastern Gulf of Mexico through the Antilles, Suriname, and French Guiana to Brazil. Lives on soft bottoms, from depths of 15 to about 200 m.

Fisheries: One of the species taken as bycatch in the trawl fishery off Suriname and French Guiana, but there are no data on its commercial importance.



carapace relatively narrow, its length 0.75 to 0.9 of width, covered with unequal, irregularly scattered tubercles and granules

(from Williams, 1965)

carapace yellowish to pale brown; tubercles and granules on carapace and chelipeds red; pubescence a vivid yellowish olive

Calappa flammea (Herbst, 1794)

(plate II, 15)

FAO names: **En** - Flame box crab; **Fr** - Migraine flamboyante; **Sp** - Cajeta llameante.

Common names:

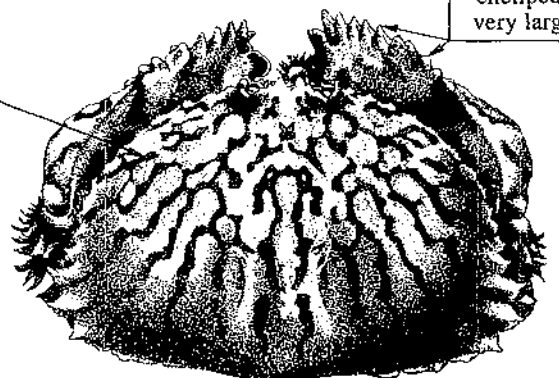
Size: Maximum carapace width about 14 cm.

Distribution and habitat: From Massachusetts (USA) southward, including the Gulf of Mexico, the Antilles, the Guianas, and Brazil. Lives in coastal marine waters, on sandy bottoms to a depth of about 85 m, often buried in the substrate.

Fisheries: One of the species taken in trawl fisheries off Suriname and French Guiana, but there are no data on its commercial importance.

tubercles on chelipeds very large

carapace rather broad, 1.14-1.42 times wider than long, covered with granules and tubercles that are more conspicuous anteriorly and less distinct in large individuals



(from Williams, 1965, after Holthuis, 1958)

carapace grey posteriorly, changing to brownish with white spots anteriorly, sometimes with a pattern of violet streaks, wavy and interlaced anteriorly, oblique and separate posteriorly; outer surface of chelipeds bluish red, inner surface almost white

CALAPPIDAE

Calappa nitida Holthuis, 1958

(plate II, 16)

posterolateral margins of carapace with about 15 very small, more or less serrate tubercles

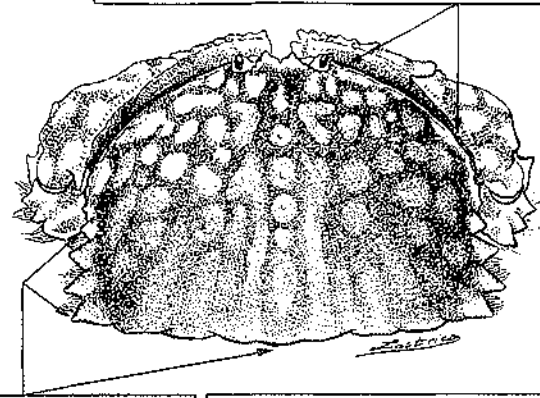
FAO names: En - Ornamented boxcrab; Fr - Migraine ornementée; Sp - Cajeta ornamentada.

Common names:

Size: Maximum carapace width 10 cm.

Distribution and habitat: Only known from Suriname, in coastal marine waters from depths of 10 to about 55 m.

Fisheries: Probably taken together with other decapod species in Suriname, but there are no data on its commercial importance.



anterolateral margins of carapace more or less serrate and with 3-4 large teeth; hind margin toothless

carapace rather broad, with symmetrical series of low, rounded and finely granulose elevations, each surrounded by a purplish ring

Calappa ocellata Holthuis, 1958

FAO names: En - Ocellated box crab; Fr - Migraine ocellée; Sp - Cajeta ocellada.

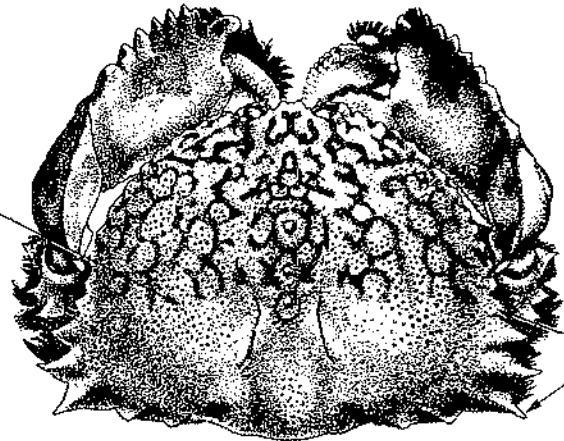
Common names:

Size: Maximum carapace width over 12 cm.

Distribution and habitat: From North Carolina (USA) and Bermuda to Rio de Janeiro (Brazil), including the coasts of the Guianas. Lives on soft bottoms to a depth of about 80 m.

Fisheries: One of the species taken by trawl fisheries, but there are no data on its commercial importance.

carapace rather broad, 1.15-1.4 times wider than long, its surface very irregular, with large, dispersed granules; no deep depressions between the hepatic and gastric regions



colour of carapace variable, usually pale green, with wine-red or purple streaks interlacing anteriorly (forming spaces that resemble eyespots), and radial posteriorly

hind margin of carapace toothless centrally

posterolateral teeth very long

(from Williams, 1965, after Holthuis, 1958)

Calappa sulcata Rathbun, 1898

(plate III, 17)

FAO names: En - Yellow box crab; Fr - Migraine jaune; Sp - Cajeta amarilla.

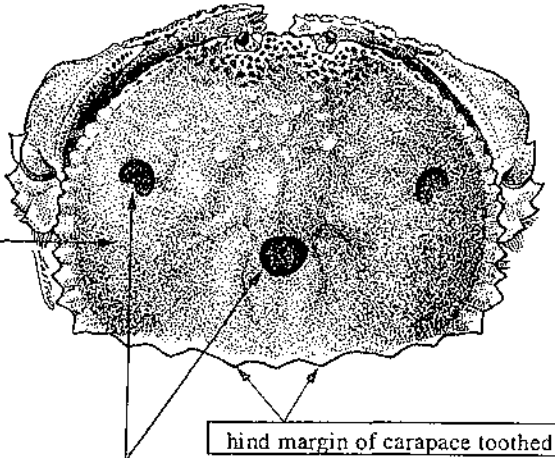
Common names:

Size: Maximum carapace width over 12 cm.

Distribution and habitat: From North Carolina (USA) and the Gulf of Mexico to Sergipe (Brazil). Lives on sandy bottoms to a depth of about 200 m, more common in 40 m.

Fisheries: Taken occasionally in traps together with the Caribbean spiny lobster *Panulirus argus*, and in bottom trawls. Consumed locally, fresh or frozen.

carapace somewhat broader than long, covered with smooth and irregular granules and tubercles



hind margin of carapace toothed

carapace dark cream to pale vermilion and pink, less intense posteriorly; dorsal orbital region dotted with dark vermilion

3 distinct spots on carapace, the central one ochre and enclosing a darker ring, lateral spots consisting of a dark, halfmoon-shaped anterior, and a pale posterior part; in dark cream specimens, these spots are less distinct, but tinged with vermilion

CALAPPIDAE

Genus *Hepatus* - at least 2 species of interest to fisheries in the area.

» carapace much broader than long (hind margin shorter than half of maximum carapace width), its dorsal surface regularly convex; chelipeds nearly symmetrical, without large teeth or protuberances.

Hepatus gronovii Holthuis, 1959

FAO names: **En** - Globose box crab; **Fr** - Migraine globuleuse; **Sp** - Cajeta globosa.

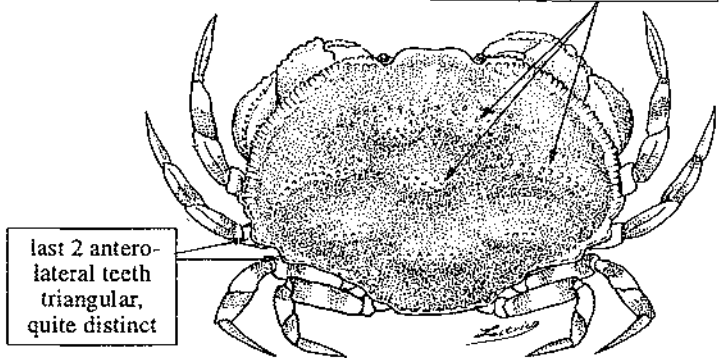
Common names:

Size: Maximum carapace width about 5.5 cm.

Distribution and habitat: French Guiana, on soft bottoms to a depth of at least 30 m.

Fisheries: Caught in exploratory fishing operations off French Guiana. There are no data on its commercial importance. Similar to *H. pudibundus* and probably confused with that species.

carapace greatly swollen, with about 8 rows of very prominent granules



last 2 anterolateral teeth triangular, quite distinct

carapace without distinct spots; legs with reddish brown stripes

Hepatus pudibundus (Herbst, 1785)

FAO names: **En** - Flecked box crab; **Fr** - Migraine pointillée; **Sp** - Cajeta puntillada.

Common names:

Size: Maximum carapace width 8 cm.

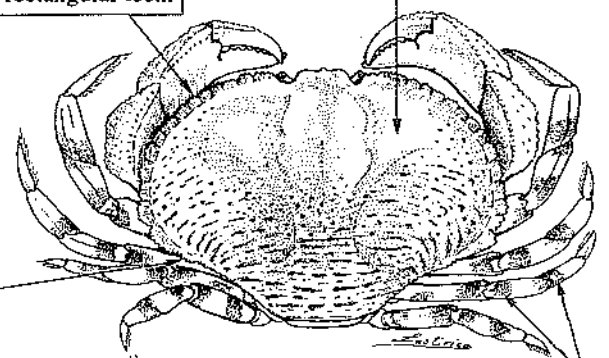
Distribution and habitat: From Georgia (USA) through the Gulf of Mexico and the Caribbean sea, including the Antilles, to Santa Catarina (Brazil). Lives on soft bottoms, from the coastline to a depth of about 50 m.

Fisheries: Doubtless taken as bycatch in trawl fisheries, but there are no data on its commercial importance.

(plate III, 18)

anterolateral margins divided into 12-13 more or less rectangular teeth

carapace almost smooth in adults, with about 8 rows of hardly perceptible granules (well visible in juveniles)



a double crest running along posterolateral margins of carapace

carapace pink to violet, with a diffuse pattern of small, irregular, dark spots; sometimes these spots are elongate, appearing as transverse lines

walking legs with reddish brown stripes

DROMIIDAE

Genus *Dromia* - at least one species of interest to fisheries in the area.

Dromia erythropus (George Edwards, 1771)

FAO names: **En** - Redeye sponge crab; **Fr** - Crabe épongeux; **Sp** - Cangrejo esponjoso.

Common names:

Size: Maximum carapace width about 10 cm.

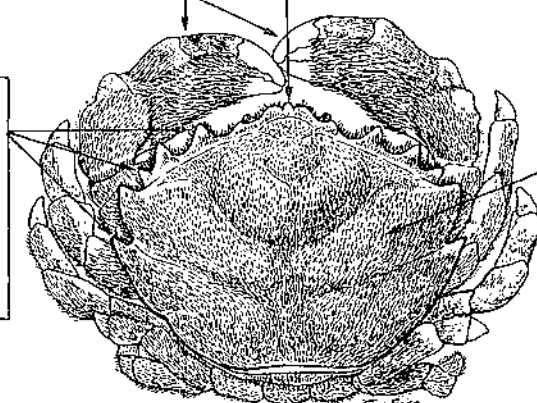
Distribution and habitat: From the Straits of Florida through the Antilles to Brazil. Lives in shallow marine waters, from depths of about 5 to 25 m.

Fisheries: Probably taken in artisanal fisheries together with other crab species, but there are no data on its commercial importance.

orbitofrontal margin with a median, downward-pointing tooth and two others pointing outward

chelipeds strong

anterolateral margins of carapace with 4 broad teeth and a conical tubercle between the 2nd and 3rd tooth



carapace swollen and subdivided into distinct regions by broad, shallow grooves

carapace, chelipeds and walking legs covered with a dense layer of short hair; colour brownish, movable finger of pincers red

GECARCINIDAE

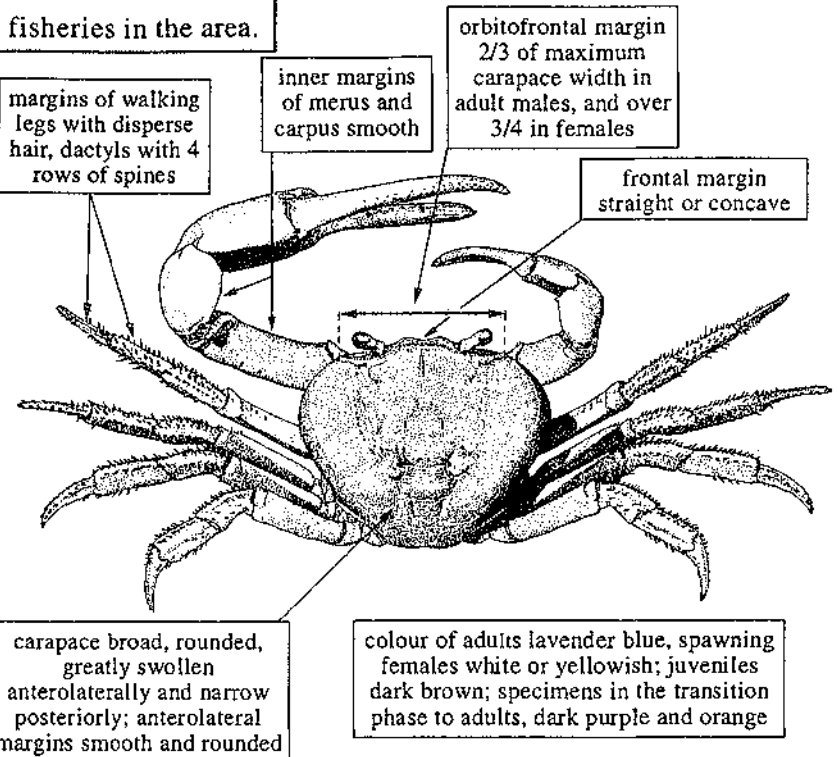
Genus *Cardisoma* - one species of interest to fisheries in the area.

Cardisoma guanhumí Latreille, 1825

FAO names: En - Blue land crab; Fr - Tombou-rou matoutou; Sp - Cangrejo de mangle azul.
Common names:

Size: Maximum carapace width 12 cm (males) and 11 cm (females).

Distribution and habitat: From Bermuda and southeastern Florida (USA) through the Gulf of Mexico and the Antilles to São Paulo (Brazil). A terrestrial species that depends on seawater for the development of its larvae, and therefore it is never found far from the sea or other water bodies. The females deposit their eggs in the sea, where the larval cycle occurs. Lives in very deep burrows (to 1.5 m), in the proximity of rivers, channels, lagoons and other water reservoirs. Feeds on seaweeds and terrestrial plants; also a carrion feeder.



Fisheries: Caught mainly at night. Kept alive and sometimes fed in cages for several days before being processed and exported. Widely marketed in the area, but mostly exported frozen or canned (especially by Colombia and Venezuela). This species is one of the main components of the category "cangrejos" in Venezuelan fishery statistics.

GERYONIDAE

Genus *Chaceon* - one species of interest to fisheries in the area.

Chaceon eldorado Manning and Holthuis, 1989

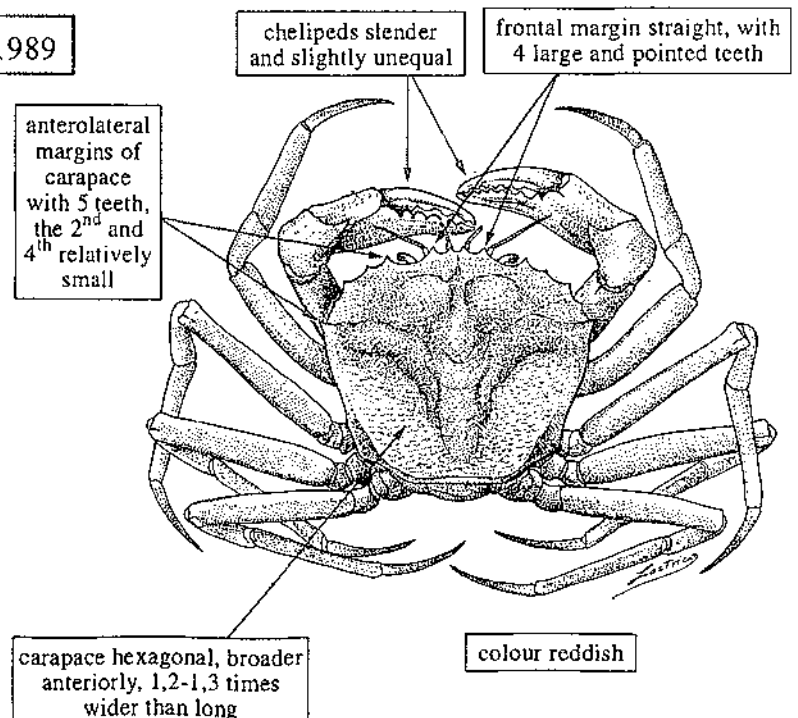
Note: Generally confused with *Geryon quinquedens* Smith, 1879.

FAO names: En - El Dorado shrimp; Fr - Géryon El Dorado; Sp - Cangrejo El Dorado.
Common names:

Size: Maximum carapace width at least 11 cm.

Distribution and habitat: Northern coast of South America, from Colombia to French Guiana. Lives in marine waters from depths of about 530 to 900 m.

Fisheries: Probably taken as bycatch in trawl fisheries; of considerable potential interest in view of its large size.



MAJIDAE

Genus *Mithrax* - about 15 species in the area, of which only one is of interest to fisheries at present.

***Mithrax spinosissimus* (Lamarck, 1818)**

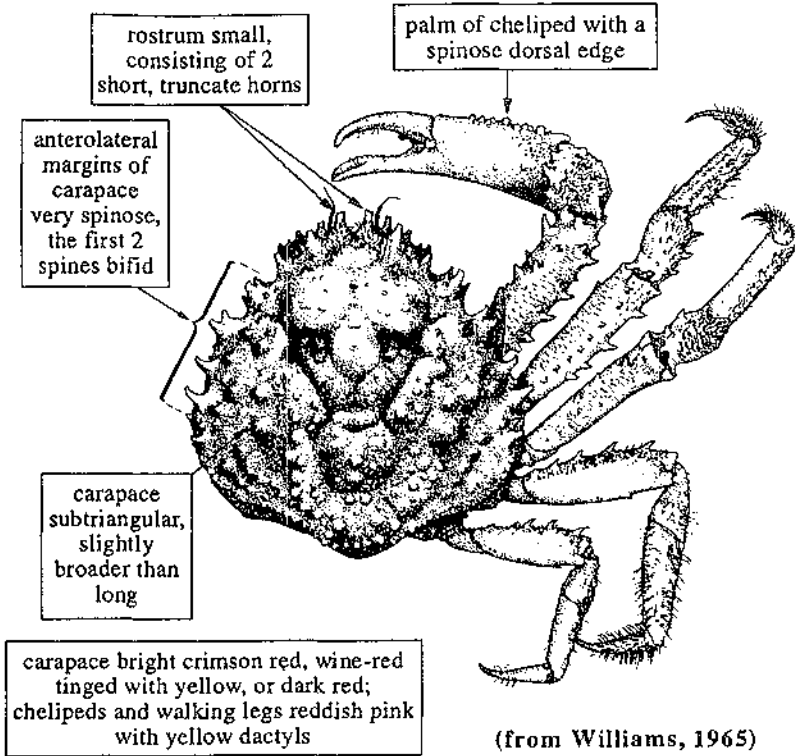
FAO names: En - Channel-clinging crab; Fr - Crabe royal des Caraïbes; Sp - Cangrejo rey del Caribe.

Common names:

Size: Maximum carapace width 14 cm (males) and 11 cm (females).

Distribution and habitat: From South Carolina (USA) through the Gulf of Mexico and the Antilles to Venezuela. A nocturnal species inhabiting shallow marine waters; hides in crevices of coral reefs. Probably feeds mostly on seaweeds. In captivity it becomes omnivorous, and eats algae, fishes (sardines), mollusks, and other invertebrates.

Fisheries: Caught mainly together with the Caribbean spiny lobster *Panulirus argus* in traps or by handnets. In the Caribbean region there have been attempts to cultivate this species, since its large size and excellent taste would make it a valuable substitute for the Alaska king crab.



OCYPODIDAE

Genus *Ucides* - one species known from the area.

***Ucides cordatus* (Linnaeus, 1763)**

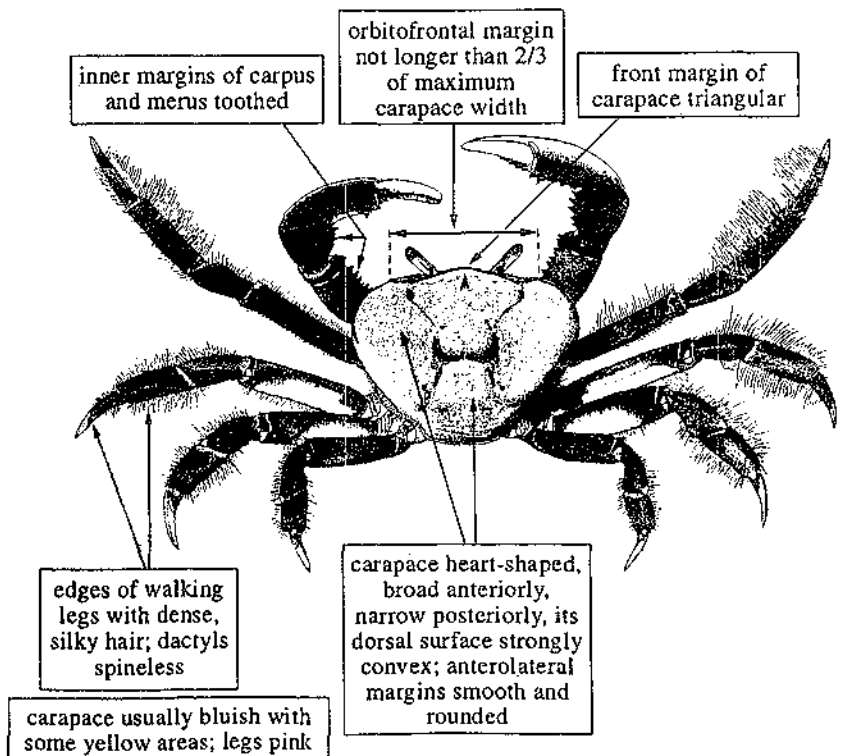
FAO names: En - Ghost crab; Fr - Crabe mantou; Sp - Cangrejo capuco fantasma.

Common names:

Size: Maximum carapace width 10 cm (males).

Distribution and habitat: From Bahamas and southeastern Florida (USA) to Santa Catarina (Brazil), including the Antilles. A terrestrial crab that lives in burrows or holes that are as deep as 70 cm in areas close to the sea or freshwater bodies.

Fisheries: Caught by hand at night. Widely consumed by the indigenous population throughout the northern coast of South America.



PORTUNIDAE

Genus *Arenaeus* - a single species known from the area.

Arenaeus cribarius (Lamarck, 1818)

FAO names: En - Speckled swimcrab; Fr - Crabe cyrique; Sp - Jaiba pintada.

Common names:

Size: Maximum carapace width 15.3 cm.

Distribution and habitat: From Massachusetts (USA) to Santa Catarina (Brazil), including all of the Antilles and the Caribbean sea. Lives in marine waters close to the coastline, at a depth of about 10 m. Very well adapted to areas of strong surf and moving sand; buries in sand during the day, coming out at night. Found along open beaches, but rarely in estuaries. Feeds on detritus, carrion, fish and bottom-dwelling invertebrates.

Fisheries: This species does not support an important fishery, but it is widely consumed locally.

fissures on upper orbital margins open (V-shaped)

carpus of chelipeds with a subterminal spine on inner margin

2 bifid frontal teeth

maximum carapace width more than twice its length

carapace and pincers light reddish brown to olive brown, with numerous white spots; tips of walking legs yellow

Genus *Callinectes* - 7 species of interest to fisheries in the area.

no spine at inner distal angle of carpus of chelipeds

fissures on dorsal orbital margins closed

2-4 simple frontal teeth

chelipeds

abdomen of males T-shaped

carapace without distinct spots

Callinectes bocourti A. Milne Edwards, 1879

FAO names: En - Blunttooth swimcrab; Fr - Crabe chancre; Sp - Jaiba roma.

Common names:

Size: Maximum carapace length 16 cm (males) and 15 cm (females).

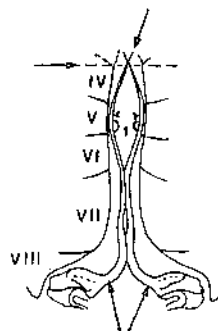
Distribution and habitat: From North Carolina (USA) to the State of Santa Catarina (Brazil), including the Antilles. Very common in Venezuela and Suriname. Inhabits muddy and sandy bottoms. A markedly euohaline species, common in shallow coastal marine waters, river mouths, channels, mangrove areas, and occasionally, freshwater. Also tolerates stagnant and polluted waters.

Fisheries: Of little commercial importance compared to *Callinectes sapidus*; Caught in traps and with handnets and bottom trawls. Marketed mixed with other crabs under the category "jaibas".



pincers (frontal view)

4 triangular frontal teeth, the inner pair slightly smaller, but always longer than half the length of outer pair



1st pair of pleopods in males very long (reaching beyond midpoint of 4th thoracic sternum), wavy and with crossed tips



colour of carapace variable from olive green (females) to reddish (males)

Callinectes danae Smith, 1869

FAO names: En - Dana swimcrab; Fr - Crabe lénée; Sp - Cangrejo sirf.

Common names:

Size: Maximum carapace width 14 cm (males) and 11 cm (females).

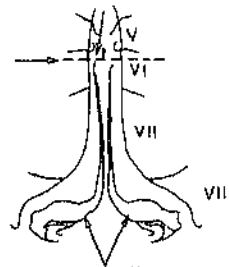
Distribution and habitat: From North Carolina (USA) to the State of Santa Catarina (Brazil), including all of the Antilles. Lives in shallow marine waters on bottoms of sand, mud and shell debris, and in mesohaline areas of river mouths and channels. Feeds on detritus, carrion, fish, and bottom-dwelling invertebrates.

Fisheries: Of little commercial importance compared to *Callinectes sapidus*. Caught in traps and with handnets and bottom trawls. Marketed mixed with other crabs under the category "jaibas".

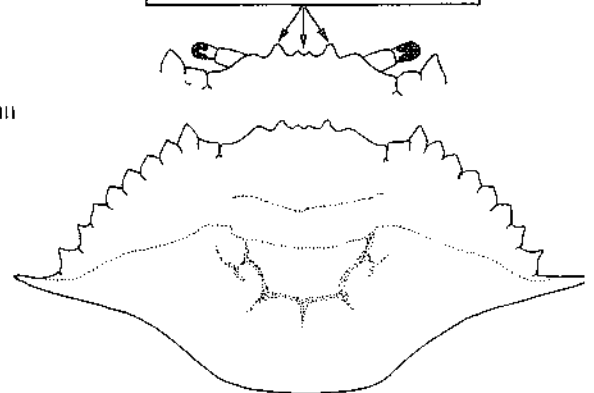


pincers (front view)

4 triangular frontal teeth, the inner pair smaller, always shorter than half the length of outer pair, but never residual



first pair of pleopods in males moderately long, reaching beyond midpoint of sixth thoracic sternite



carapace greyish to bluish, spines olive to indigo red, with white tips

Callinectes exasperatus (Gerstaecker, 1856)

FAO names: En - Rugose swimcrab; Fr - Crabe lirié; Sp - Jaiba rugosa.

Common names:

Size: Maximum carapace width 13 cm (males) and 12.4 cm (females).

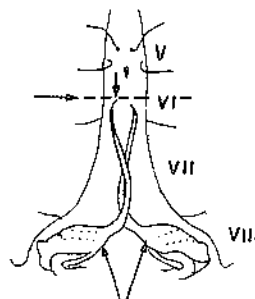
Distribution and habitat: From Bermuda, southern Florida (USA), and the northern coast of the Gulf of Mexico to the State of Santa Catarina (Brazil). Lives on sandy and muddy bottoms in shallow marine and brackish waters. Frequent in lagoons, marshes and mangrove areas.

Fisheries: Of little commercial importance compared with *Callinectes sapidus*. Caught in traps and with handnets and bottom trawls. Marketed mixed with other crabs under the category "jaibas".

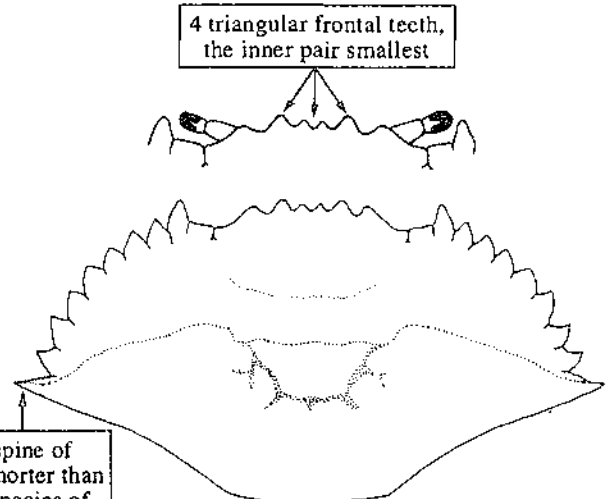


pincers (front view)

4 triangular frontal teeth, the inner pair smallest



1st pair of pleopods in males moderately long, hardly reaching beyond the suture between 6th and 7th thoracic sternites



lateral spine of carapace shorter than in other species of *Callinectes*

dorsal surface of carapace purple red to dark blue (males) or dark green (females)

PORTUNIDAE

***Callinectes larvatus* Ordway, 1863**

Note: Confused for many years with an African species, *C. marginatus* (A. Milne Edwards).

FAO names: **En** - Masked swimcrab; **Fr** - Crabe draguennelle; **Sp** - Jaiba de máscara.

Common names:

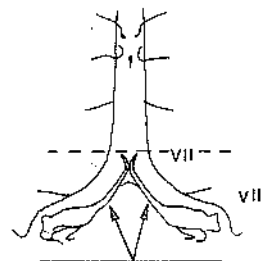
Size: Maximum carapace width 14 cm (males) and 9.5 cm (females).

Distribution and habitat: From Beaufort, North Carolina (USA), Bermuda, and Florida through the Caribbean sea to southern Brazil. A marine and brackish-water species living on muddy and sandy bottoms, seagrass beds, beaches, eroded corals, borders of mangrove areas, and in rock pools, mainly between depths of 5 and 15 m. Occasionally found in freshwater.

Fisheries: Of little commercial importance compared to *Callinectes sapidus*. Caught in traps and with hand-nets and bottom trawls. Marketed mixed with other crabs under the category "jaibas".

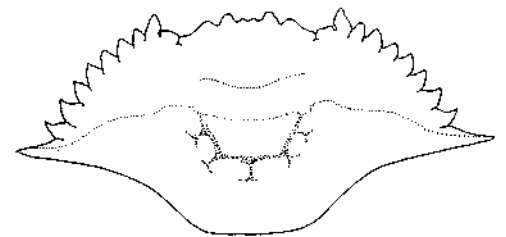
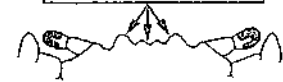


pincers (front view)



1st pair of pleopods in males very short, reaching only to middle of 7th thoracic sternite

4 rounded frontal teeth, the inner pair much smaller



carapace mottled with brown, brownish green or blue to brownish black

***Callinectes maracaiboensis* Taissoun, 1969**

FAO names: **En** - Maracaibo swimcrab; **Fr** - Crabe d'Alaine; **Sp** - Jaiba de Maracaíbo.

Common names:

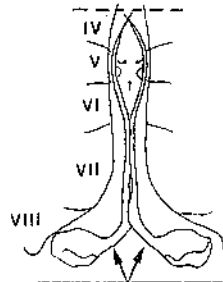
Size: Maximum carapace width 16 cm (males) and 12 cm (females).

Distribution and habitat: Coast of Colombia, Lake Maracaibo, and Gulf of Cuare (Venezuela). Lives on muddy and sandy bottoms in marine and brackish waters, and occasionally, freshwater. Abundant in mangrove areas and river mouths.

Fisheries: Of little commercial importance compared to *Callinectes sapidus*. Caught incidentally in traps. Marketed locally or exported under the category "jaibas".

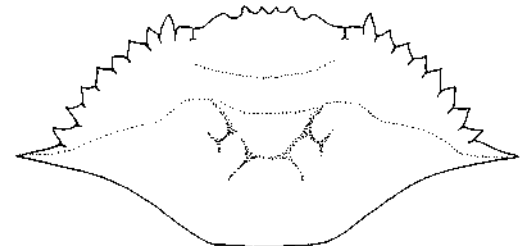


pincers (front view)



1st pair of pleopods in males long (reaching to 1st quarter of 4th thoracic sternite), wavy and with crossed tips

4 triangular teeth, the inner pair smaller, outer pair sharper



carapace olive green tinged with blue and brown (males)

***Callinectes ornatus* Ordway, 1863**

FAO names: **En** - Shelligs crab; **Fr** - Crabe gris; **Sp** - Jaiba gris.

Common names:

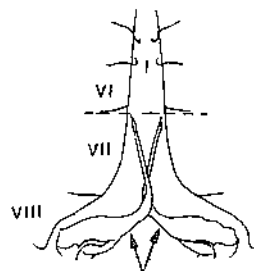
Size: Maximum width of carapace 13 cm (males) and 10.7 cm (females).

Distribution and habitat: From North Carolina (USA) to São Paulo (Brazil), including all of the Antilles. Lives in coastal marine waters on sandy bottoms to a depth of about 40 m and in brackish waters, preferably at temperatures between 26° and 31°C. Feeds on fish, carrion, detritus, and bottom-dwelling invertebrates.

Fisheries: This species is not as common as *Callinectes sapidus*, but it is fished and marketed in the same way.

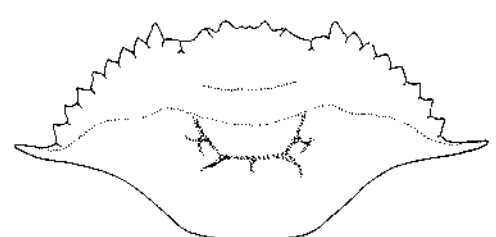


pincers (front view)



1st pair of pleopods in males moderately long, reaching near the suture between 6th and 7th thoracic sternites

4 triangular teeth, the inner pair very small, sometimes residual



carapace greyish green to olive, or pink to brown, spines blue or white

***Callinectes sapidus* Rathbun, 1896**

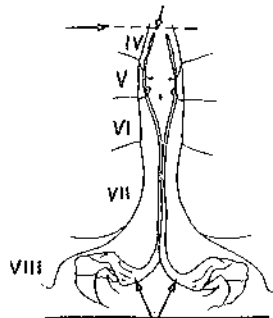
FAO names: En - Blue crab; Fr - Crabe bleu; Sp - Cangrejo azul.

Common names:

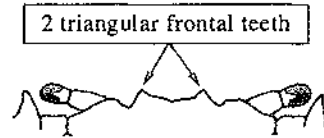
Size: Maximum carapace width 22.7 cm (males) and 20.4 cm (females).

Distribution and habitat: From Nova Scotia (Canada) to northern Argentina, including all of the Antilles and the Caribbean sea. Lives on muddy bottoms in shallow waters. Abundant in channels, mangrove areas, marshes and estuaries. Found in marine and brackish waters and in freshwater. Feeds on a large variety of organisms including fish, oysters, bivalves, and other bottom-dwelling invertebrates; also eats detritus, carrion, and plant material.

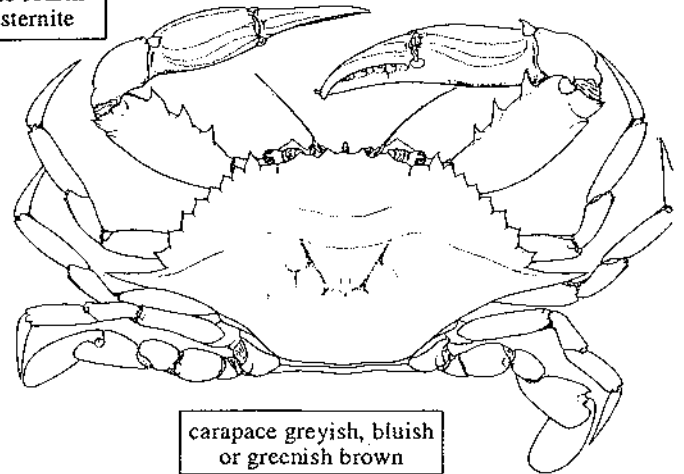
Fisheries: Caught in traps and with handnets and bottom trawls. Sustains an important fishery and is exported fresh or frozen. Represents over 80% of Venezuelan landings of *Callinectes* species and is the commercially most important species of "jaiba" in the area.



first pair of pleopods in males very long, reaching to fourth thoracic sternite

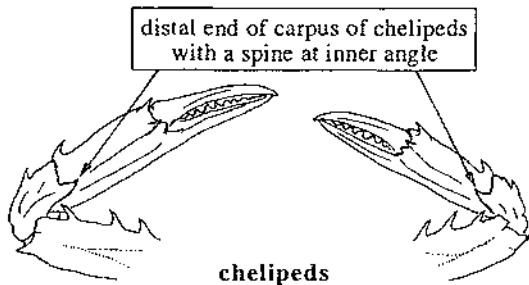


2 triangular frontal teeth



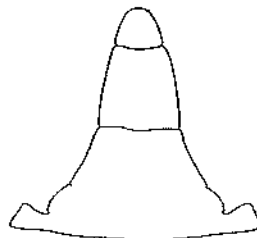
carapace greyish, bluish or greenish brown

Genus *Portunus* - 2 species of interest to fisheries in the area.



distal end of carpus of chelipeds with a spine at inner angle

chelipeds



abdomen of male triangular

inner orbital angles bifid (in species occurring in the area)

4 frontal teeth



***Portunus gibbesii* (Stimpson, 1859)**

FAO names: En - Iridescent swimming crab; Fr - Crabe iridéscent; Sp - Jaiba iridescente.

Common names:

Size: Maximum carapace width over 8 cm.

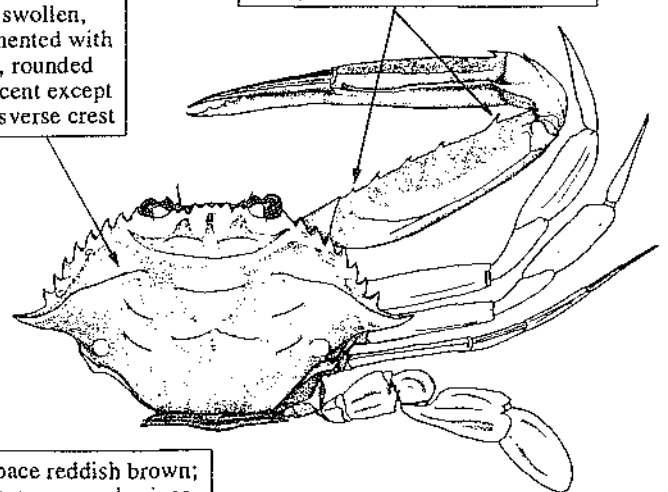
Distribution and habitat: From Massachusetts (USA) and the Gulf of Mexico to French Guiana; absent from the Antilles. Lives in shallow water to a depth of 60 m, on the muddy and sandy bottoms typical of the shrimp trawling grounds.

Fisheries: Caught frequently in bottom trawls in shrimp fisheries.

carapace not swollen, profusely ornamented with rows of small, rounded granules; pubescent except for a naked transverse crest

merus with 4-7 spines on anterior margin and 1 spine at distal end

width of carapace twice its length



ground colour of carapace reddish brown; transverse crests of carapace, and spines and edges of chelipeds crimson red

(from Williams, 1965)

PORTUNIDAE

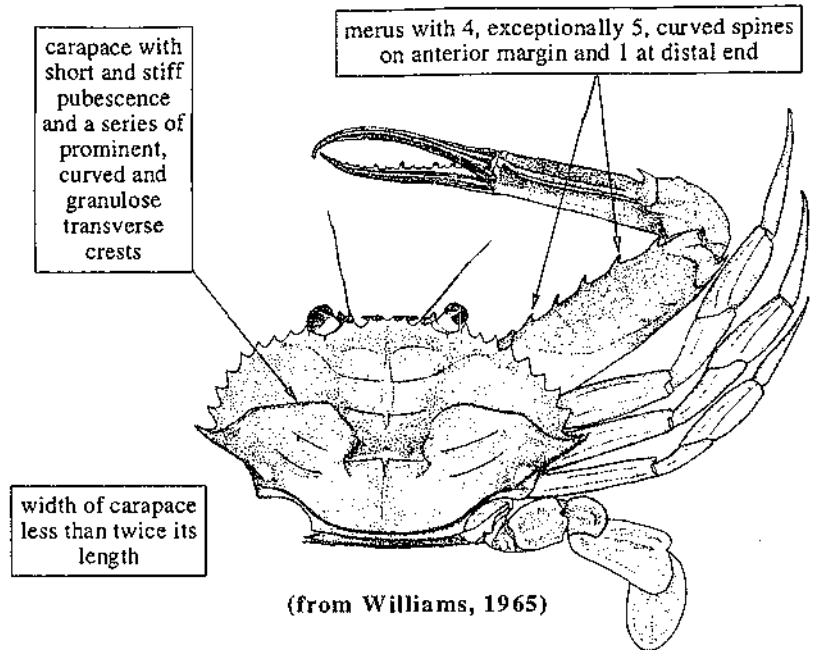
Portunus spinimanus Latreille, 1819

FAO names: En - Blotched swimming crab; Fr - Crabe tacheté; Sp - Jaiba de manchas blancas.

Common names:

Distribution and habitat: From New Jersey (USA) through the Gulf of Mexico, the Antilles, and Suriname to Santa Catarina (Brazil). Lives on sand bottoms and coral reefs, from the intertidal zone to a depth of about 90 m.

Fisheries: Probably taken as bycatch in trawl fisheries and in artisanal fisheries off the Guianas, but there are no data on its commercial importance.



pubescence yellow or pale reddish brown; crests and spines of carapace and chelipeds, fingers of pincers, and tips of walking legs reddish brown; chelipeds with white spots

XANTHIDAE

Genus *Carpilius* - one species of interest to fisheries in the area.

Carpilius corallinus (Herbst, 1783)

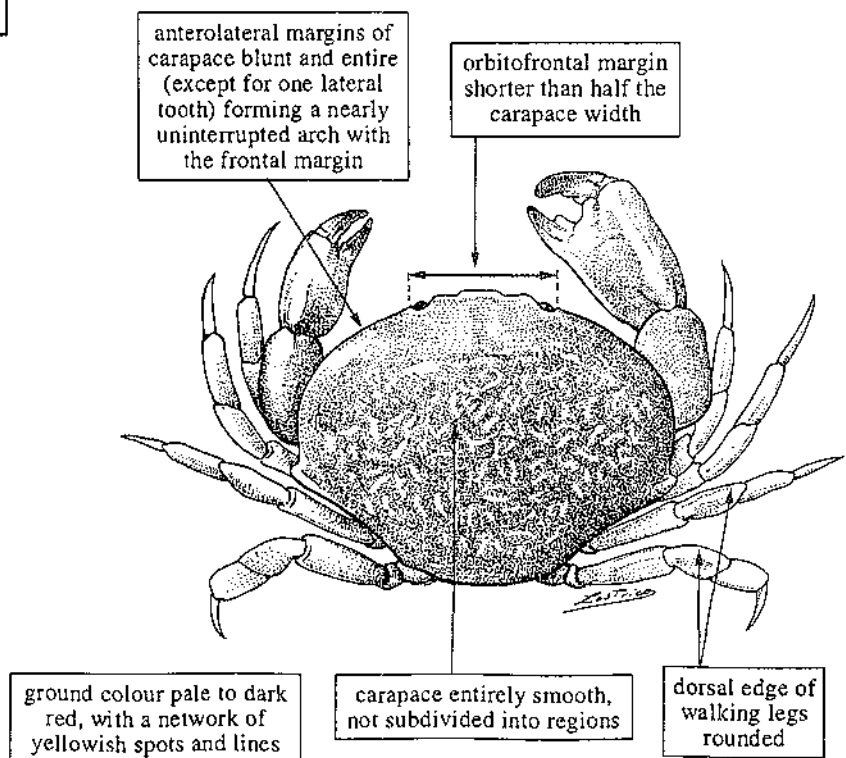
FAO names: En - Batwing coral crab; Fr - Crabe moro; Sp - Cangrejo moro.

Common names:

Size: Maximum carapace length 14.4 cm (males) and 12.2 cm (females).

Distribution and habitat: From Bermuda, Bahamas, and Texas (USA) through the Antilles to Ceará (Brazil). Occurs mainly on coralline bottoms in shallow waters, but is also found on sandy bottoms in deep water.

Fisheries: Caught with nets and in traps together with *Panulirus argus* and also as bycatch in the industrial trawl fishery. Marketed locally fresh or frozen. Attempts to cultivate this species have been initiated in Venezuela, but so far without satisfactory results.



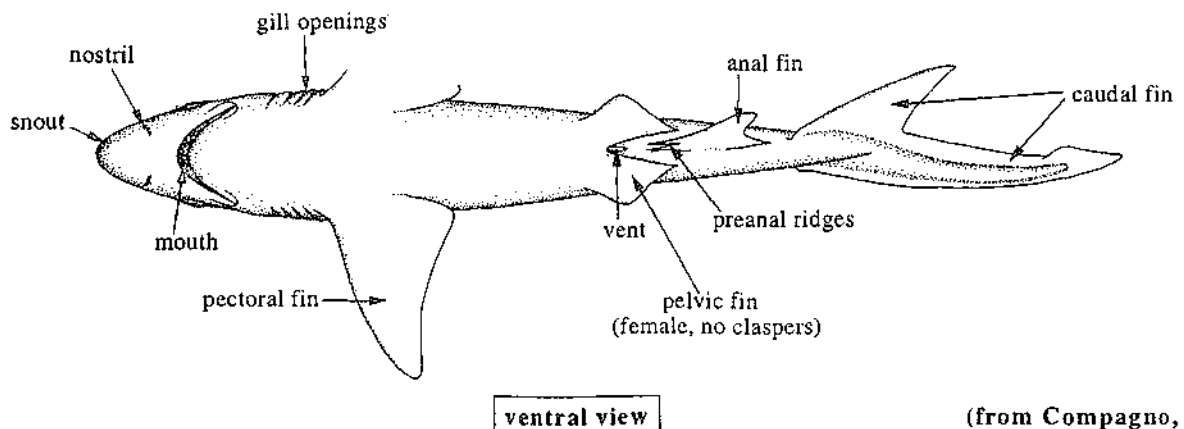
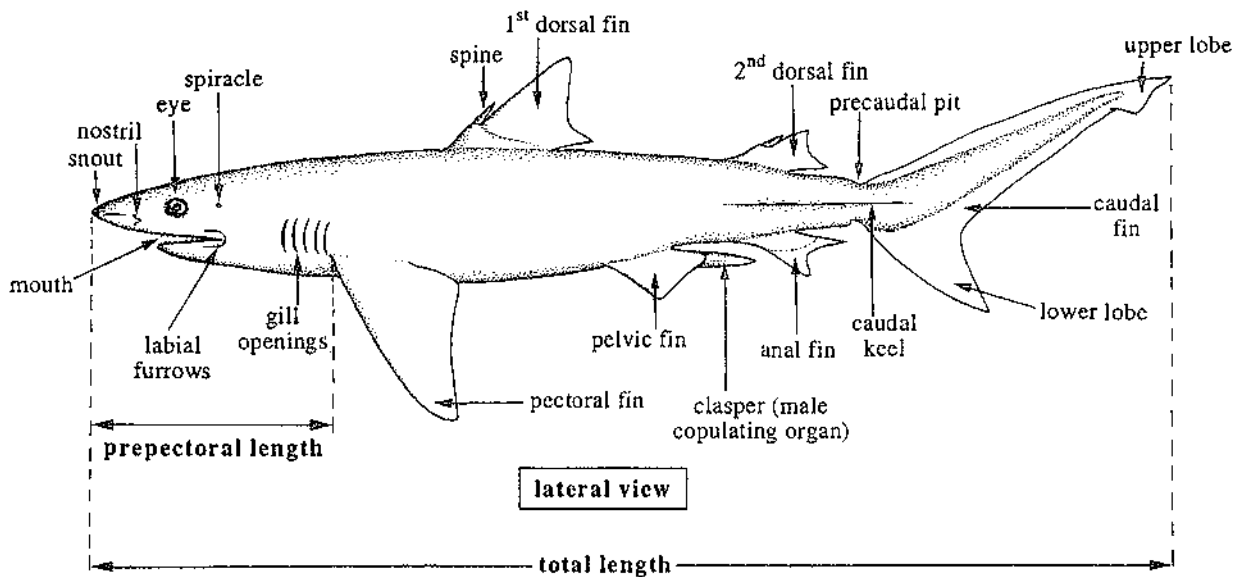
SHARKS

Usually elongate, slender fishes ranging in size from 15 cm (some squaloids) to at least 12 m in length (whale shark or *Rhincodon typus*). They have a cartilaginous skeleton and the skin is covered with small denticular placoid scales. They are distinguished from batoid fishes by the lateral or ventrolateral position of the gill slits and - except in the family Squatinidae - by the free pectoral fins (fused with the trunk, at least partially, in batoids). Mouth ventral in most species. The males possess copulating organs, associated with the pelvic fins, since egg fertilization is internal. Some families (e.g. Carcharhinidae, Triakidae and Sphyrnidae) are viviparous while others are ovoviparous or oviparous. In the latter case, the eggs are encased in horny capsules.

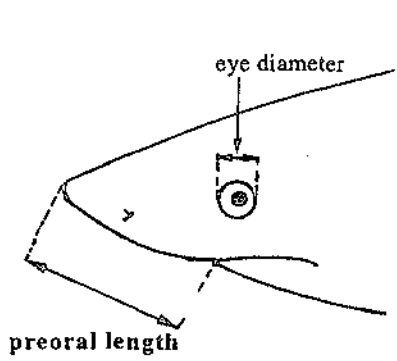
Nearly all sharks are active predators inhabiting marine waters. However a few species are found in brackish water, or occasionally in freshwater (i.e. *Carcharhinus leucas*).

In the area covered by this field guide, sharks are represented by 13 families, 23 genera and about 49 species. They are of great importance as fishery resources and most species are used as human food. They are usually marketed salted. The shark attack hazard has been greatly exaggerated in recent years. Most species are inoffensive; only 9% are definitely dangerous and another 10% are large enough and sufficiently well-armed to be potentially so.

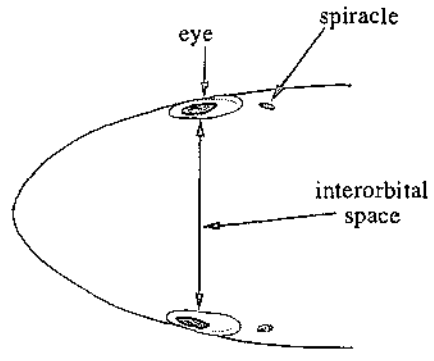
TECHNICAL TERMS AND MEASUREMENTS



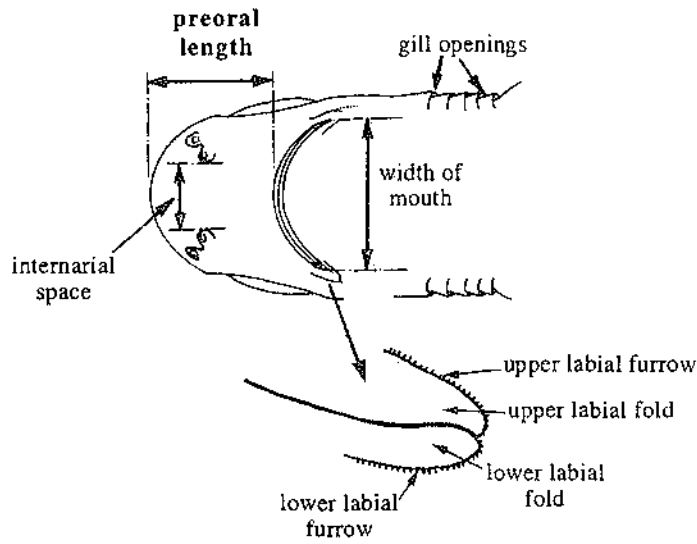
(from Compagno, 1984)



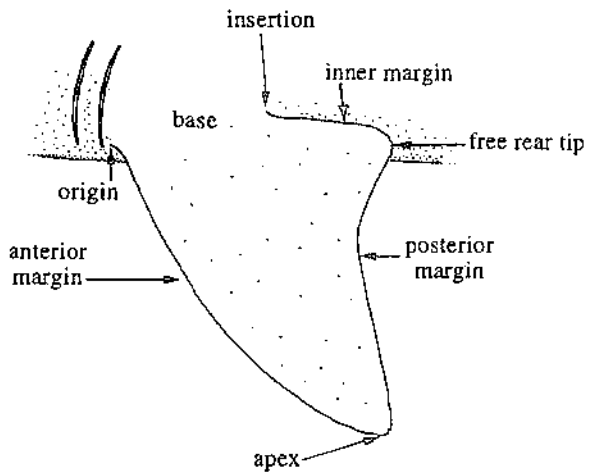
head (lateral view)



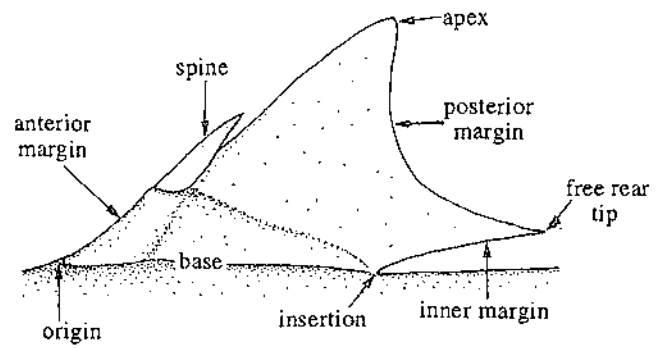
head (dorsal view)



head (ventral view)



pectoral fin



dorsal fin

GUIDELINES FOR THE IDENTIFICATION OF FAMILIES

- Note:** - The schematic figures are only intended to illustrate the most characteristic morphotypes within each family, hence not all genera are illustrated in this section.
 - The family diagnostic characters used here are applicable only to representatives occurring in the area.

FRILLED AND COW SHARKS - Hexanchiformes

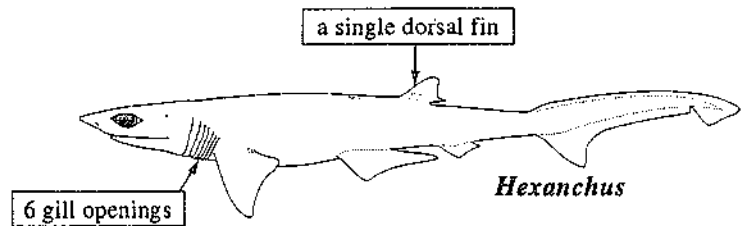
Six pairs of gill openings; a single dorsal fin.

HEXANCHIDAE

page 179

Frilled and cow sharks

To about 500 cm. Pelagic in marine waters, from the surface to below a depth of 90 m. One genus with 2 species in the area.



DOGFISH SHARKS - Squaliformes

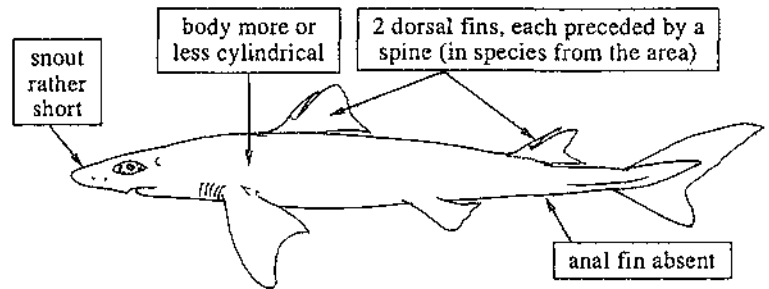
Mouth inferior, snout relatively short, anal fin absent.

SQUALIDAE

page 189

Dogfish sharks

To about 110 cm. Demersal or mesopelagic, usually from a depth of 100 to below 4 000 m. Two genera, each with one species in the area.

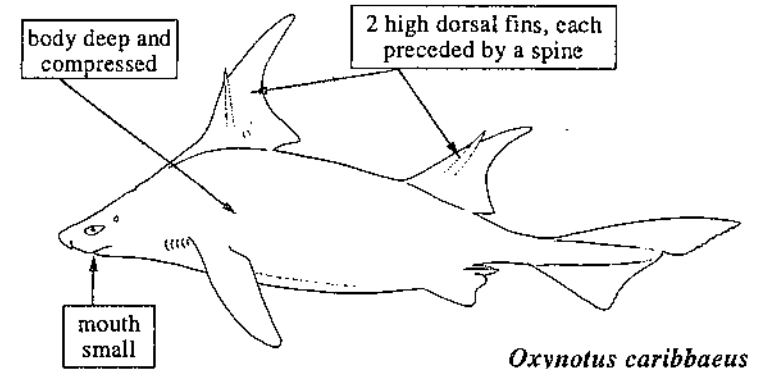


OXYNOTIDAE

page 182

Centrines

To about 50 cm. Demersal in marine waters, usually between depths of 40 and 720 m. A single species in the area.



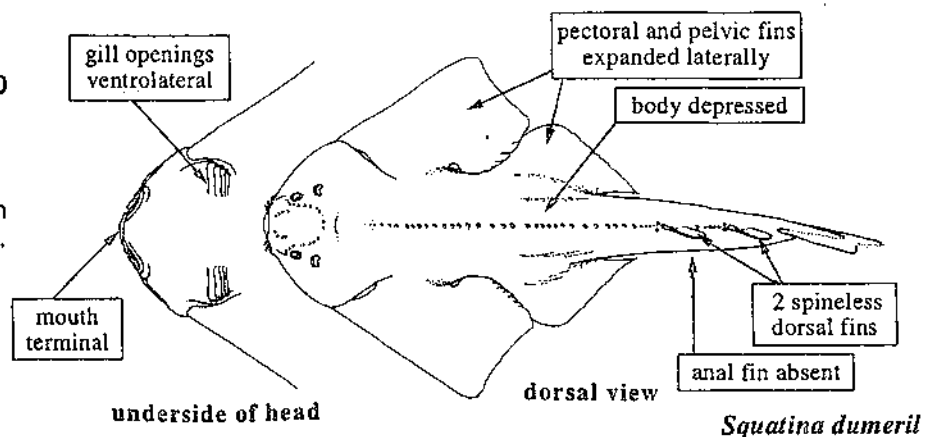
ANGEL SHARKS - Squatiniformes

SQUATINIDAE

page 190

Angel sharks

To 155 cm. Demersal below a depth of 100 m, possibly to about 1 500 m. A single species in the area.



NURSE SHARKS, WHALE SHARKS - Orectolobiformes

Mouth small, clearly in front of eyes; 2 spineless dorsal fins; anal fin present.

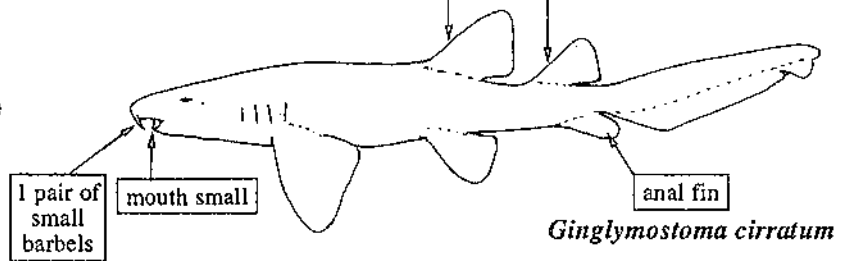
ORECTOLOBIDAE (= GINGLYMOSTOMATIDAE)

page 182

dorsal fins without spines

Nurse sharks

To 430 cm. Demersal in shallow marine waters. A single species in the area.



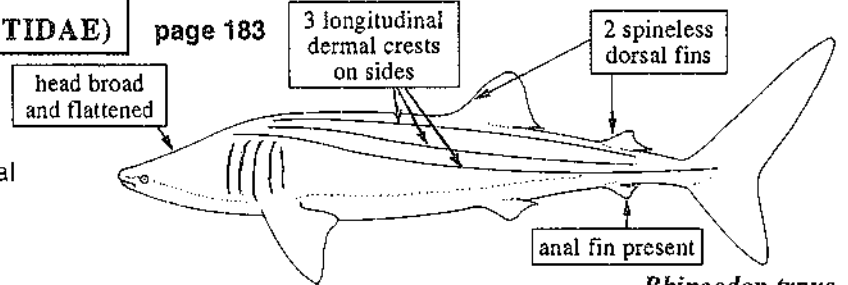
Ginglymostoma cirratum

RHINCODONTIDAE (=RHINIODONTIDAE)

page 183

Whale sharks

To 12 m. Pelagic in oceanic and costal waters. A single species.



Rhincodon typus

MACKEREL SHARKS AND ALLIES - Lamniformes

A heterogenous, poorly defined group: eyes without nictitating membranes; 2 spineless dorsal fins; anal fin present; intestinal valve of ring type.



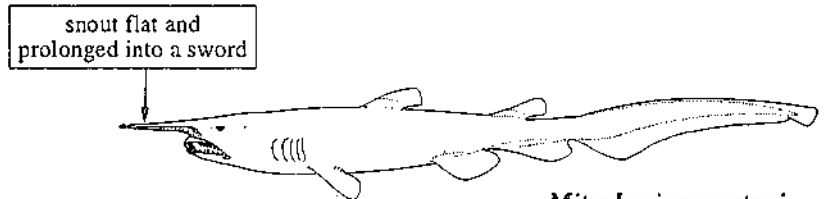
intestinal valve of ring type

MITSAKURINIDAE

page 181

Goblin sharks

To about 340 cm. Demersal in marine waters, from depths of about 200 to 550 m. A single species.



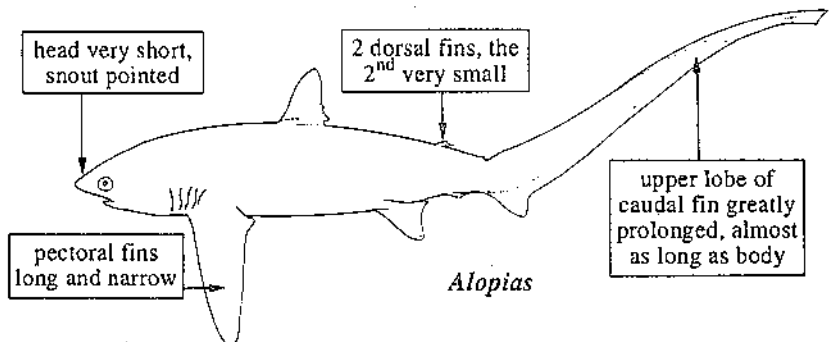
Mitsukurina owstoni

ALOPIIDAE

page 168

Thresher sharks

To about 600 cm. Pelagic in marine waters, from the surface to a depth of about 500 m. One genus with 2 species in the area.



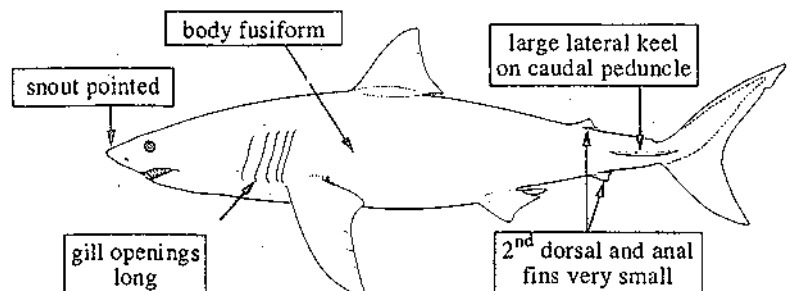
Alopias

LAMNIDAE

page 180

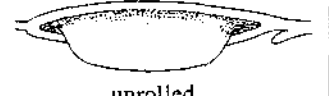
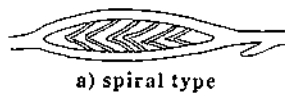
Mackerel sharks, porbeagles, white sharks

To 8 m. Pelagic in coastal and oceanic marine waters, from the surface to below a depth of 1 000 m. Two genera and 3 species in the area.



GROUND SHARKS - Carcharhiniformes

A heterogeneous, poorly defined group: eyes in lateral or dorsolateral position, with nictitating membranes; 2 spineless dorsal fins; anal fin present; intestinal valve of spiral or scroll type.



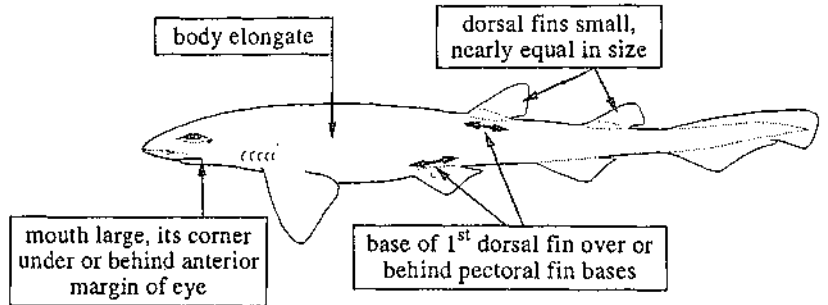
intestinal valves

SCYLIORHINIDAE

page 183

Catsharks

To about 160 cm. Demersal in marine waters, from depths of about 40 to 2 000 m. Four genera and 7 species in the area.

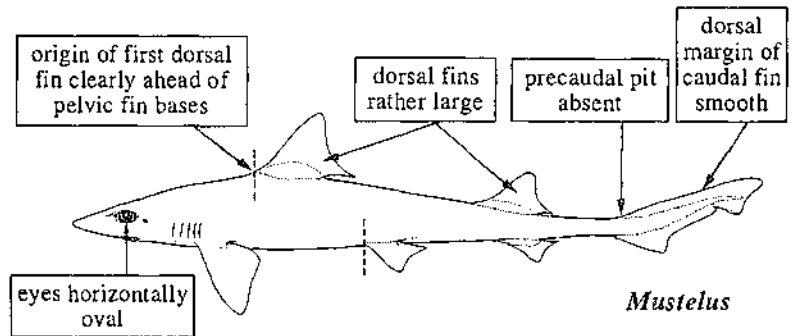


TRIAKIDAE

page 190

Houndsharks

To about 150 cm. Demersal, usually in shallow marine waters, but some species may attain over a depth of 200 m. One genus and 3 species in the area.

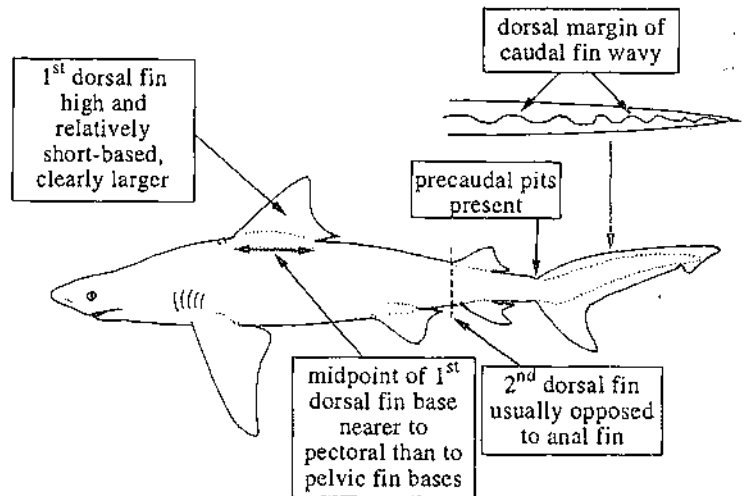


CARCHARHINIDAE

page 169

Requiem sharks

To 650 cm. Demersal or pelagic in coastal and oceanic marine waters, from the surface to a depth of about 500 m; some species penetrate brackish waters and hypersaline lagoons. Six genera and 19 species in the area.

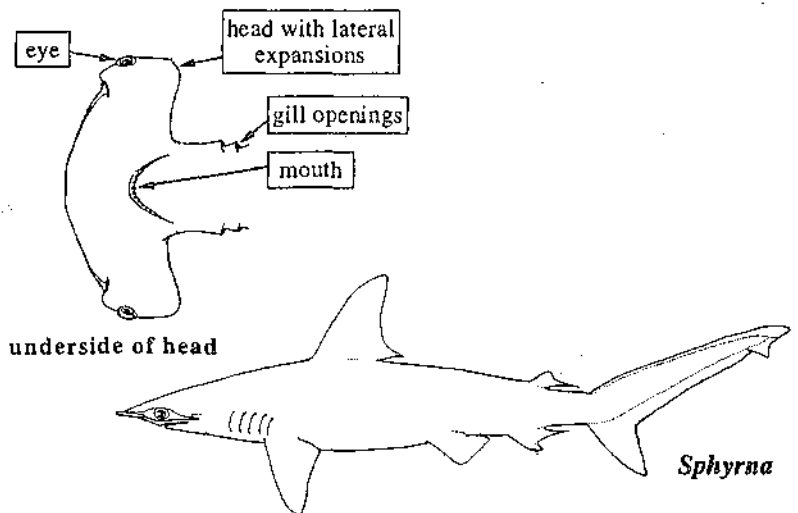


SPHYRNIDAE

page 185

Hammerhead sharks, bonnethead sharks

To 610 cm. Pelagic in coastal and semi-oceanic marine waters, from the surface to a depth of below 200 m. One genus and 6 species in the area.



FAMILIES AND SPECIES OF INTEREST TO FISHERIES

ALOPIIDAE

En: Thresher sharks. **Fr:** Poissons renard. **Sp:** Peces zorro.

A small family of large-sized sharks. Very active and strong swimmers. Epipelagic in oceanic and coastal waters, or demersal in deep water. They feed mainly on schooling fish, surrounding the school in progressively narrower circles and beating the water with their long tails, until the prey is concentrated in a compact central mass. Highly appreciated because of the excellent quality of their flesh and fins.

Genus *Alopias* - 2 species reported from the area.

» caudal fin extremely long, its upper lobe as long as rest of body; lower lobe short and stout.

Alopias superciliosus (Lowe, 1840)

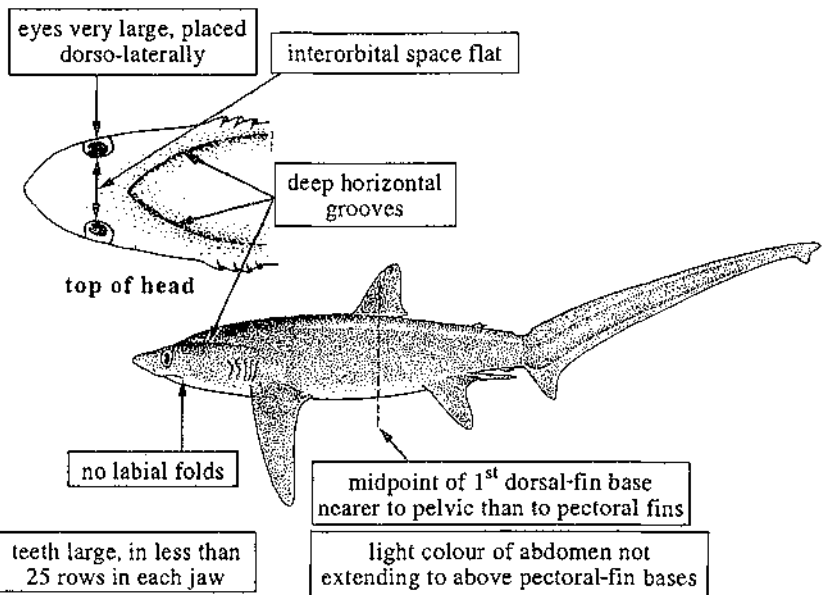
FAO names: **En** - Bigeye thresher; **Fr** - Renard gros yeux; **Sp** - Zorro ojón.

Common names:

Size: Maximum 460 cm; common to 350 cm.

Distribution and habitat: Probably throughout the area. Occurs in coastal as well as oceanic waters; epipelagic or demersal to a depth of about 500 m. Ovoviviparous, 2-4 juveniles per litter.

Fisheries: Industrial, with floating longlines and occasionally, tuna purse seines. Marketed usually salted. The liver is used as a source of vitamins and the skin used for leather.

*Alopias vulpinus* (Bonaterre, 1788)

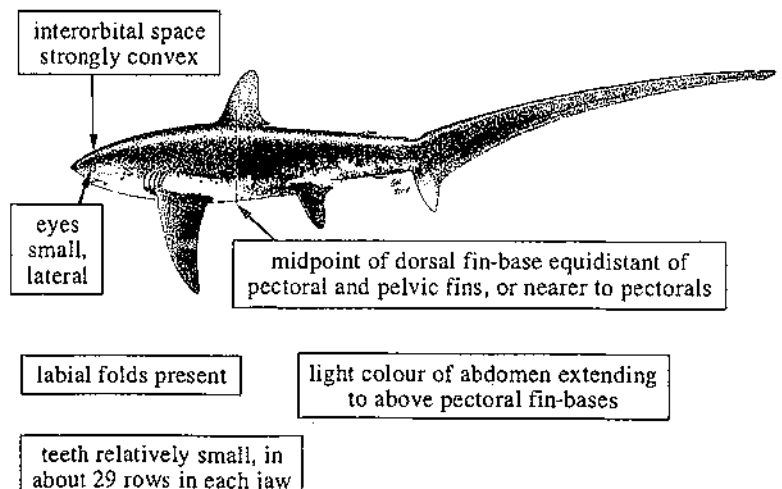
FAO names: **En** - Thresher shark; **Fr** - Renard; **Sp** - Zorro.

Common names:

Size: Maximum 600 cm; common to 450 cm.

Distribution and habitat: Probably throughout the area. Occurs in coastal as well as oceanic waters; epipelagic and demersal to depths of about 360 m. Ovoviparous, 2-4 juveniles per litter.

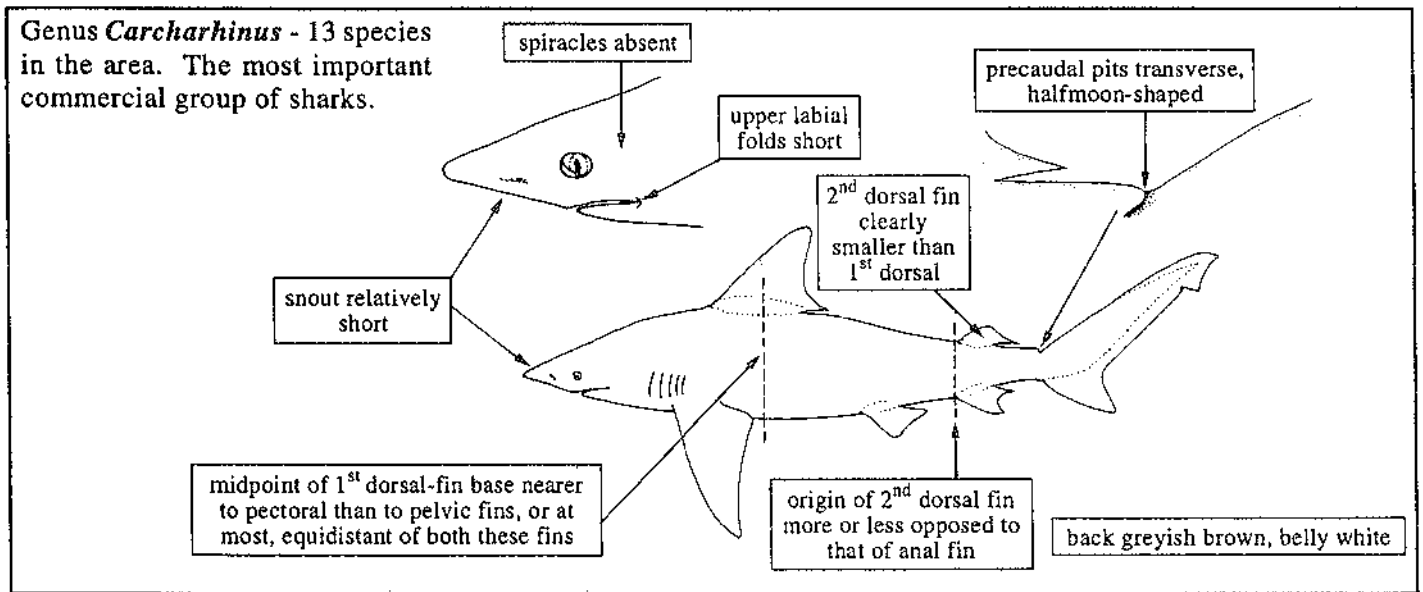
Fisheries: Industrial, with floating longlines and occasionally, tuna purse seines. Flesh of good quality, marketed usually salted, but also fresh. The skin is used for leather and the liver as a source of vitamins. The fins are highly valued and used for shark-fin soup.



CARCHARHINIDAE

En: Requiem sharks. **Fr:** Requins, réquiems. **Sp:** Tiburones, cazones picudos, tintoreras.

Elongate, medium-sized to large sharks. The majority of species occurring in the area are pelagic, but some may be found over the bottom or close to the shore. The larger species are usually more abundant in oceanic waters, but a few (e.g the tiger shark) invade coastal areas in search of food. They are voracious predators and may be dangerous to people. Almost all species of Carcharhinidae are important fishery resources, highly esteemed as food in some countries of the area, in particular Venezuela. They are also used for the production of by-products such as oil, vitamin A, leather, fish meal and gelatine. They are usually marketed salted. Their exploitation has increased considerably in the past few years due to the opening of international markets (especially the USA) to shark products, and to the growing demand for shark fins used in the preparation of soups. Six genera and about 19 species in the area.



***Carcharhinus acronotus* (Poey, 1861)**

(plate III, 19)

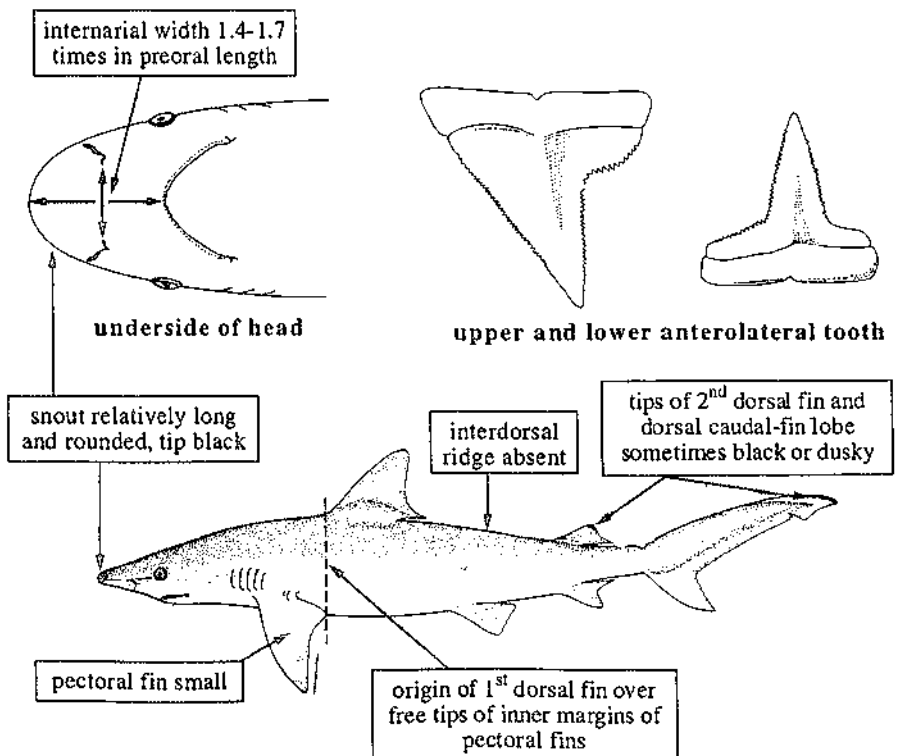
FAO names: En - Blacknose shark; Fr - Réquiem nez noir; Sp - Tiburón amarillo.

Common names:

Size: Maximum 200 cm; common to 100 cm.

Distribution and habitat: Throughout the area. Occurs in shallow coastal waters, mainly over bottoms of sand, shell fragments and coral. A viviparous species.

Fisheries: Mainly artisanal, with floating longlines and trammel nets. Marketed salted.



CARCHARHINIDAE

Carcharhinus altimus (Springer, 1950)

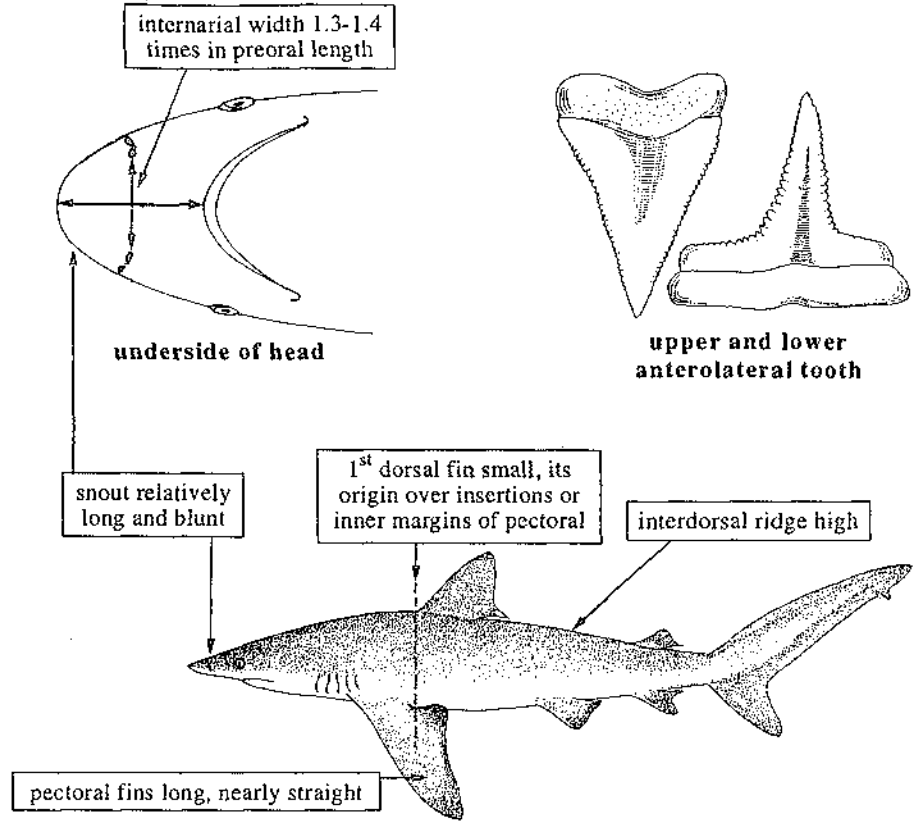
FAO names: En - Bignose shark; Fr - Réquiem babosse; Sp - Tiburón baboso.

Common names:

Size: Maximum 300 cm; common to 240 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela and probably, Trinidad. Inhabits the deeper waters of the continental shelf to about the edge of the slope, between depths of 80 and 220 m. Rare in coastal waters, except the juveniles which may be found at a depth of 25 m. A viviparous species.

Fisheries: Caught mainly with bottom longlines. Apparently rare in the area. Marketed salted.



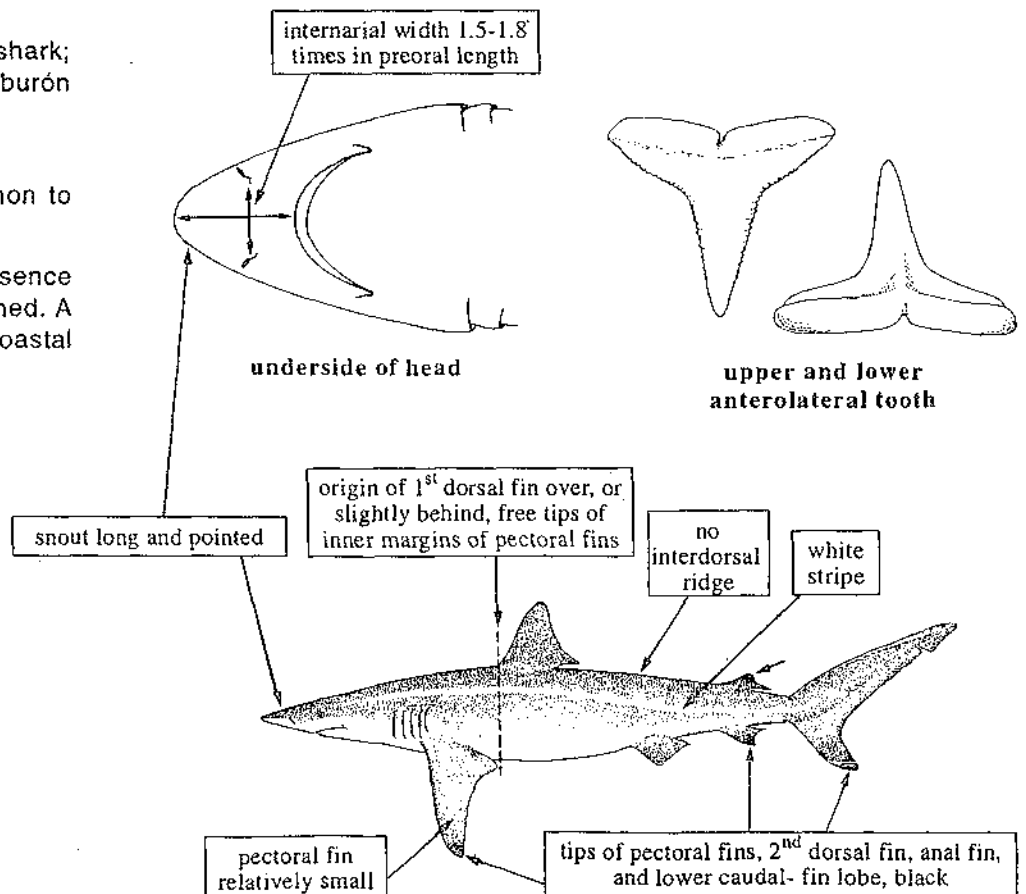
Carcharhinus brevipinna (Müller and Henle, 1839)

FAO names: En - Spinner shark; Fr - Réquiem tisserand; Sp - Tiburón aleta negra.

Common names:

Size: Maximum 278 cm; common to 244 cm.

Distribution and habitat: its presence in the area has not been confirmed. A pelagic species occurring in coastal waters.



***Carcharhinus falciformis* (Bibron, 1839)**

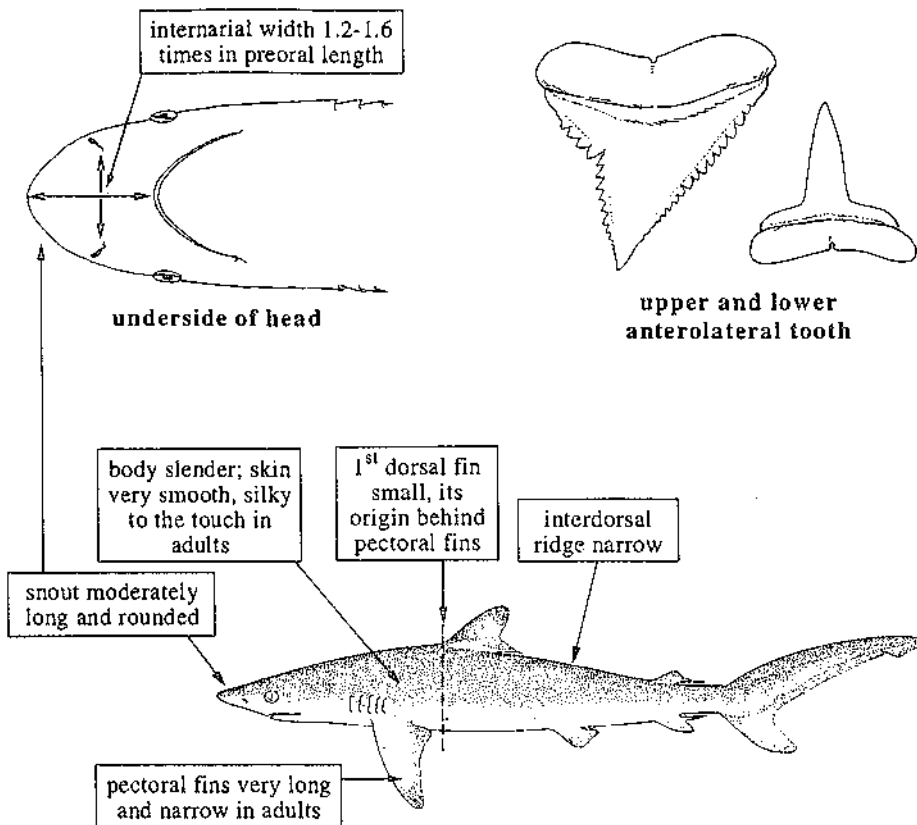
FAO names: En - Silky shark;
Fr - Réquiem sole; Sp - Tiburón jaquetón.

Common names:

Size: Maximum 350 cm; common to 250 cm.

Distribution and habitat: Throughout the area. Occurs in oceanic surface waters, usually close to the edge of the continental shelf or farther offshore, but occasionally in coastal areas. It may also be found in deep water to a depth of 500 m.

Fisheries: Caught with floating and bottom longlines. Marketed salted.



***Carcharhinus galapagensis* (Snodgrass and Heller, 1905)**

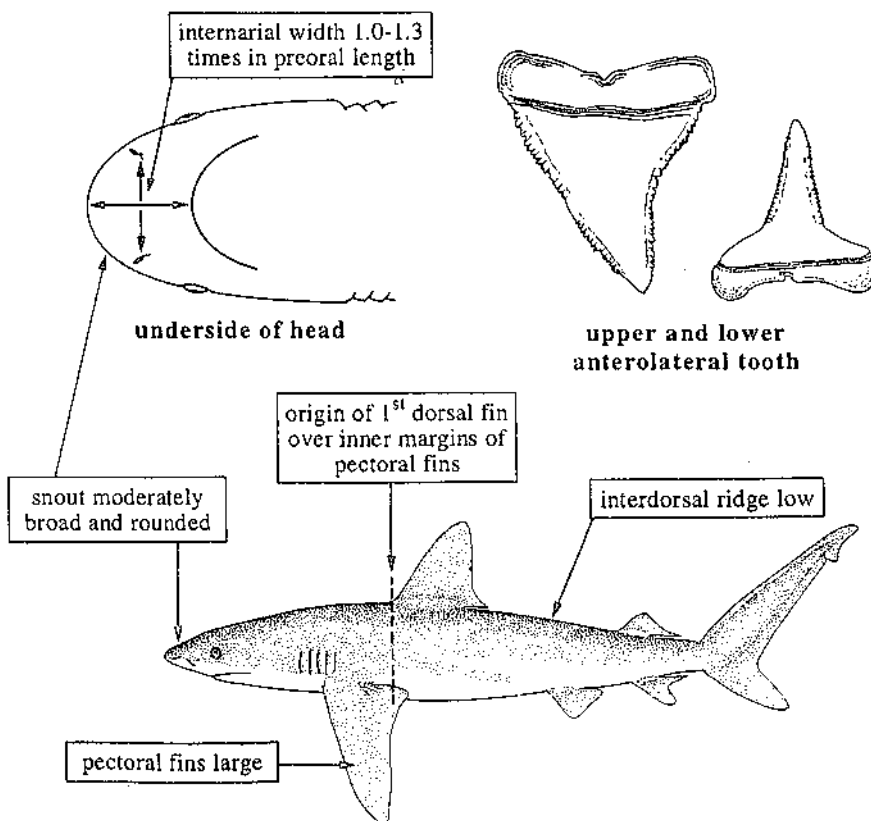
FAO names: En - Galapagos shark;
Fr - Requin des Galapagos; Sp - Tiburón de Galápagos.

Common names:

Size: Maximum about 400 cm; common to 250 cm.

Distribution and habitat: Its presence in the area has not been confirmed, but it might occur in oceanic insular areas.

Fisheries: No data.



CARCHARHINIDAE

Carcharhinus leucas (Valenciennes, 1839)

(plate III, 20)

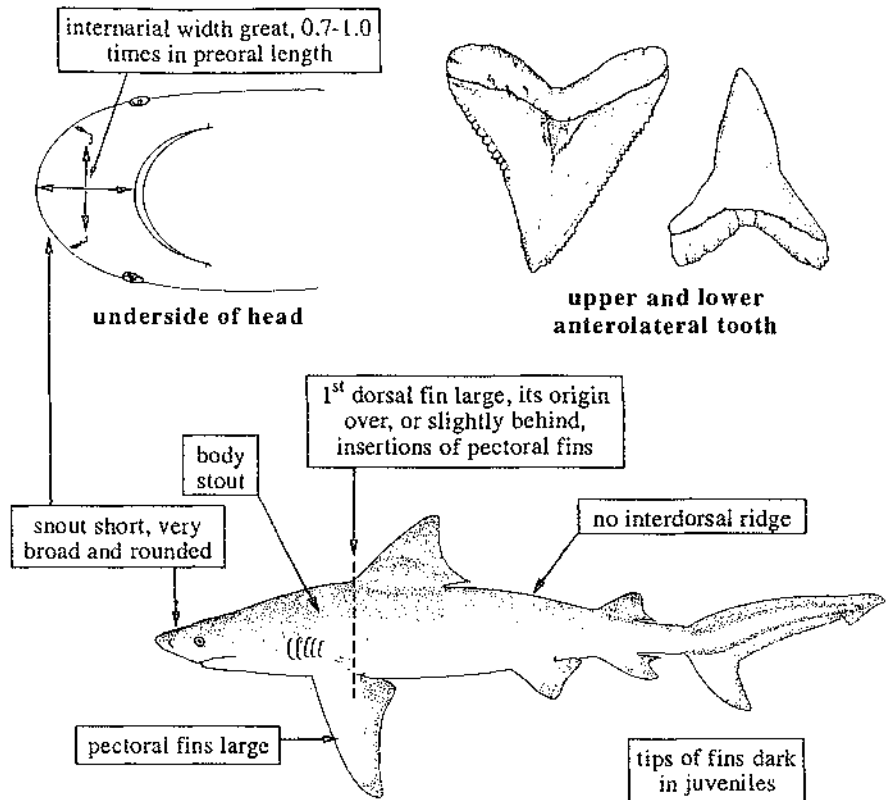
FAO names: En - Bull shark;
Fr - Réquiem taureau; Sp - Tiburón sarda.

Common names:

Size: Maximum 350 cm; common to 260 cm.

Distribution and habitat: Throughout the area. Found predominantly in shallow coastal waters, but may reach depths of 152 m. It tolerates a wide range of salinities, being common in brackish-water bays and estuaries, and sometimes even ascending the lower reaches of rivers; also occurs in hypersaline lagoons.

Fisheries: Mainly with longlines and trammel nets. Marketed salted. A common species in the southern part of the Caribbean sea.

*Carcharhinus limbatus* (Valenciennes, 1839)

(plate III, 21)

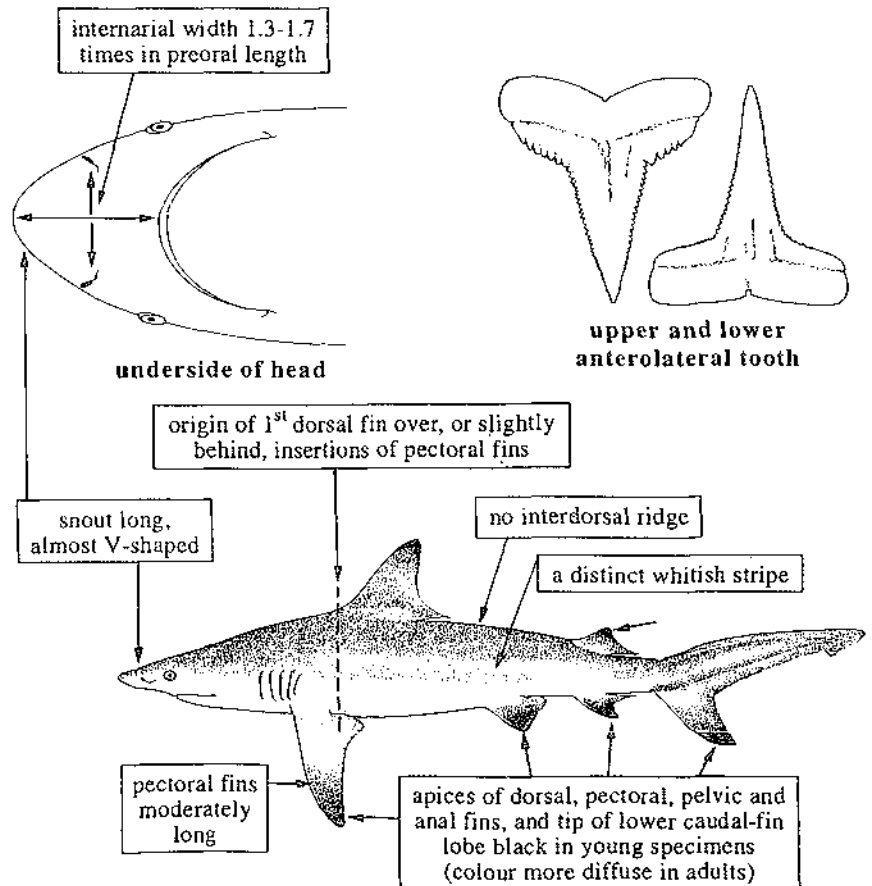
FAO names: En - Blacktip shark;
Fr - Réquiem macuire; Sp - Tiburón macuira.

Common names:

Size: Maximum 247 cm; common to 150 cm.

Distribution and habitat: Throughout the area. Occurs mainly in coastal waters, but also offshore, near the surface. A fast-swimming species usually found in groups of 6 or more individuals. Occasionally enters brackish waters.

Fisheries: Caught mainly on longlines and on hook-and-line; also with trammel nets and bottom trawls. Marketed salted. The skin is used for leather, and the liver for oil and vitamins. This is probably the most important commercial species of *Carcharhinus* in the area.



CARCHARHINIDAE

***Carcharhinus longimanus* (Poey, 1861)**

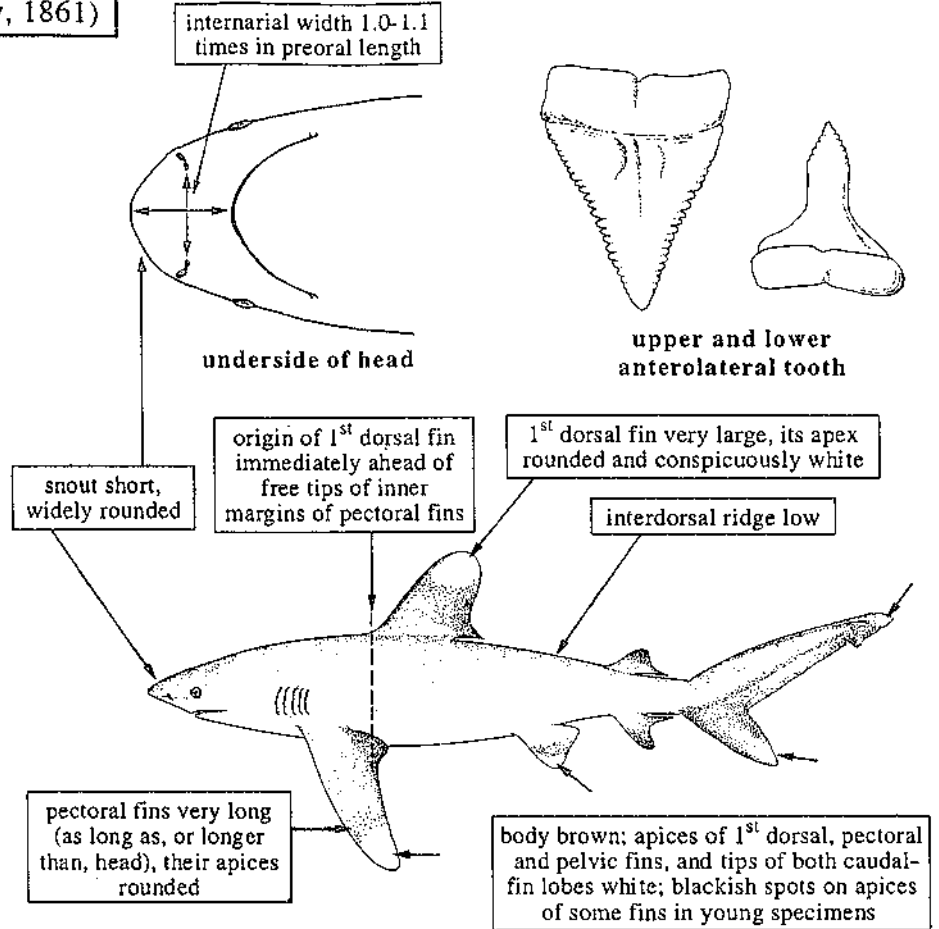
FAO names: En - Oceanic whitetip shark; Fr - Réquiem océanique; Sp - Tiburón oceánico.

Common names:

Size: To nearly 400 cm; common to 250 cm.

Distribution and habitat: Throughout the area. Epipelagic in oceanic waters, occasionally coming close to the coast, usually around islands.

Fisheries: Caught mainly with longlines. Marketed mostly salted.



***Carcharhinus obscurus* (LeSeuer, 1818)**

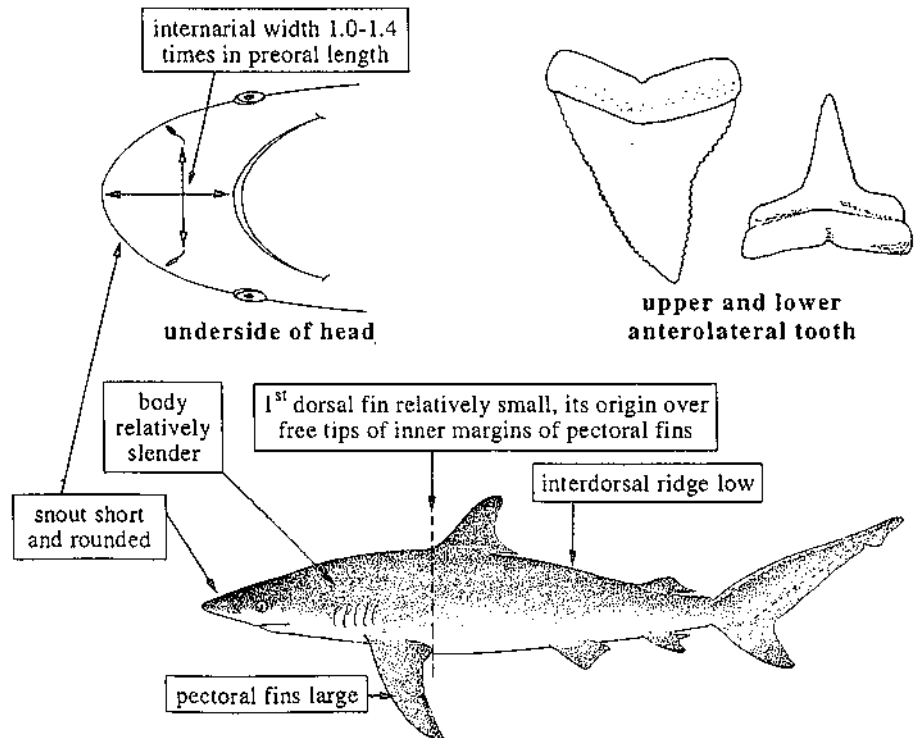
FAO names: En - Dusky shark; Fr - Réquiem de sable; Sp - Tiburón arenero.

Common names:

Size: Maximum 400 cm; common to 300 cm.

Distribution and habitat: Throughout the area. Occurs in coastal and in oceanic waters, to a depth of 400 m; more frequent near islands. Performs seasonal migrations, moving northward during summer and southward in winter.

Fisheries: Mainly caught with floating longlines. Marketed mostly salted, occasionally fresh.



CARCHARHINIDAE

***Carcharhinus perezi* (Poey, 1876)**

FAO names: **En** - Caribbean reef shark (AFS: Reef shark); **Fr** - Réquiem de récif; **Sp** - Tiburón coralino.

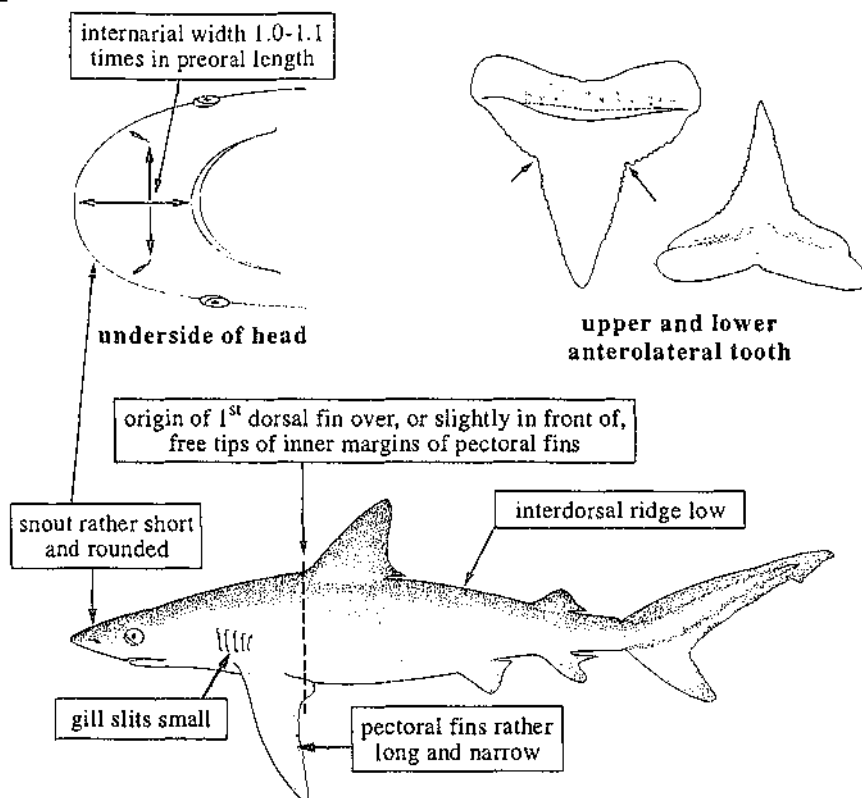
Common names:

Size: Maximum 295 cm; common to 150 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and probably on Trinidad. Occurs in shallow coastal waters, especially in coral reef areas, to about a depth of 30 m. A slow-swimming, rather inactive or sedentary species. Common on the outer edge of coral reefs.

Fisheries: Caught mainly with longlines. Marketed salted.

(plate III, 22)

***Carcharhinus plumbeus* (Nardo, 1827)**

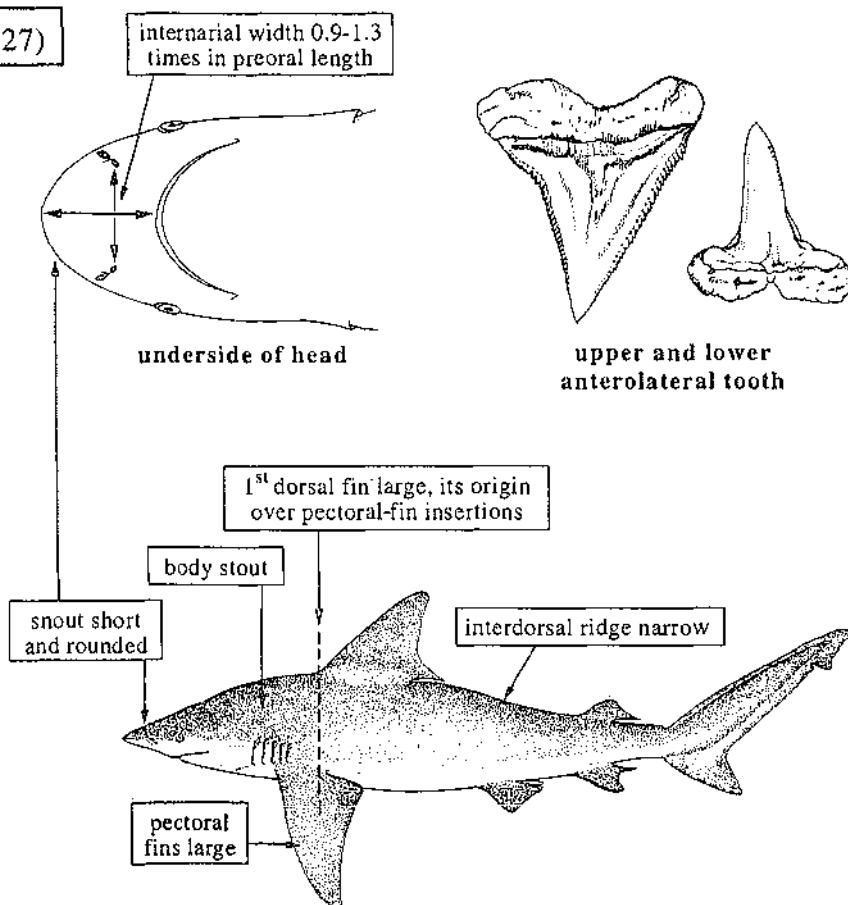
FAO names: **En** - Sandbar shark; **Fr** - Réquiem plumbe; **Sp** - Tiburón trozo.

Common names:

Size: Maximum 300 cm; common to 240 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela. Occurs mainly in coastal areas, over muddy or sandy substrate, but may also be found in oceanic waters to a depth of 200 m; sometimes enters river estuaries.

Fisheries: Caught mainly with longlines. Marketed salted. The skin is used in the manufacture of various by-products, and the liver for oil.



***Carcharhinus porosus* (Ranzani, 1839)**

(plate III, 23)

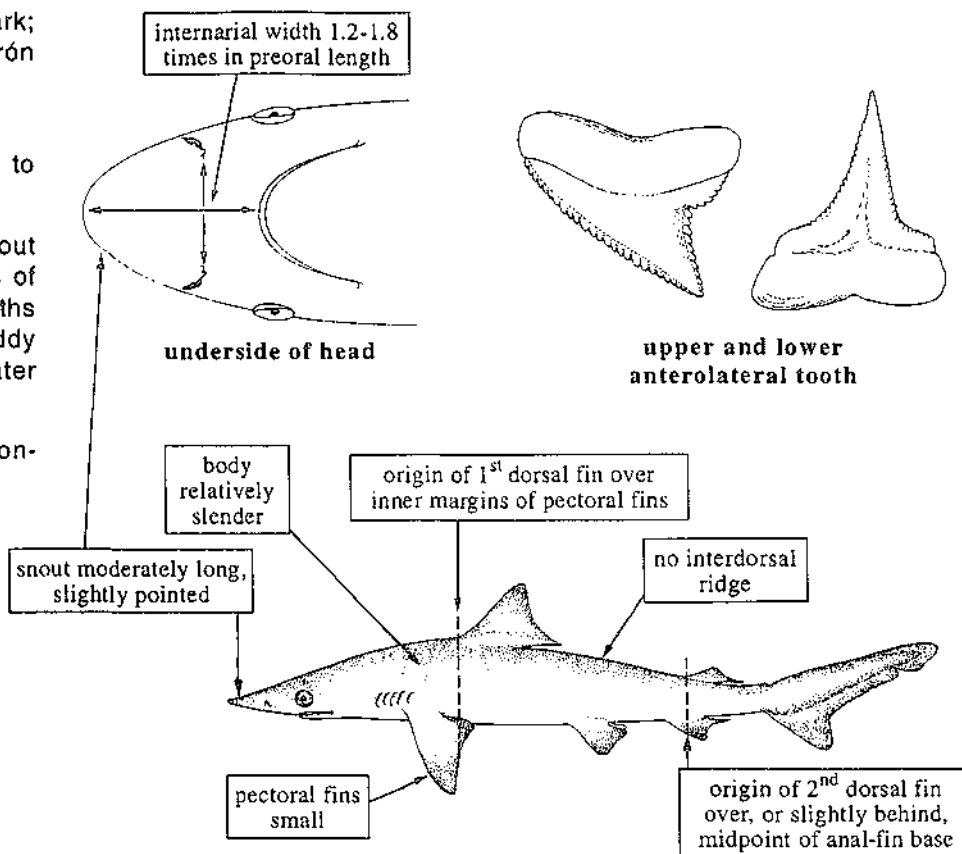
FAO names: En - Smalltail shark;
Fr - Réquiem tiqueue; Sp - Tiburón poroso.

Common names:

Size: Maximum 150 cm; common to 90 cm.

Distribution and habitat: Throughout the area. Occurs in coastal waters of the continental shelf, between depths of 16 and 32 m, over sandy and muddy bottoms. Common in brackish-water estuaries.

Fisheries: Caught mainly with longlines. Marketed salted.



***Carcharhinus signatus* (Poey, 1868)**

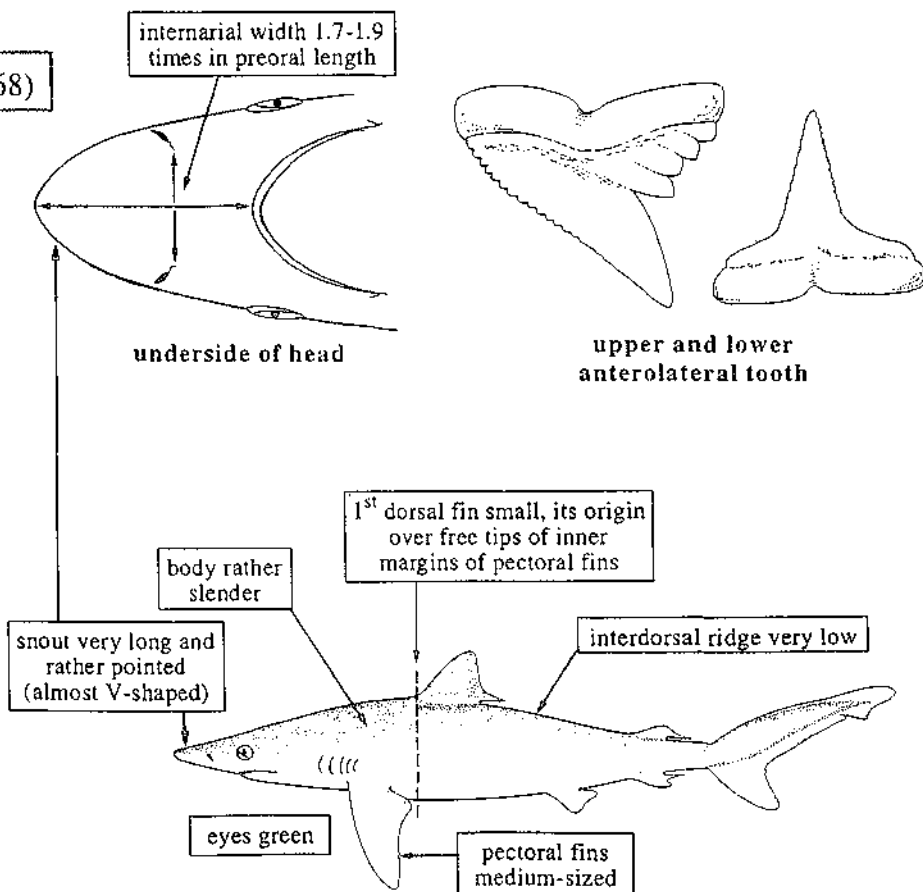
FAO names: En - Night shark;
Fr - Réquiem de nuit; Sp - Tiburón nocturno (= Tiburón de noche).

Common names:

Size: Maximum 280 cm; common to 150 cm.

Distribution and habitat: Its presence in the area has not been confirmed, but it might occur in insular areas. A species found in rather deep water, mainly between depths of 200 and 240 m, only occasionally above 160 m.

Fisheries: Caught with longlines, only at night.



CARCHARHINIDAE

Genus *Galeocerdo* - a single species in the area.

Galeocerdo cuvier (LeSueur, 1822)

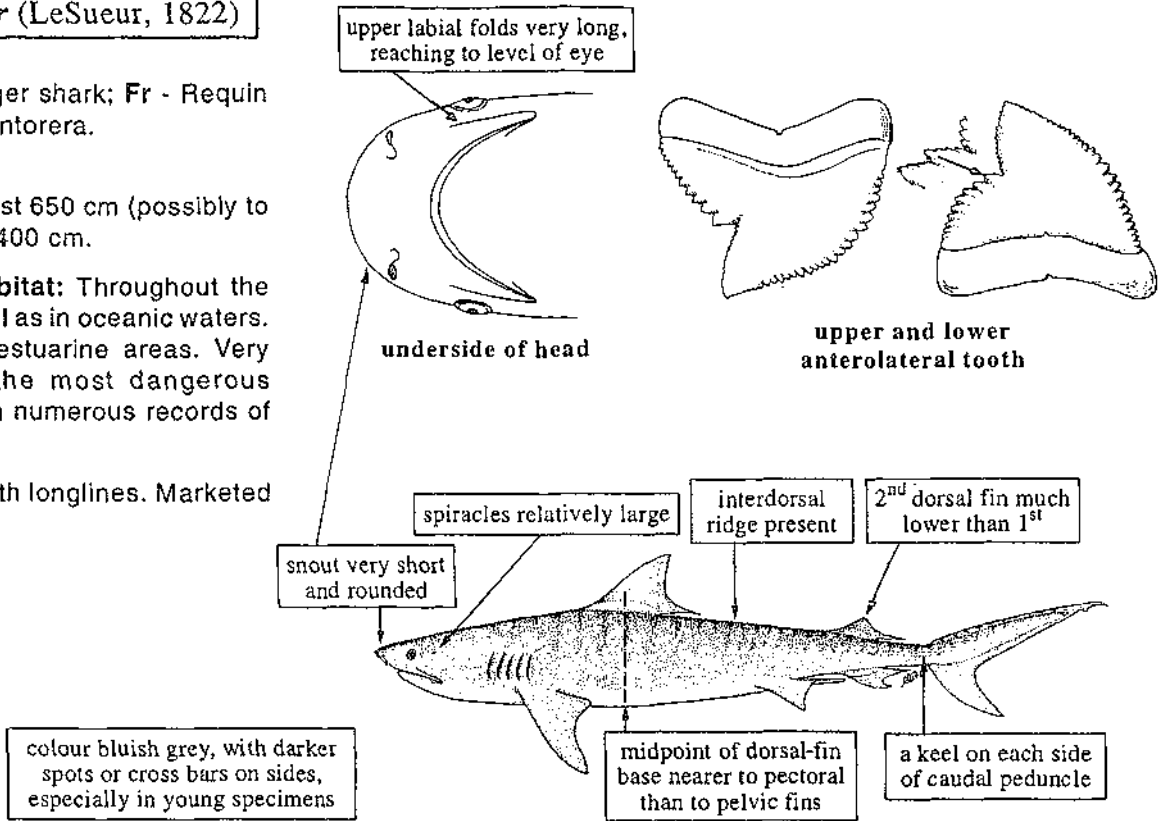
FAO names: En - Tiger shark; Fr - Requin tigre commun; Sp - Tintorera.

Common names:

Size: Maximum at least 650 cm (possibly to 700 cm); common to 400 cm.

Distribution and habitat: Throughout the area, in coastal as well as in oceanic waters. Found frequently in estuarine areas. Very voracious, one of the most dangerous species of shark, with numerous records of attacks on people.

Fisheries: Caught with longlines. Marketed salted.



Genus *Isogomphodon* - a single species in the area.

Isogomphodon oxyrinchus (Müller and Henle, 1839)

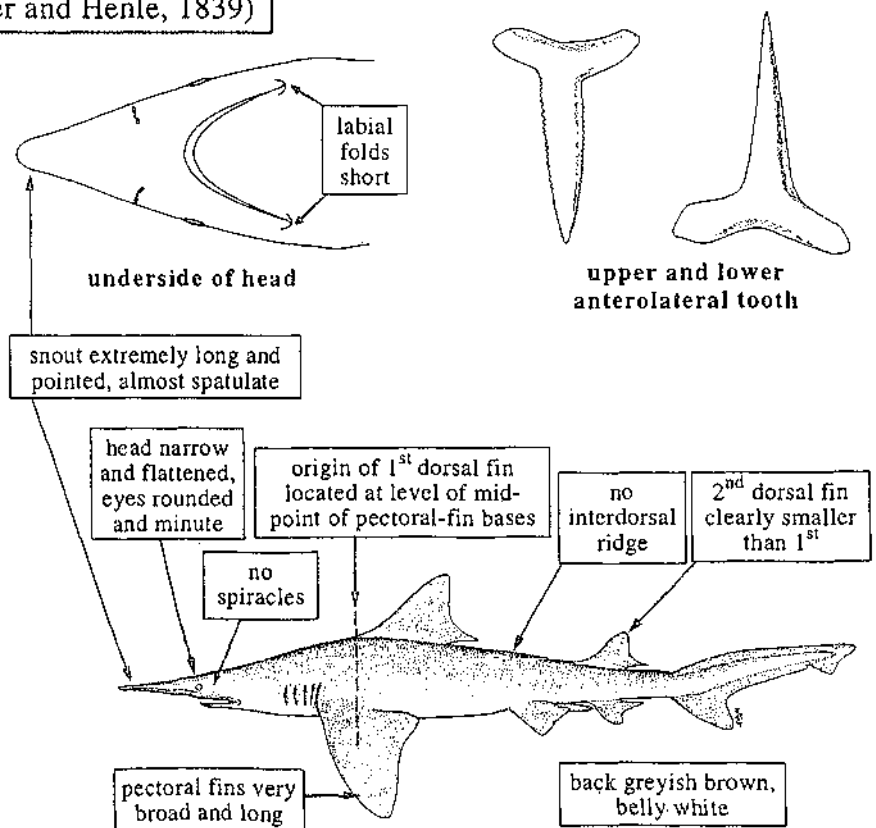
FAO names: En - Daggernose shark; Fr - Requin bécune; Sp - Cazón picudo.

Common names:

Size: Maximum at least 152 cm; common to 100 cm.

Distribution and habitat: From the Gulf of Paria and Trinidad to the Amazon river delta. A small, coastal shark, found almost exclusively in shallow water over soft substrates, mainly in or near estuaries. Viviparous, with usually 4 embryos per litter.

Fisheries: Caught mainly with longlines and bottom trawls. Its flesh is of low quality. Marketed salted.



CARCHARHINIDAE

Genus *Negaprion* - a single species in the area.

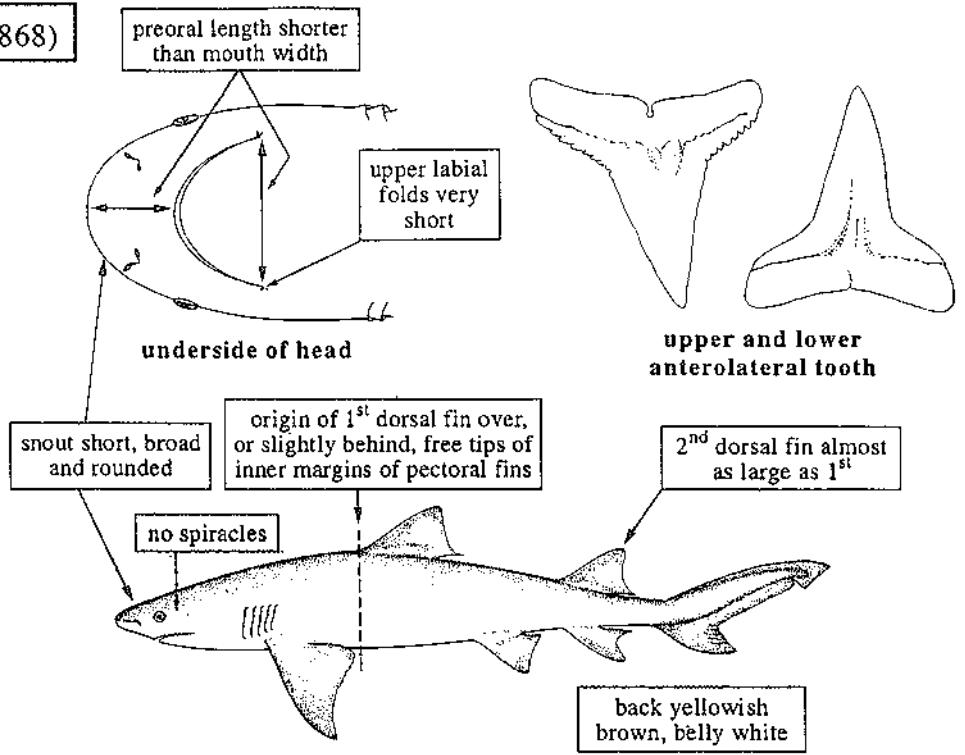
Negaprion brevirostris (Poey, 1868)

FAO names: En - Lemon shark; Fr - Requin limon; Sp - Tiburón galano.
Common names:

Size: Maximum 310 cm; common to 240 cm.

Distribution and habitat: Throughout the area. A demersal, sedentary species. Occurs in coastal waters to a depth of about 90 m and sometimes enters estuarine areas and the lower reaches of rivers.

Fisheries: Caught mainly with long-lines and trammel nets. Marketed mostly fresh. The liver is used for extraction of oil, and the fins for gelatine.



Genus *Prionace* - a single species in the area.

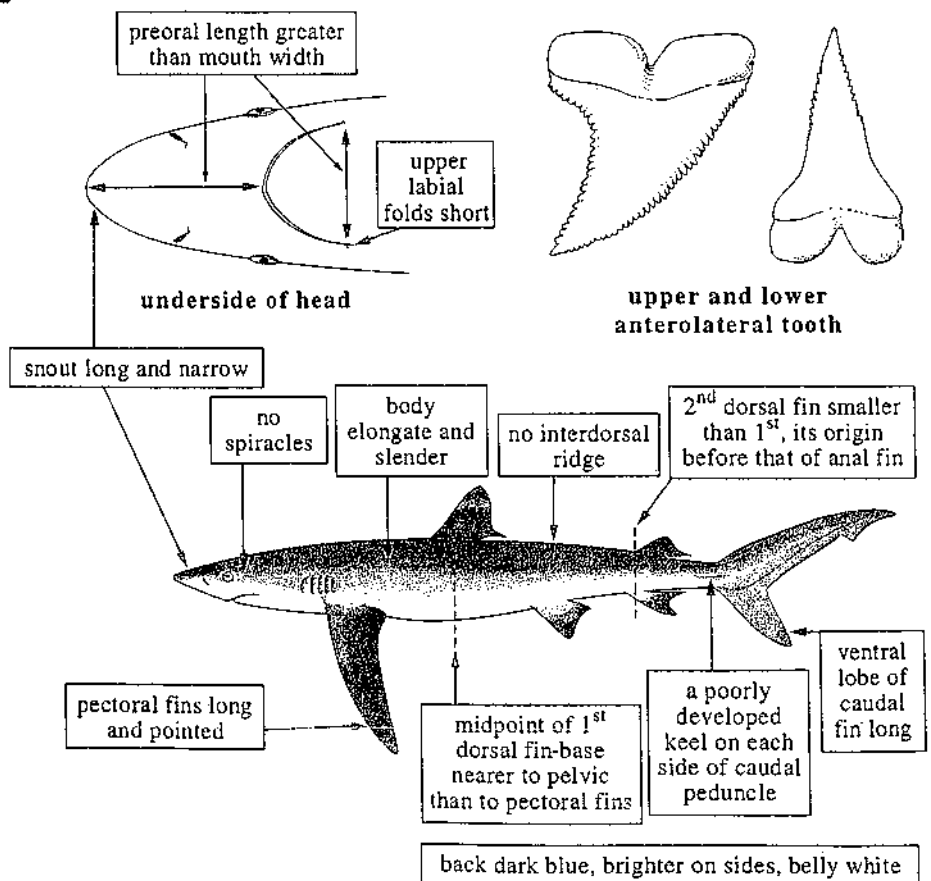
Prionace glauca (Linnaeus, 1758)

FAO names: En - Blue shark; Fr - Peau bleue; Sp - Tiburón azul.
Common names:

Size: Maximum 383 cm; common to at most 335 cm.

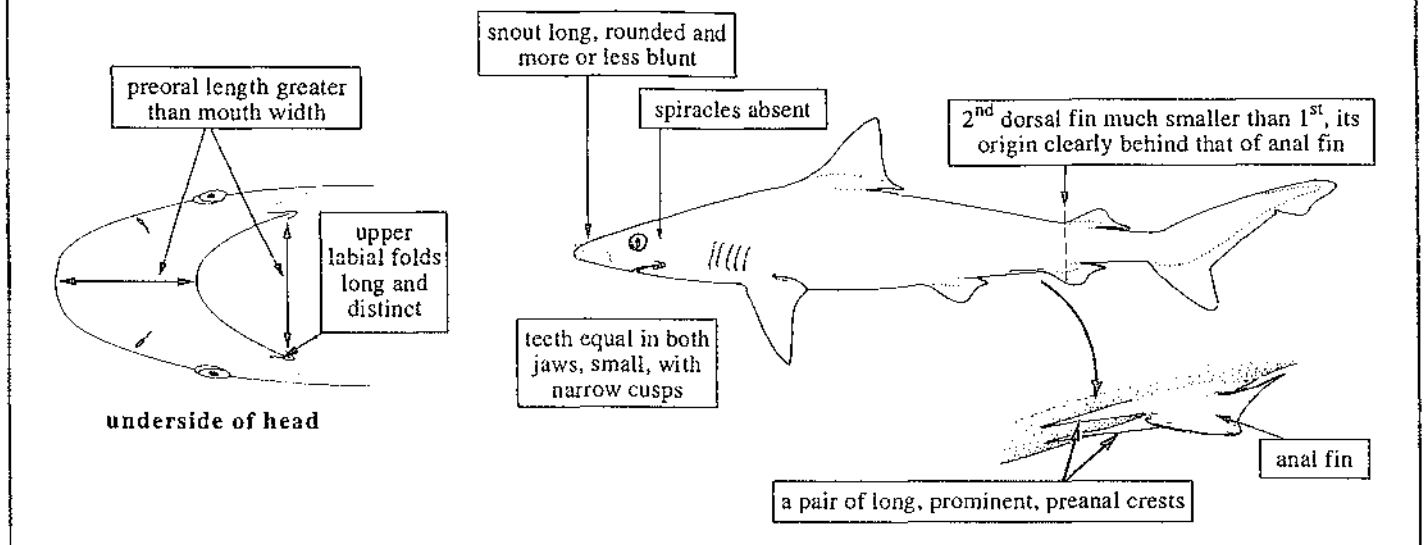
Distribution and habitat: Throughout the area. Usually epipelagic in oceanic waters where it can be very common, but it may descend into deeper water (to a depth of 150 m), or occasionally invade coastal areas. Often found slowly swimming at the surface, but capable of great bursts of speed when excited. Performs long migrations and has been shown to cross the Atlantic in both directions. Viviparous, with 4-135 embryos per litter. A dangerous species, with many records of attacks on people and boats. Not common in the southern part of the Caribbean sea.

Fisheries: Caught mainly with long-lines and bottom trawls. Marketed mostly salted.



CARCHARHINIDAE

Genus *Rhizoprionodon* - 2 species in the area.



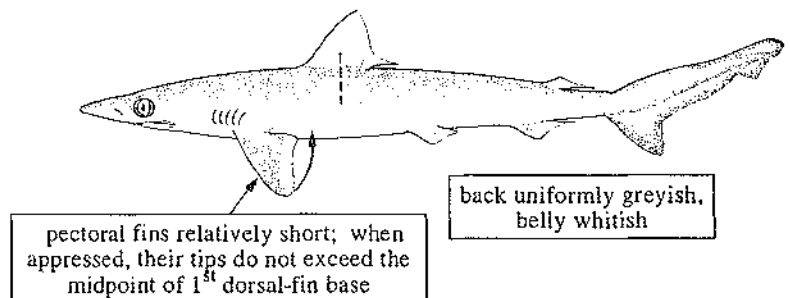
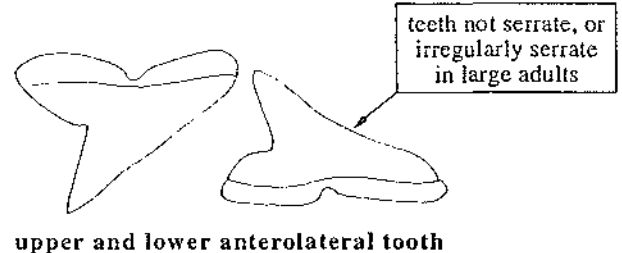
Rhizoprionodon lalandii (Valenciennes, 1841)

FAO names: En - Brazilian sharpnose shark; Fr - Requin aiguille brésilien; Sp - Cazón chino.
Common names:

Size: Maximum 77 cm; common to 55 cm.

Distribution and habitat: Throughout the area. Occurs in coastal waters, usually between depths of 40 and 70 m, over sandy or muddy bottoms. A rather abundant species. Viviparous, with 1-4 embryos per litter.

Fisheries: Caught mainly with longlines and sometimes, trammel nets. Also taken in industrial trawl fisheries for shrimps and finfishes. Marketed mostly salted. Its flesh is appreciated.



Rhizoprionodon porosus (Poey, 1861)

(plate III, 24)

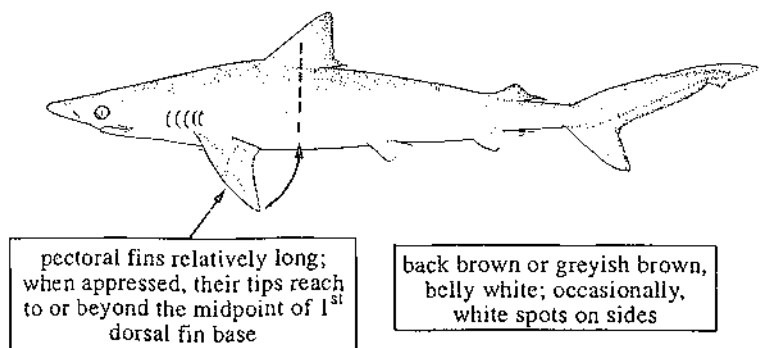
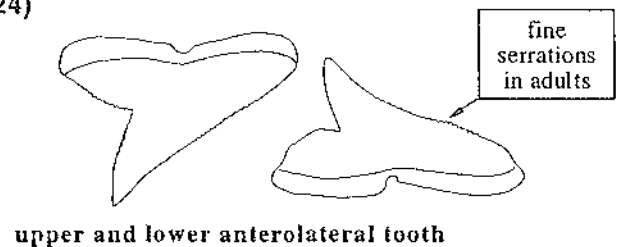
FAO names: En - Caribbean sharpnose shark; Fr - Requin aiguille antillais; Sp - Cazón playón (= Cazón picudo antillano).

Common names:

Size: Maximum 110 cm; common to 75 cm.

Distribution and habitat: Throughout the area. Usually occurs in coastal waters, including bays and river-fed estuaries, and may even ascend the lower reaches of rivers. Found from the coastline to depths of about 500 m, but most common above 100 m. Abundant in the southern part of the Caribbean sea. Viviparous, with 2-6 embryos per litter.

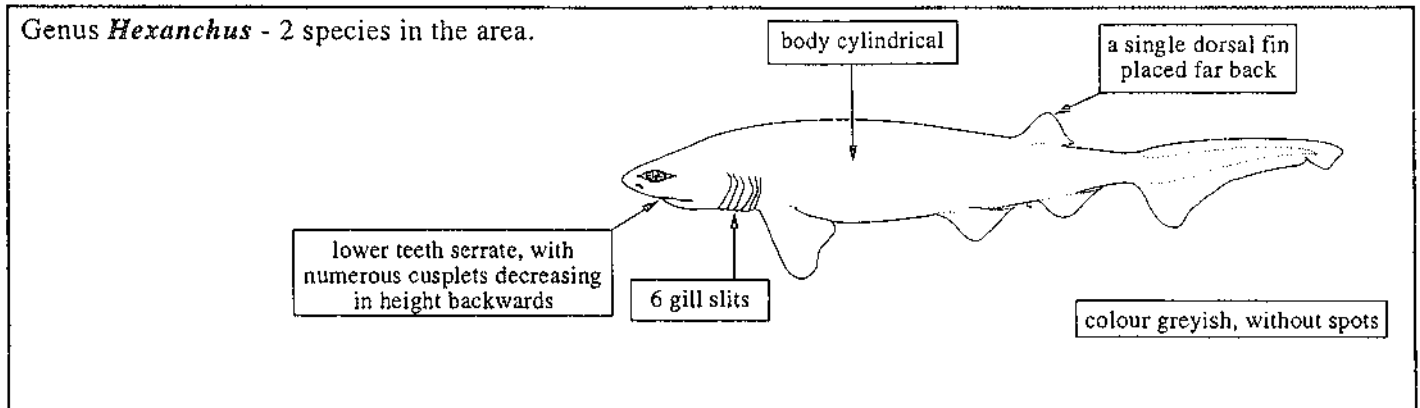
Fisheries: Caught mainly with longlines, but also with bottom trawls and trammel nets. A highly esteemed foodfish of some importance in artisanal fisheries. Marketed mostly salted.



HEXANCHIDAE

En: Sixgill sharks, cow sharks. **Fr:** Requins grisets, requins perlon. **Sp:** Cañabotas, tiburones vaca.

Small to large sharks with 6 or 7 gill slits on each side. Demersal, ranging from shallow coastal waters to moderate depths. Of little commercial importance in the area; some species are not considered edible. A single genus in the area.



***Hexanchus griseus* (Bonnaterre, 1788)**

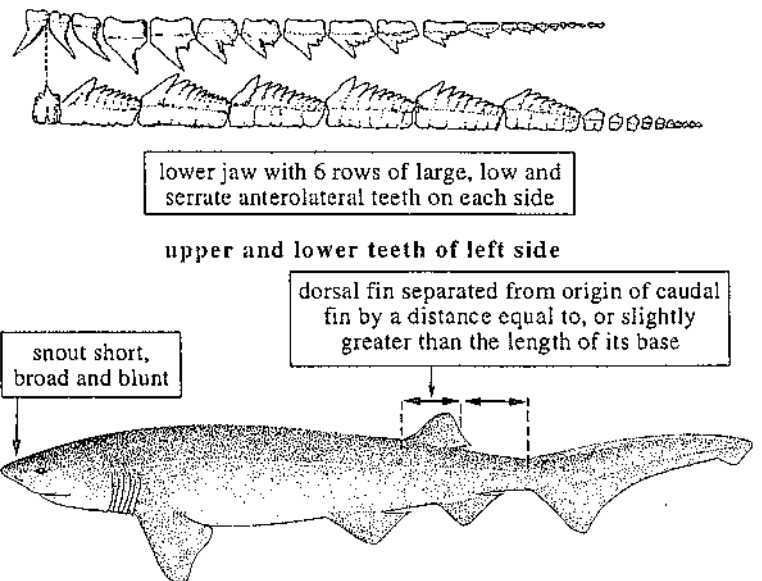
FAO names: **En** - Sixgill shark (= Bluntnose sixgill shark); **Fr** - Requin griset; **Sp** - Cañabota gris.

Common names:

Size: Maximum about 500 cm; common to 300 cm.

Distribution and habitat: Known from the coast of Venezuela in waters below a depth of 75 m, but sometimes occurring near the surface. A strictly sedentary species; oviparous, with 22 to 108 embryos per litter.

Fisheries: Taken occasionally with longlines. The soft consistency of its flesh makes it undesirable for human consumption. In addition, its catches are never abundant.



***Hexanchus vitulus* Springer and Waller, 1969**

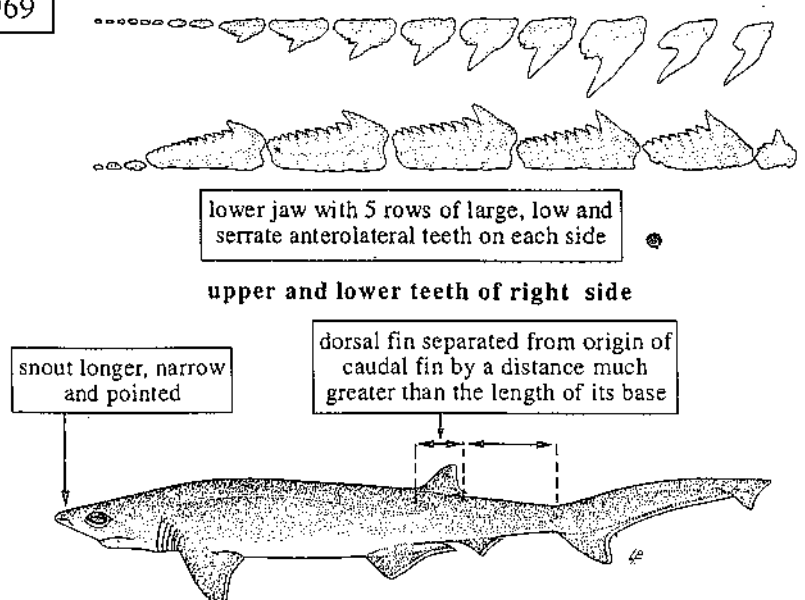
FAO names: **En** - Bigeyed sixgill shark; **Fr** - Requin vache; **Sp** - Cañabota ojigrande.

Common names:

Size: Maximum 180 cm; common to 120 cm.

Distribution and habitat: Known from the coast of Venezuela. Usually inhabits waters below a depth of 90 m, but sometimes found near the surface.

Fisheries: Caught occasionally on bottom longlines. Not used as human food due to the soft consistency of its flesh.



LAMNIDAE

En: Mackerel sharks, makos, porbeagles, white sharks. **Fr:** Requins taupe. **Sp:** Jaquetones, marrajos, tiburones carites.

Large, hydrodynamically-shaped sharks, exceeding 300 cm in total length. All species are fast-swimming, pelagic inhabitants of oceanic waters and voracious predators. Some are dangerous to people. They are appreciated as foodfishes in many localities of the area.

Genus *Carcharodon* - a single species possibly present in the area.

Carcharodon carcharias (Linnæus, 1758)

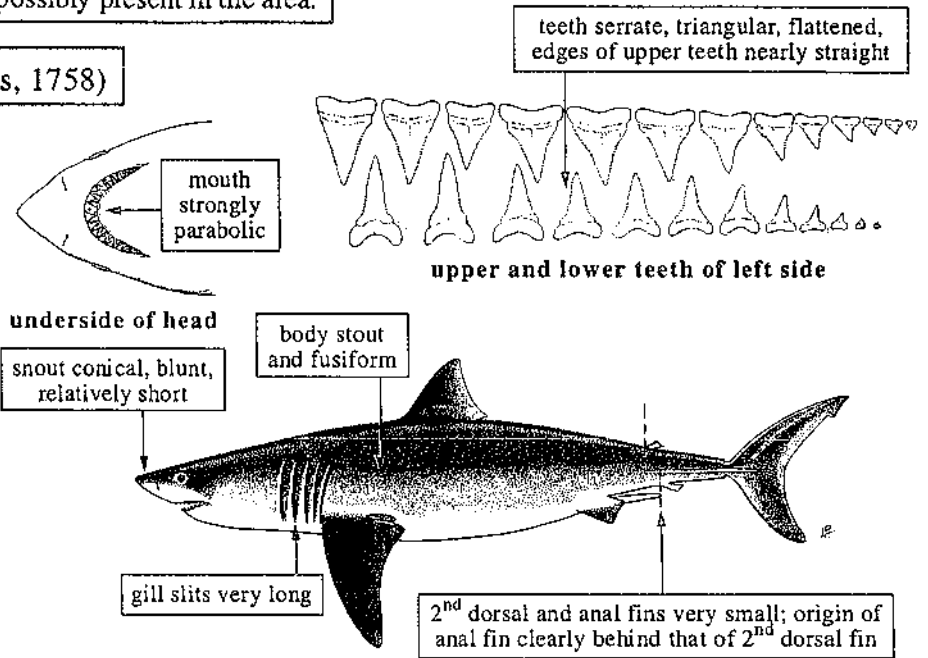
FAO names: **En** - Great white shark (=AFS: White shark); **Fr** - Grand requin blanc; **Sp** - Jaquetón blanco.

Common names:

Size: Possibly to 800 cm; common to 500 cm.

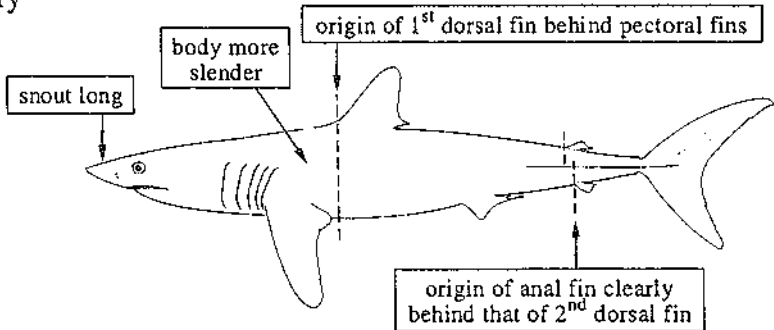
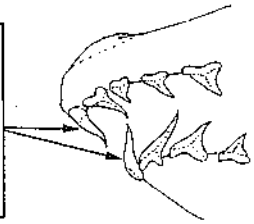
Distribution and habitat: Occurs far offshore, in oceanic waters. A voracious predator and active swimmer, with many records of unprovoked attacks on people. Viviparous, with up to 9 embryos per litter.

Fisheries: No catch records known from the area. It may be taken on long-lines.

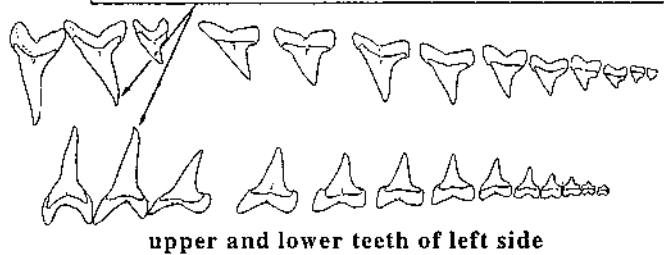


Genus *Isurus* - 2 species in the area, very similar to one another.

teeth narrow, their edges smooth and without lateral cusplets, upper teeth with sharp triangular cusps



front teeth in both jaws very narrow, with curved cusps



Isurus oxyrinchus Rafinesque, 1810

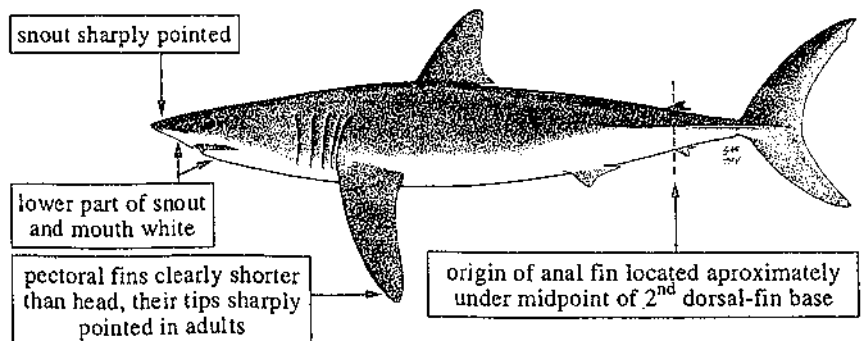
FAO names: **En** - Shortfin mako; **Fr** - Taupe bleu; **Sp** - Marrajo dientuso.

Common names:

Size: Maximum 400 cm; common to 270 cm.

Distribution and habitat: Throughout the area. An oceanic species occurring near the surface, but descending into deeper waters during summer. Sometimes it approaches the coast in search of food. One of the most active, fast-swimming and hardy species of shark, dangerous to people.

Fisheries: Caught with longlines and on hook-and-line. Marketed salted or frozen; the flesh is of good quality.



LAMNIDAE

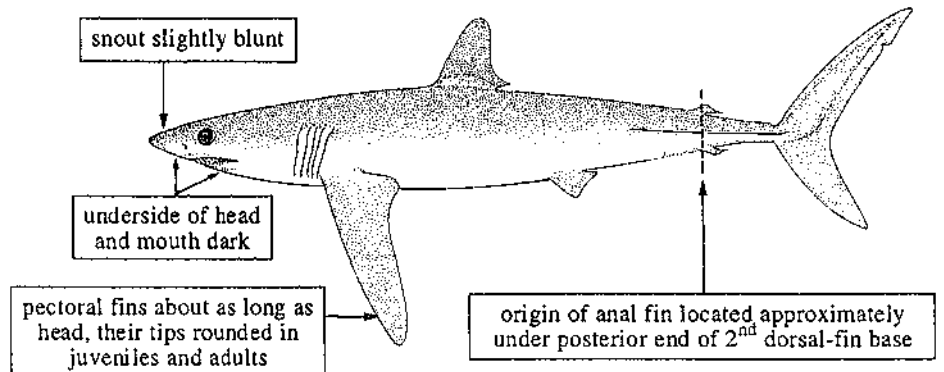
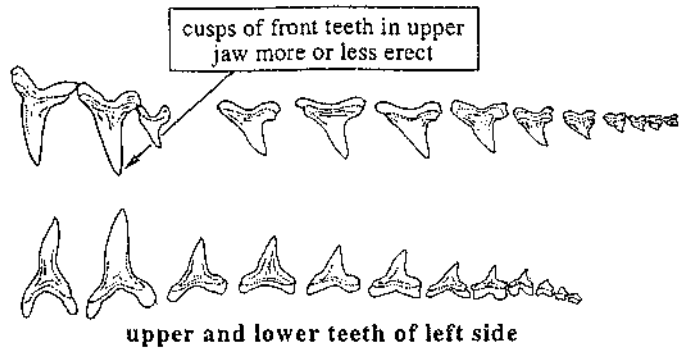
Isurus paucus Guitart, 1965

FAO names: En - Longfin mako; Fr - Taupe longue-aile; Sp - Marrajo carite.

Common names:

Size: Maximum 300 cm; common to 200 cm.

Distribution and habitat: An oceanic species, but its habits are poorly known. Its presence in the area has not been confirmed.



MITSUKURINIDAE

En: Goblin sharks. **Fr:** Requins lutin. **Sp:** Tiburones duende.

A small group of medium-sized, strange-looking sharks, with a large head and the snout prolonged into a long sword. A single genus with one species.

Genus *Mitsukurina* - a single species.

Mitsukurina owstoni Jordan, 1896

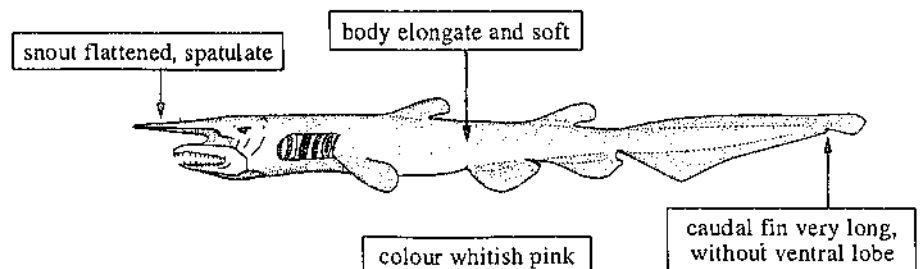
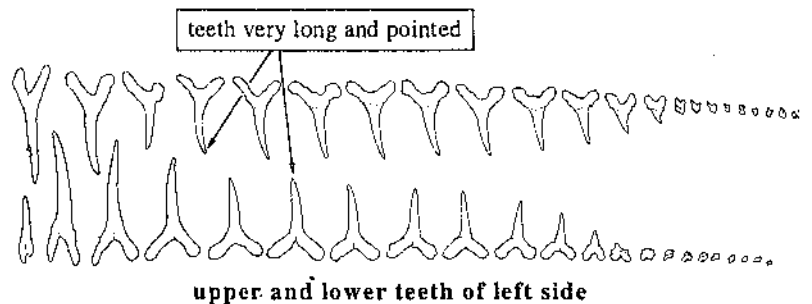
FAO names: En - Goblin shark; Fr - Requin lutin; Sp - Tiburón duende.

Common names:

Size: Maximum 335 cm; common to 200 cm.

Distribution and habitat: Within the area, only known from French Guiana. Occurs over the continental slope to about 550 m depth.

Fisheries: No catch records known from the area. It may be caught with bottom longlines and trawls. Probably marketed salted.



ORECTOLOBIDAE (= GINGLYMOSTOMATIDAE)

En: Nurse sharks. **Fr:** Requins nourrices. **Sp:** Gatas nodrizas, gatas.

A single genus in the area.

Genus *Ginglymostoma* - a single species in the area.

Ginglymostoma cirratum (Bonnaterre, 1783)

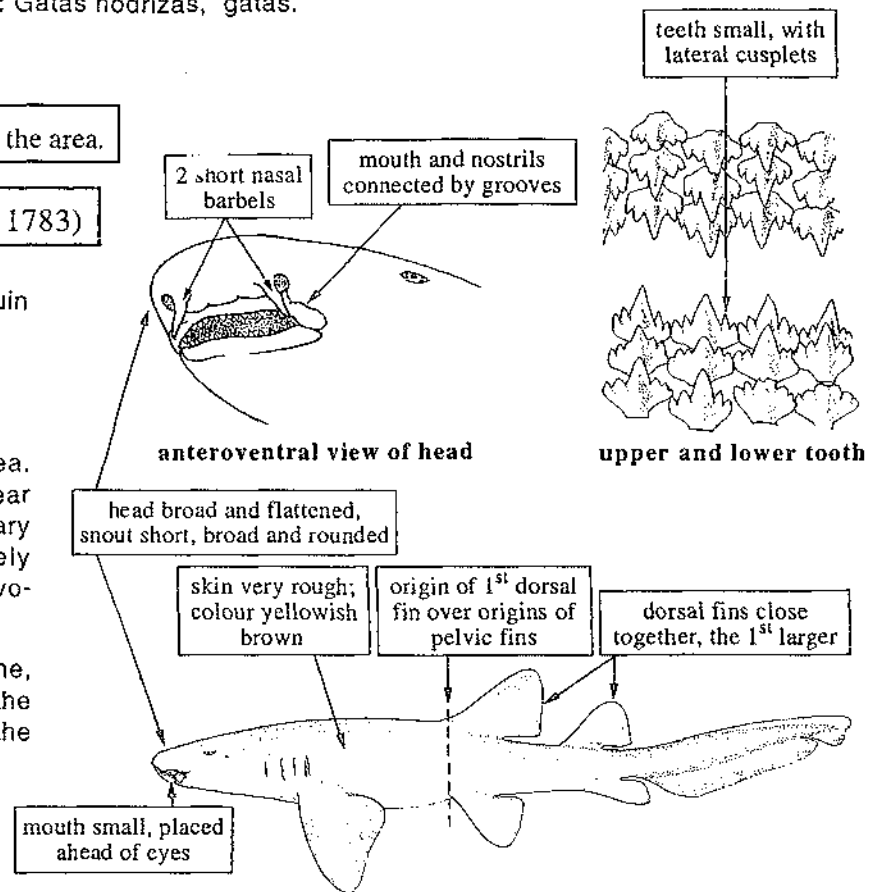
FAO names: **En** - Nurse shark; **Fr** - Requin nourrice; **Sp** - Gata atlántica.

Common names:

Size: Maximum 430 cm; common to 250 cm.

Distribution and habitat: Throughout the area. Occurs over shallow, sandy bottoms in clear water, often in coral reef areas. A sedentary species, mainly during daytime; extremely hardy, remains alive for hours out of water. Oviparous.

Fisheries: Mostly artisanal, on hook-and-line, with spears, or by passing a rope around the caudal peduncle. Usually marketed salted; the skin is used for sand paper.



OXYNOTIDAE

En: Rough sharks. **Fr:** Centrines, oxynotes. **Sp:** Cerdos marinos, tiburones ojimoto.

A single genus.

Genus *Oxynotus* - a single species in the area.

Oxynotus caribbaeus Cervigón, 1961

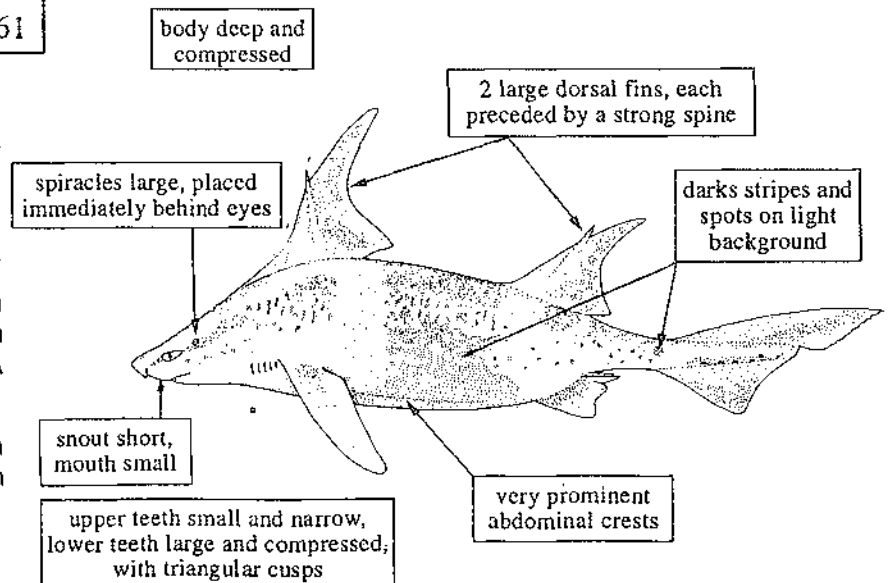
FAO names: **En** - Caribbean rough shark; **Fr** - Oxynote des Caraïbes; **Sp** - Tiburón ojimoto.

Common names:

Size: Maximum 49 cm, common to 35 cm.

Distribution and habitat: Known from the coast of Venezuela. Demersal in rather deep water, below 200 m depth. A sedentary, slow-swimming species.

Fisheries: Taken incidentally with bottom trawls or bottom longlines. Records from the area are scarce.



RHINCODONTIDAE (= RHINIODONTIDAE)

En: Whale sharks. **Fr:** Requins baleine. **Sp:** Tiburones ballena.

Large, epipelagic, mainly oceanic sharks. A single species.

Genus *Rhincodon* - a single species.

Rhincodon typus Smith, 1828

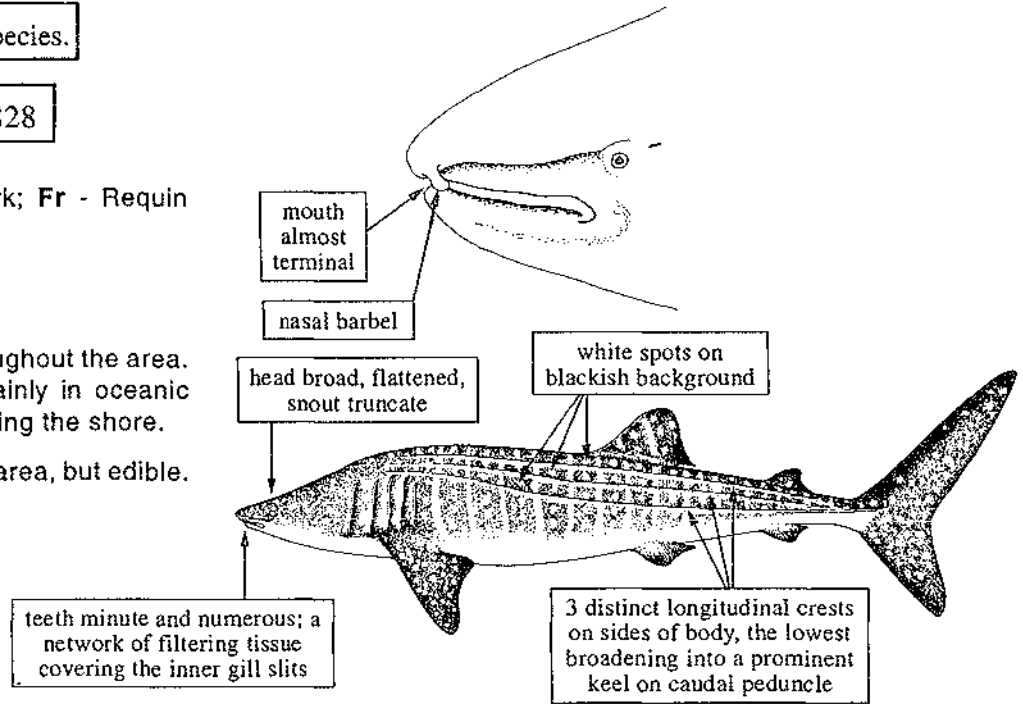
FAO names: **En** - Whale shark; **Fr** - Requin baleine; **Sp** - Tiburón ballena.

Common names:

Size: Maximum at least 12 m.

Distribution and habitat: Throughout the area. A pelagic species occurring mainly in oceanic waters, but frequently approaching the shore.

Fisheries: Rarely caught in the area, but edible.



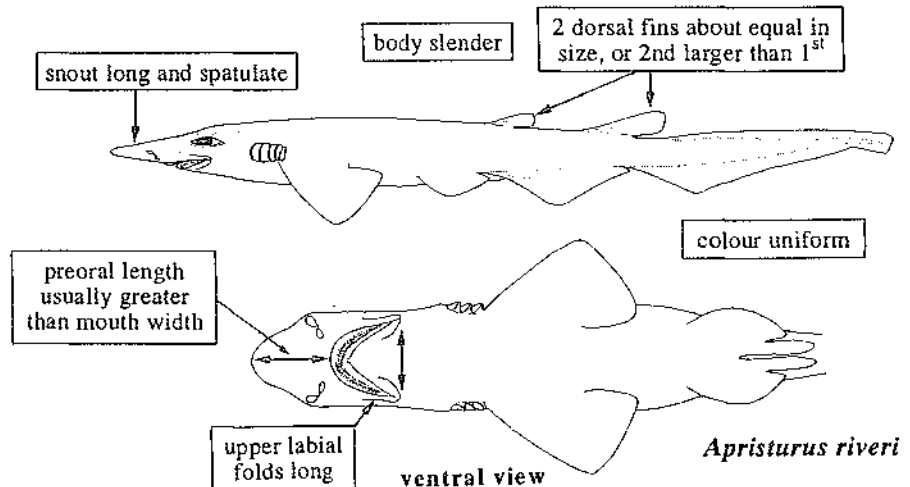
SCYLIORHINIDAE

En: Catsharks. **Fr:** Chiens, hobiches, roussettes. **Sp:** Ailitanes, pejegatos, pintarrojas.

A very large group of small, demersal sharks, mostly inhabiting moderately deep water, usually below a depth of 100 m and occasionally to 2 000 m; a few species are found in coastal waters. Even though this is the shark family with the greatest number of species, it is much less important to fisheries in the area than many other other families (e.g. Carcharhinidae). Catsharks are rather sedentary, slow-swimming animals that do not perform any long migrations. They are nocturnal, mostly inactive during daytime. Many species are oviparous and the eggs are encased in horny capsules attached to the bottom by their long filaments. Some species are ovoviviparous.

Genus *Apristurus*

Two species recorded from the area: *Apristurus parvipinnis* Springer and Heemstra, 1979, known only from northern Colombia and French Guiana, between depths of 630 and 1 115 m, and *Apristurus riveri* Bigelow and Schroeder, 1944, known only from off eastern Colombia, between depths of 860 and 1 100 m. Both species attain about 50 cm length and are of no interest to fisheries.



SCYLIORHINIDAE

Genus *Galeus* - a single species reported from the area.

Galeus arae (Nichols, 1927)

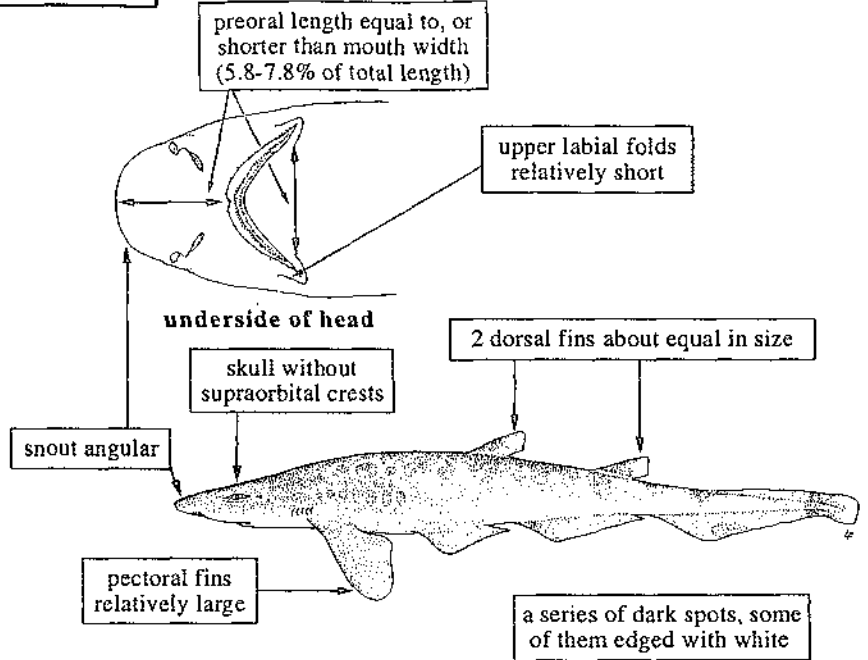
FAO names: En - Roughtail catshark; Fr - Chien à queue rude; Sp - Pintarroja rabolija.

Common names:

Size: Maximum 43 cm; common to 35 cm.

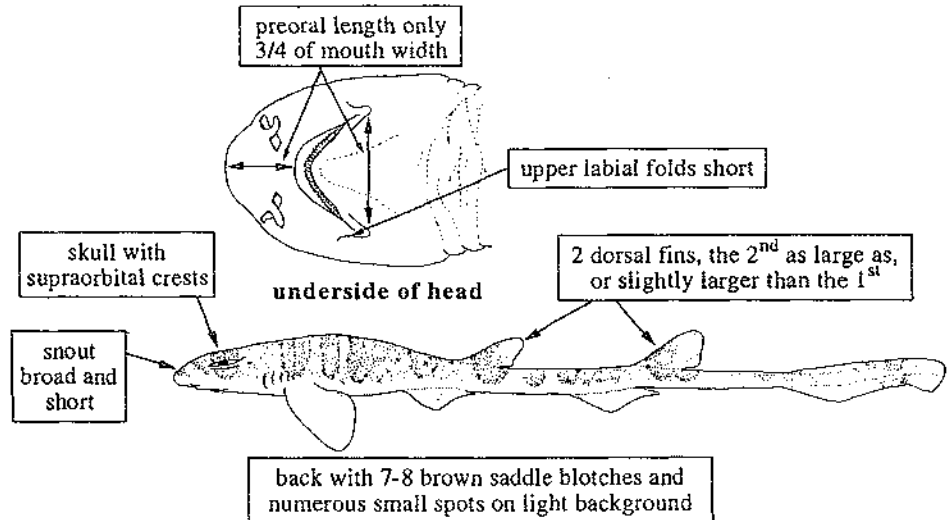
Distribution and habitat: Northern coasts of Colombia and Venezuela and possibly, Trinidad and Tobago. A demersal species usually occurring over the continental slope, between depths of 290 and 730 m.

Fisheries: Taken as bycatch in industrial trawl fisheries. At present not utilized for food and hence, of no interest to fisheries.

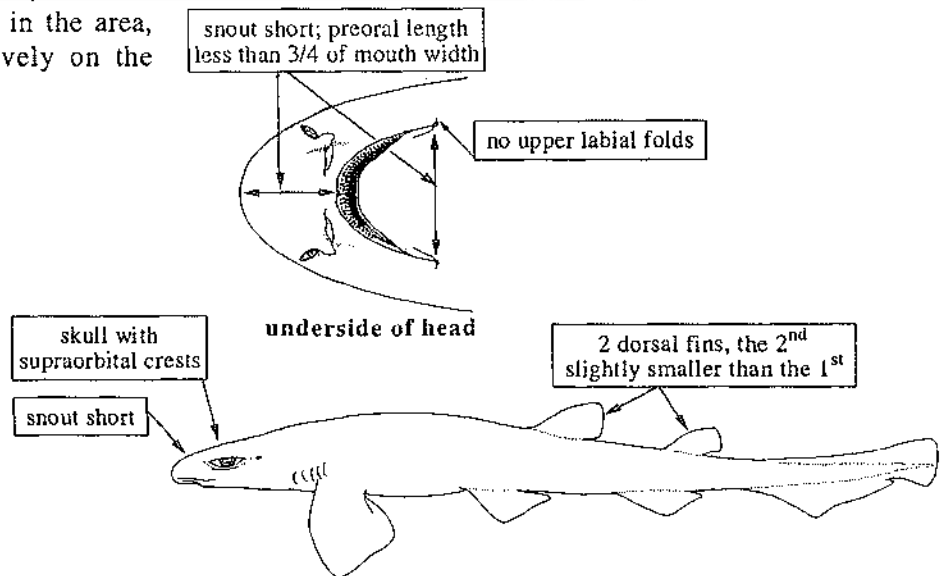


Genus *Schroederichthys*

A single species, *Schroederichthys tenuis* Springer, 1966 (maximum size 70 cm), occurring close to the eastern boundary of the area (so far, only reported from the Amazon river mouth) and of no interest to fisheries.



Genus *Scyliorhinus* - 3 species in the area, distinguishable almost exclusively on the bases of colour patterns.



SCYLIORHINIDAE

Scyliorhinus boa Goode and Bean, 1896

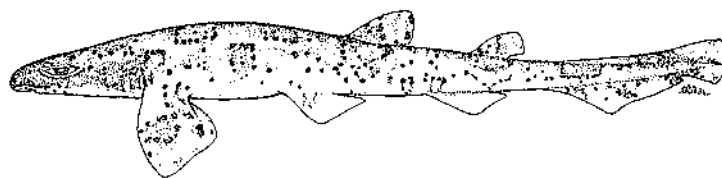
FAO names: **En** - Boa catshark; **Fr** - Roussette boa; **Sp** - Alitán boa.

Common names:

Size: Maximum 155 cm; common to 100 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela and probably, Trinidad. Occurs in waters below 300 m and may attain depths of nearly 700 m.

Fisheries: Taken occasionally as bycatch in industrial trawl fisheries. Not used as food at present.



rows of small black spots delimiting diffuse dark markings

Scyliorhinus haeckelii (Ribeiro, 1907)

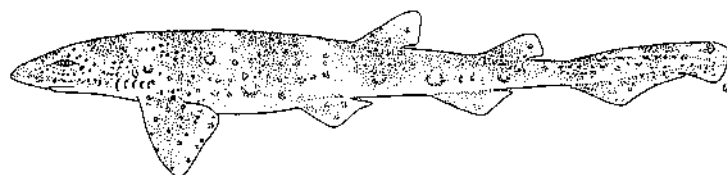
FAO names: **En** - Freckled catshark; **Fr** - Roussette taches de son; **Sp** - Alitán pecoso.

Common names:

Size: Maximum at least 35 cm; common to 25 cm.

Distribution and habitat: Throughout the area. A demersal species occurring in depths between 37 and 402 m.

Fisheries: Taken as bycatch in industrial trawl fisheries. Of no interest to fisheries at present.



7-8 dark, diffuse stripes, and small black spots entirely covering body and fins

Scyliorhinus hesperius Springer, 1966

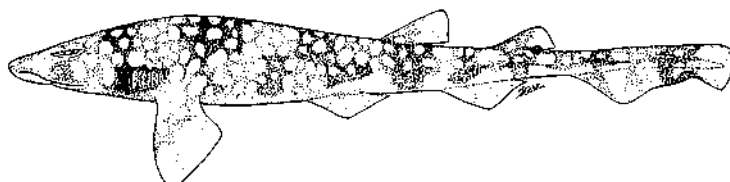
FAO names: **En** - White-saddled catshark; **Fr** - Roussette selle blanche; **Sp** - Alitán ensillado.

Common names:

Size: Maximum at least 47 cm.

Distribution and habitat: Within the area, known only from the northern coast of Colombia, between depths of 250 and 500 m.

Fisheries: Taken occasionally as bycatch in industrial trawl fisheries. Of no interest to fisheries at present.



rounded white spots superimposed on a pattern of dark areas and light interspaces

SPHYRNIDAE

En: Hammerhead sharks, bonnethead sharks. **Fr:** Requins marteau. **Sp:** Tiburones martillo, cornudas.

Mostly large sharks, very characteristic because of their flattened, laterally expanded heads. Usually fast-swimming species inhabiting temperate and tropical seas, over the continental shelf and upper slope, from the surface to a depth of about 275 m. None of the species is strictly oceanic. All species occurring in the area are used as food. Usually not aggressive, unless provoked. One genus with 6 species in the area.

Genus *Sphyrna* - 6 species in the area.

» head laterally expanded, hammer- or shovel-shaped, with the eyes placed at tips of the lateral expansions; nostrils short; spiracles absent.

***Sphyrna lewini* (Cuvier, Griffith and Smith, 1834)** (plate IV, 25-26)

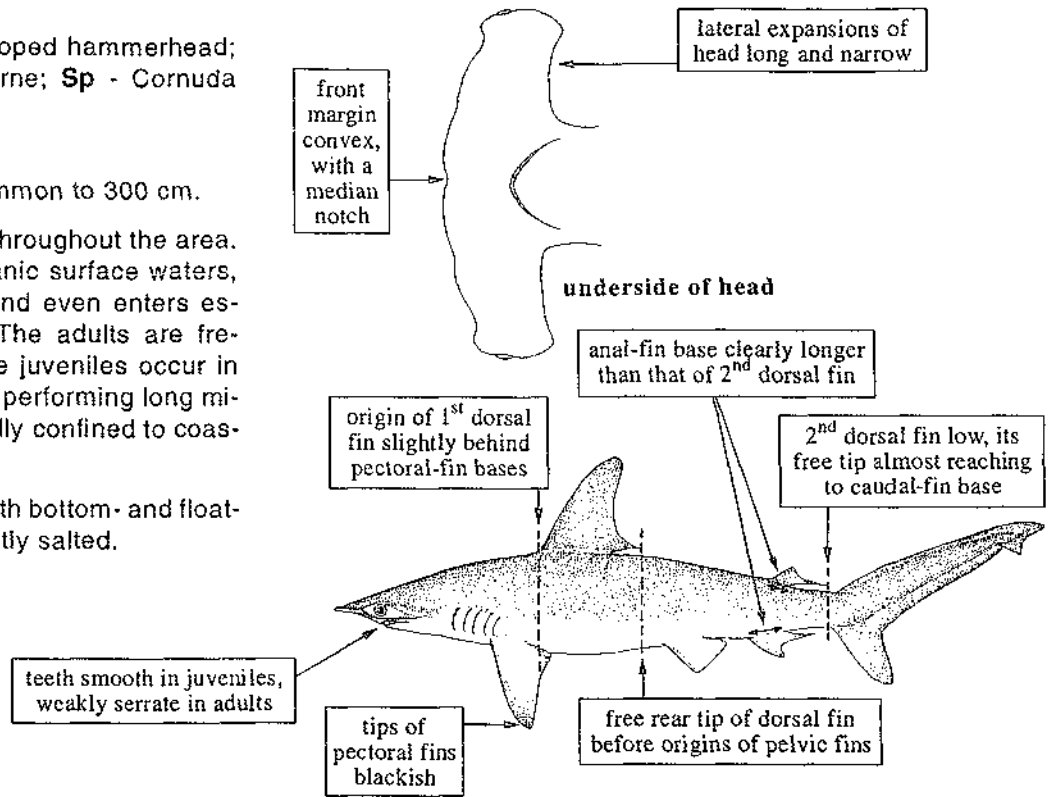
FAO names: En - Scalloped hammerhead; Fr - Requin-marteau halicorne; Sp - Cornuda común.

Common names:

Size: Maximum 420 cm; common to 300 cm.

Distribution and habitat: Throughout the area. Inhabits predominantly oceanic surface waters, but approaches the coast and even enters estuaries in search of food. The adults are frequently found in pairs, while juveniles occur in schools. An active swimmer performing long migrations. Juveniles are usually confined to coastal waters.

Fisheries: Caught mainly with bottom- and floating longlines. Marketed mostly salted.



***Sphyrna media* Springer, 1940**

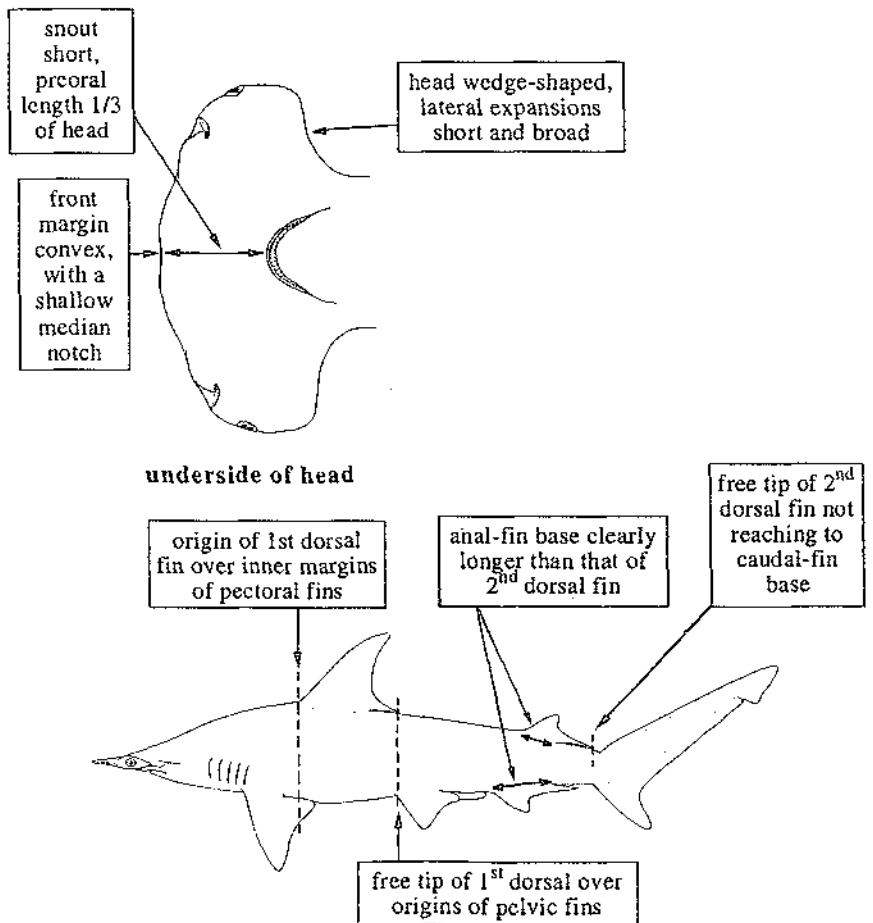
FAO names: En - Scoop-head; Fr - Requin-marteau écope; Sp - Cornuda cuchara.

Common names:

Size: Maximum 150 cm; common to 100 cm.

Distribution and habitat: Throughout the area. Lives in coastal waters over the continental shelf.

Fisheries: Usually caught with bottom longlines. Marketed salted.



SPHYRNIDAE

Sphyrna mokarran (Rüppel, 1837)

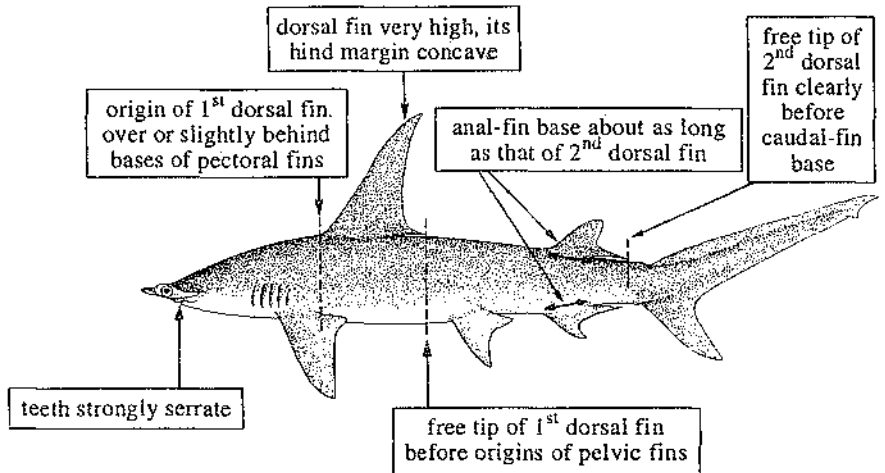
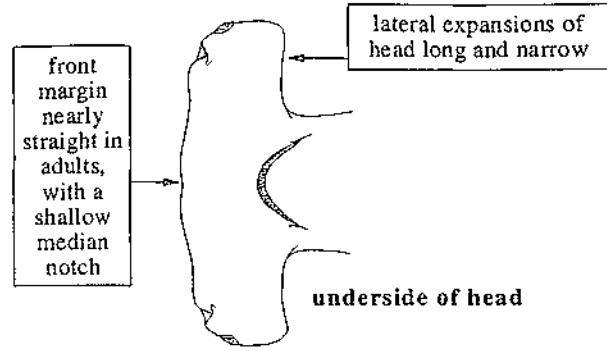
FAO names: En - Great hammerhead; Fr - Grand requin marteau; Sp - Cornuda gigante.

Common names:

Size: Maximum 610 cm; common to 450 cm.

Distribution and habitat: Throughout the area. Pelagic in coastal and semi-oceanic waters, near the coastline as well as off-shore, to about 80 m depth. Frequently found near coral reef areas, along continental coasts as well as around islands. Apparently migrates northward during summer.

Fisheries: Caught mainly with longlines and trammel nets. Marketed salted; the skin is used for leather, the liver for oil, and the fins for soups.



Sphyrna tiburo (Linnaeus, 1758)

FAO names: En - Bonnethead; Fr - Requin-marteau tiburo; Sp - Cornuda de corona.

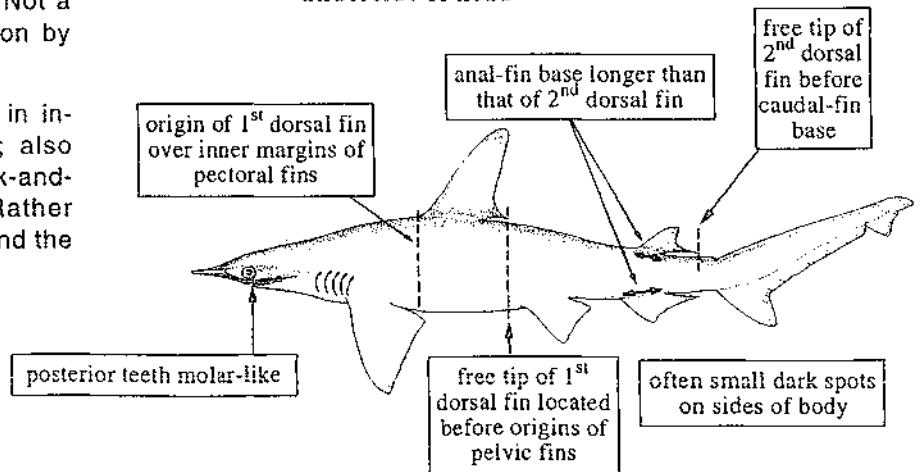
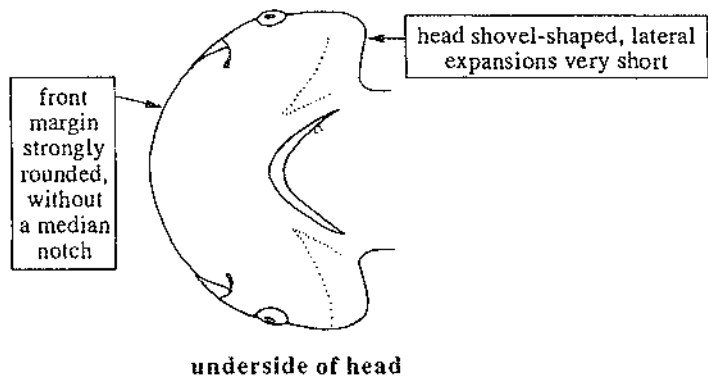
Common names:

Size: Maximum 150 cm; common to 80 cm.

Distribution and habitat: Throughout the area. Occurs in coastal waters, over sandy or muddy bottoms, mainly between depths of 10 and 25 m, but occasionally in deeper water (to 80 m). Common in river-fed estuaries and also, in coral reef areas. Not a very active species, often preyed upon by larger sharks.

Fisheries: Taken mainly as bycatch in industrial trawl fisheries for shrimps; also caught with trammel nets and on hook-and-line. Marketed fresh and salted. Rather abundant between the Gulf of Paria and the Amazon river delta.

(plate IV, 29)



SPHYRNIDAE

Sphyrna tudes (Valenciennes, 1822)

(plate IV, 27-28)

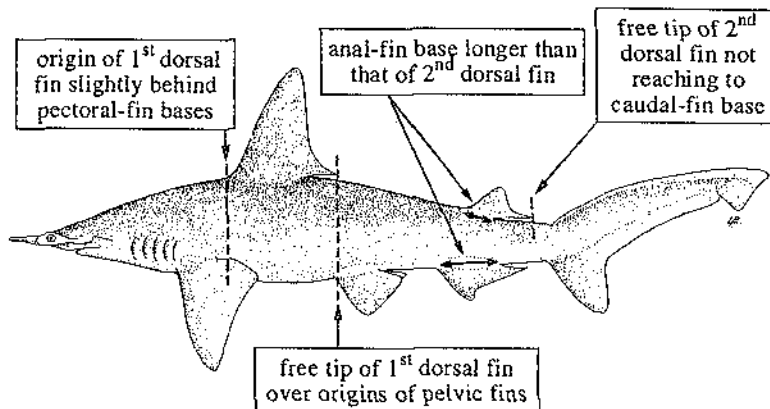
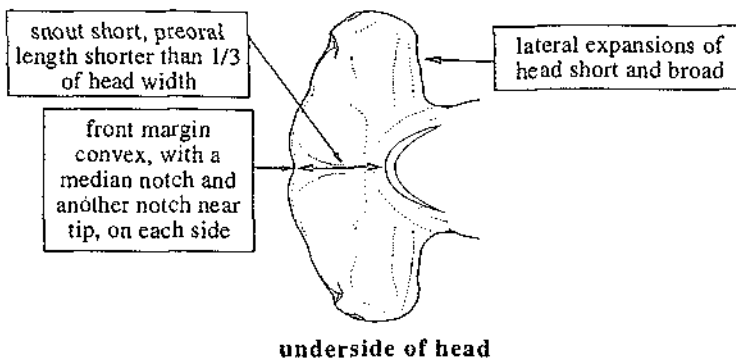
FAO names: **En** - Smalleye hammerhead; **Fr** - Requin-marteau à petits yeux; **Sp** - Cornuda ojichica.

Common names:

Size: Maximum 150 cm; common to 100 cm.

Distribution and habitat: Throughout the area. Occurs in waters to a depth of about 12 m.

Fisheries: Caught mainly with longlines and on hook-and-line.



Sphyrna zygaena (Linnaeus, 1758)

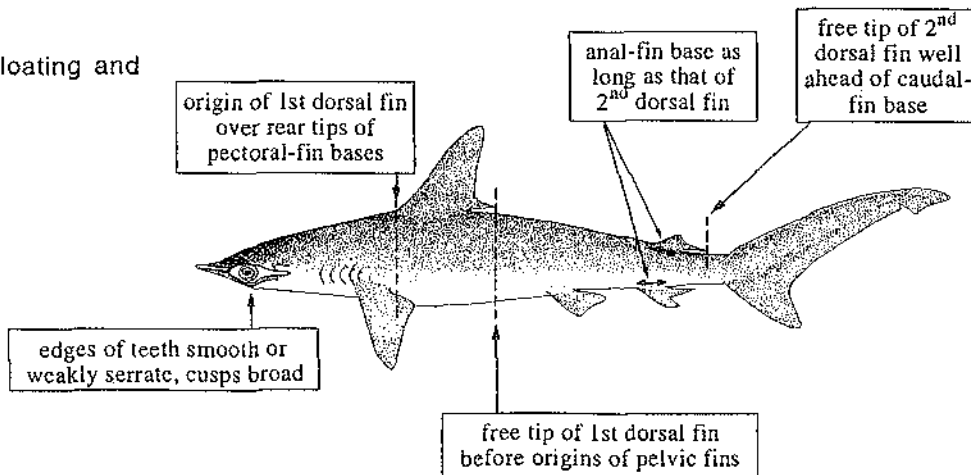
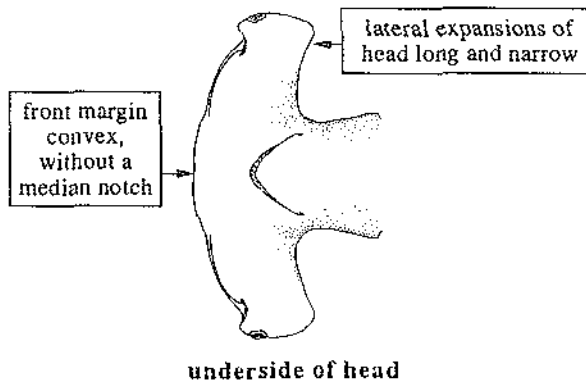
FAO names: **En** - Smooth hammerhead; **Fr** - Requin-marteau commun; **Sp** - Cornuda cruz.

Common names:

Size: Maximum about 370 cm; common to 250 cm.

Distribution and habitat: Its presence in the area has not been confirmed. A pelagic species occurring in coastal and semi-oceanic waters.

Fisheries: Caught mainly with floating and bottom longlines.



SQUALIDAE

En: Dogfish sharks. **Fr:** Squales. **Sp:** Galludos, toros, brujas, cazones de púas.

Small to very large sharks, usually demersal or benthic, but some species mesopelagic. Rather sluggish animals, mostly occurring below a depth of 50 m, but some reaching great depths (nearly 4 000 m or more). Some species perform vertical migrations, coming to the surface at night. Two genera, each with a single species in the area.

Genus *Scymnodon* - a single species reported from the area.

Scymnodon obscurus (Vaillant, 1888)

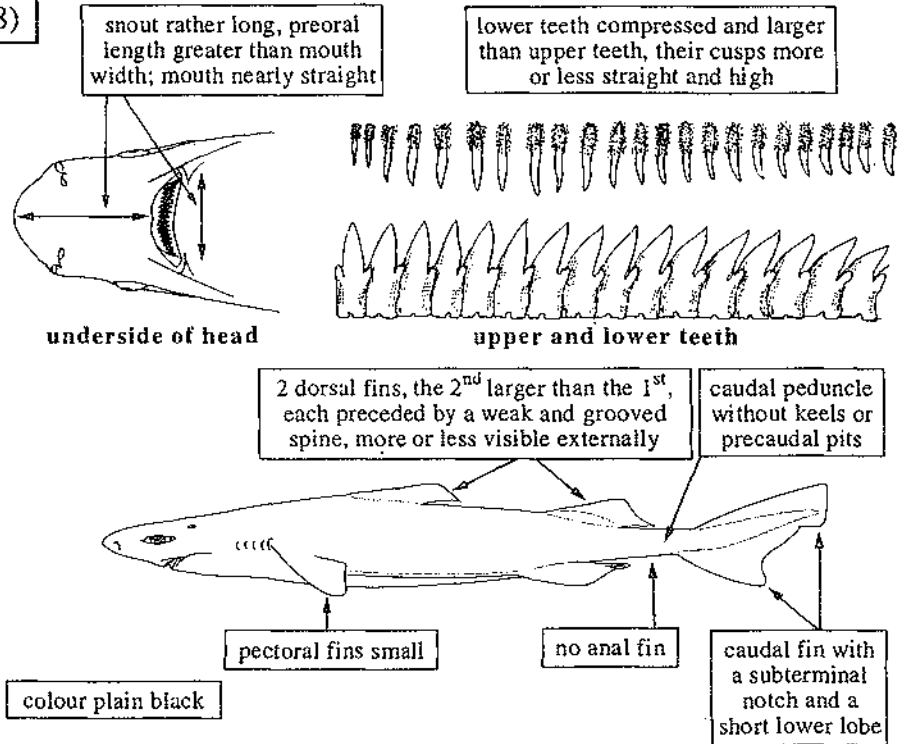
FAO names: **En** - Smallmouth velvet dogfish; **Fr** - Squale-grogneur à queue échancrée; **Sp** - Bruja bocachica.

Common names:

Size: Maximum 60 cm; common to 40 cm.

Distribution and habitat: French Guiana. Usually demersal on the continental slope, between depths of 550 and 1 450 m, but also epipelagic in oceanic waters. Ovoviviparous.

Fisheries: Records of this species from the area are scarce. Marketed salted.



Genus *Squalus* - a single species in the area.

Squalus cubensis Howell Rivero, 1936

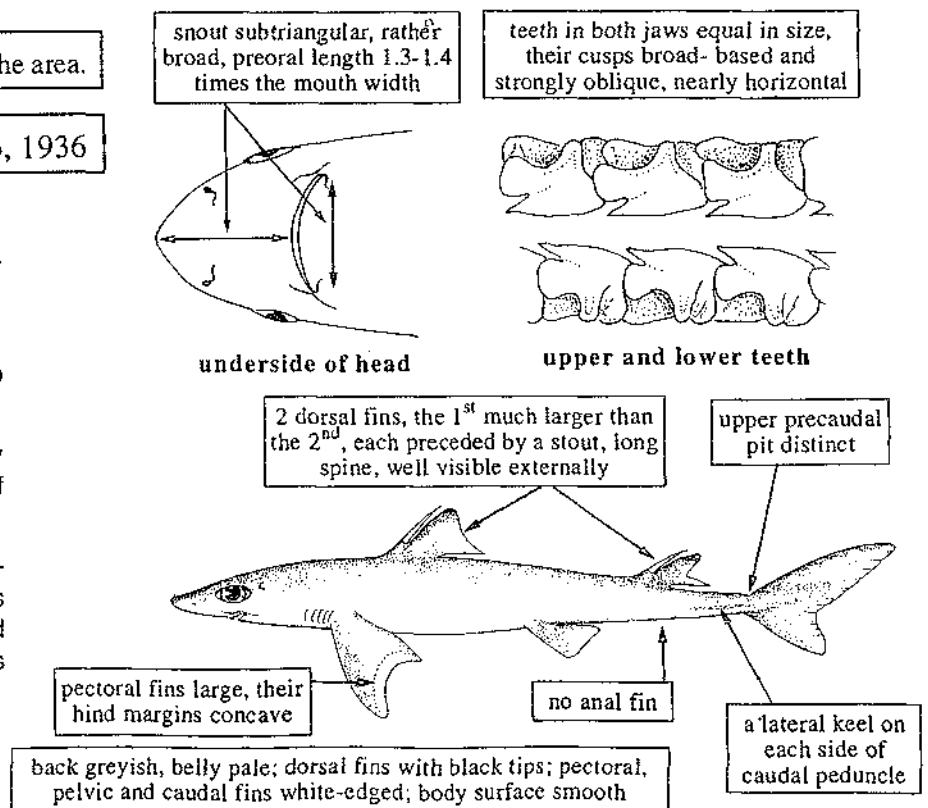
FAO names: **En** - Cuban dogfish; **Fr** - Aiguillat cubain; **Sp** - Galludo cubano.

Common names:

Size: Maximum 110 cm; common to 80 cm.

Distribution and habitat: Probably throughout the area, from depths of about 100 m to 400 m.

Fisheries: Taken as bycatch in industrial trawl fisheries; also with longlines and on hook-and-line. Marketed salted. On the coast of Venezuela this species is caught rather frequently.



SQUATINIDAE

En: Angel sharks. **Fr:**ANGES de mer. **Sp:** Tiburones ángel, angelotes.

A single genus.

Genus *Squatina* - a single species in the area.

Squatina dumeril (LeSueur, 1817)

(plate IV, 30)

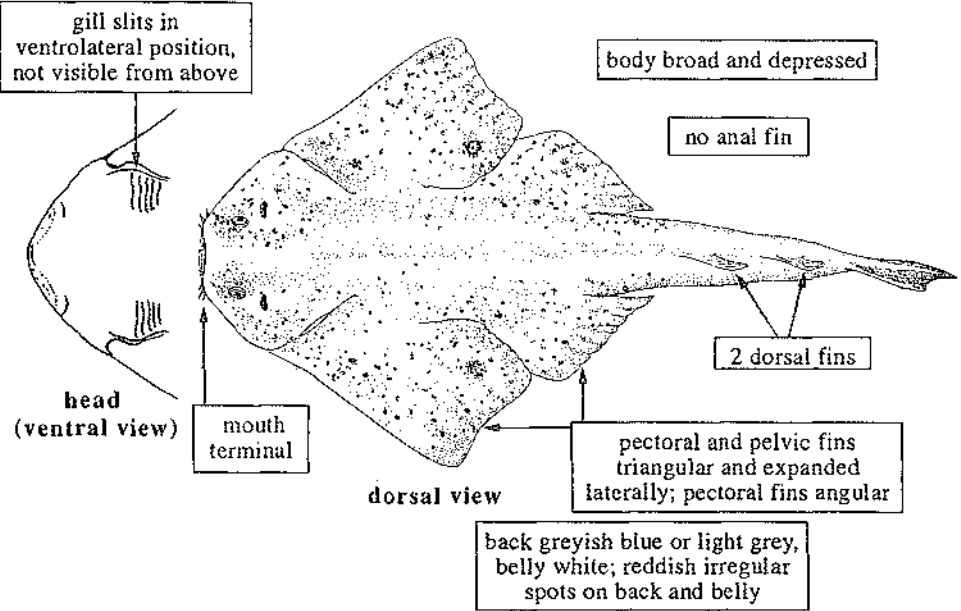
FAO names: **En** - Sand devil;
Fr - Ange de mer; **Sp** - Tiburón
ángel.

Common names:

Size: Maximum 155 cm; common
to 100 cm.

Distribution and habitat: Prob-
ably throughout the area, below
100 m, and possibly attaining
depths of 1 500 m.

Fisheries: Taken occasionally as
bycatch in industrial trawl fish-
eries. Rarely caught, and hence of
no interest to fisheries at present.

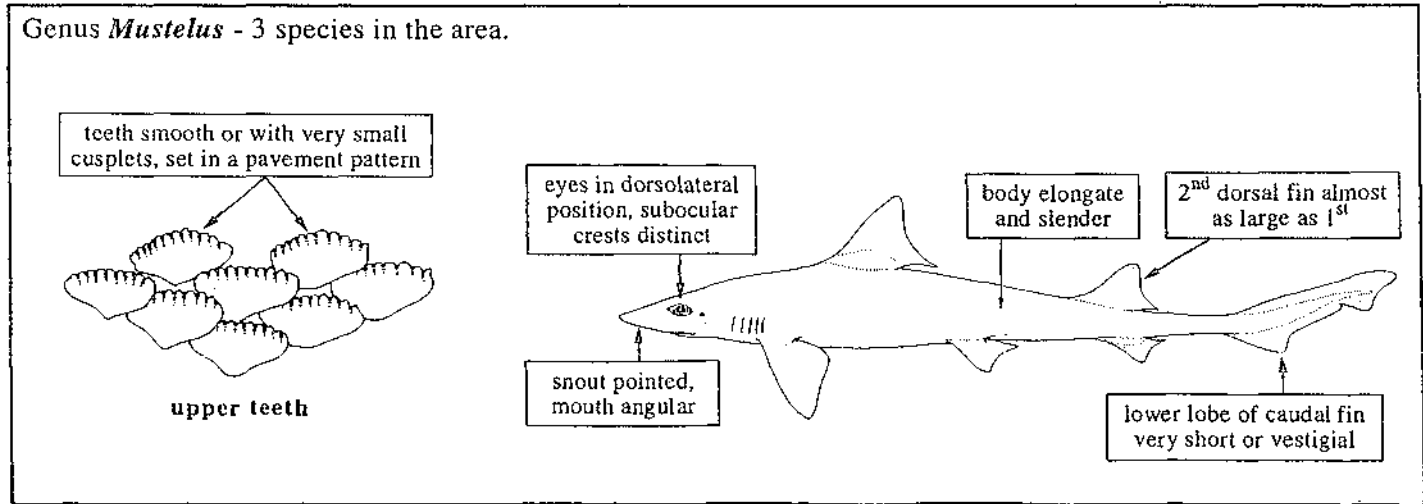


TRIAKIDAE

En: Houndsharks, smooth-hounds. **Fr:** Emissoles. **Sp:** Musolas, viudas.

Small to medium-sized demersal sharks inhabiting moderately deep waters over muddy and sandy, rarely rocky, substrates. One species attains depths of 2 000 m. One genus with 3 species in the area.

Note: Some authors consider this group a subfamily of Carcharhinidae.



Mustelus canis (Mitchill, 1815)

(plate IV, 31)

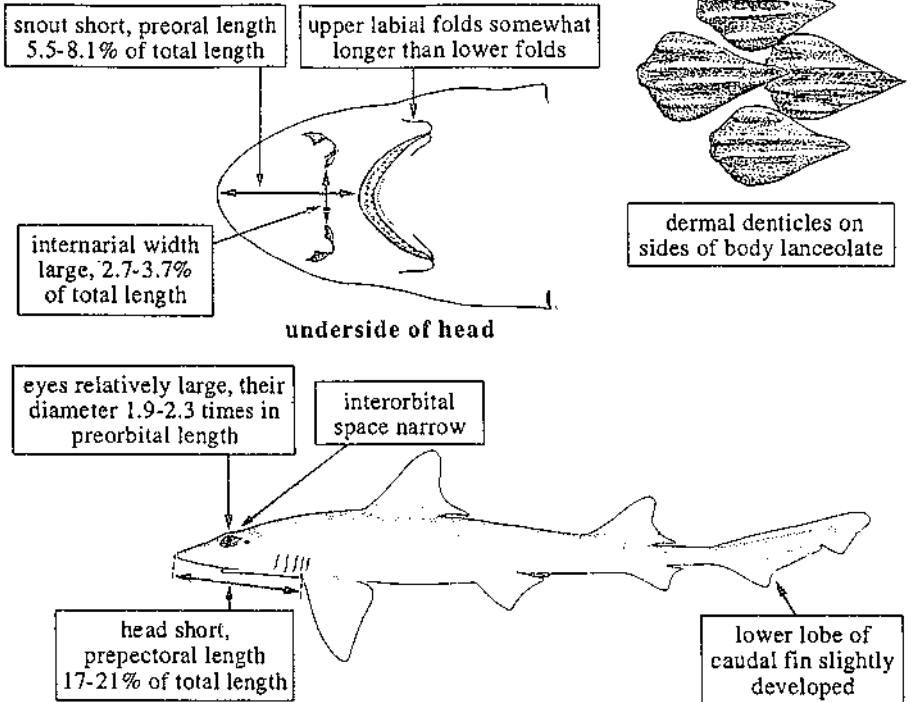
FAO names: En - Smooth dogfish; Fr - Emissole douce; Sp - Musola dientuda.

Common names:

Size: Maximum 150 cm; common to 100 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad. Occurs on shallow sandy or muddy bottoms, from the coastline to about a depth of 200 m, occasionally in deeper water. In insular areas it may occur on rocky substrates or off the bottom.

Fisheries: Predominantly artisanal, with longlines and trammel nets. Marketed salted. Of local commercial importance.



Mustelus higmani Springer and Lowe, 1963

(plate IV, 32)

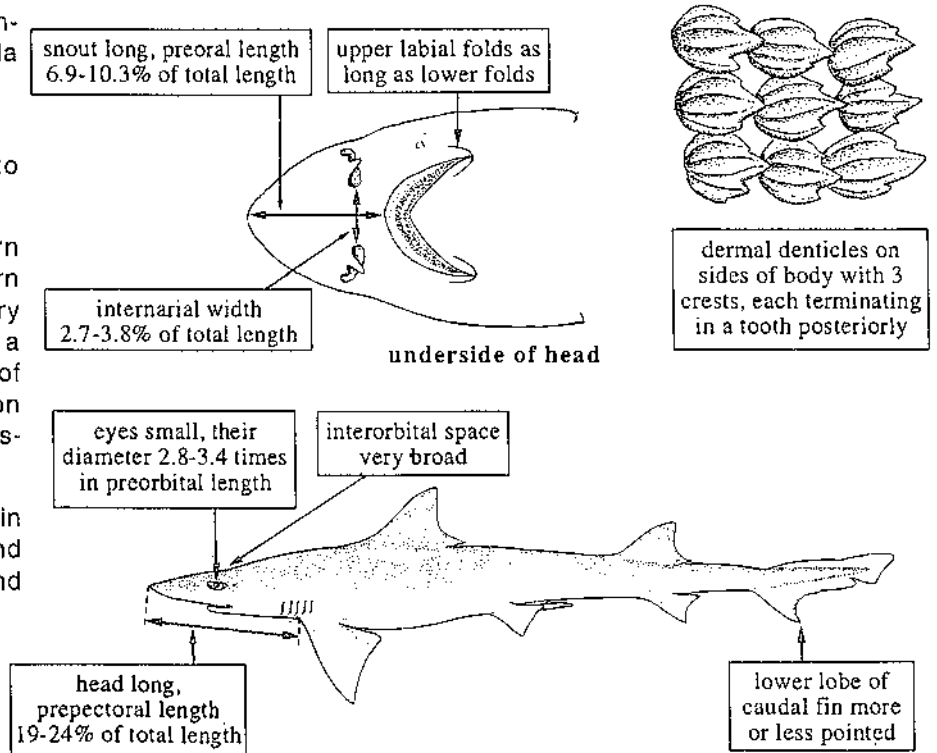
FAO names: En - Smalleye smooth-hound; Fr - Emissole tiyeux; Sp - Viuda amarilla.

Common names:

Size: Maximum 70 cm; common to 55 cm.

Distribution and habitat: Northern coast of Venezuela and northeastern coast of South America. A sedentary species inhabiting coastal waters to a depth of about 100 m, over bottoms of mud, sand or shell fragments. Common and abundant in brackish-water estuaries and surrounding marine areas.

Fisheries: Taken mainly as bycatch in industrial trawl fisheries for shrimps and finfishes. Also caught with longlines and trammel nets.



***Mustelus norrisi* Springer, 1940**

FAO names: En - Narrowfin smooth-hound;

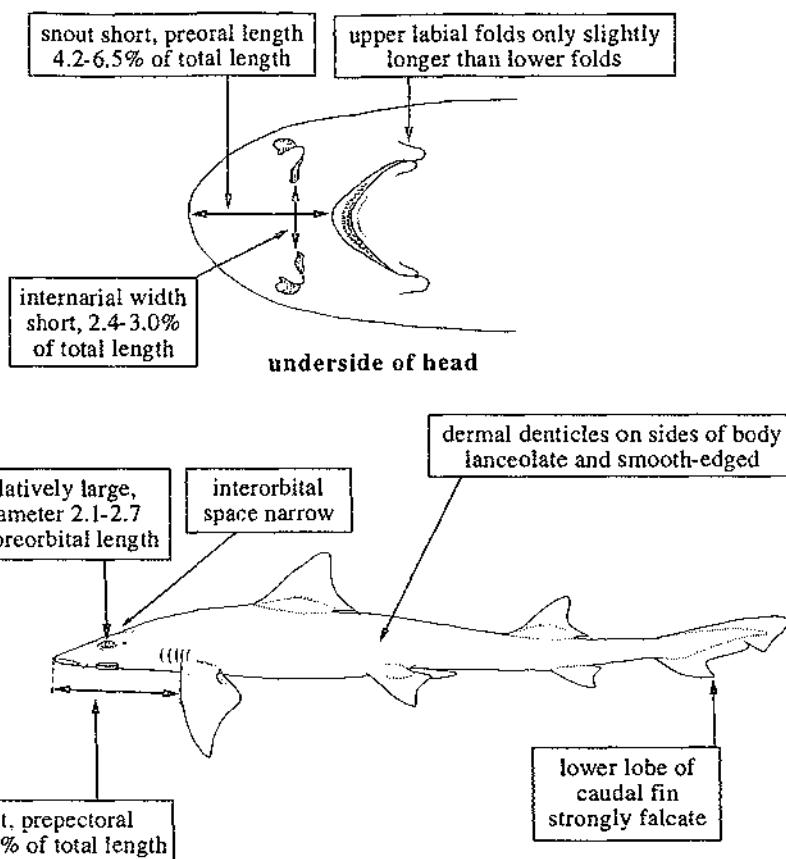
Fr - Emissole veuve; Sp - Musola viuda.

Common names:

Size: Maximum 100 cm; common to 80 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad. Occurs in shallow waters of the continental shelf to a depth of about 80 m, on sandy and muddy substrates.

Fisheries: Predominantly artisanal, with bottom longlines. Also taken as bycatch in industrial trawl fisheries.



BATOID FISHES

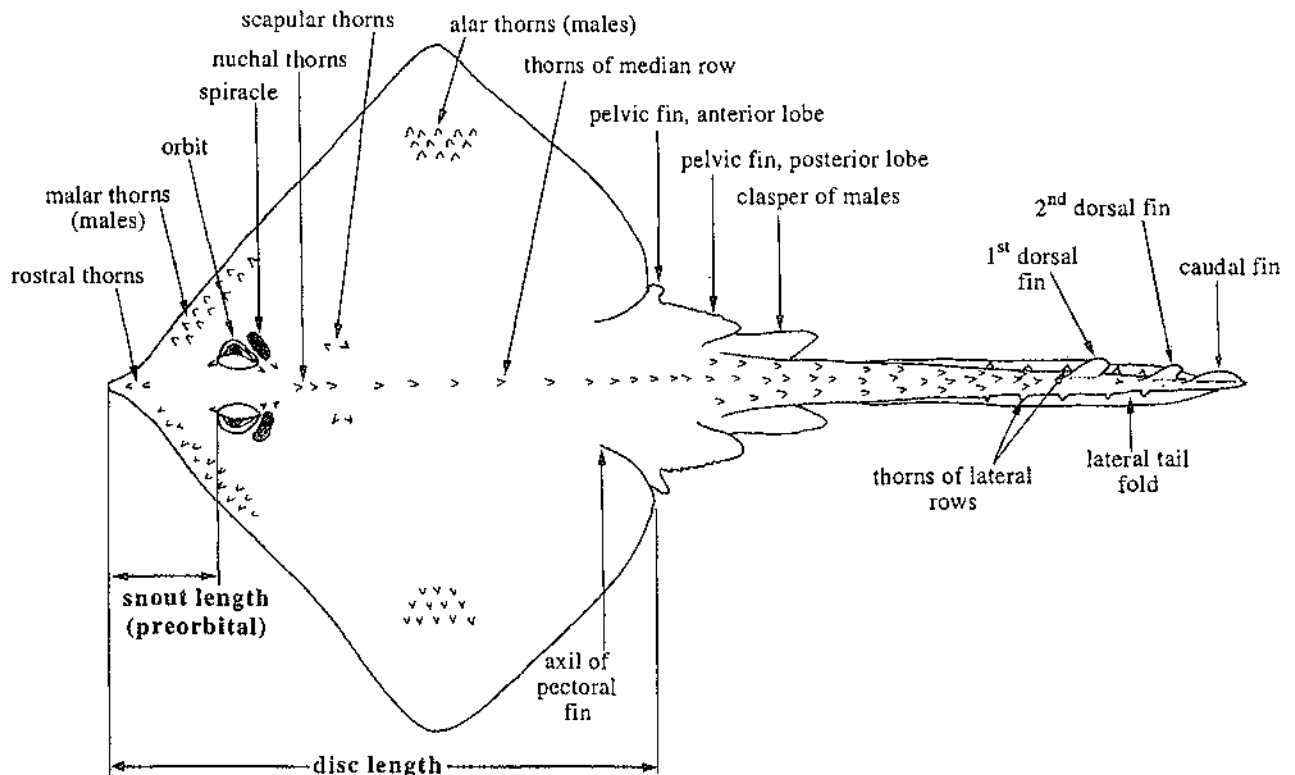
The group termed "batoid fishes" comprises a variety of forms commonly known as rays, skates, mantas, sawfishes, guitarfishes and other groups of lesser importance as fishery resources. They have a dorso-ventrally flattened trunk, the mouth and gill openings in ventral position, and laterally expanded pectoral fins fused to the sides of the trunk and sometimes, of the head. They range in size from about 20 cm length (some species of rays) to about 6 m (some sawfishes). In some manta species, the disk (trunk plus pectoral fins) may attain widths of 7 m and the weight of the animals may exceed 1 500 Kg. In all batoids, fertilization is internal; hence, the males possess copulatory organs (claspers). Most batoid species (except typical rays and skates which lay eggs) are ovoviviparous, which means that the embryos develop while the eggs are still in the oviduct, and hatch shortly after oviposition.

The majority of batoid fishes are marine, but some species also enter brackish waters. One family, the Potamotrygonidae, is almost entirely confined to freshwater, with only a few species entering estuarine waters.

Some batoid families, especially the Rajidae, occur in all oceans, from the coastline to abyssal depths. However, this family is poorly represented in tropical waters and never associated with coral reefs, while most of the other batoid families are particularly abundant in warm-water areas. The world's batoid fish fauna comprises about 400 species, with 110 species belonging to the genus *Raja* (of the family Rajidae).

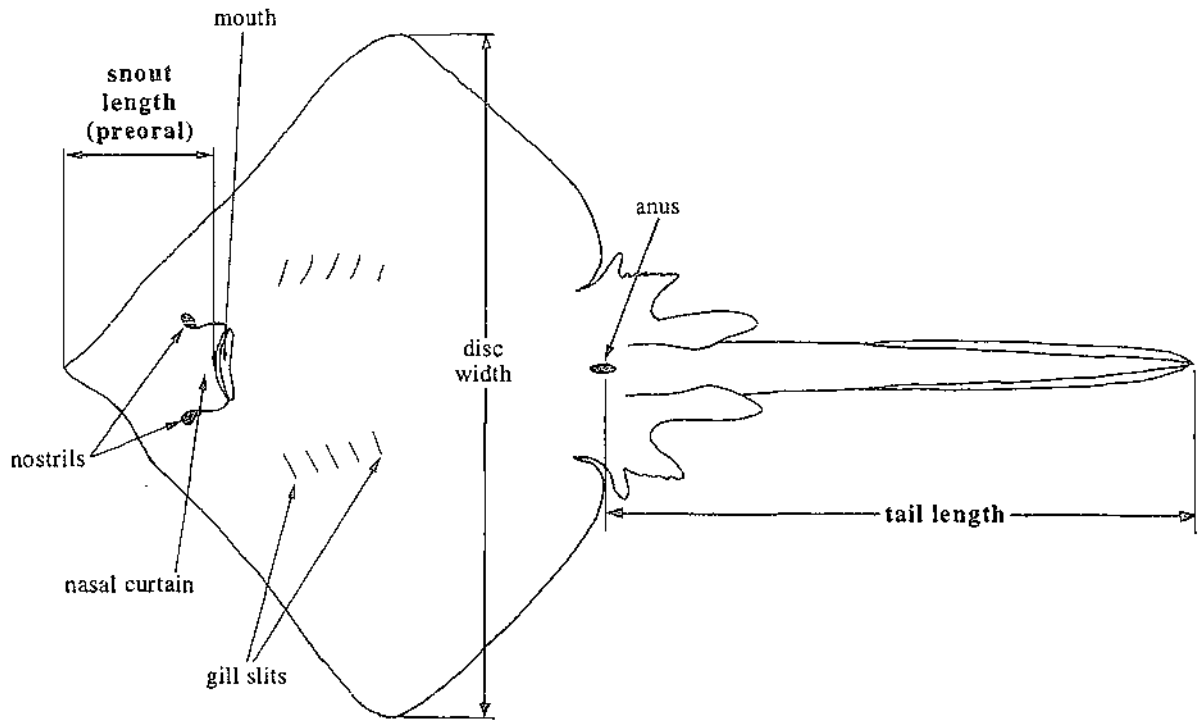
In the area covered by this field guide, batoid fishes as a whole have some importance as a fishery resources. In certain regions they are highly esteemed foodfishes, especially the representatives of *Dasyatis* and *Myliobatis* which are target species in artisanal fisheries, and caught with a special type of trammel net (rayero). They are also taken as bycatch in industrial trawl fisheries. Most batoid fishes are marketed salted.

TECHNICAL TERMS AND MEASUREMENTS

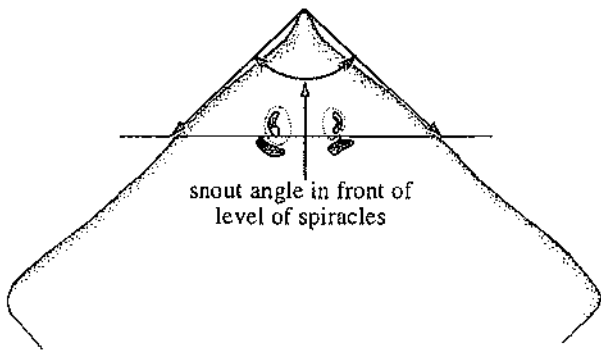


(from Stehmann, 1978)

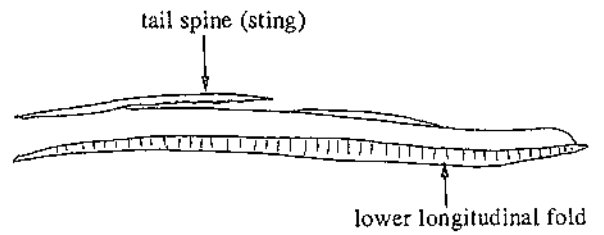
upper side of a typical skate



lower side of a typical skate



anterior part of disc of a skate (dorsal view)



base of tail in stingrays

GUIDELINES FOR THE IDENTIFICATION OF FAMILIES

RAYS AND SKATES - Rajiformes

(Recent authors recognize the 4 suborders listed here as orders and sometimes include them in the superorder Batoidea.)

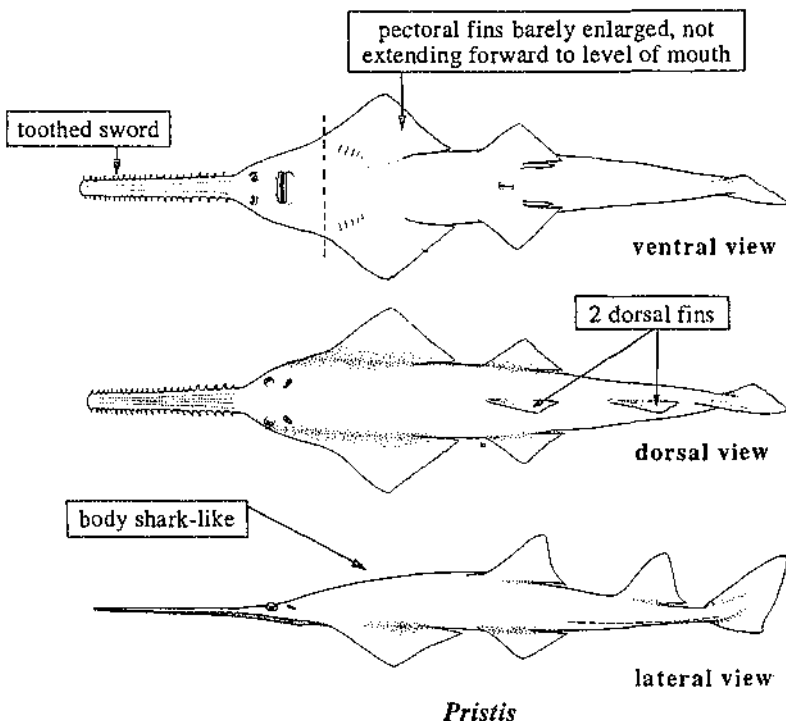
SUBORDER PRISTOIDEI

PRISTIDAE

page 204

Sawfishes

To 6.1 m. Demersal, mainly in shallow marine waters; also in brackish waters and in freshwater. One genus and 2 species in the area.



SUBORDER TORPEDINOIDEI

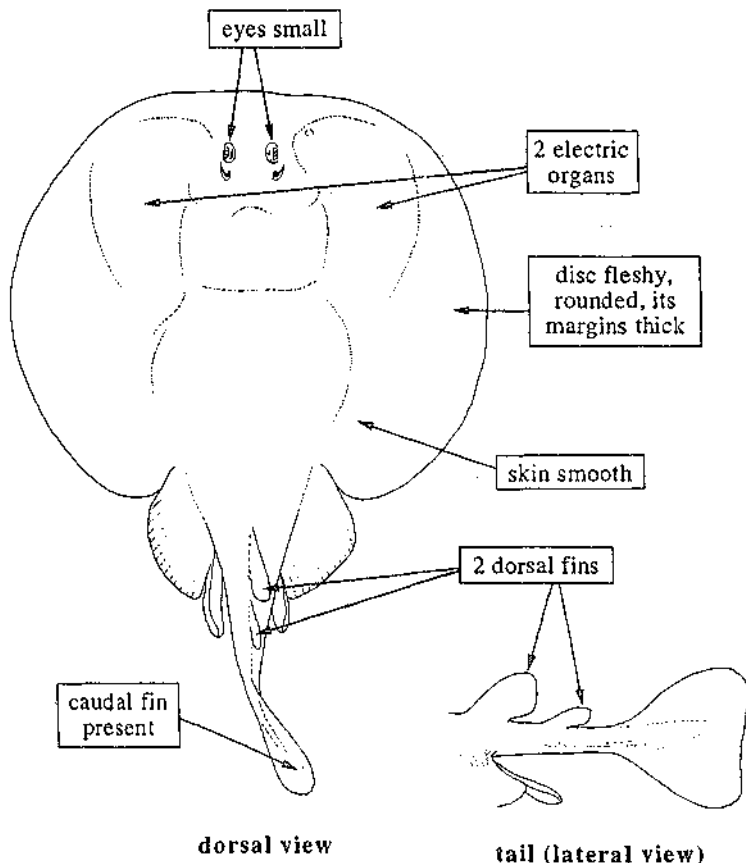
TORPEDINIDAE

page 208

(Includes the subfamilies Torpedinae and Narcininae which are sometimes recognized as separate families.)

Electric rays

To about 50 cm. Demersal in littoral and very shallow coastal marine waters. At least 4 genera and 5 species in the area.



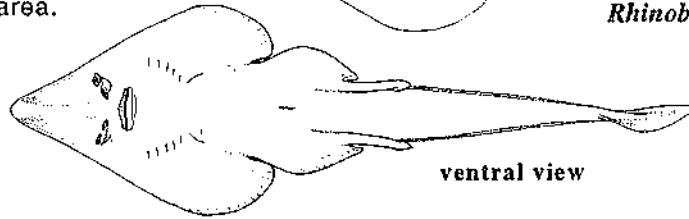
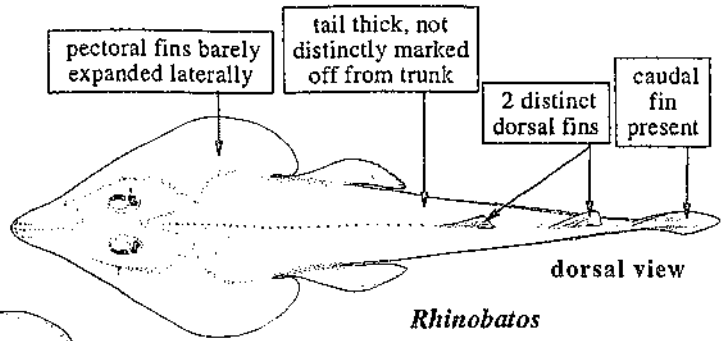
SUBORDER RAJOIDEI

RHINOBATIDAE

page 207

Guitarfishes

To about 100 cm. Demersal in coastal marine waters, usually above a depth of 50 m. One genus and 2 species in the area.

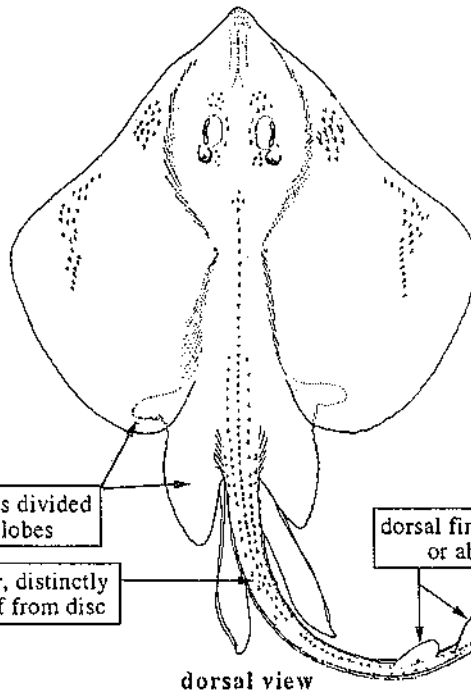


RAJIDAE

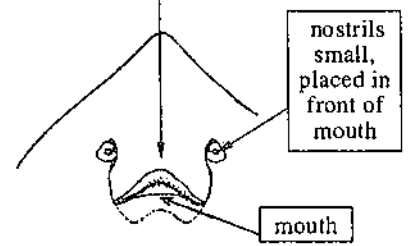
page 205

Skates, rays

To about 70 cm. Demersal in marine waters, from coastal areas to below a depth of 1000 m. Four genera and more than 10 species in the area.



inner margins of nostrils prolonged posteriorly as two large nasal curtains joined to a broad transverse isthmus in front of mouth



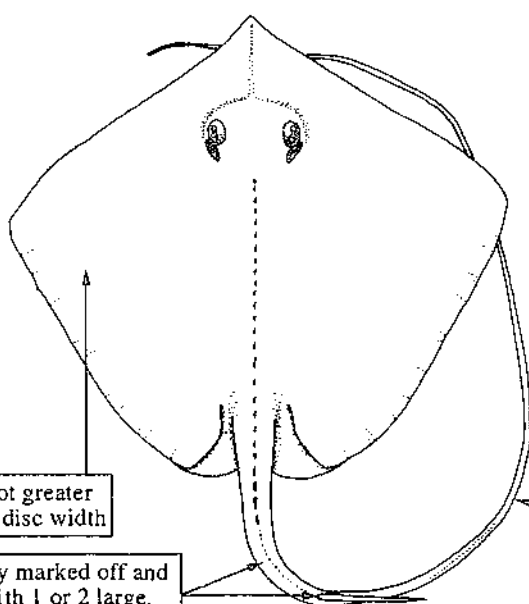
SUBORDER MYLIOBATOIDEI

DASYATIDAE

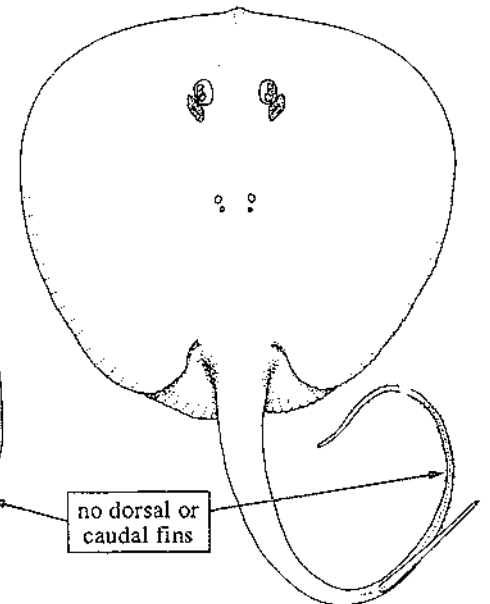
page 198

Stingrays, whiprays

To 480 cm. Demersal in marine waters, from depths of about 5 to below 100 m; some species enter brackish waters and hypersaline lagoons. Two genera and 6 species in the area.



Dasyatis
dorsal view



Himantura schmardae
dorsal view

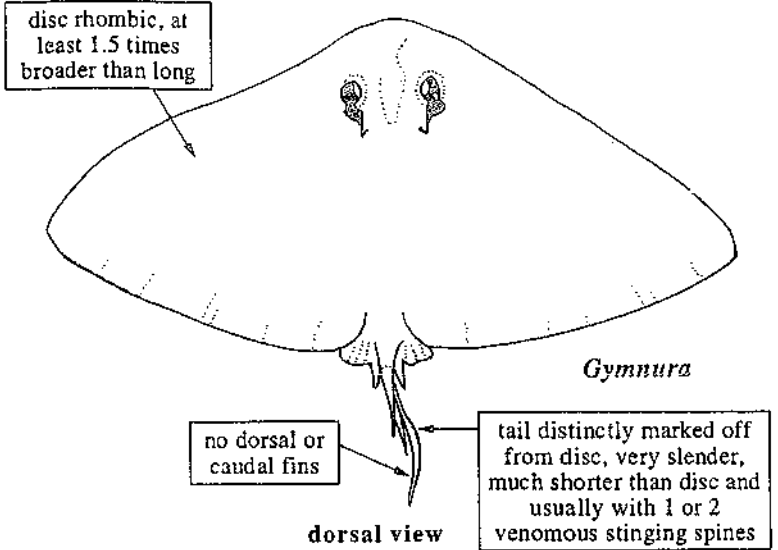
GYMNURIDAE

page 200

(Some authors consider this group a subfamily of Dasyatidae.)

Butterfly rays

To 200 cm disc width. Demersal in marine waters, from depths of about 5 to 40 m; they also enter brackish waters and hypersaline lagoons. One genus and possibly 2 species in the area.

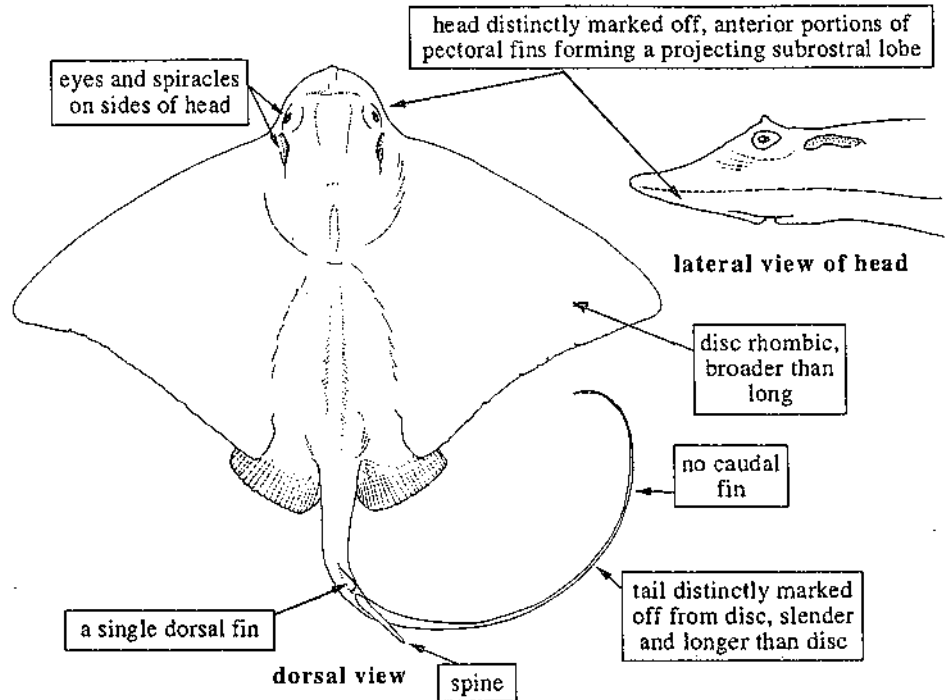


MYLIOBATIDAE

page 202

Eagle rays

To 370 cm. Pelagic or demersal in marine waters, from the surface to below depths of 50 m; they may also enter brackish waters. Three genera and 4 species in the area.

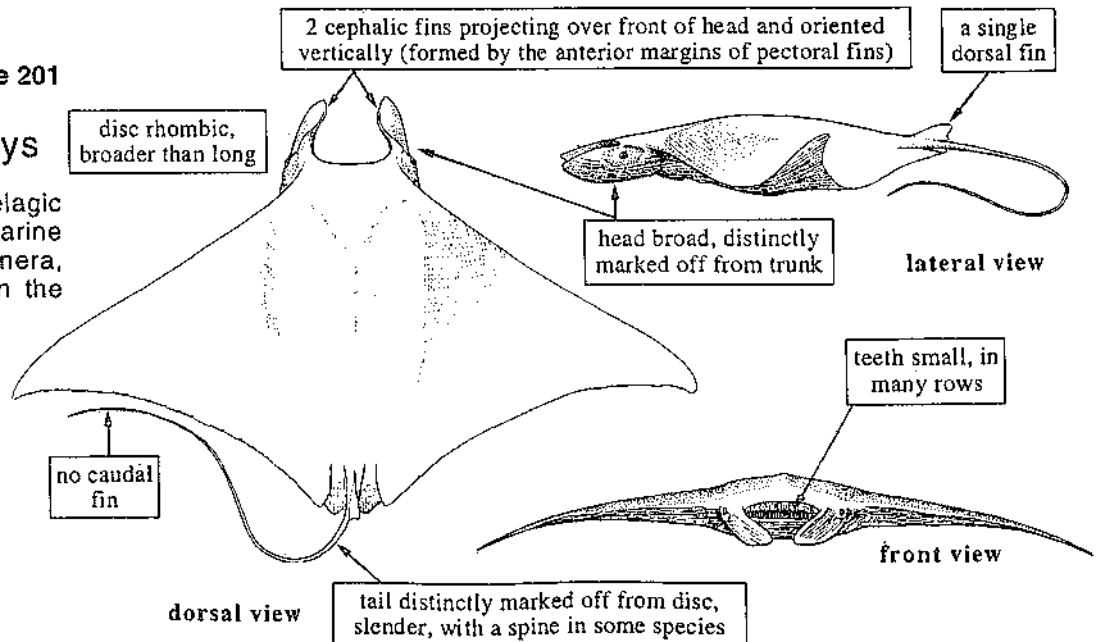


MOBULIDAE

page 201

Manta rays, devil rays

To 670 cm disc width. Pelagic in oceanic and coastal marine surface waters. Three genera, each with one species in the area.



FAMILIES AND SPECIES OF INTEREST TO FISHERIES

DASYATIDAE

En: Stingrays; whiprays. **Fr:** Pastenagues. **Sp:** Rayas-látigo.

Medium- to large-sized rays with pectoral fins continuous along the sides of the head; tail long and slender, longer than the disc and with one or two serrate dorsal spines. They are generally found in shallow water, on soft substrate, mainly sand or mud. Stingrays are of some interest to fisheries in this area, since they are abundant and highly esteemed as foodfishes in some localities. The caudal spines are poisonous and may inflict very painful wounds. Two genera and 6 species in the area.

Genus *Dasyatis* - 5 species in the area.

» disc more or less rhombic, shorter than tail; lower sides of tail behind origin of sting with a longitudinal dermal skin fold; sting located on anterior half of tail; tubercles or bucklers never covering entire upper side of disc.

Dasyatis americana Hildebrand and Schroeder, 1928

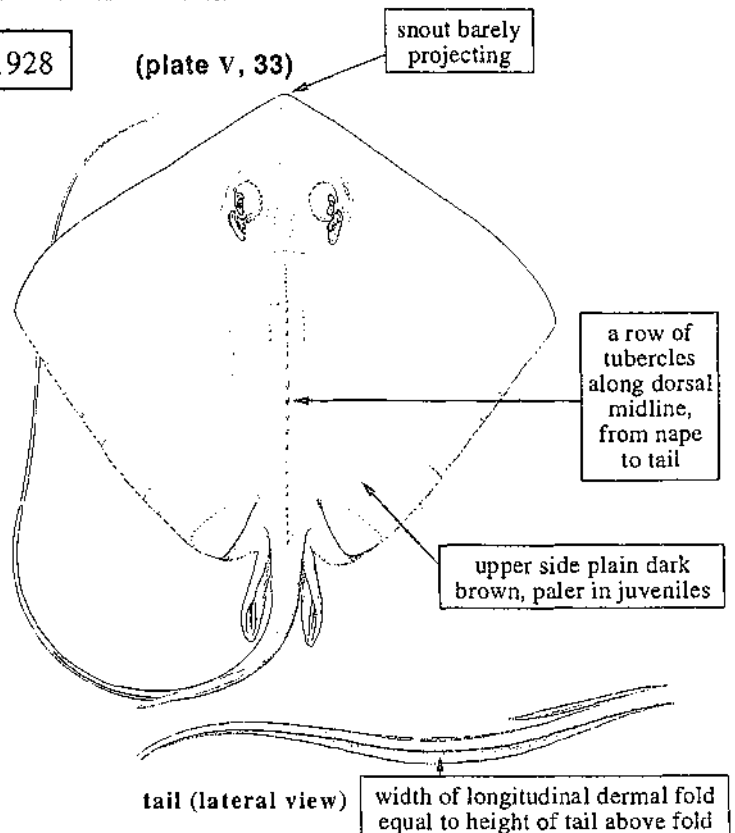
FAO names: **En** - Southern stingray; **Fr** - Pastenague américaine; **Sp** - Raya-látigo americana.

Common names:

Size: Maximum 300 cm length and 200 cm disc width; common to 90 cm width.

Distribution and habitat: Throughout the area. Occurs in shallow coastal waters as well as around oceanic islands, often burrowing in sandy substrate; also found on mud bottoms. This species tolerates a wide range of temperatures and salinities and may enter brackish waters, although less frequently than *D. guttata*.

Fisheries: Caught mainly with trammel nets and bottom longlines; also taken as bycatch in industrial trawl fisheries. A species of some commercial importance. Usually marketed salted, occasionally fresh; flesh highly esteemed.

*Dasyatis centroura* (Mitchill, 1815)

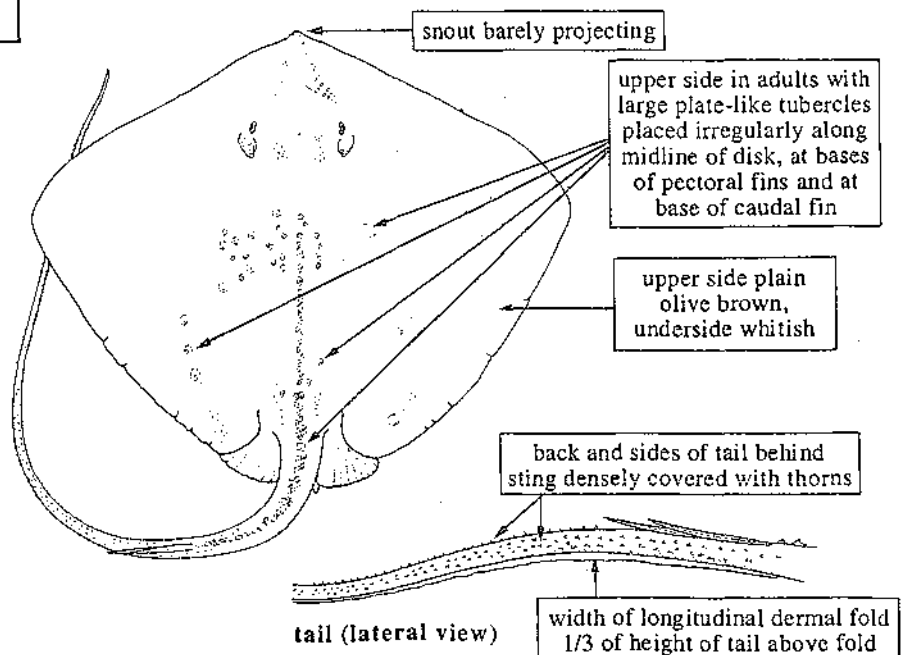
FAO names: **En** - Roughtail stingray; **Fr** - Pastenague des îles; **Sp** - Raya-látigo isleña.

Common names:

Size: Maximum about 420 cm length and 200 cm disc width; common to 100 cm width.

Distribution and habitat: So far, only a few specimens have been reported from some islands off the Venezuelan coast, between depths of 30 and 50 m.

Fisheries: Very rare in the area. Caught with longlines and trammel nets. Marketed salted.



DASYATIDAE

Dasyatis geijskesi Boeseman, 1948

(plate V, 34)

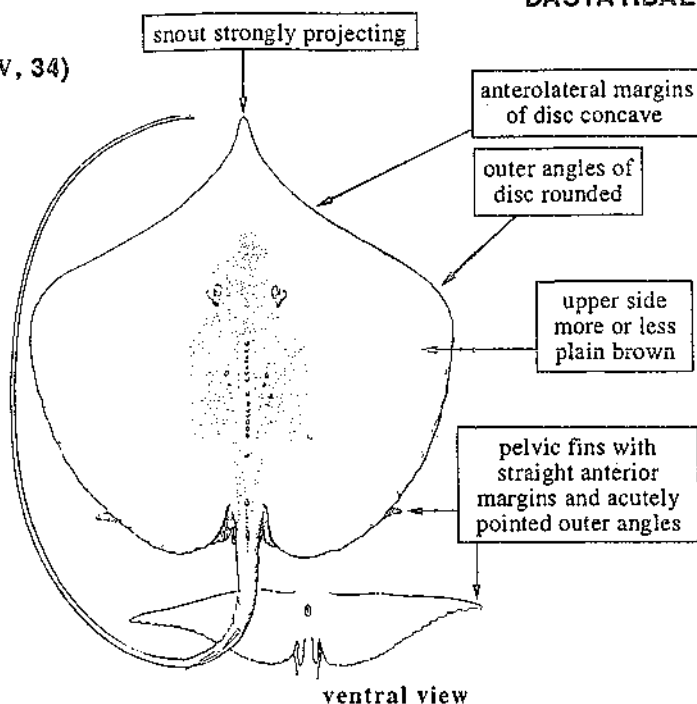
FAO names: En - Sharpsnout stingray; Fr - Pastenague bécune; Sp - Raya-látigo picúa.

Common names:

Size: Maximum at least 150 cm disc width; common to 70 cm width.

Distribution and habitat: From the Gulf of Paria to the Amazon river delta. Lives on mud or muddy sand, mainly between depths of 5 and 25 m, in or near brackish-water estuaries. Abundant off the coasts of the Guianas.

Fisheries: Taken mainly as bycatch in industrial trawl fisheries. A species of some commercial importance, usually marketed salted.



Dasyatis guttata (Bloch, 1801)

(plate V, 35)

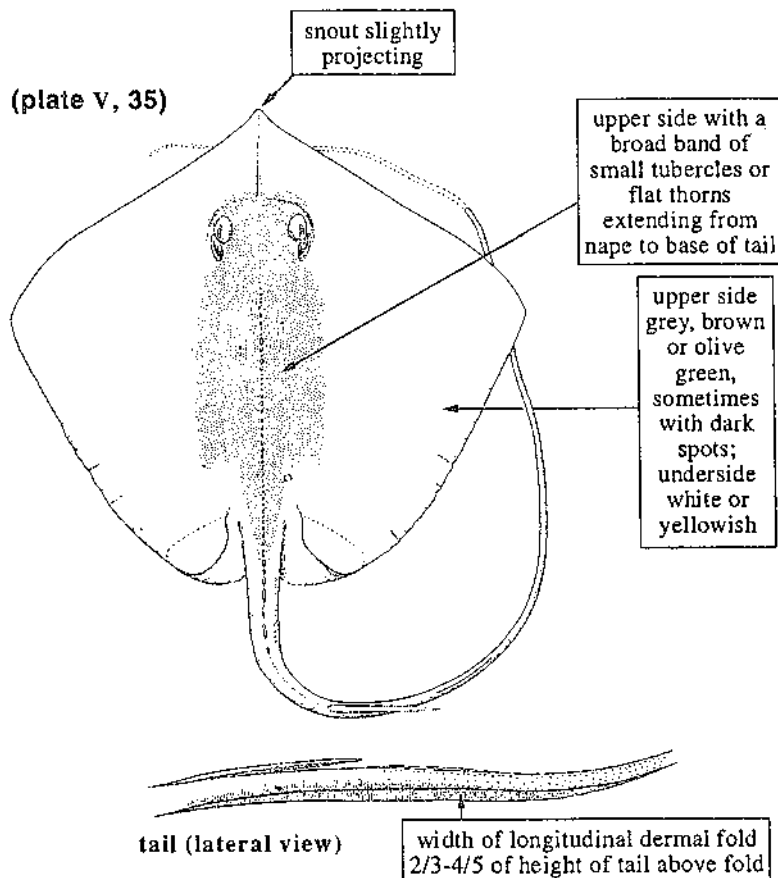
FAO names: En - Longnose stingray; Fr - Pastenague longnez; Sp - Raya-látigo hocicona.

Common names:

Size: Maximum 480 cm length and 180 cm disc width; common to 200 cm length.

Distribution and habitat: Throughout the area. Inhabits coastal waters and is the most common species after *D. geijskesi* in brackish-water estuaries; also found in hypersaline lagoons.

Fisheries: Caught with bottom longlines and trammel nets; also taken as bycatch in industrial trawl fisheries. Marketed salted.



Other species:

Dasyatis sayi (LeSueur, 1817), to 90 cm disc width, only reported from off Colombia.



DASYATIDAE

Genus *Himantura* - a single species in the area.

Himantura schmardae (Werner, 1904)

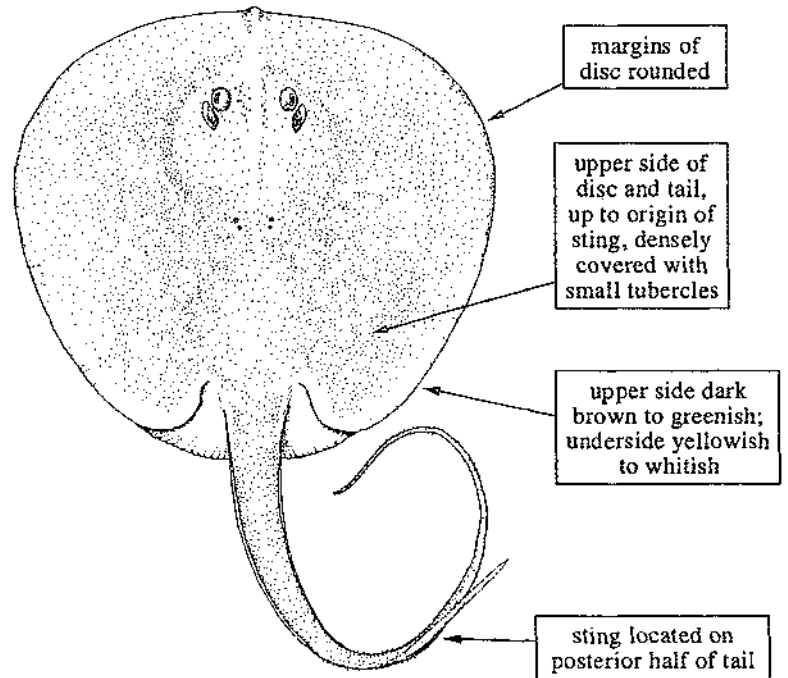
FAO names: En - Chupare stingray; Fr - Pastenague chupare; Sp - Chupare.

Common names:

Size: Maximum 200 cm disc width; common to 100 cm width.

Distribution and habitat: Throughout the area. Occurs on shallow mud or sand bottoms. Frequent and abundant in brackish-water estuaries, and also in hypersaline lagoons. Its stinging spine is particularly poisonous and may inflict very painful wounds.

Fisheries: Caught mainly with trammel nets, harpoons and bottom longlines. Marketed salted. The skin is utilized in the manufacture of sand paper.



GYMNURIDAE

En: Butterfly rays. **Fr:** Raies-papillon. **Sp:** Rayas-mariposa.

A little group of small to medium-sized rays occurring on soft substrates in shallow waters. A single genus known from the area. Some authors consider this group a subfamily of Dasyatidae.

Genus *Gymnura* - 2 species in the area.

» disc rhombic, 1.5 times broader than long; tail thin, much shorter than disk; no papillae on floor of mouth.

Gymnura altavela (Linnaeus, 1758)

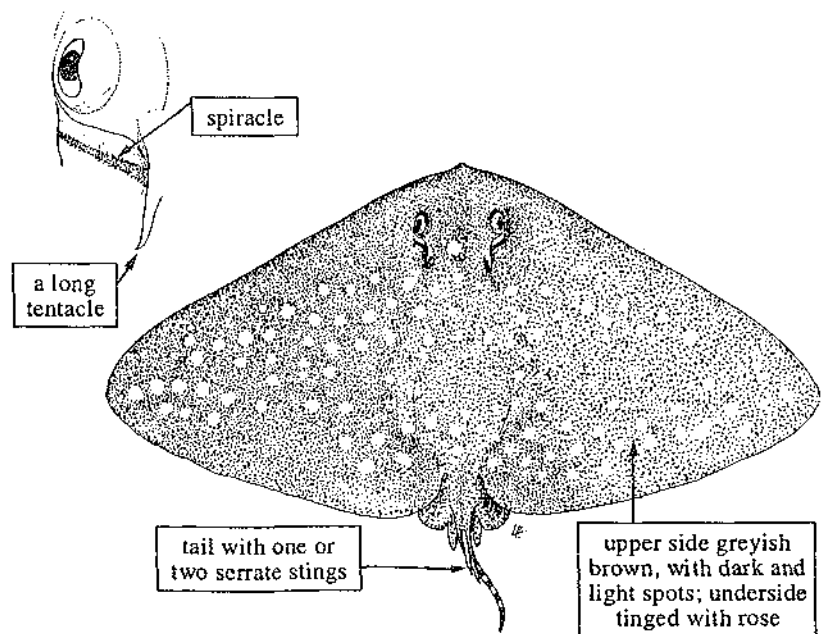
FAO names: En - Spiny butterfly ray; Fr - Raie-papillon épineuse; Sp - Guayanesa espinosa.

Common names:

Size: Maximum 400 cm disc width; common to 200 cm width.

Distribution and habitat: There are only a few records of this species from the area, most of them dubious. Lives in coastal waters to about a depth of 60 m.

Fisheries: Possibly taken as bycatch in industrial trawl fisheries. Even if the species really occurs in the area, it is as yet of no interest to fisheries.



GYMNURIDAE

***Gymnura micrura* (Bloch, 1801)**

(plate V, 36)

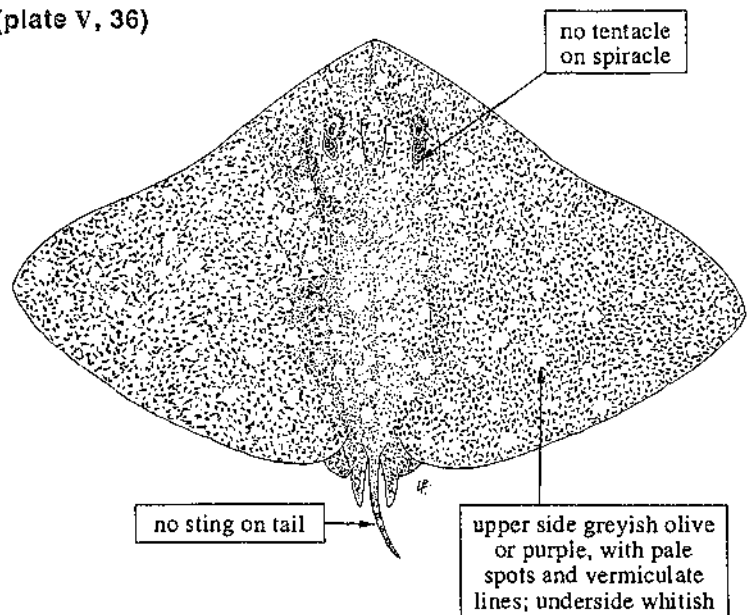
FAO names: En - Smooth butterfly ray; Fr - Raie-papillion guianaise; Sp - Guayanesa.

Common names:

Size: Maximum 120 cm disc width; common to 90 cm width.

Distribution and habitat: Throughout the area. Occurs on soft bottoms to about a depth of 40 m, predominantly in coastal marine areas; frequent and sometimes abundant in or near brackish-water estuaries and hypersaline lagoons.

Fisheries: Artisanal, with beach nets; also taken as bycatch in industrial trawl fisheries. Because of its relatively low abundance, it is not a species of great interest to fisheries; however, it is consumed in some localities, usually salted.



MOBULIDAE

En: Mantas. **Fr:** Mantes, diables de mer. **Sp:** Mantas.

Rays of great size, occasionally exceeding 7 m in disc width. Usually pelagic and migratory; ovoviviparous. They feed on planktonic organisms and small schooling fish. All species are edible and their flesh is considered of good quality. Three genera, each with one species in the area.

Genus *Manta* - a single species in the area.

***Manta birostris* (Donndorff, 1798)**

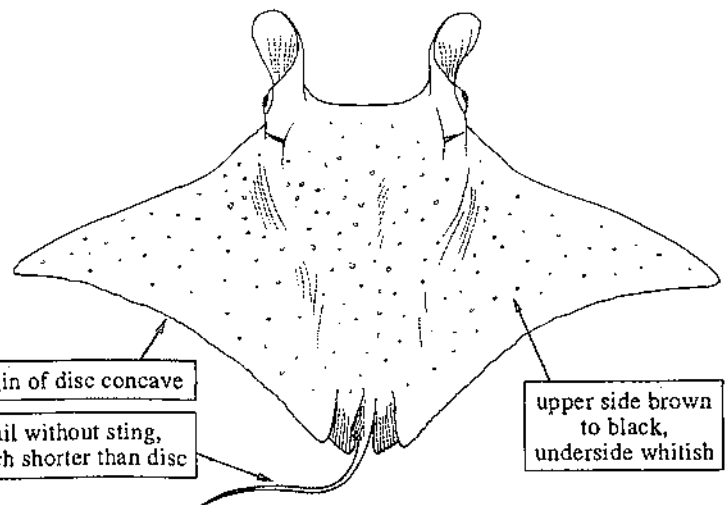
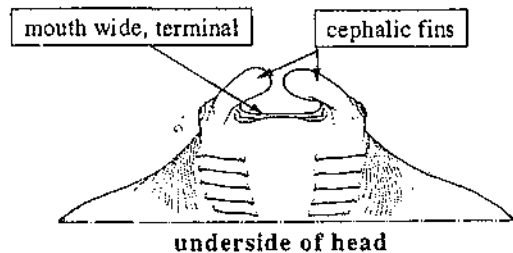
FAO names: En - Atlantic manta; Fr - Mante atlantique; Sp - Manta atlántica.

Common names:

Size: Maximum 670 cm disc width and nearly 2 000 kg weight; common to 400 cm width.

Distribution and habitat: Throughout the area, usually near the surface in oceanic waters over great depths, or in the vicinity of islands. Sometimes found resting on the water surface; occasionally leaps out of the water.

Fisheries: Caught occasionally with floating longlines or trammel nets. Usually marketed salted; flesh highly esteemed in some countries of the area.



MOBULIDAE

Genus *Mobula* - a single species in the area.

Mobula hypostoma (Bancroft, 1831)

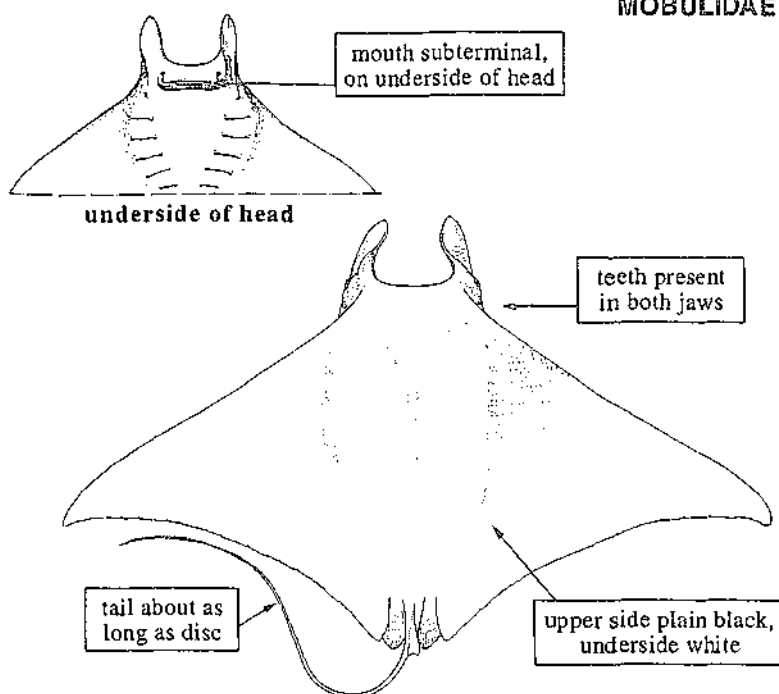
FAO names: En - Devil ray; Fr - Diable géant; Sp - Manta negra (=Manta diablo).

Common names:

Size: Maximum 520 cm disc width; common to 300 cm width.

Distribution and habitat: Throughout the area, usually around oceanic islands, near the water surface or in moderately deep water.

Fisheries: Caught occasionally with trammel nets. Marketed and consumed mainly salted; flesh highly esteemed in some regions.



Other genera:

Ceratobatis, with a single species in the area, *C. robertsi* Boulenger, 1897, which is of no interest to fisheries. In this species, the mouth is placed ventrally as in *Mobula*, but only the upper jaw is toothed.

MYLIOBATIDAE

En: Eagle rays, cownose rays. **Fr:** Aigles de mer, mourines. **Sp:** Aguilas marinas, chuchos, gavilanes.

A group of large-sized rays, with the head distinctly marked off from the body. They occur in coastal waters of the continental shelf as well as in the open sea, often in the vicinity of islands. All species are ovoviviparous, very strong swimmers, and capable of migrating over great distances. They are edible and their flesh is highly esteemed in some localities. Three genera with 4 species in the area.

Genus *Aetobatus* - a single species in the area.

Aetobatus narinari (Euphrasen, 1790)

(plate V, 37)

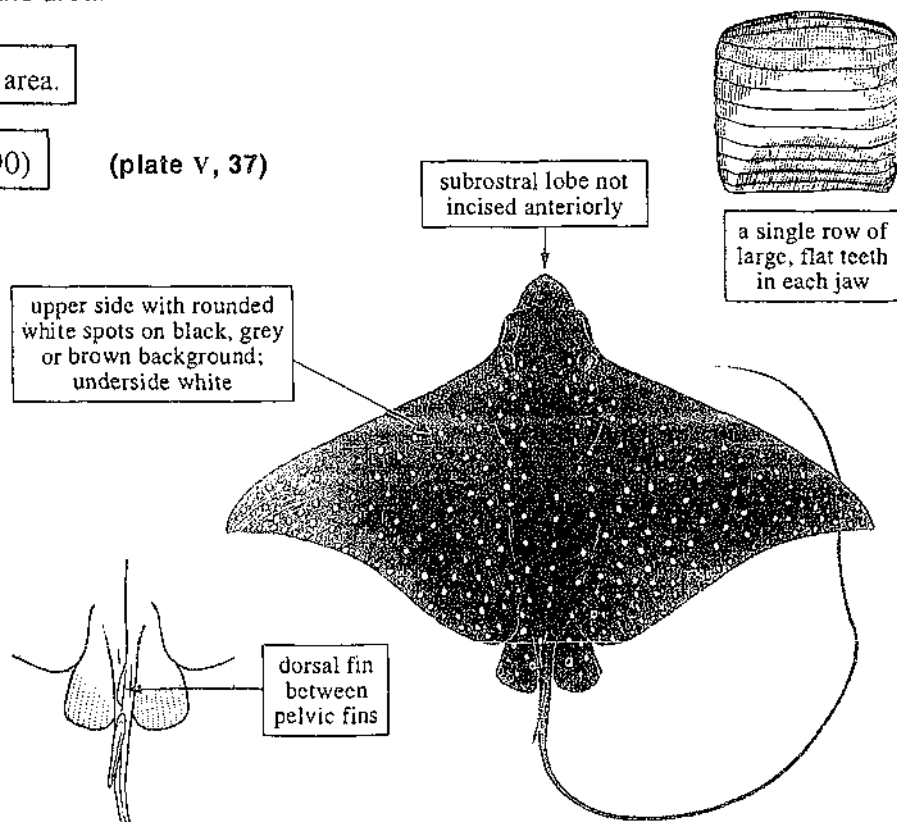
FAO names: En - Spotted eagle ray; Fr - Aigle de mer léopard; Sp - Chucho pintado.

Common names:

Size: Maximum 370 cm length and 280 cm disc width; common to 140 cm width.

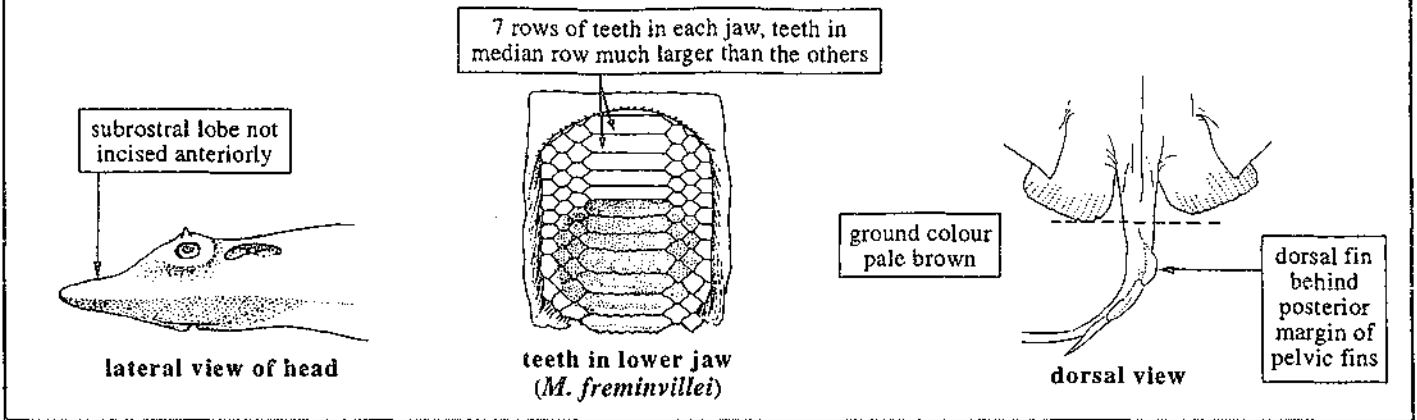
Distribution and habitat: Throughout the area. Frequent in coastal continental waters as well as around islands. Most often solitary, but forming schools of up to several hundred individuals during spawning migrations.

Fisheries: Mainly artisanal, with trammel or gill nets; also with longlines and occasionally bottom trawls.



MYLIOBATIDAE

Genus *Myliobatis* - 2 species in the area.



Myliobatis freminvillei LeSueur, 1824

(plate V, 38)

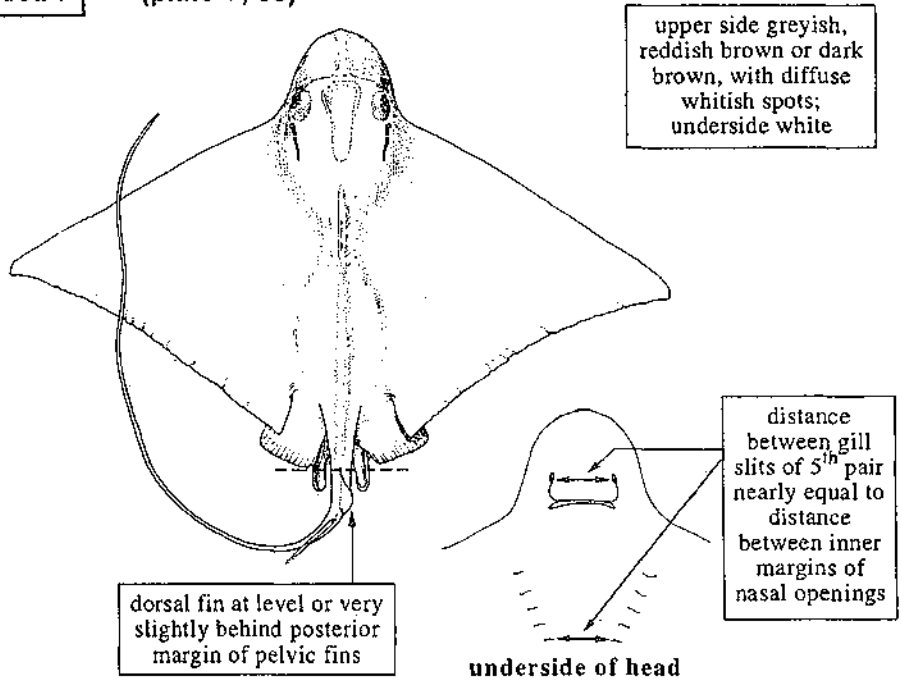
FAO names: En - Bullnose ray; Fr - Aigle taureau; Sp - Chucho blanco.

Common names:

Size: Maximum 86 cm length; common to 70 cm length.

Distribution and habitat: Throughout the area. Occurs in shallow water to a depth of 10 m; also found in the proximity of brackish-water estuaries.

Fisheries: Mainly artisanal, with longlines and trammel nets. Also taken as bycatch in industrial trawl fisheries for shrimps and finfishes. Marketed salted, occasionally consumed fresh; flesh highly esteemed in many regions.



Myliobatis goodei Garman, 1885

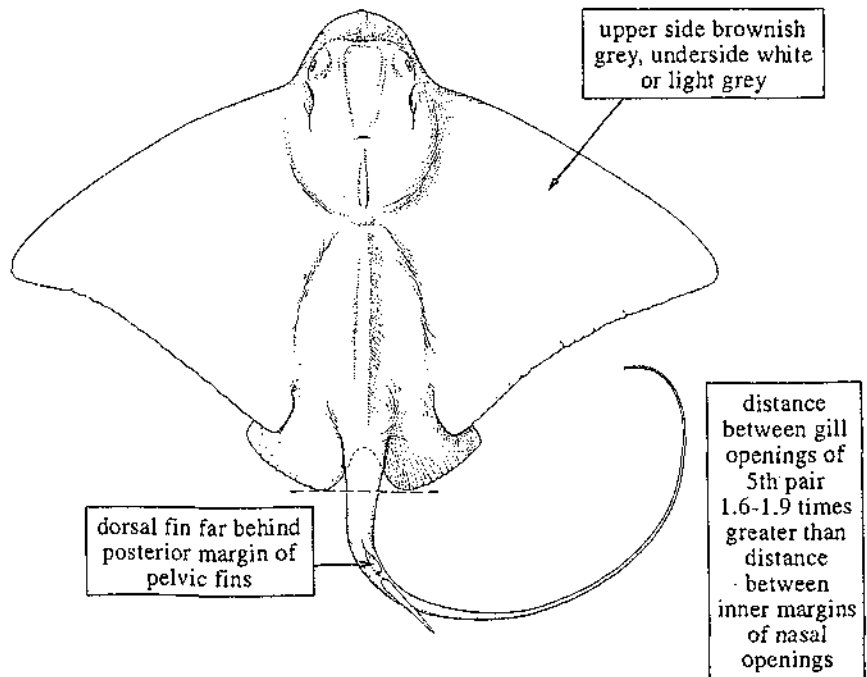
FAO names: En - Southern eagle ray; Fr - Aigle de mer du sud; Sp - Chucho amarillo.

Common names:

Size: Maximum 91 cm length; common to 75 cm length.

Distribution and habitat: Throughout the area, usually in shallow coastal waters.

Fisheries: Mainly artisanal, with trammel nets and longlines; also taken as bycatch in industrial trawl fisheries for shrimps and finfishes. Marketed mainly salted; flesh of good quality.



MYLIOBATIDAE

Genus *Rhinoptera* - included by some authors under a separate family. Probably a single species in the area.

Rhinoptera bonasus (Mitchill, 1815)

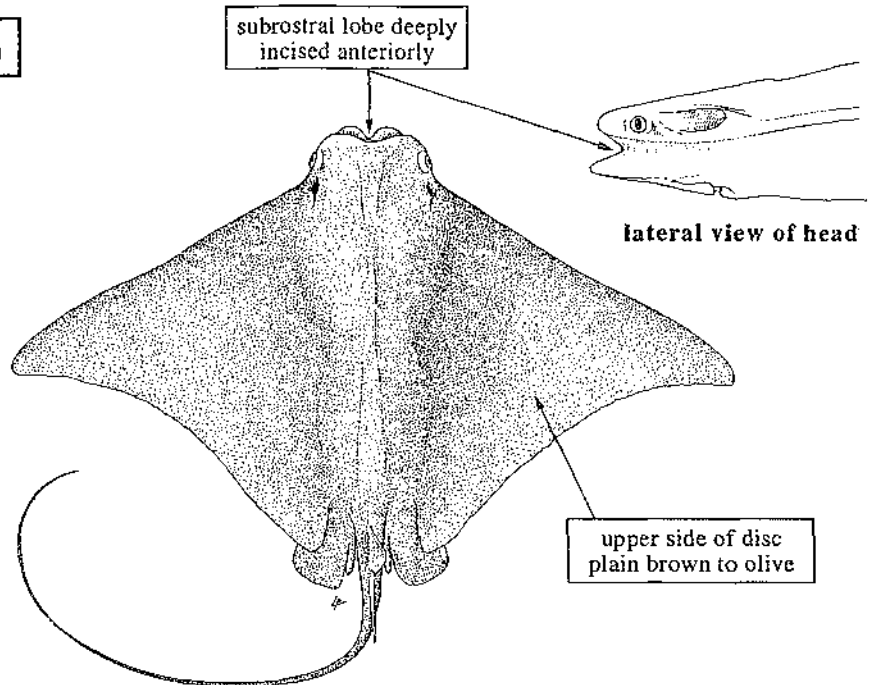
FAO names: En - Cownose ray; Fr - Mourine américaine; Sp - Mancha (=Gavilán mancha).

Common names:

Size: Maximum about 200 cm disc width; common to 120 cm width.

Distribution and habitat: Throughout the area. Oceanic pelagic, but sometimes approaching the coast. May occur in small groups and performs long-distance migrations.

Fisheries: Caught occasionally with bottom trawls and even with beach seines in certain localities such as the Gulf of Venezuela. Marketed mainly salted.



Other species:

According to some authors, a second species *R. brasiliensis* Müller and Henle, 1841, occurs in the area; it is distinguished from *R. bonasus* mainly by having 9 rather than 7 rows of teeth. Specimens with 9 rows of teeth have been recorded from the Colombian coasts of the Caribbean sea. Some authors believe that there is only one species that migrates southward to the Brazilian coast.

PRISTIDAE

En: Sawfishes. **Fr:** Poissons-scie. **Sp:** Peces sierra, pejesierras, pejepeines.

A group of large-sized batoids, easily recognized by their greatly prolonged snout armed on each side with a row of strong and pointed teeth, from which the family name has been derived. They live in very shallow waters, on soft muddy substrates, mostly in brackish-water estuaries. All species are ovoviviparous. Marketed mainly salted; the flesh is of good quality. A single genus in the area.

Genus *Pristis* - 2 species in the area.

Pristis microdon Latham, 1794

Synonyms: *Pristis perotteti* (Walbaum, 1792).

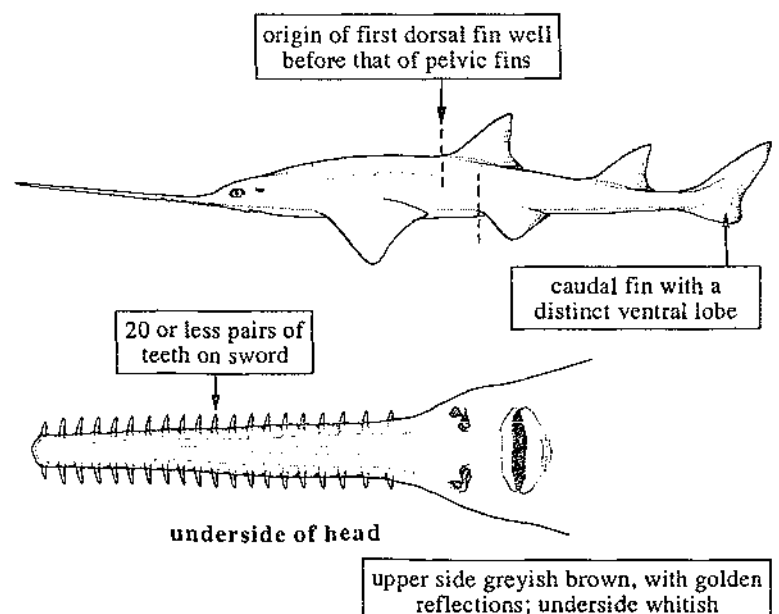
FAO names: En - Largetooth sawfish; Fr - Poisson-scie grand-dent; Sp - Pejesierra.

Common names:

Size: Maximum 610 cm length; common to 400 cm length.

Distribution and habitat: Throughout the area. Occurs on soft muddy bottoms, usually in shallow estuaries and also in freshwater.

Fisheries: Taken mainly as bycatch in industrial trawl fisheries for shrimps. Marketed salted.



PRISTIDAE

Pristis pectinata Latham 1794

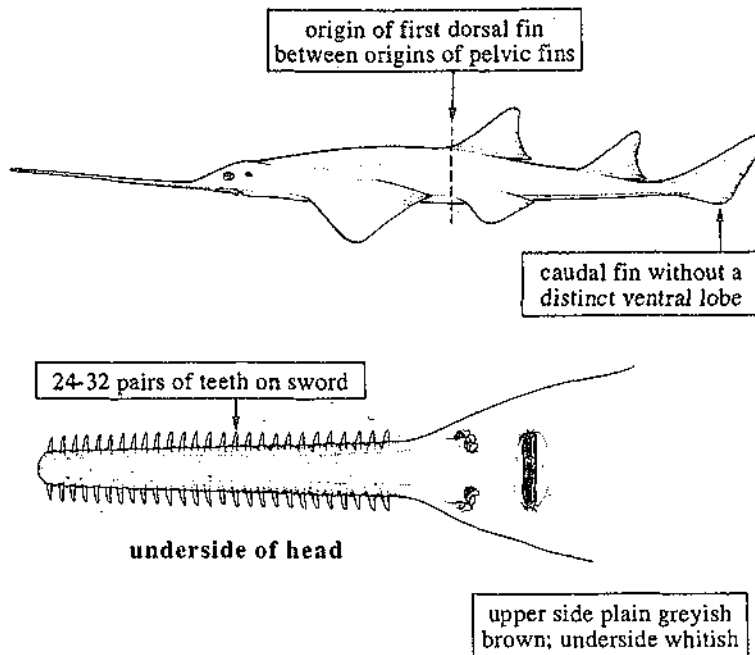
FAO names: En - Smalltooth sawfish; Fr - Poisson-scie tident; Sp - Pejepeña.

Common names:

Size: Maximum 550 cm length; common to 300 cm length.

Distribution and habitat: Throughout the area. Occurs on soft, mainly muddy bottoms in very shallow water. Abundant in the large estuarine areas of the Orinoco and other river mouths on the northeastern coast of South America.

Fisheries: Usually taken as bycatch in industrial trawl fisheries for shrimps. In view of its large size and great strength, it can destroy the nets and cause injuries to the crew. Hence it must be handled with special care or killed instantly, usually with a gun. Marketed mostly salted; flesh highly esteemed.

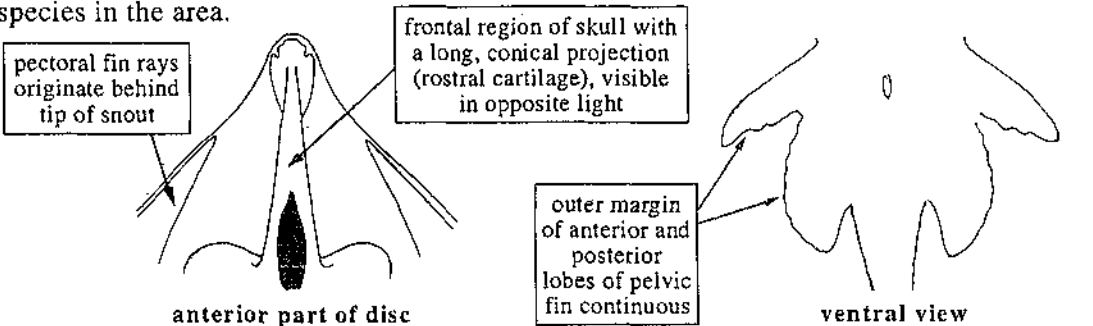


RAJIDAE

En: Skates. **Fr:** Raies. **Sp:** Rayas.

A group of small to medium-sized batoids, with only a few species attaining lengths beyond 2 m. Although occurring from the shoreline to great depths, this family is represented in our area only by a very small number of species of minor interest to fisheries. They are not regularly consumed, probably because they occur mostly in deep water and hence, are rarely found in markets. Four genera, with more than 10 species in the area. Only one species is relatively common.

Genus *Raja* - at least 7 species in the area.



Raja bullisi Bigelow and Schroeder, 1962

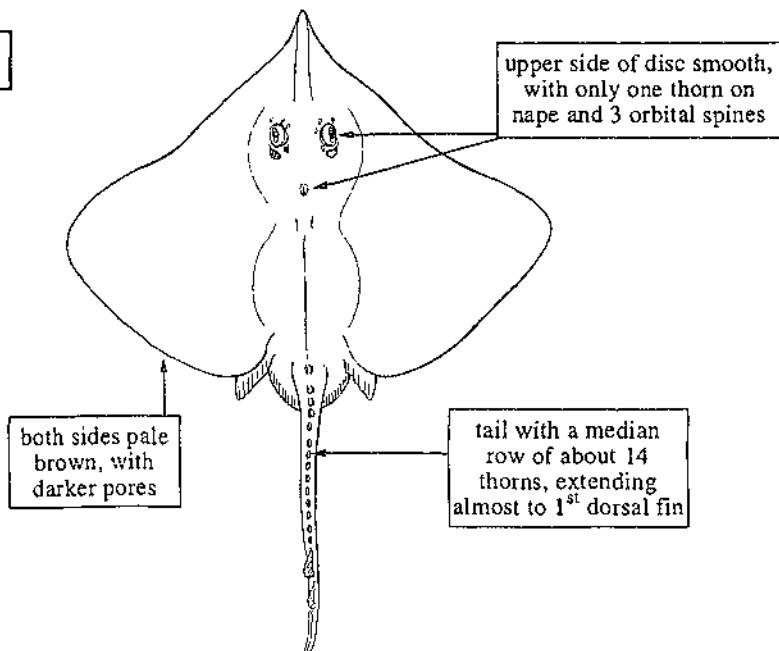
FAO names: En - Bullis skate; Fr - Raie de Bullis; Sp - Raya de Bullis.

Common names:

Size: Maximum 48 cm length; common to 35 cm length.

Distribution and habitat: Throughout the area, between depths of 200 and 600 m.

Fisheries: Taken incidentally as bycatch in industrial trawl fisheries. Rarely marketed.



RAJIDAE

***Raja cervigoni* Bigelow and Schroeder, 1964**

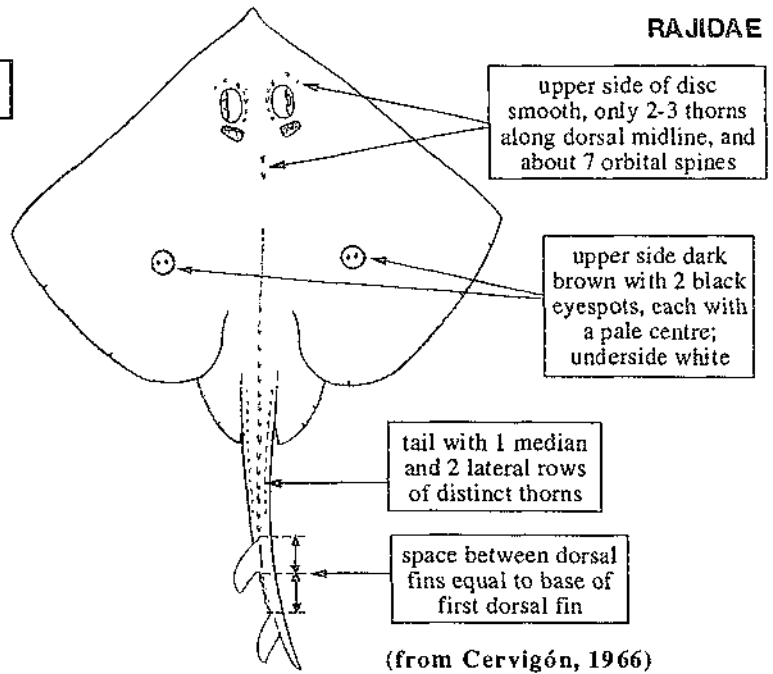
FAO names: En - Finspot ray; Fr - Raie yeux noirs; Sp - Raya espinosa.

Common names:

Size: Maximum 50 cm length; common to 30 cm length.

Distribution and habitat: Known from the northern coast of Venezuela, but probably occurs also in northern Colombia and Trinidad. Lives in relatively shallow water, between depths of 30 and about 180 m.

Fisheries: Taken mainly as bycatch in industrial trawl fisheries. Rarely consumed and unlikely to become a commercial species since it is apparently not abundant.



(from Cervigón, 1966)

***Raja teevani* Bigelow and Schroeder, 1951**

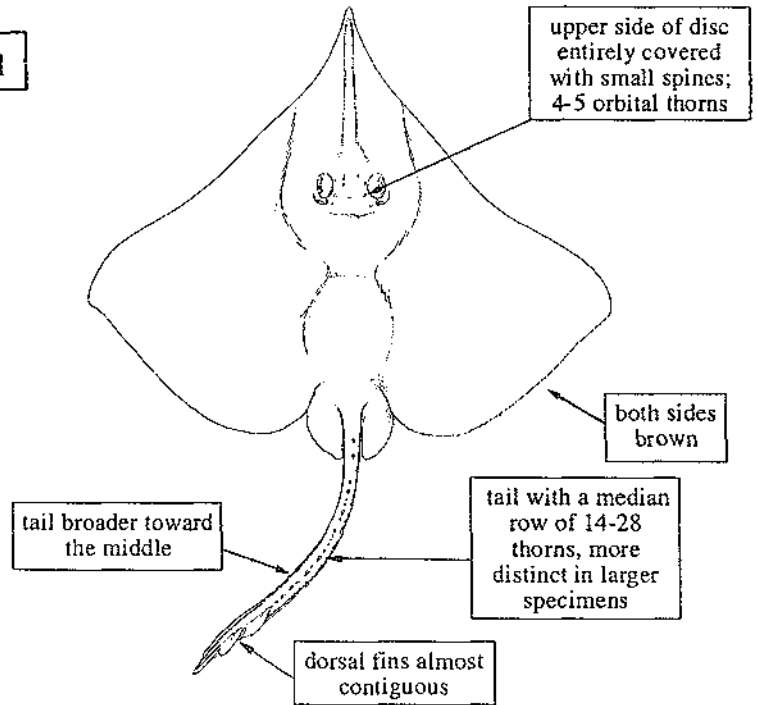
FAO names: En - Prickly brown ray; Fr - Raie rugueuse; Sp - Raya piel de lija.

Common names:

Size: Maximum length 84 cm length.

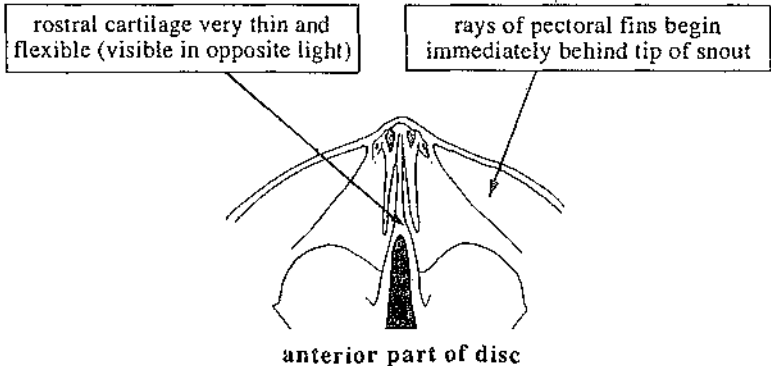
Distribution and habitat: Northern coast of Colombia, between depths of 320 and 350 m.

Fisheries: Taken occasionally as bycatch in industrial trawl fisheries. Of no interest as a fishery resource.



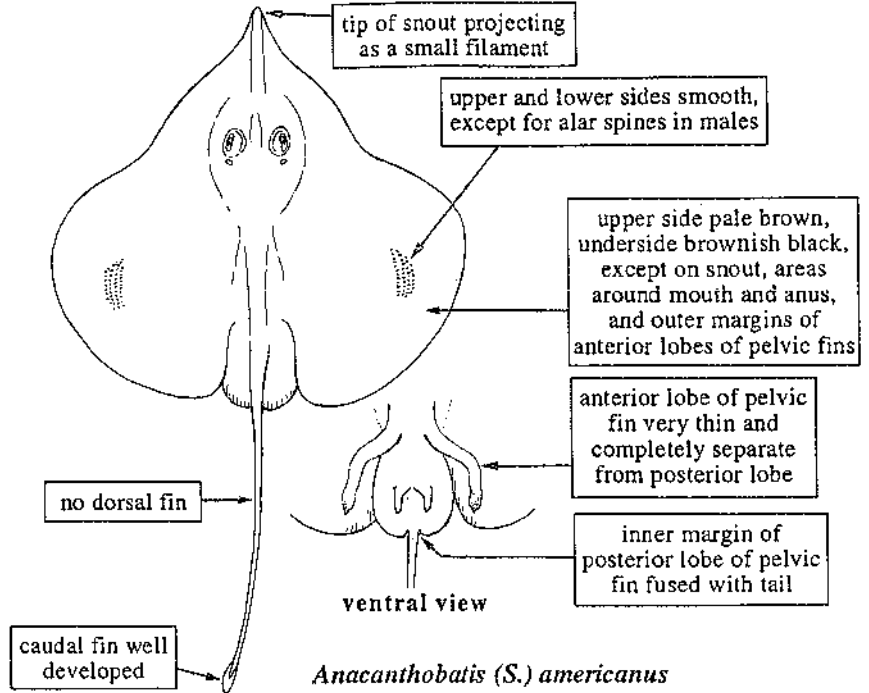
Other species:
Raja clarki Bigelow and Schroeder, 1958, *R. cyclophora* Regan, 1903, *R. fuliginea* Bigelow and Schroeder, 1954, and *R. purpuriventralis* Bigelow and Schroeder, 1962, have been recorded from the area, especially off the coasts of the Guianas, but are of no interest to fisheries at present, either because they are not abundant, or confined to very deep waters.

Other genera:
 Genus *Breviraja* - with several species in the area, all of no interest to fisheries because of their small average size.



Genus *Anacanthobatis* - (considered by some authors as a separate family ANACANTHOBATIDAE).

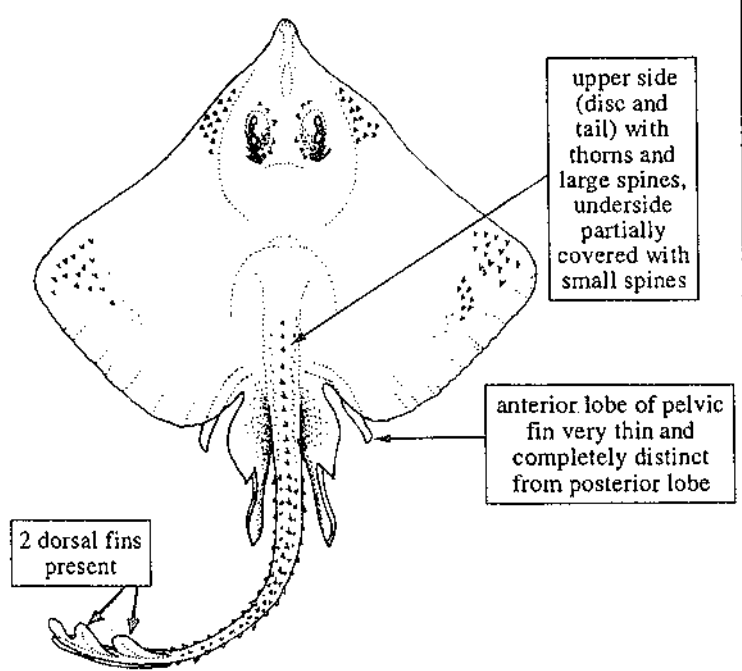
A single species in the area, *Anacanthobatis (Schroederobatis) americanus* Bigelow and Schroeder, 1962, reaching about 40 cm in length and occurring generally from depths of about 200 to over 900 m, but occasionally found in shallow water. Taken incidentally in industrial trawl fisheries, but not marketed at present.



Anacanthobatis (S.) americanus

Genus *Cruriraja* - (considered by some authors under a separate family, CRURIRAJIDAE).

A small group of rays occurring below a depth of 250 m and at present insufficiently known in the area. One species, *Cruriraja rugosa* Bigelow and Schroeder, 1958, reaches about 40 cm in length and is occasionally taken as bycatch in industrial trawl fisheries, but it is of no particular interest to fisheries. Other species possibly present in the area are *C. cadenati* Bigelow and Schroeder, 1962, and *C. poeyi* Bigelow and Schroeder, 1948.



RHINOBATIDAE

En: Guitarfishes, fiddlerfishes. **Fr:** Poissons-guitarre poissons-violon. **Sp:** Peces guitarra.

Medium- to large-sized rays with an elongated disk and a broad tail bearing two dorsal fins and a caudal fin. They live in shallow coastal waters of the continental shelf, usually on muddy or sandy bottoms. A single genus with two species, only one of interest to fisheries in the area.

RHINOBATIDAE

Genus *Rhinobatos* - a single species of interest to fisheries in the area.

Rhinobatos percellens (Walbaum, 1792)

(plate V, 39)

FAO names: En - Fiddlerfish; Fr - Poisson-violon; Sp - Guitarra chola.

Common names:

Size: Maximum 100 cm length; common to 70 cm length

Distribution and habitat: Throughout the area. A sedentary, sluggish species found on soft bottoms in very shallow waters.

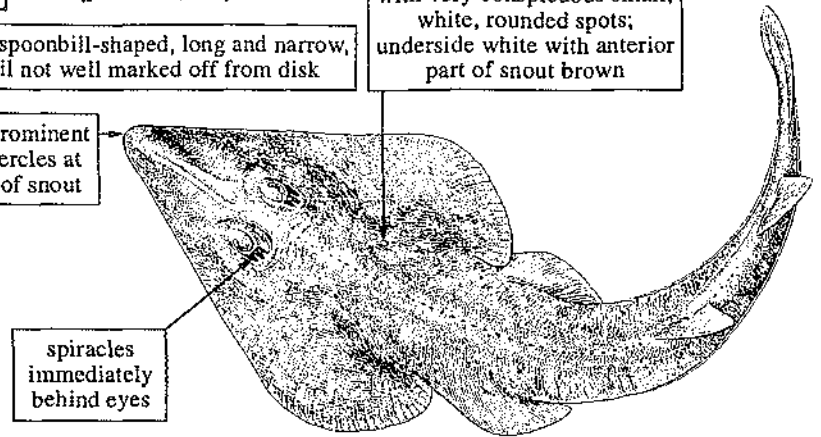
Fisheries: Mainly artisanal, with beach nets. Usually marketed salted, but its flesh is considered of low quality.

disc spoonbill-shaped, long and narrow, tail not well marked off from disk

upper side plain light brown with very conspicuous small, white, rounded spots; underside white with anterior part of snout brown

no prominent tubercles at tip of snout

spiracles immediately behind eyes



Other species:

At least one other species, *R. horkeli* Müller and Henle, 1841, occurs in the area, but is of no interest to fisheries.

TORPEDINIDAE

En: Electric rays. **Fr:** Raies électriques. **Sp:** Tembladeras.

A small group of rays bearing electric organs at sides of head. They live on soft substrates in shallow neritic waters, frequently in the proximity of estuaries. Taken mainly as bycatch in industrial trawl fisheries for shrimps. Because of their small average size and low acceptance in markets they are usually not consumed by the population. At least 4 genera in the area. The most common and largest species is *Narcine brasiliensis* (sometimes recognized in a separate family, the Narkidae).

Genus *Narcine* - a single species in the area.

Narcine brasiliensis (Olfers, 1831)

(plate V, 40)

FAO names: En - Brazilian electric ray; Fr - Raie électrique brésilienne; Sp - Tembladera brasileña.

Common names:

Size: Maximum about 50 cm length; common to 35 cm length.

Distribution and habitat: From the western region of Venezuela to Brazil. A demersal species occurring on very shallow mud or sand bottoms, sometimes only in a few cm of water; feeds on small benthic invertebrates. It produces electric discharges of about 37 volts, and hence is never dangerous. Rather abundant in some localities.

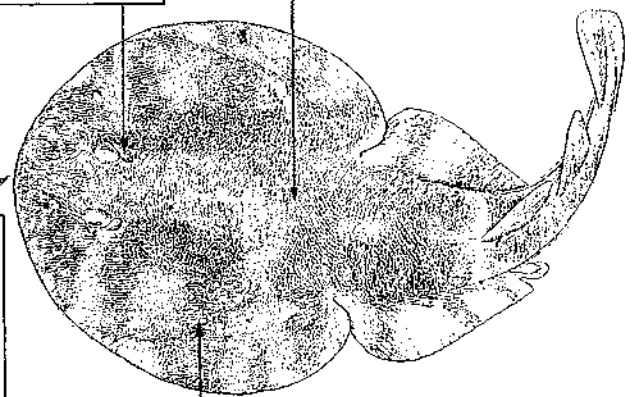
Fisheries: Although not a target species, it is frequently caught with beach nets. At present rarely consumed, even though its flesh is not of bad quality.

spiracles very close to eyes, their outer and hind margins tuberculate

skin entirely smooth

anterior margin of disc evenly rounded and fairly rigid

upper side dark brown or greyish brown, sometimes tinged with orange or red, nearly always with irregular, dark-dotted rings; underside white or yellowish



Other genera:

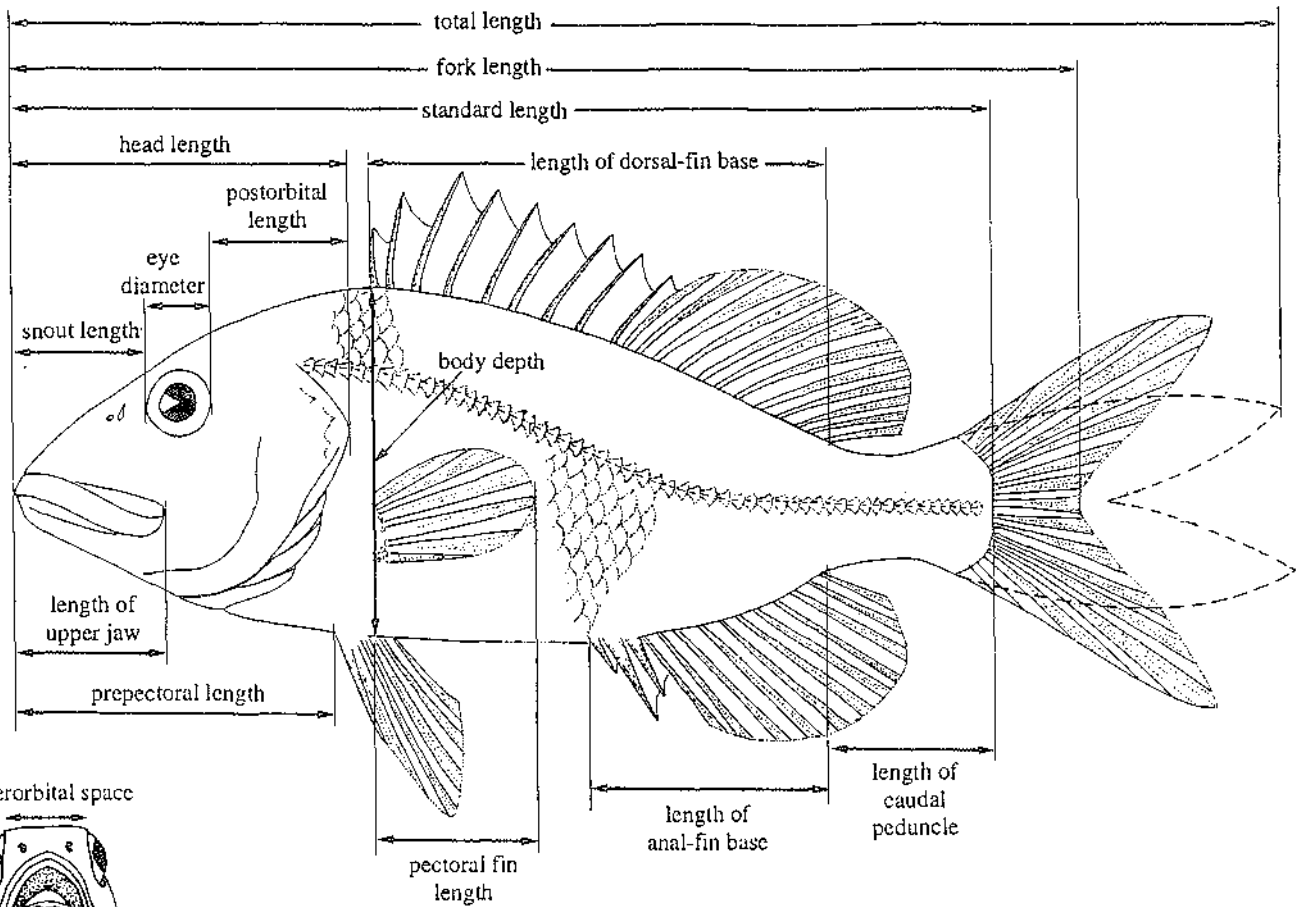
Benthobatis, with the species *B. marcida* Bean and Weed, 1909; *Diplobatis*, with the species *D. guamachensis* Martin, 1957, and *D. pictus* Palmer, 1950; *Torpedo* with the species *T. nobiliana* Bonaparte, 1835. None of these species is of interest to fisheries.

BONY FISHES

This is the largest and commercially most important class of living fishes. Although it encompasses a wide range of shapes and other morphological features, all of its representatives are easily distinguished from sharks and batoid fishes by the presence of a single external gill opening on each side, often overlain by a complex of bony plates forming the gill cover. In addition, bony fishes usually have the skin covered by overlapping scales, but these may be reduced or absent in some families.

Like most other tropical and subtropical areas, the northern coast of South America is very rich in bony fish species, few of which are individually capable of sustaining large-scale fisheries. Of the bony fish fauna occurring in our area, about 680 species belonging to 88 families can be considered of present or potential interest to fisheries (including artisanal and subsistence activities). Annual landings, as well as the number of species regularly found in local markets, are likely to increase substantially in the near future as a result of current trends in upgrading and further diversification of fisheries in all countries bordering our area.

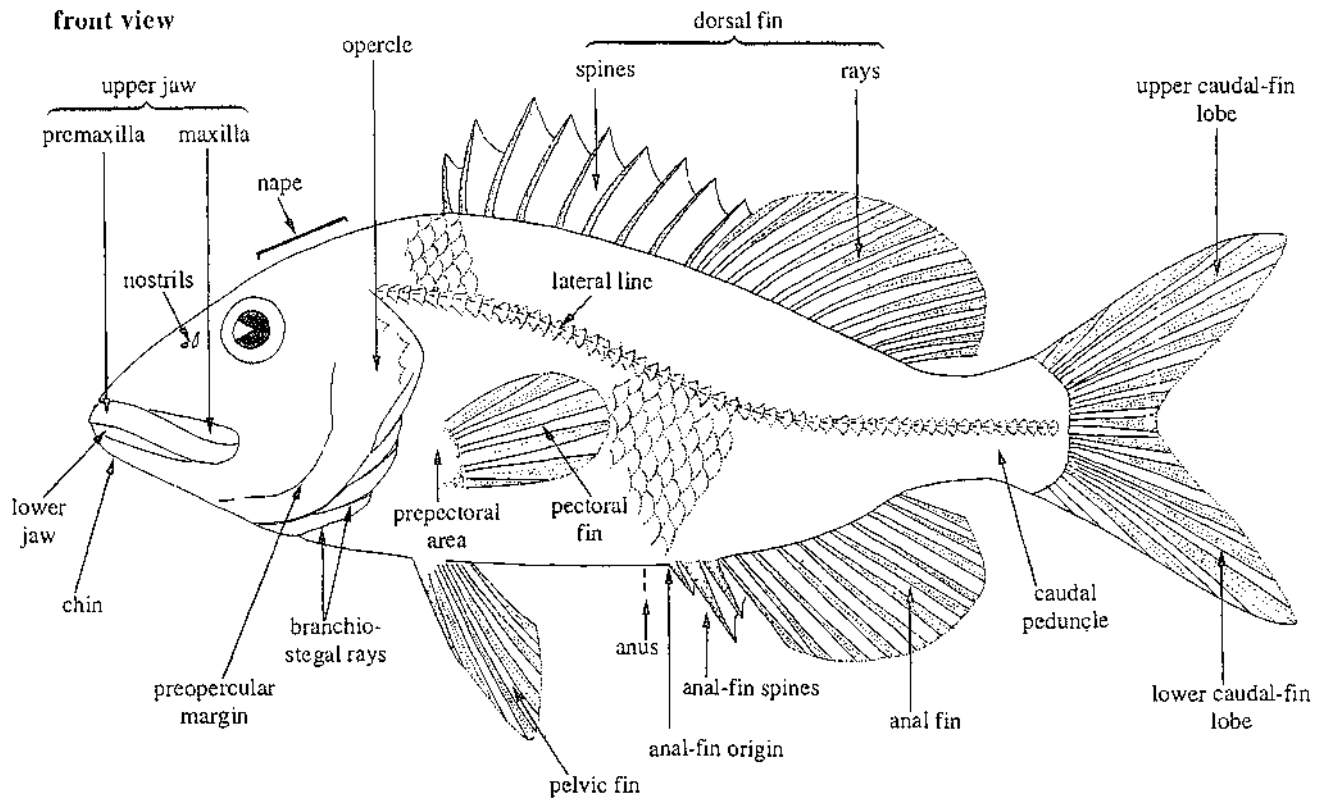
TECHNICAL TERMS AND MEASUREMENTS

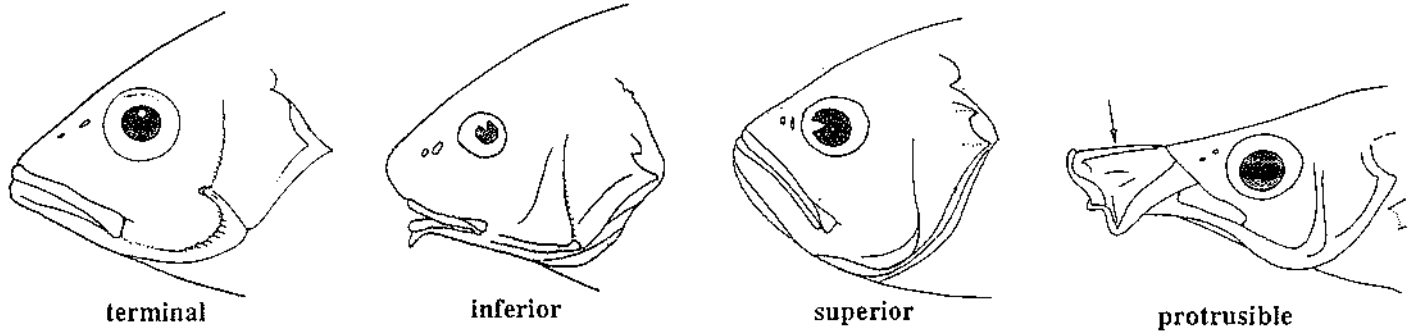


interorbital space



front view





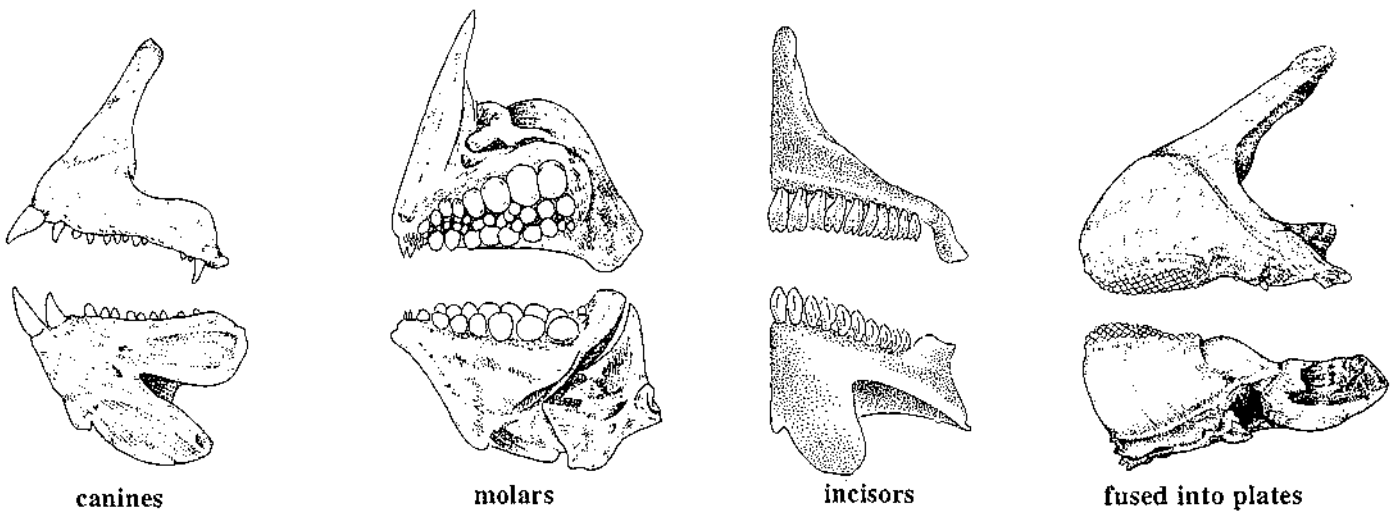
terminal

inferior

superior

protrusible

types of mouth



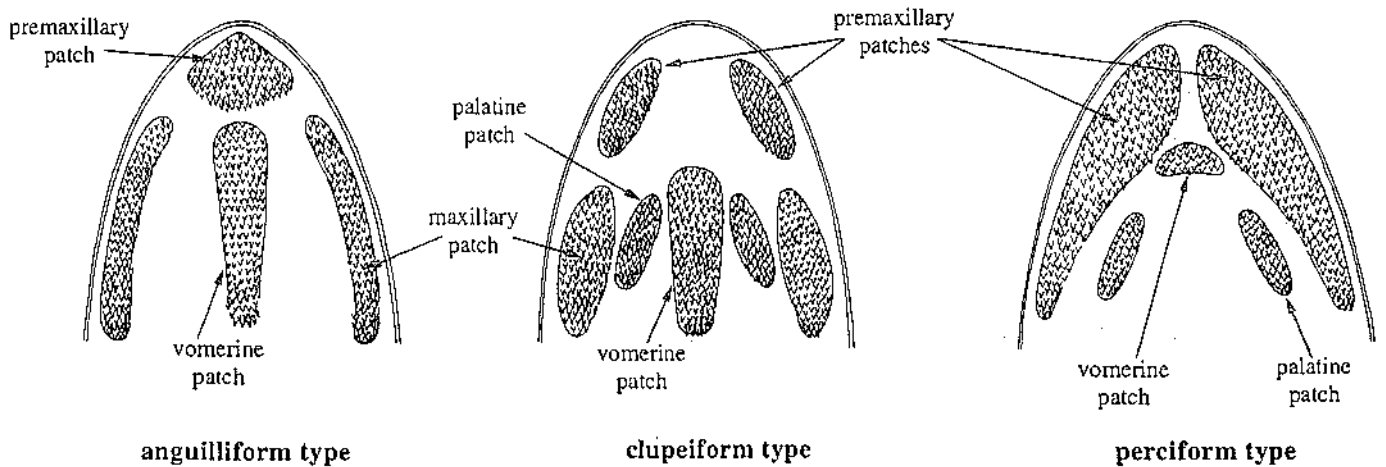
canines

molars

incisors

fused into plates

types of teeth in jaws

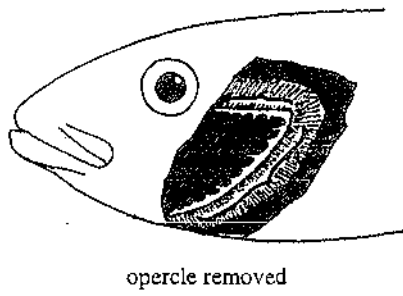


anguilliform type

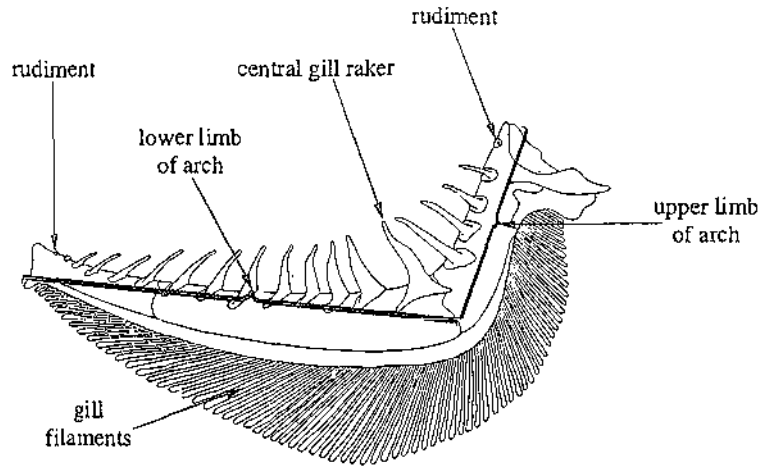
clupeiform type

perciform type

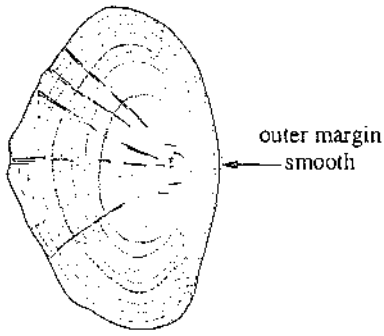
tooth patches on roof of mouth



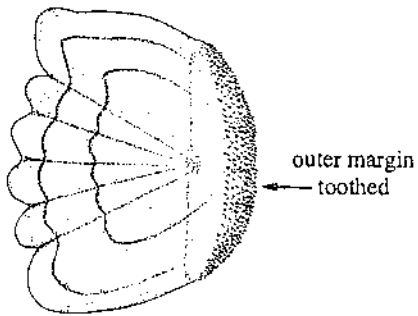
opercle removed



first gill arch (left side)

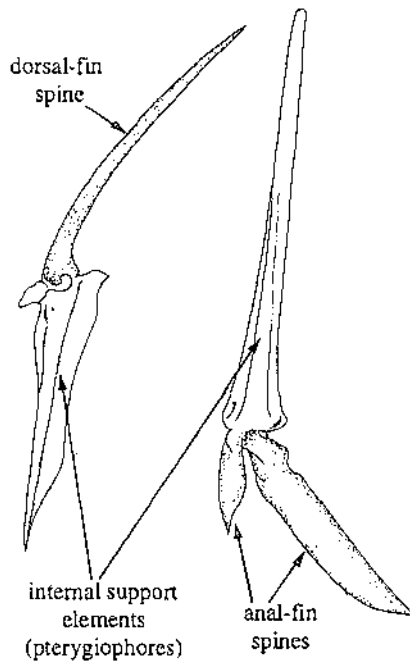


cycloid

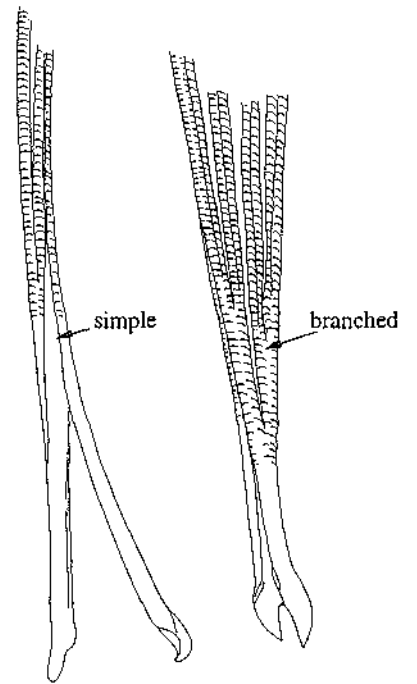


ctenoid

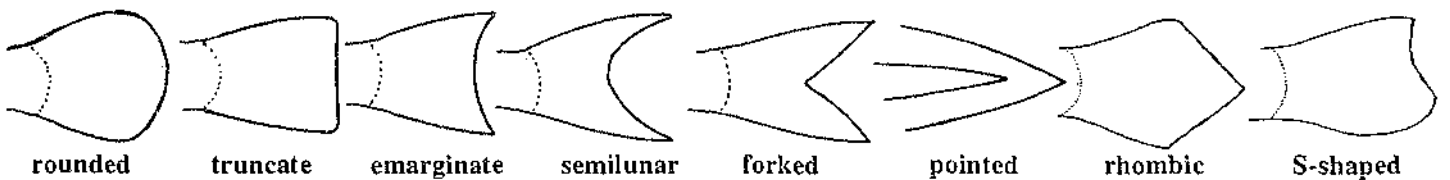
main types of scales



fin spines



soft fin rays



types of caudal fin

GUIDELINES FOR THE IDENTIFICATION OF FAMILIES

The families included in this "Guide to Families" were chosen based on the following criteria:

1. Families with species larger than 6 cm total length occurring in marine or brackish waters above a depth of 250 m.
2. Families with species occurring in marine waters deeper than 250 m and considered of present or potential interest to fisheries.

Note:

- Families followed by a page number are treated in more detail in the section "Families and Species of Interest to Fisheries."
- The figures included here show only the most characteristic morphotypes of each family, and therefore not all genera are illustrated. For the identification of genera within families of interest to fisheries, the relevant texts and figures can be found on pages indicated after the family names.
- The diagnostic family characters used here apply only to representatives occurring in our area.

TARPONS, BONEFISHES, LADYFISHES - Elopiformes

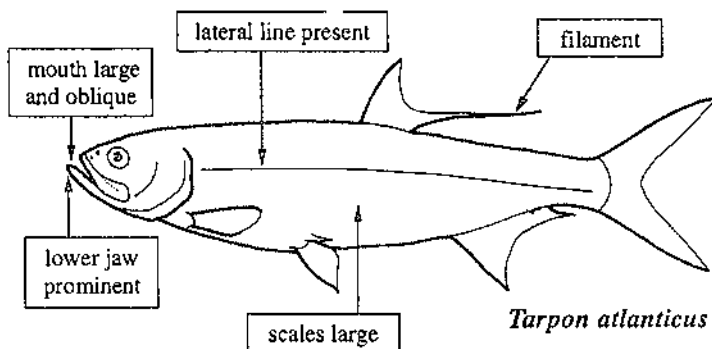
Fin spines absent; a single dorsal fin located above middle of body; pelvic fins in abdominal position; lateral line present; colour silvery.

MEGALOPIDAE

page 358

Tarpons

To 250 cm. Mostly pelagic in coastal marine waters, but also present in brackish and hypersaline waters, and in freshwater. A single species in the area.

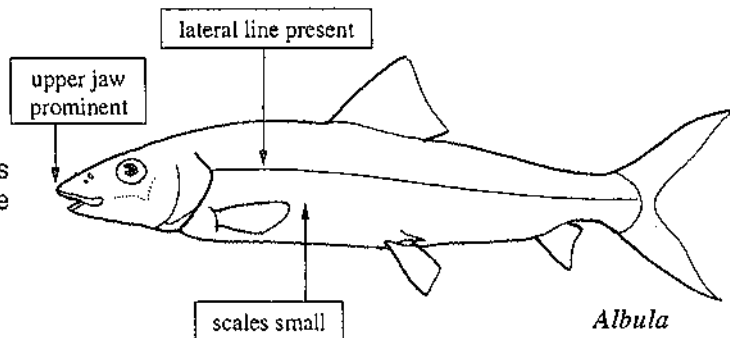


ALBULIDAE

page 252

Bonefishes

To 80 cm. Mostly demersal in coastal marine waters to a depth of 50 m, but also in brackish waters. A single genus with 2 species in the area.

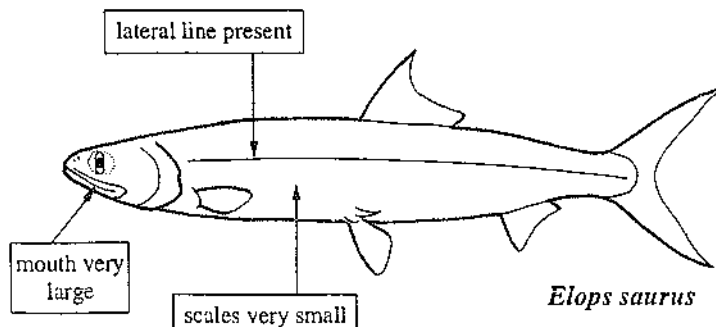


ELOPIDAE

page 308

Ladyfishes

To 100 cm. Mostly demersal in coastal marine waters, but also in brackish waters. A single species in the area.



HERRINGS, ANCHOVIES, PELLONAS - Clupeiformes

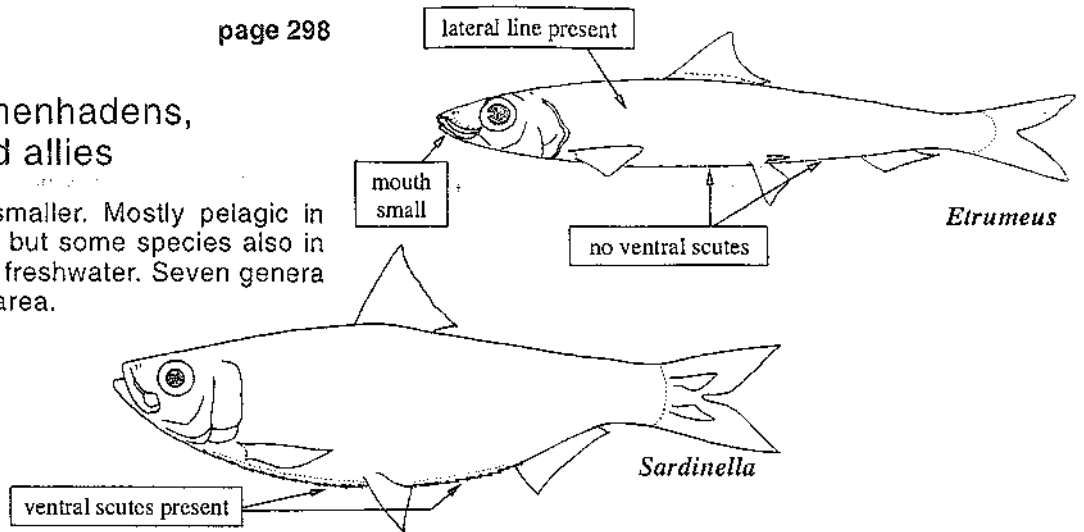
Fin spines absent; a single dorsal fin located above middle of body; pelvic fins placed in abdominal position; lateral line absent; colour silvery.

CLUPEIDAE

page 298

Herrings, shads, menhadens, gizzard shads, and allies

To 40 cm, generally smaller. Mostly pelagic in coastal marine waters, but some species also in brackish waters and in freshwater. Seven genera with 12 species in the area.

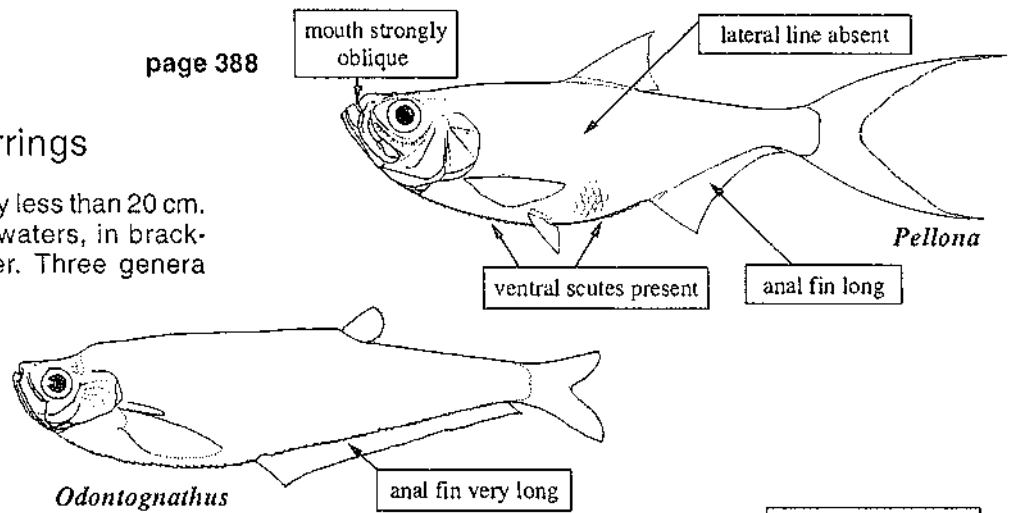


PRISTIGASTERIDAE

page 388

Pellonas, dogtooth herrings

To 73 cm (one species), usually less than 20 cm. Demersal in coastal marine waters, in brackish waters, and in freshwater. Three genera with 5 species in the area.

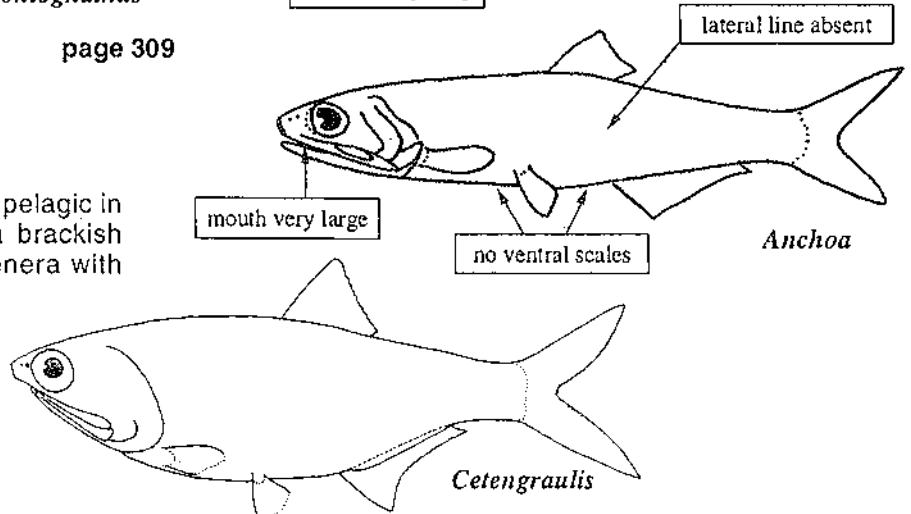


ENGRAULIDIDAE

page 309

Anchovies

To 30 cm, generally smaller. Mostly pelagic in coastal marine waters, but also in brackish waters and in freshwater. Eight genera with 24 species in the area.



EELS, MORAYS, PIKE CONGERS - Anguilliformes

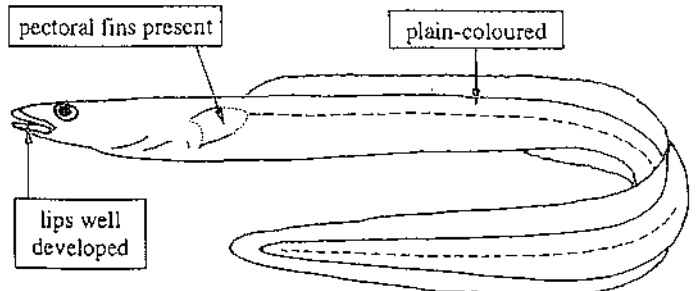
Body very elongate; fin spines absent; pelvic fins absent; usually scaleless (minute scales present only in *Anguilla*).

CONGRIDAE

page 302

Conger eels

To 120 cm. Demersal, usually in shallow marine waters, but occasionally found below a depth of 300 m. Three genera with about 25 species in the area.

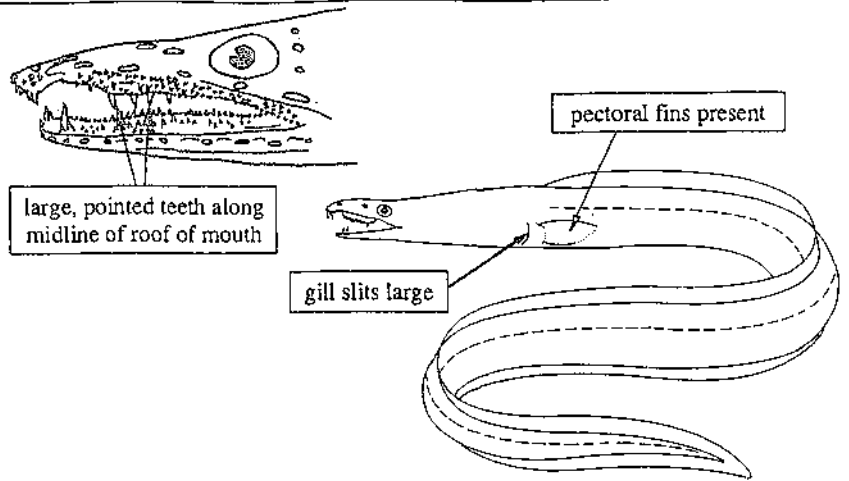


MURAENESOCIDAE

page 366

Pike congers

To 150 cm. Demersal in marine waters, from coastal areas to about a depth of 200 m. Some authors consider this group as a subfamily of Congridae. Three genera with several species in the area.



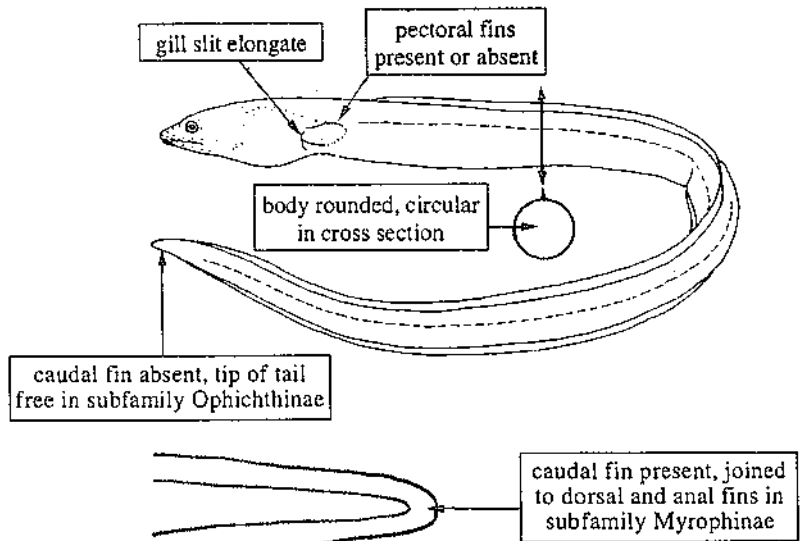
OPHICHTHIDAE

page 370

Snake eels

To about 200 cm. Demersal in marine waters, from shallow coastal areas to below a depth of 750 m. Many species live buried in the substrate in daytime. This family is defined mainly by its osteological features, since it includes a great diversity of morphotypes. Two subfamilies and 10 genera with about 19 species in the area.

posterior nostril on upper lip or inside mouth, except in *Pseudomyrophis*

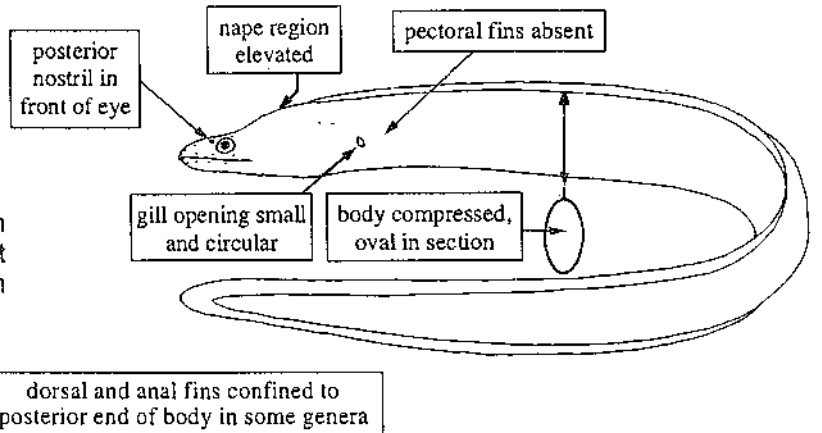


MURAENIDAE

page 366

Morays

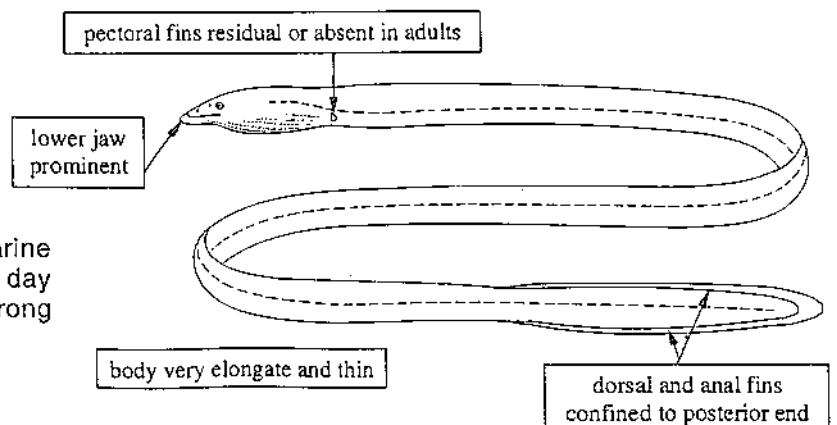
To 200 cm. Demersal in marine waters, from shallow coastal areas to a depth of about 400 m. Eight genera with over 15 species in the area.



MORINGUIDAE

Spaghetti eels

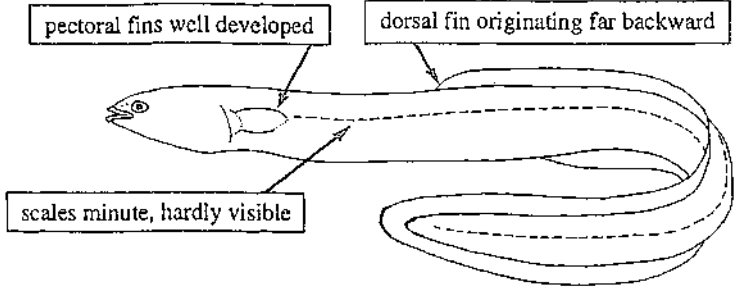
To at least 50 cm. Mostly in shallow marine waters. Lives buried in the substrate by day and are pelagic at night. They have a strong sexual dimorphism.



ANGUILLIDAE

Freshwater eels

To 150 cm. Mainly in freshwater, but migrating to oceanic waters for spawning. A single species in the area.



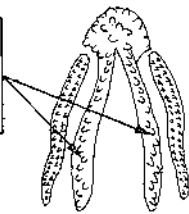
Anguilla rostrata

XENOCONGRIDAE

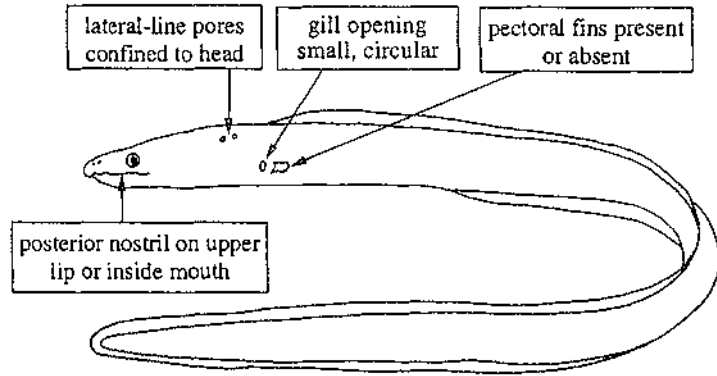
False morays

To 50 cm. Demersal in marine waters, from the coastline to a depth of 350 m.

2 diverging series of vomerine teeth



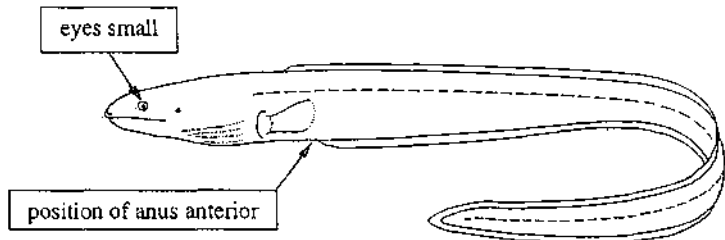
ventral view of palate



DYSOMMIDAE

Arrowtooth eels

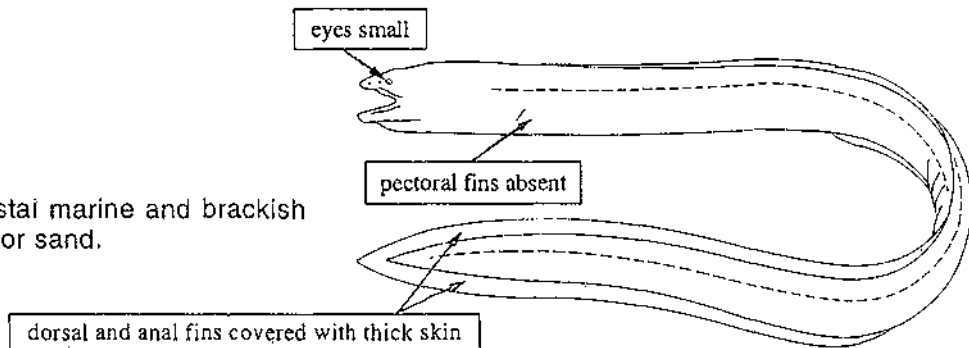
To 25 cm. Demersal in marine waters, from the coastline to below a depth of 4 000 m. Some authors consider this group as a subfamily of Synphobranchidae.



HETERENCHELYIDAE

Heterenchelid eels

To 80 cm. Demersal in coastal marine and brackish waters. Lives buried in mud or sand.



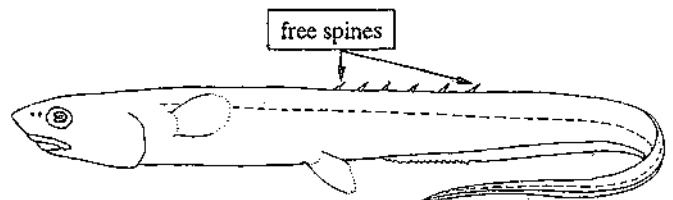
SPINY EELS - Notacanthiformes

Body very elongate; snout projecting; either a series of spines along back, or a single, short-based dorsal fin; anal fin long.

NOTACANTHIDAE

Spiny eels

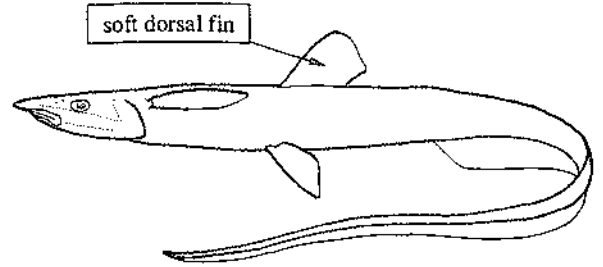
To 45 cm. Demersal in marine waters, from shallow areas to a depth of 800 m.



HALOSAURIDAE

Halosaurs

To 55 cm. Demersal in marine waters, from depths of 400 to 3 000 m.



CATFISHES - Siluriformes

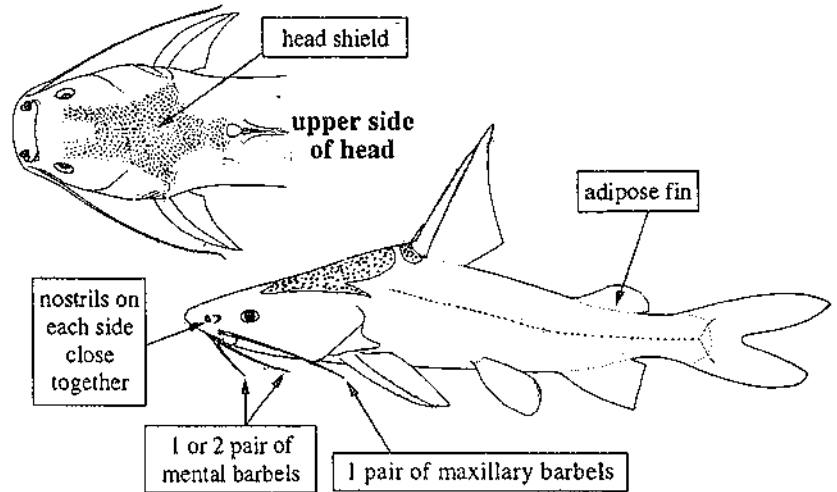
Barbels present on head; a strong spine usually present at front of dorsal and pectoral fins; an adipose fin often present; scales absent, but a bony head shield often present; in the family Loricariidae body covered with hard, bony plates.

ARIIDAE

page 256

Sea catfishes

To over 100 cm. Demersal in coastal marine and brackish waters and in freshwater, from the coastline usually to about a depth of 30 m, exceptionally to greater depths. Four genera with about 13 species in marine and brackish waters of the area.

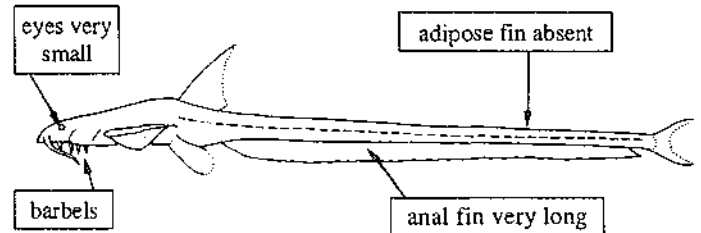


ASPREIDINIDAE

page 261

Banjo catfishes

To 40 cm. Demersal; the majority of species live in freshwater, but 3 genera with 4 species are also found in brackish waters and, occasionally, in coastal marine waters of the area.

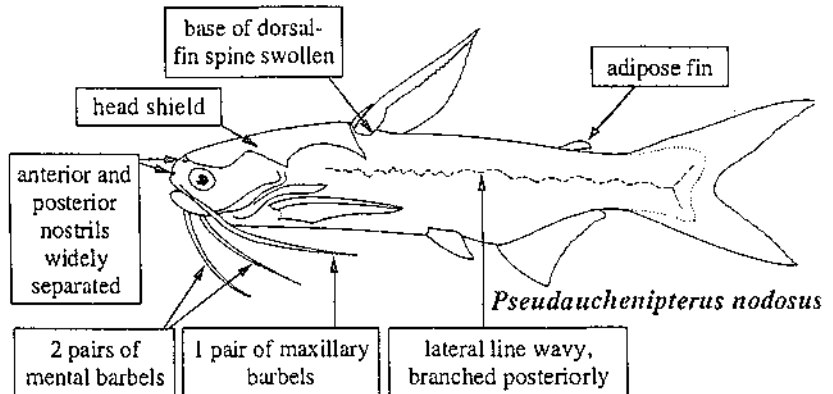


AUCHENIPTERIDAE

page 264

Cocosoda catfishes

To 30 cm. Demersal, most species restricted to freshwater. A single species in brackish waters of the area.

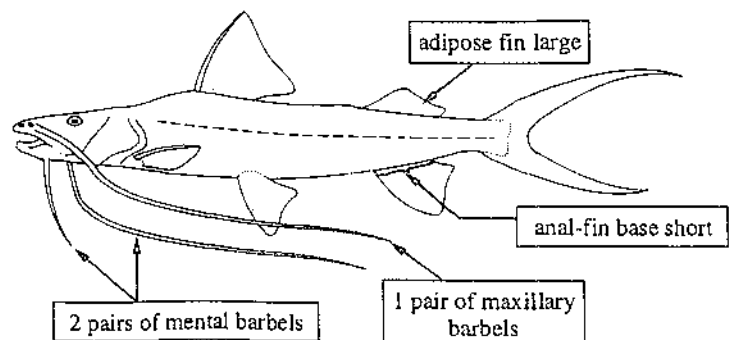


PIMELODIDAE

page 379

Pimelodid catfishes

To 200 cm. Demersal, most species restricted to freshwater. Two genera with 3 species occasionally found in brackish waters of the area.

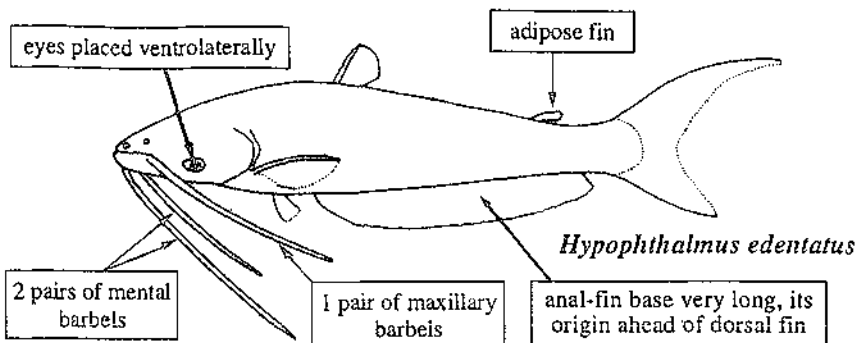


HYPOPHthalmidae

page 342

Lookdown catfishes

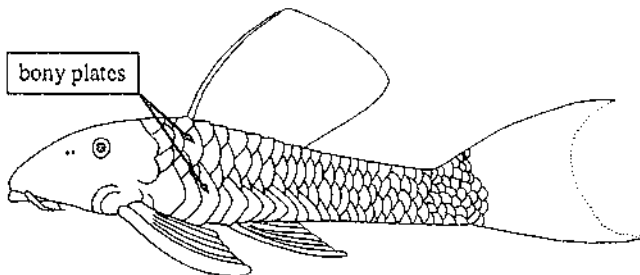
To 60 cm. Demersal, most species restricted to freshwater. A single species in brackish waters of the area.



LORICARIIDAE

Armoured catfishes

To about 40 cm. Demersal, most species in freshwater. Only a few species in brackish waters and of interest to fisheries of the area.



ARGENTINES, SALMONS, SLICKHEADS AND ALLIES - Salmoniformes

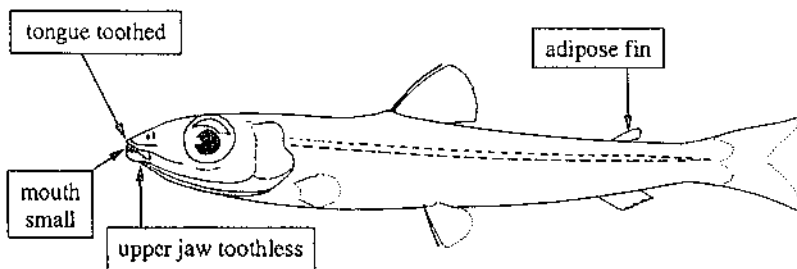
A diverse assemblage of families characterized by the inclusion of the maxilla in the gape of mouth; fin spines absent; adipose fin often present.

ARGENTINIDAE

page 255

Argentines

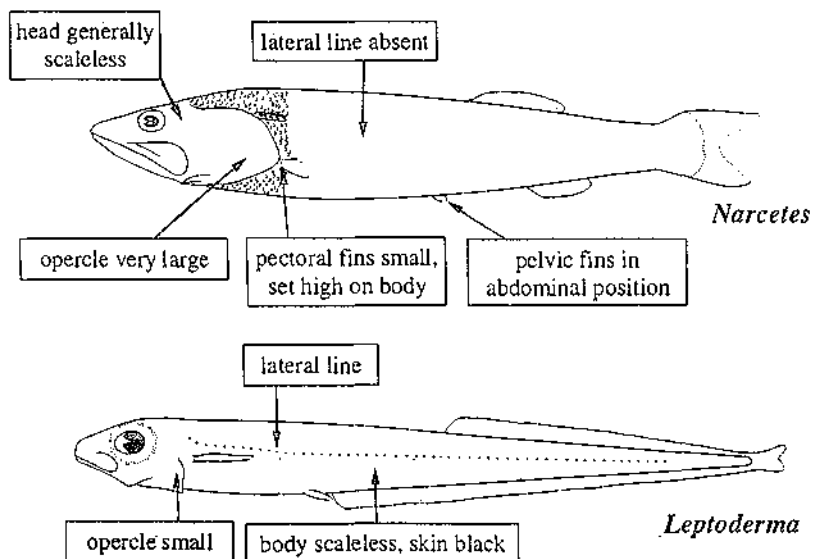
To about 21 cm. Benthopelagic and pelagic in marine waters, from a depth of 80 to about 570 m. Two genera with 4 species in the area.



ALEPOCEPHALIDAE

Slickheads

To 55 cm. Pelagic to benthopelagic in oceanic waters, some species below a depth of 1 000 m. Several genera and species in the area.



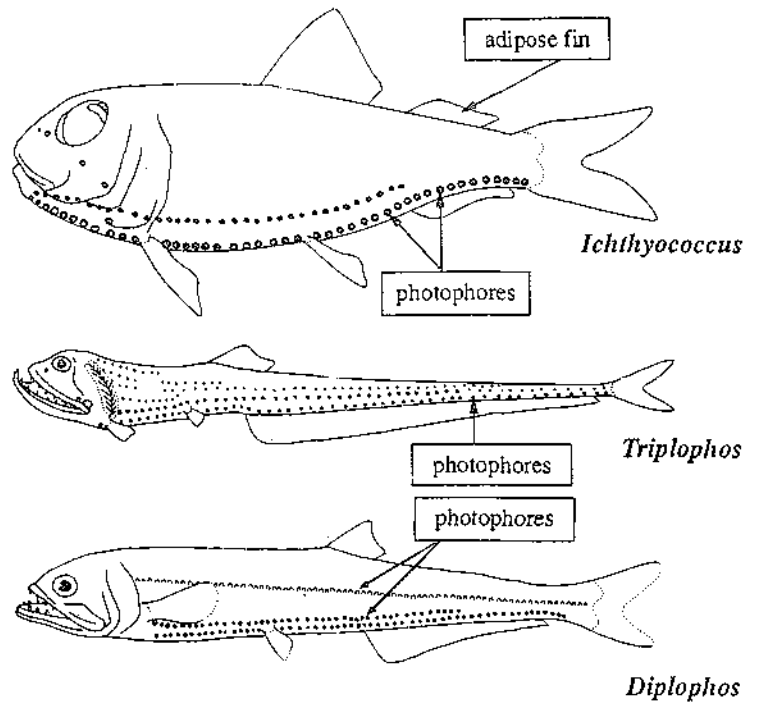
BRISTLEMOUTHS AND ALLIES - Stomiiformes

Fin spines absent; adipose fin sometimes present; photophores (light organs) present; mouth very large, teeth on premaxilla and on maxilla.

GONOSTOMATIDAE

Bristlemouths

To 25 cm. Meso- to bathypelagic in marine waters below a depth of 200 m, but some species migrate toward the surface (to a depth of about 50 m) at night. Several genera and species in the area.



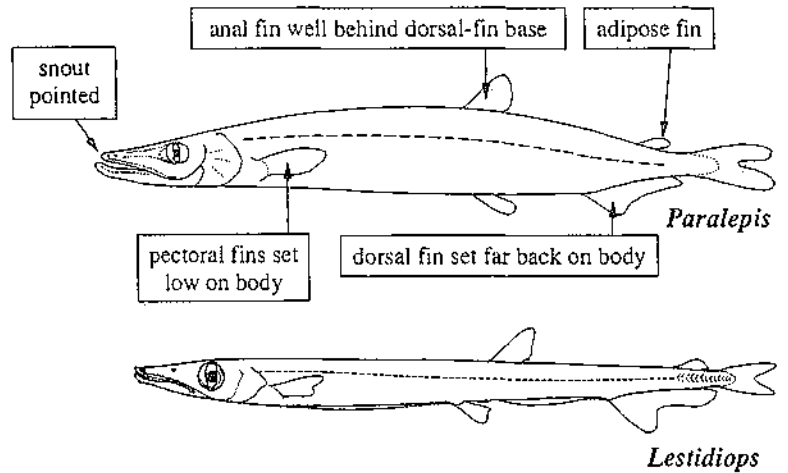
LIZARDFISHES, LANCETFISHES, BARRACUDINAS AND ALLIES - Aulopiformes

Fin spines absent; adipose fin present. This group has recently been separated from the order Myctophiformes on the basis of osteological characters.

PARALEPIDIDAE

Barracudinas

To 50 cm. Meso- to bathypelagic in marine waters, from the surface (at night) to a depth of 800 m. Several genera with many species in the area.

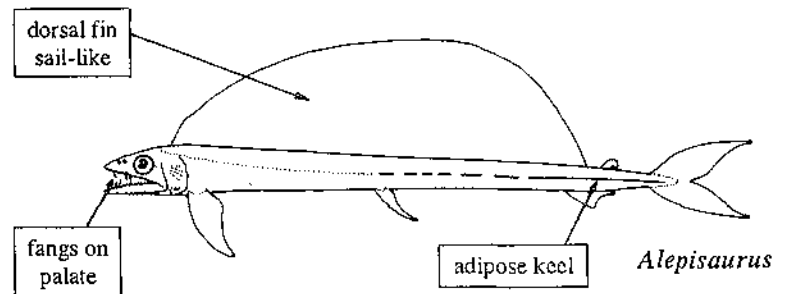


ALEPISAUROIDAE

page 253

Lancetfishes

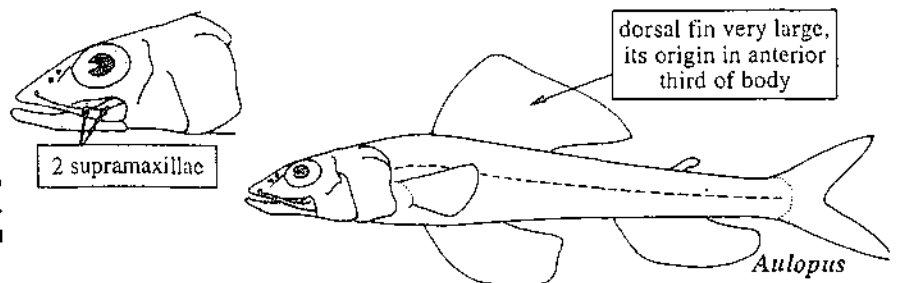
To over 200 cm. Pelagic in oceanic waters, from a depth of about 40 m (at night) to below 500 m. A single genus with 2 species in the area.



AULOPIDIDAE

Aulopids

To 25 cm. Demersal in marine waters, from shallow areas to a depth of 150 m. A single genus with several species in the area.

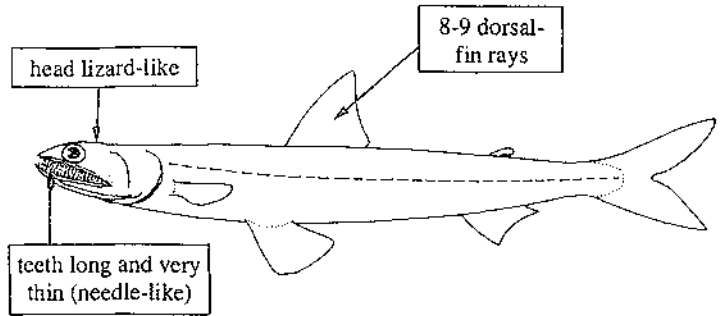


SYNODONTIDAE

page 447

Lizardfishes

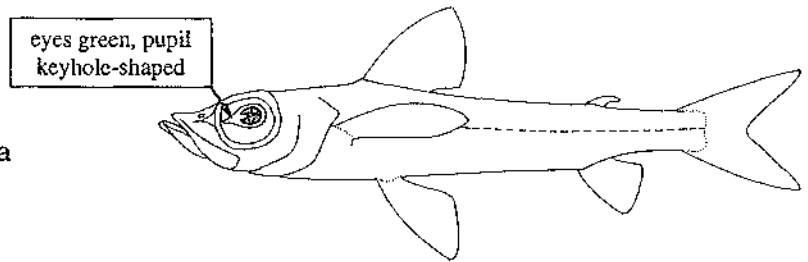
To 55 cm. Demersal in marine waters, from the coastline to a depth of generally 150 m, but some species may be found below 200 m. Three genera with 10 species in the area.



CHLOROPHTHALMIDAE

Greeneyes

To 30 cm. Demersal in marine waters, from a depth of 75 to below 3 000 m.



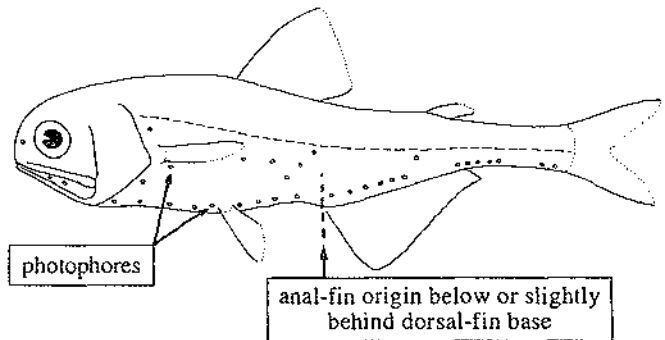
LANTERNFISHES AND ALLIES - Myctophiformes

Fin spines absent; adipose fin present; photophores usually present.

MYCTOPHIDAE

Lanternfishes

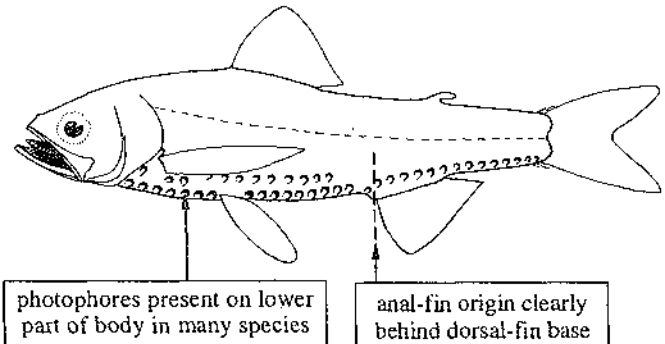
To 30 cm, but generally smaller than 10 cm. Meso- to bathypelagic in marine waters, from the surface (at night) to a depth of 2 000 m. Many genera and species in the area.



NEOSCOPELIDAE

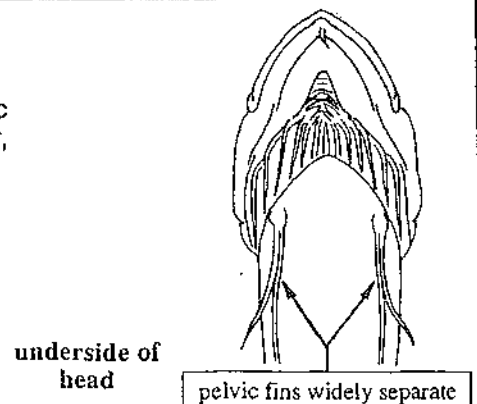
Neoscopelids

To 30 cm. Meso- to bathypelagic in marine waters, from the surface (at night) to a depth of 500 m. Several genera and species in the area.



HAKES, CODS, GRENADIERS, MORAS AND ALLIES - Gadiformes

No sharp spines in fins (except in dorsal fin of some Macrouridae); pelvic fins below or ahead of pectoral fins and widely separated from each other, reduced to filaments in some species; barbels often present on chin.

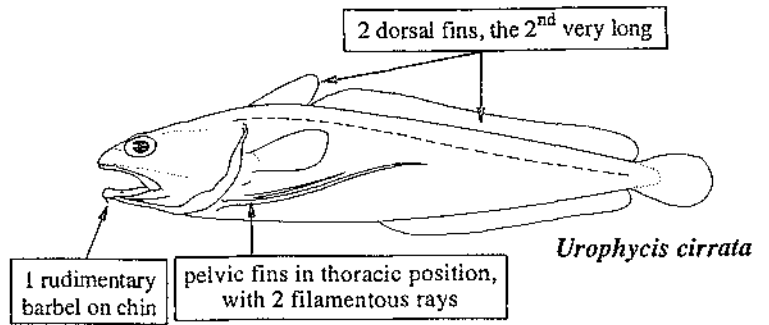


GADIDAE

page 321

Cods, codlings

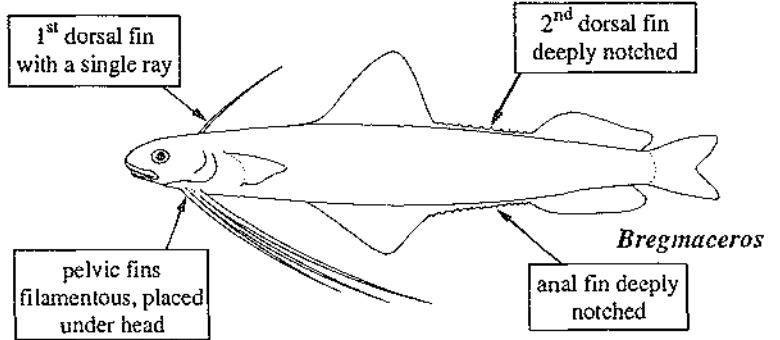
To 57 cm. Demersal in marine waters, from depths of 30 to 700 m, on soft substrates. A single species in the area, presently of little interest to fisheries.



BREGMACEROTIDAE

Codlets

To 10 cm, but usually smaller. Pelagic in oceanic waters, from the surface to below a depth of 1 000 m. A single poorly known genus, with a few species possibly in the area.

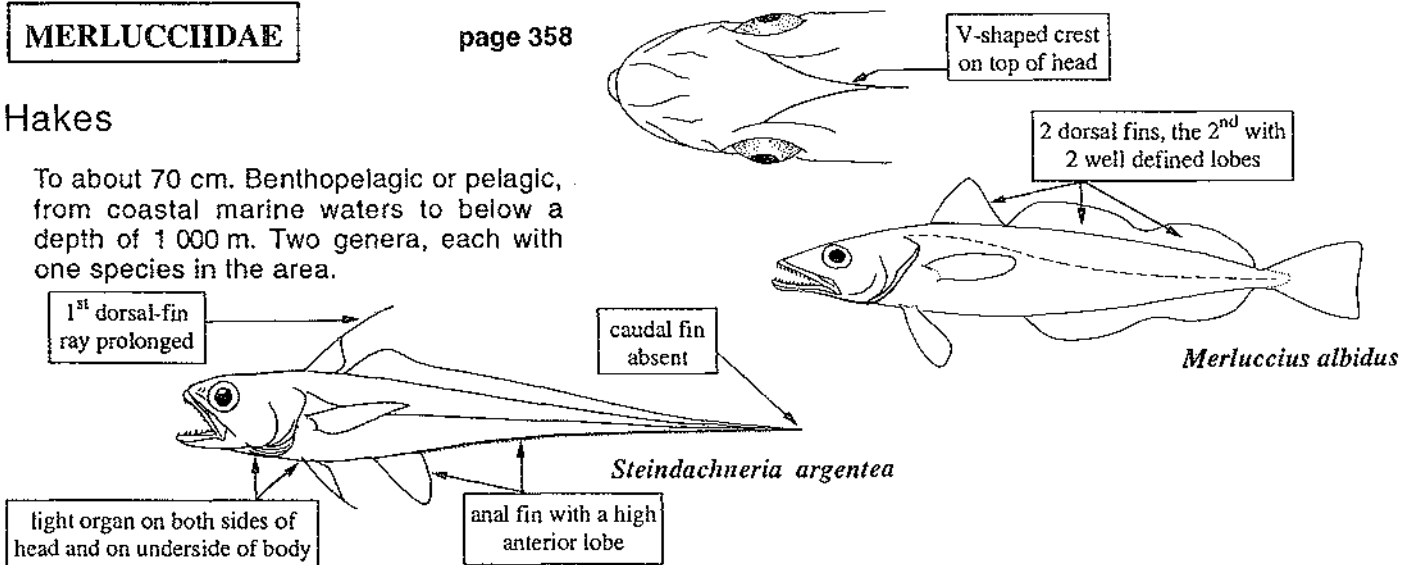


MERLUCCIIDAE

page 358

Hakes

To about 70 cm. Benthopelagic or pelagic, from coastal marine waters to below a depth of 1 000 m. Two genera, each with one species in the area.

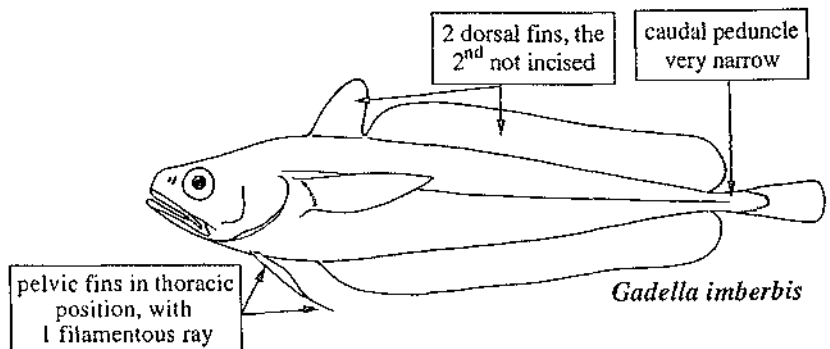


MORIDAE

page 360

Moras

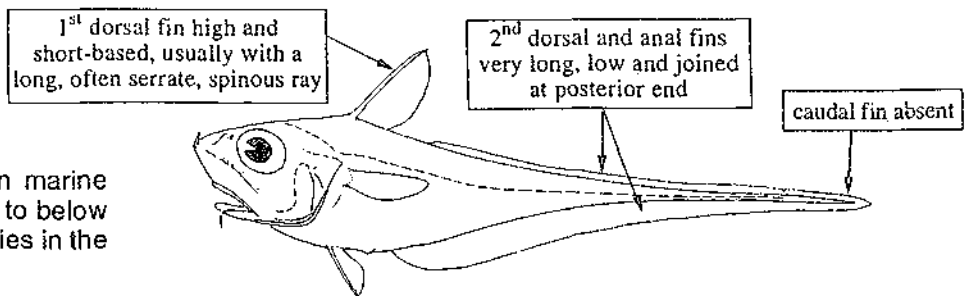
To 23 cm. Benthopelagic in marine waters on the upper part of the continental slope, below a depth of 200 m. A single species in the area.



MACROURIDAE

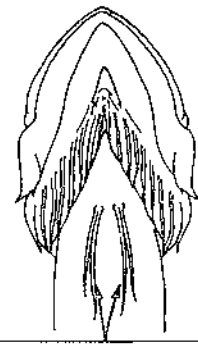
Grenadiers

To about 80 cm. Benthopelagic in marine waters, from a depth of about 300 to below 2 000 m. Several genera and species in the area.



BROTULAS AND ALLIES - Ophidiiformes

No sharp spines in fins; pelvic fins absent in some species, but when present, these fins are placed ahead of pectoral fins, sometimes far forward, on underside of head, and they are always close together and filamentous, each with no more than 2 rays; caudal fin separate or joined to dorsal and anal fins.



underside of head

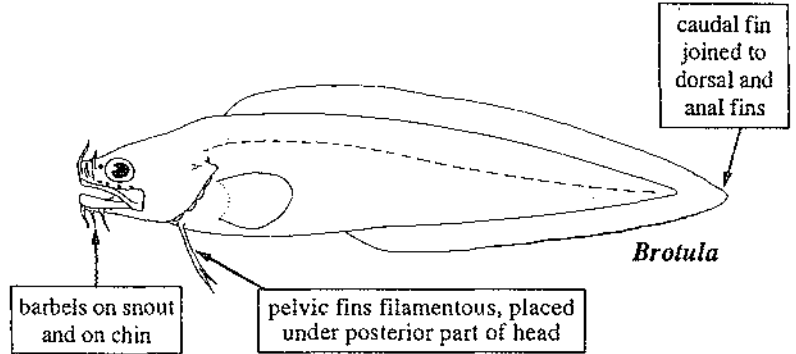
pelvic fins close together

OPHIDIIDAE

page 374

Cusk-eels, brotulas

To 75 cm, but usually around 30 cm. Demersal in marine waters, from shallow areas to below a depth of 100 m, but one species may be found below 650 m. Five genera with a yet undetermined number of species in the area.

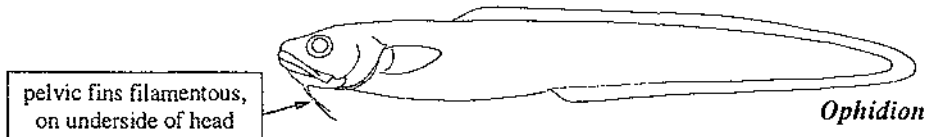


Brotula

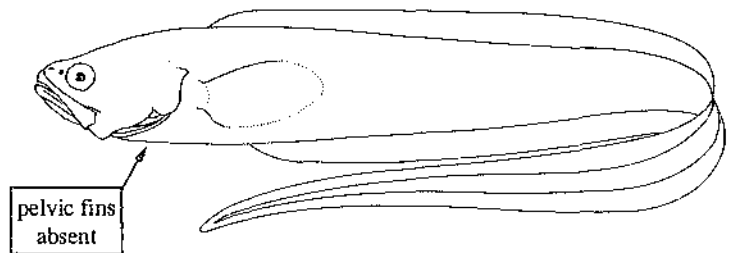
CARAPIDAE

Pearlfishes

To 20 cm. Demersal in marine waters, from the coastline to below a depth of 200 m. Except for one species, they live inside sea cucumbers, bivalves, sea urchins, starfish, and tunicates. Several genera and species in the area.



Ophidion



pelvic fins absent

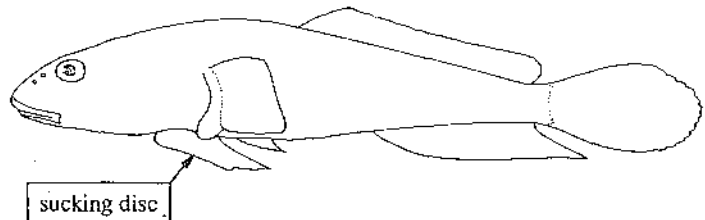
CLINGFISHES - Gobiesociformes

A sucking disc under anterior part of body formed by the pectoral and pelvic fins, by means of which they attach themselves to rocks and other hard substrates, also above the water line; a single dorsal fin without spines.

GOBIESOCIDAE

Clingfishes

To about 15 cm, but usually smaller than 8 cm. Usually benthic in littoral marine waters, but also in brackish waters and in freshwater. Several genera and species in the area.



sucking disc.

TOADFISHES - Batrachoidiformes

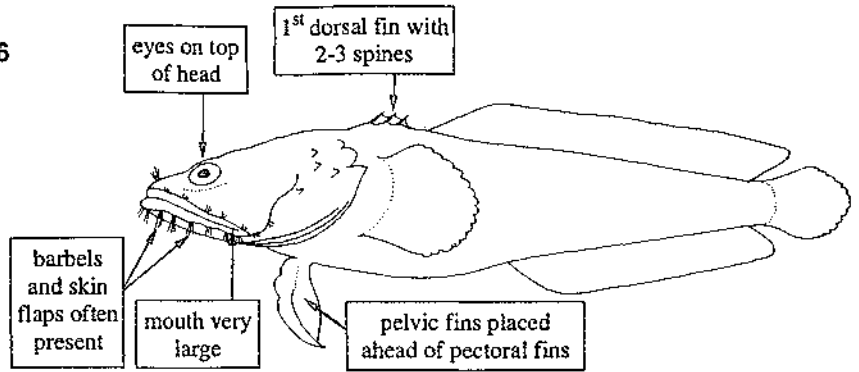
Head large and depressed, body compressed; two dorsal fins, the first with 2 or 3 spines; pelvic fins under throat; gill openings restricted to sides of head; one or several lateral lines on body; many species with barbels and fleshy skin flaps on head.

BATRACHOIDIDAE

page 266

Toadfishes, midshipmen

To 50 cm. Demersal in marine waters, from the coastline to a depth of about 200 m; also in brackish waters. Four genera with 11 species in the area.



ANGLERFISHES AND ALLIES - Lophiiformes

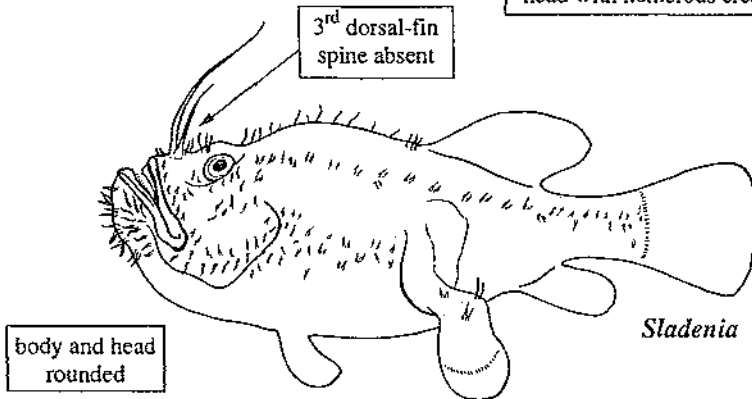
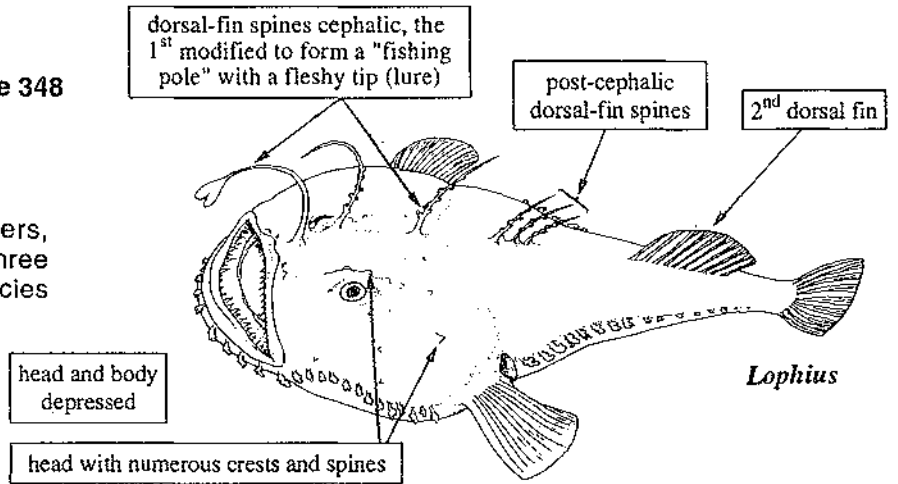
Body globose or depressed; first dorsal-fin spine modified to form a "fishing pole"; gill openings small and circular, usually located below or behind pectoral fins; pelvic fins, when present, placed ahead of pectoral fins.

LOPHIIDAE

page 348

Anglerfishes, goosefishes

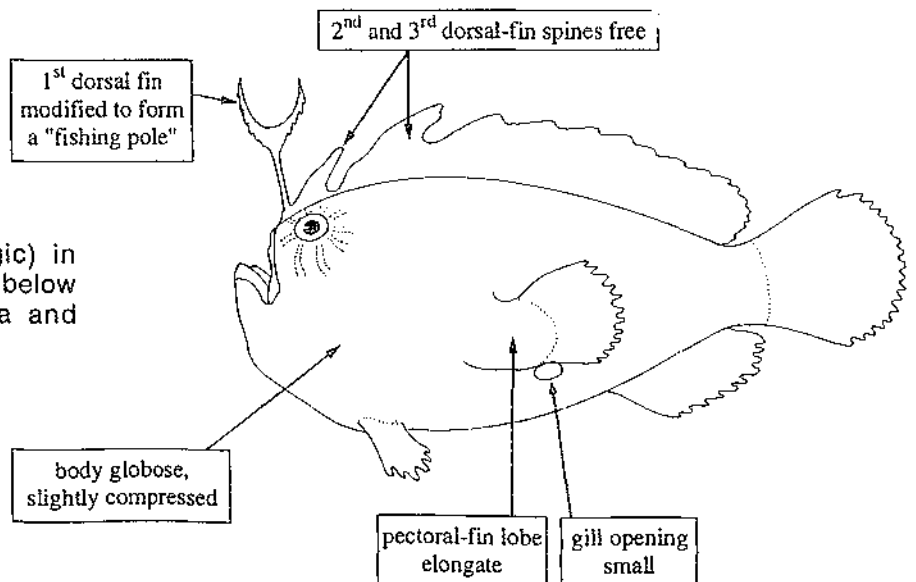
To about 60 cm. Demersal in marine waters, between depths of 200 and 1 000 m. Three genera with probably more than 3 species in the area.



ANTENNARIIDAE

Frogfishes

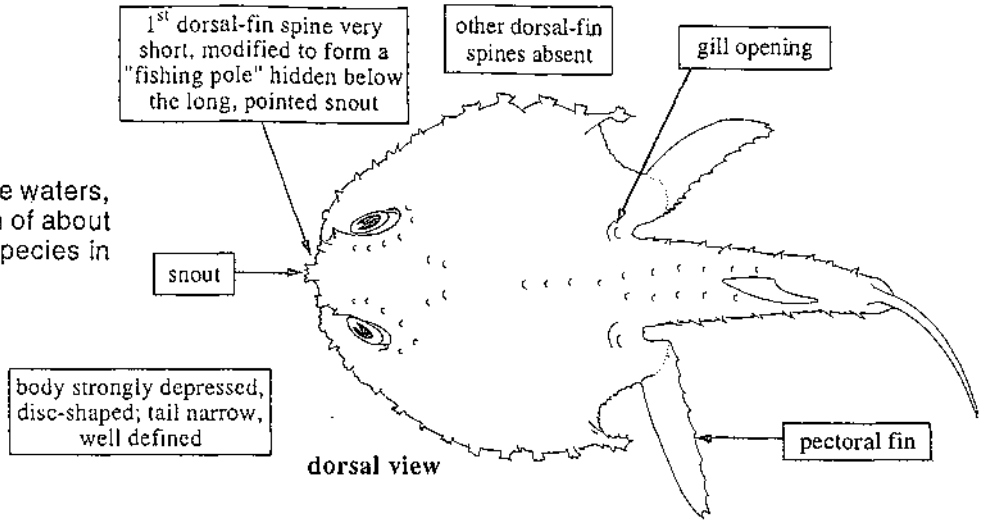
To 26 cm. Demersal (rarely pelagic) in marine waters, from shallow areas to below a depth of 100 m. Several genera and species in the area.



OGCOCEPHALIDAE

Batfishes

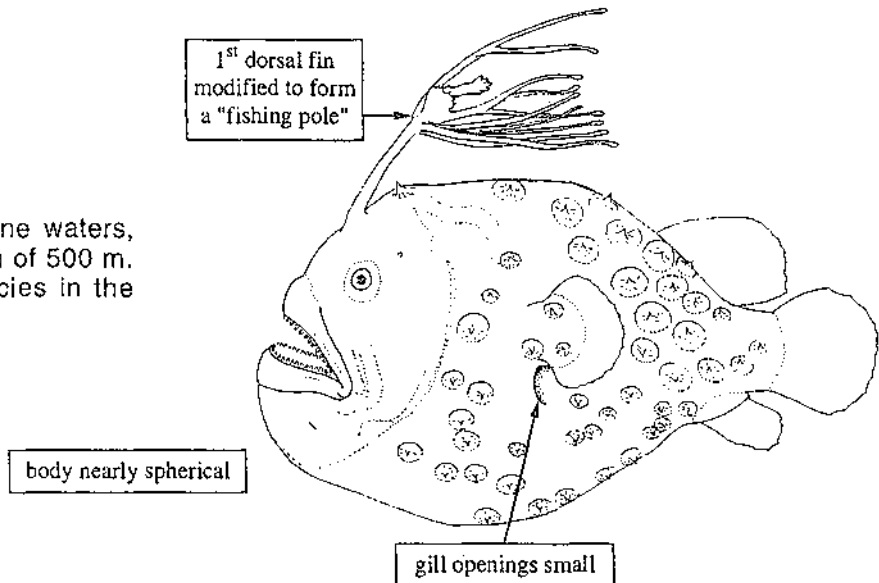
To 40 cm. Demersal in marine waters, from the coastline to a depth of about 90 m. Several genera and species in the area.



HIMANTOLOPHIDAE

Footballfishes

To 60 cm length. Pelagic in marine waters, from the surface to below a depth of 500 m. A single genus with several species in the area.



KILLIFISHES, NEEDLEFISHES, HALFBEAKS, FLYINGFISHES AND ALLIES - Cyprinodontiformes

Fin spines rarely present; single dorsal and anal fins. A rather heterogeneous group, defined mainly by osteological characters.

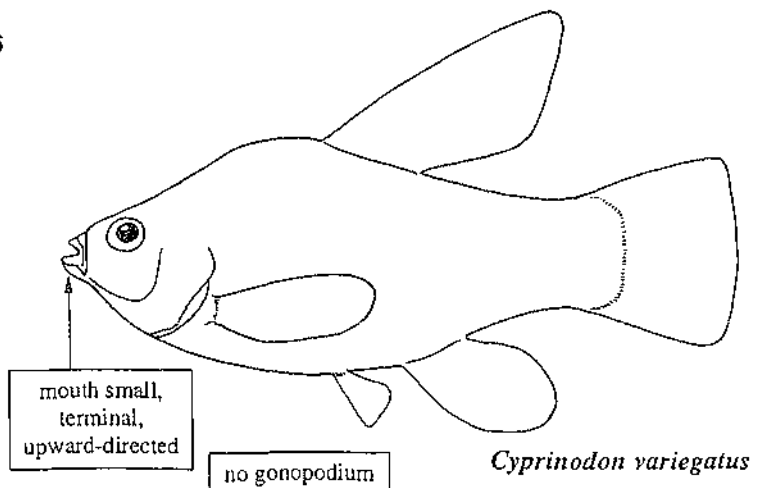
SUBORDER CYPRINODONTOIDEI

Relatively small-sized species, with a small, upward-directed mouth, a rounded or emarginate caudal fin, and a lateral line reduced to a series of pit organs along sides of body.

CYPRINODONTIDAE

Killifishes

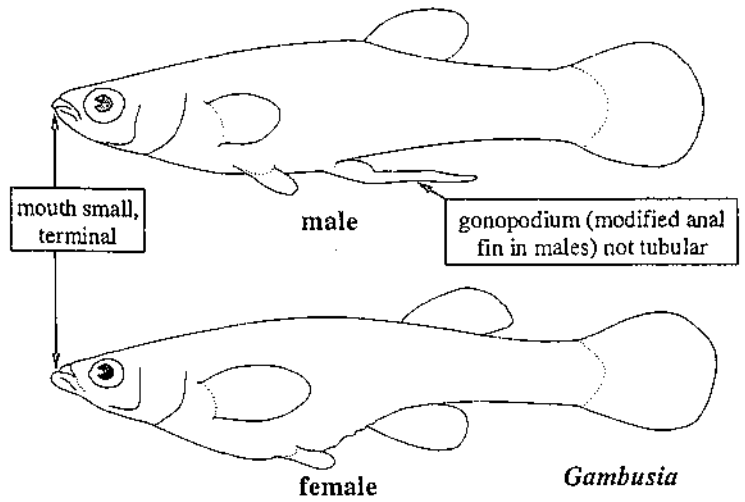
To 20 cm, generally smaller. Most species restricted to freshwater, but some in brackish or hypersaline waters. All species oviparous, but with a marked sexual dimorphism. A single species in brackish and hypersaline waters of the area.



POECILIIDAE

Live-bearing topminnows

To 22 cm length. Demersal, mostly in freshwater, but some in coastal marine and also found in brackish waters. All species are viviparous, with a marked sexual dimorphism. Several genera and species in the area.

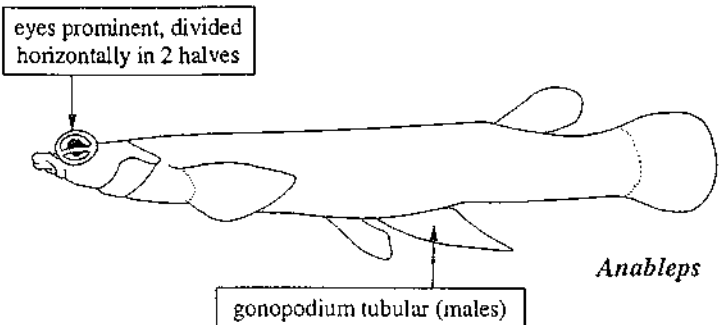


ANABLEPIDAE

page 254

Foureyes

To 30 cm. Epipelagic in coastal marine and brackish waters. They swim at the surface with the upper half of the eyes above the water line (simultaneous aerial and underwater vision). Viviparous. A single genus with 2 species in the area.



SUBORDER EXOCOETOIDEI

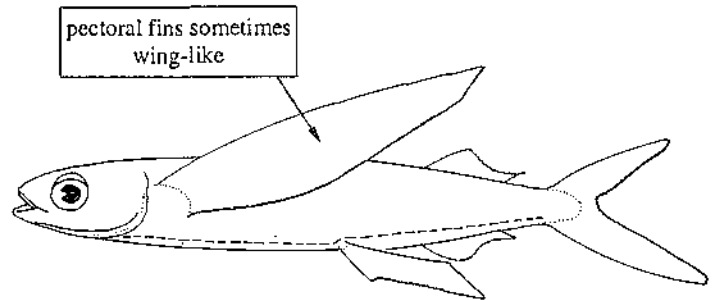
Small to medium-sized fishes, either with one or both jaws extended into a beak, or with pectoral, and sometimes also pelvic fins, very large, wing-like; lateral line near ventral profile of body; pelvic fins placed in abdominal position.

EXOCOETIDAE

page 317

Flyingfishes

To about 40 cm. Epipelagic in marine coastal and oceanic waters. They leap out of the water and can glide through the air over long distances. Five genera with 13 species in the area.

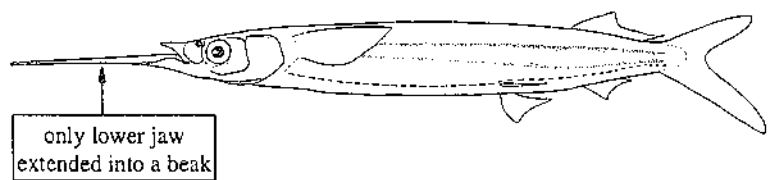


HEMIRAMPHIDAE

page 337

Halfbeaks

To 50 cm. Epipelagic in coastal marine waters. They can perform short leaps out of the water. Three genera with 5 species in the area.

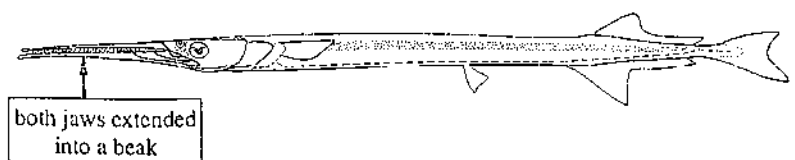


BELONIDAE

page 269

Needlefishes

To about 150 cm. Epipelagic in coastal and oceanic marine waters. They can perform short leaps out of the water. Four genera with 6 species in the area.

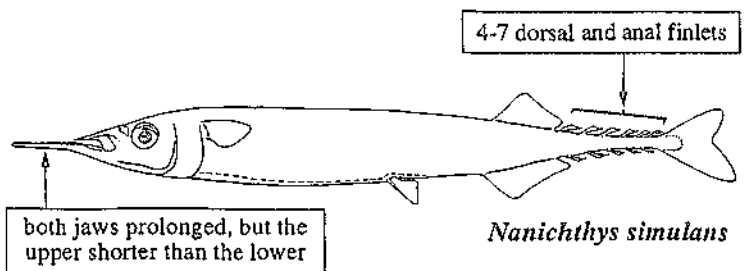


SCOMBERESOCIDAE

page 414

Sauries

To about 10 cm. Pelagic in oceanic surface waters. A single species possibly in the area.



Nanichthys simulans

SILVERSIDES - Atheriniformes

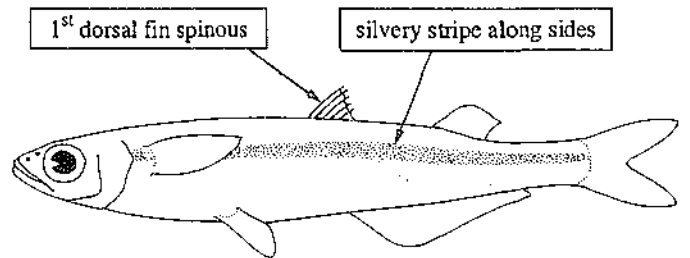
Small fishes with 2 well separated dorsal fins, the first spiny; a silvery stripe on sides.

ATHERINIDAE

page 262

Silversides

To about 17 cm. Pelagic and benthopelagic in coastal marine and brackish waters, from the coastline to a depth of a few metres, but most species restricted to freshwater. Six genera, each with one species, in marine and brackish waters of the area.



OPAHS AND ALLIES - Lampridiformes

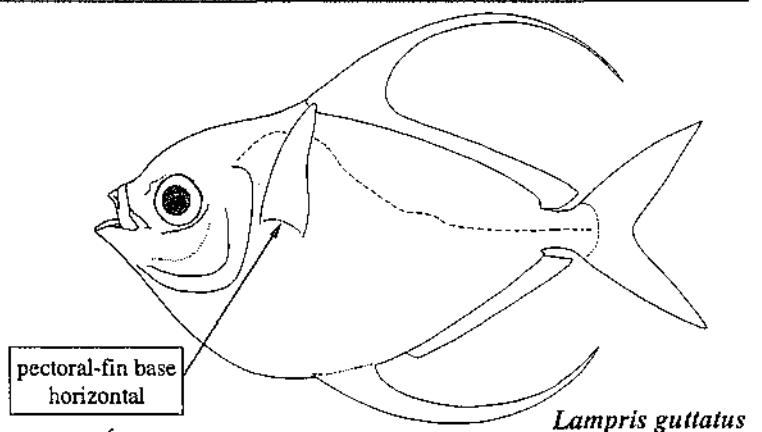
Body shape highly variable with the families; no spines in fins; jaws protrusible.

LAMPRIDAE

page 348

Opahs

To 185 cm. Pelagic oceanic, from the surface to a depth of about 200 m. A single species.

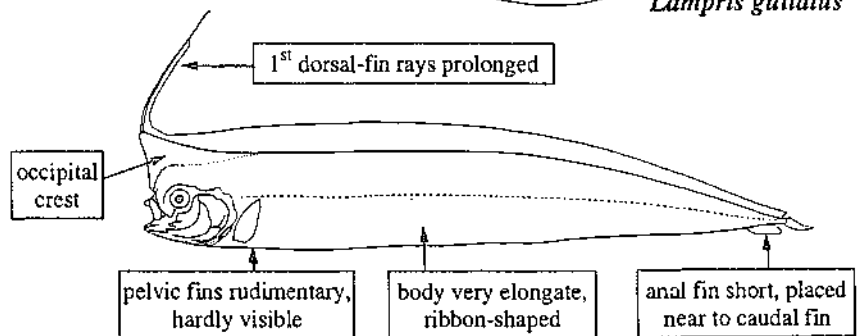


Lampris guttatus

LOPHOTIDAE

Crestfishes, unicornfishes

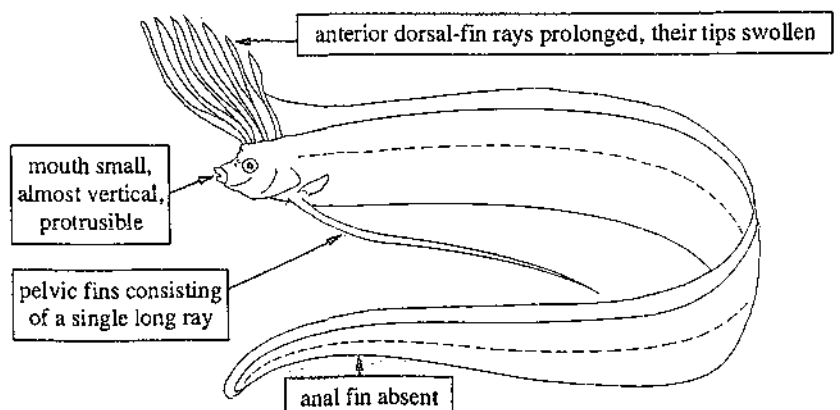
To 180 cm. Mesopelagic, from a depth of about 180 to below 1 000 m. Possibly one or more species in the area.



REGALECIDAE

Oarfishes

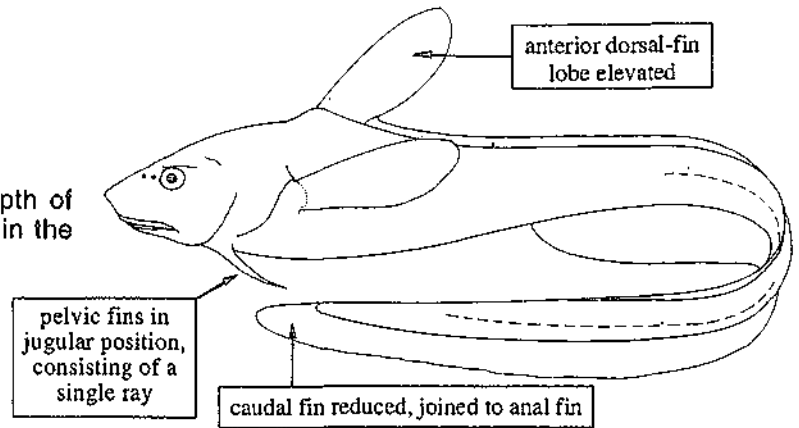
To about 800 cm, but commonly to 300 cm. Mesopelagic from a depth of about 300 to below 1 000 m; juveniles nearer to the surface. Possibly one or more species in the area.



ATELEPODIDAE

Ateleopids

To at least 60 cm. Mesopelagic from a depth of about 180 to 600 m. At least one species in the area.



SQUIRRELFISHES, BEARDFISHES, ALFONSINOS AND ALLIES - Beryciformes

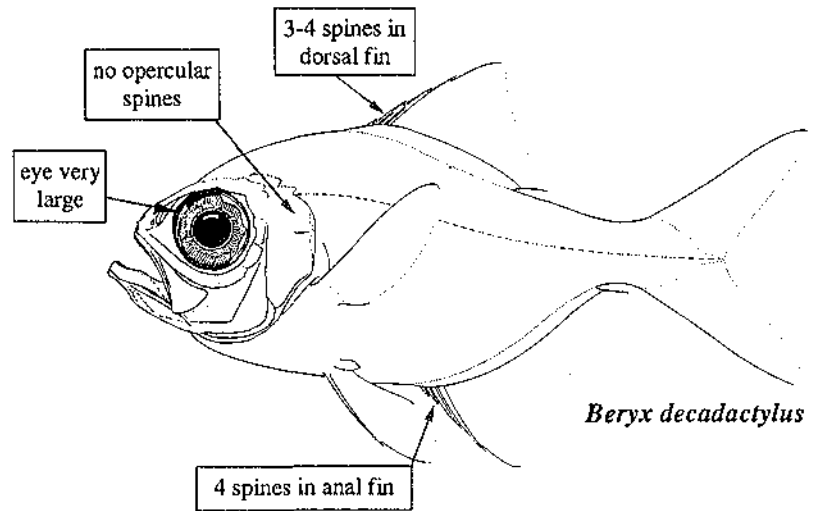
Head-spines and crests well developed, except in Diretmidae; scales heavy and strongly ctenoid.

BERYCIDAE

page 271

Alfonsinos

To 40 cm. Demersal or benthopelagic to below a depth of 300 m. A single species in the area.

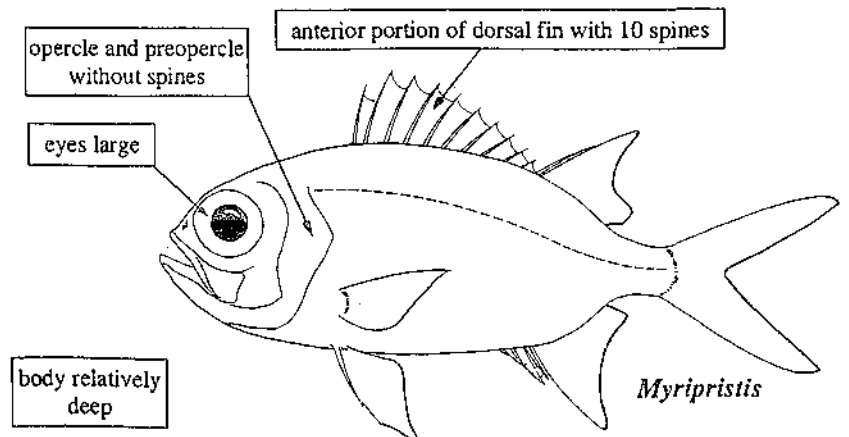
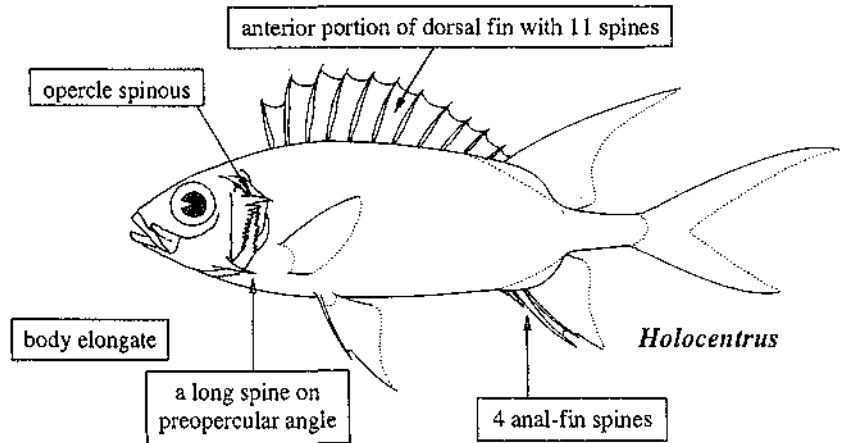


HOLOCENTRIDAE

page 339

Squirrelfishes, soldierfishes

To 40 cm. Demersal in marine waters, from the coastline to below a depth of 100 m. Five genera with about 11 species in the area.

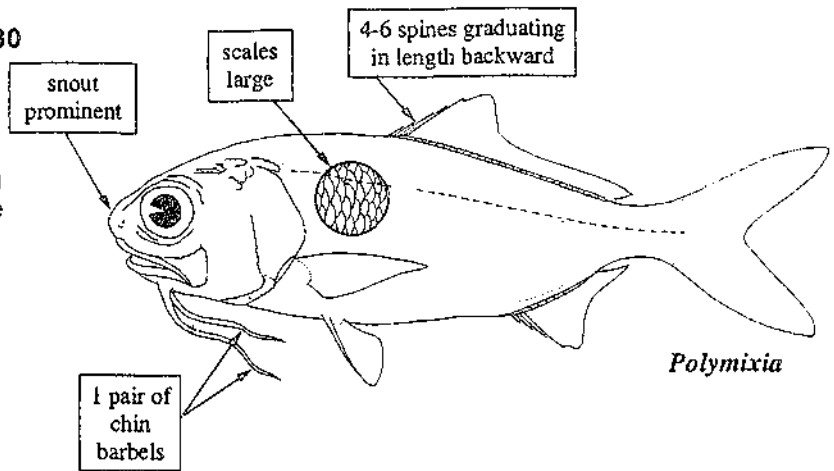


POLYMIXIIDAE

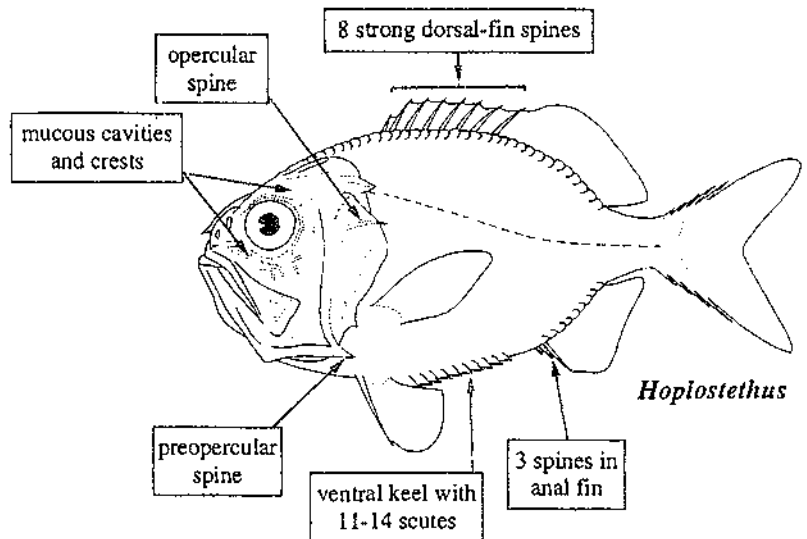
page 380

Beardfishes

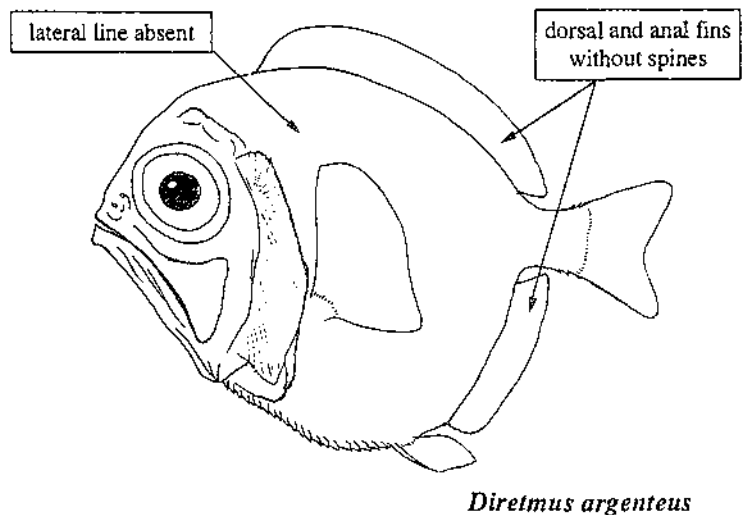
To 48 cm. Demersal in marine waters from a depth less than 100 to 650 m. A single genus with 2 species in the area.

**TRACHICHTHYIDAE****Slimeheads**

To about 35 cm. Benthopelagic from a depth of about 100 to 700 m. A single genus with at least one species in the area.

**DIRETMIDAE****Diretmids**

To 40 cm. Demersal in marine waters, from a depth of about 200 to 2 000 m. Possibly one species in the area.

**DORIES, BOARFISHES AND ALLIES - Zeiformes**

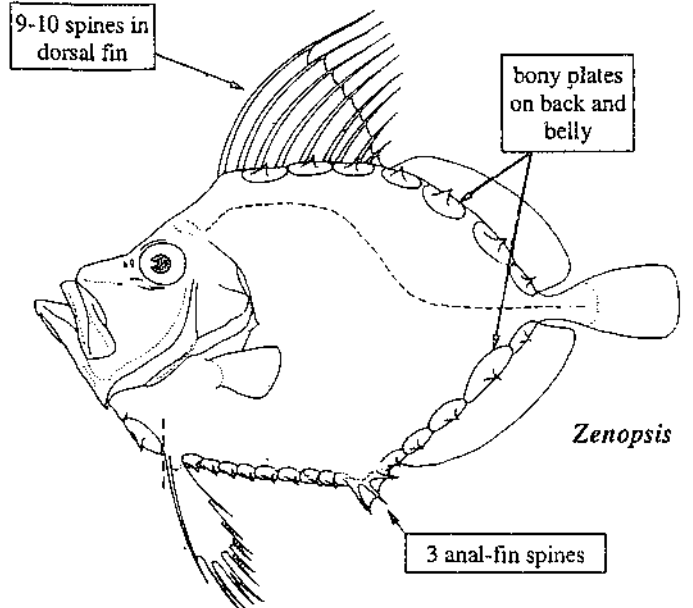
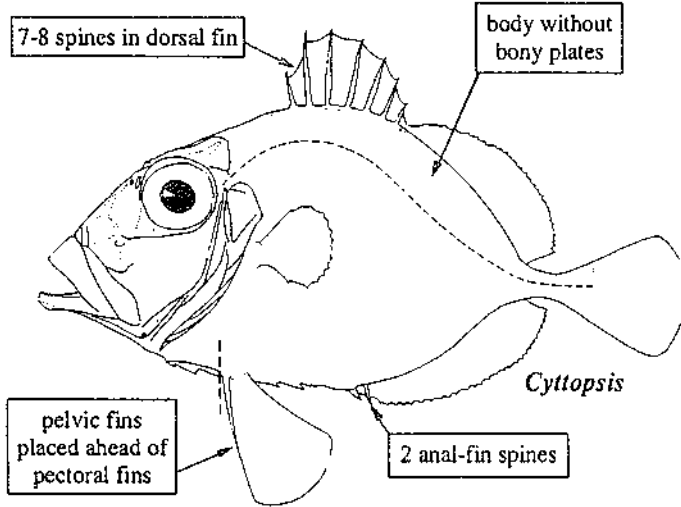
Body usually compressed and deep; jaws greatly protrusible; prominent spines in anterior part of dorsal fin.

ZEIDAE

page 455

Dories

To 61 cm. Demersal in marine waters, from a depth of about 100 to 500 m. Two genera in the area, each with one species.

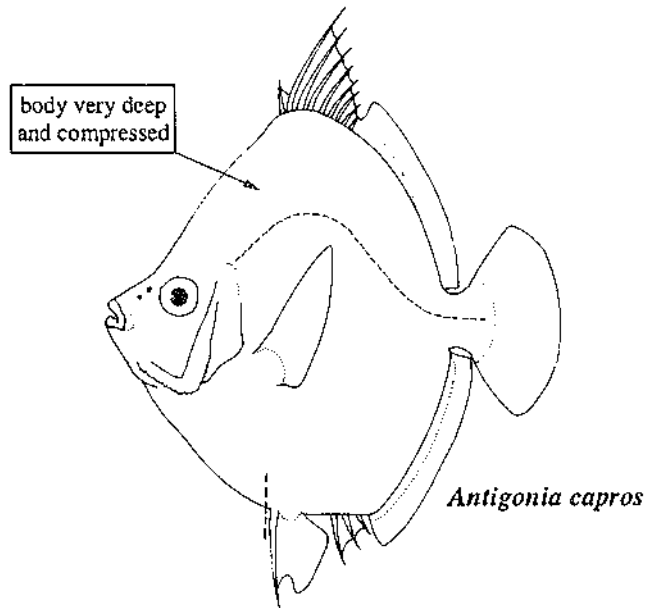
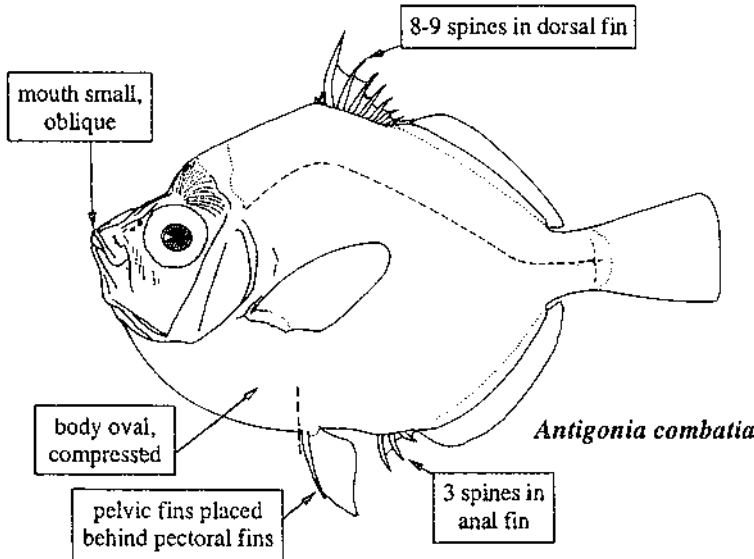


CAPROIDAE

page 282

Boarfishes

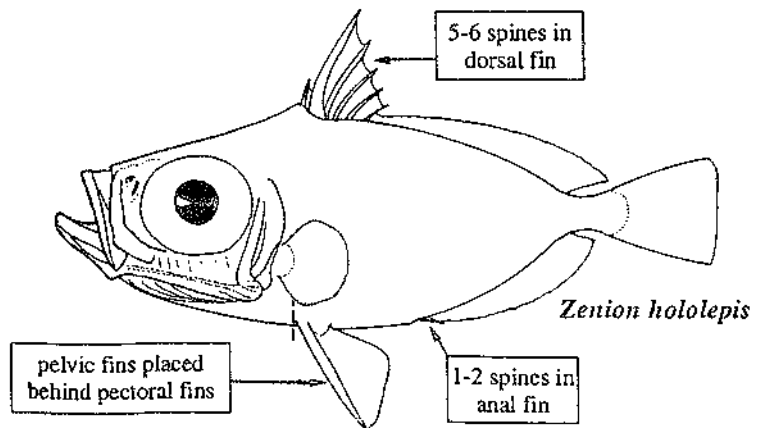
To about 17 cm. Demersal in marine waters, from depths of 65 to 600 m. A single genus with 2 species in the area.



MACRUROCYTTIDAE

Macroctittids

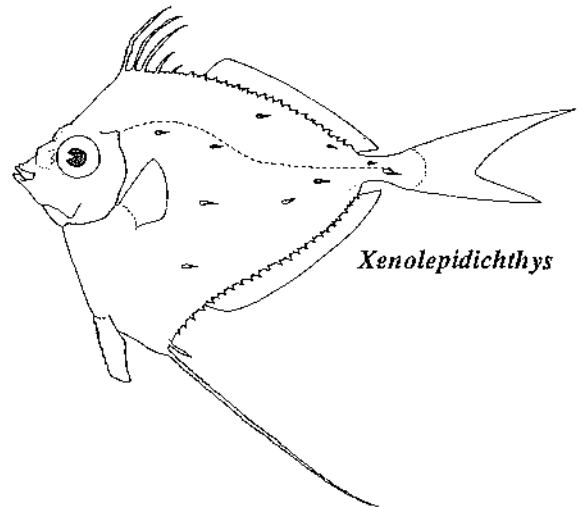
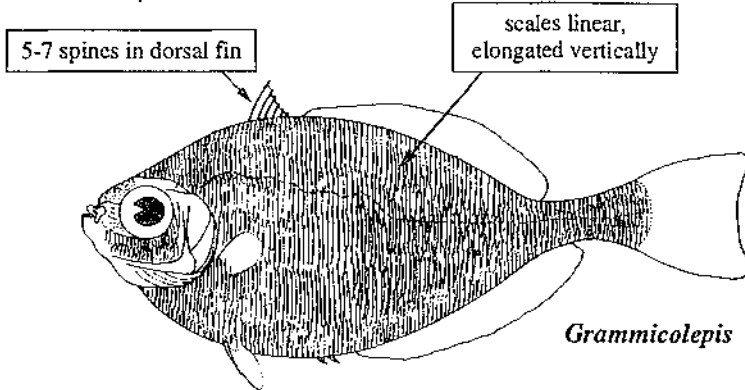
To about 15 cm. Demersal in marine waters over the continental shelf and slope. A single species in the area.



GRAMMICOLEPIDAE

Grammicolepids

To at least 10 cm. Demersal in marine waters from a depth of about 200 to 500 m. Probably 2 genera with several species in the area.

**PIPEFISHES, CORNETFISHES, TRUMPETFISHES, SNIPEFISHES - Syngnathiformes**

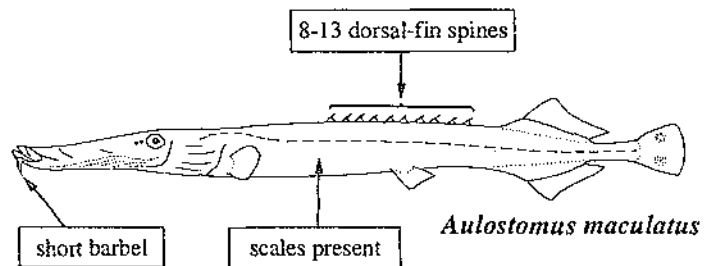
Body elongate, snout tube-like; scales sometimes modified to form series of bony plates.

AULOSTOMIDAE

page 264

Trumpetfishes

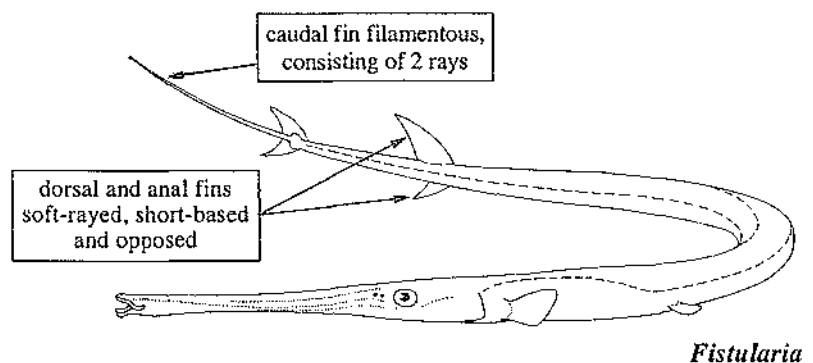
To 75 cm. Demersal in coastal marine waters. They sometimes align themselves in a vertical position. A single species in the area.

**FISTULARIIDAE**

page 320

Cornetfishes

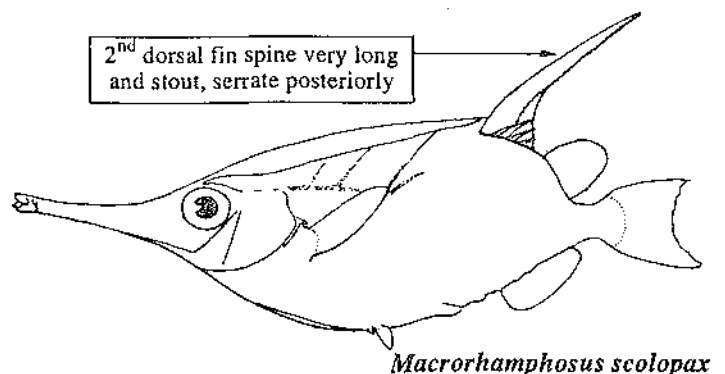
To 200 cm. Demersal in marine waters, from a few metres to a depth of about 200 m. A single genus with 2 species in the area.

**MACRORHAMPHOSIDAE**

page 357

Snipefishes

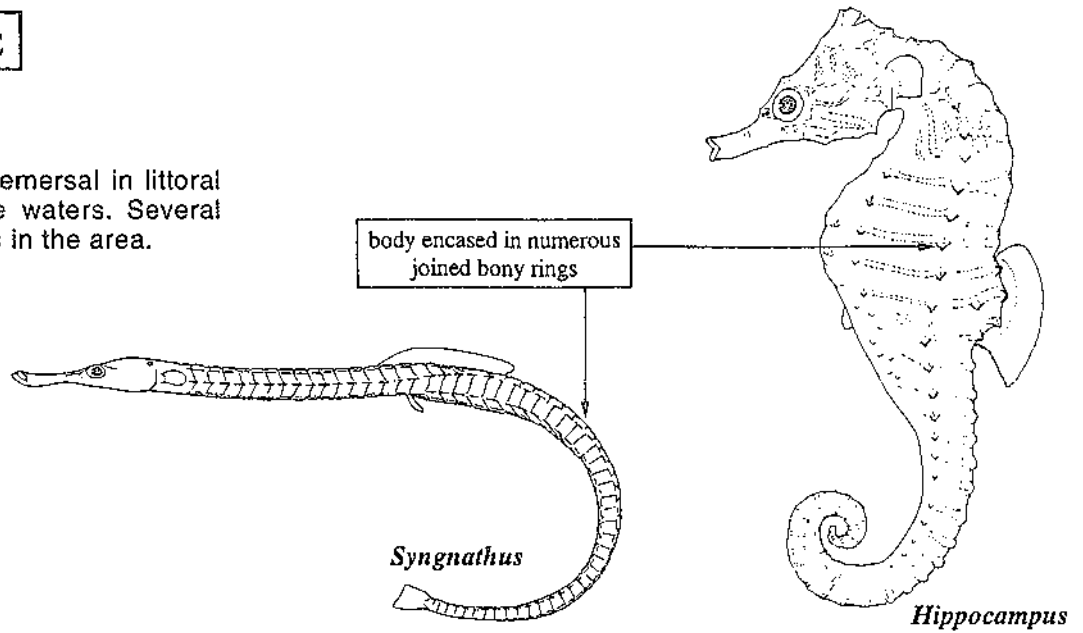
To 15 cm. Demersal to mesopelagic in marine waters between depths of 25 and 600 m. A single species in the area.



SYNGNATHIDAE

Pipefishes

To about 30 cm. Demersal in littoral and coastal marine waters. Several genera and species in the area.



FLYING GURNARDS - Dactylopteriformes

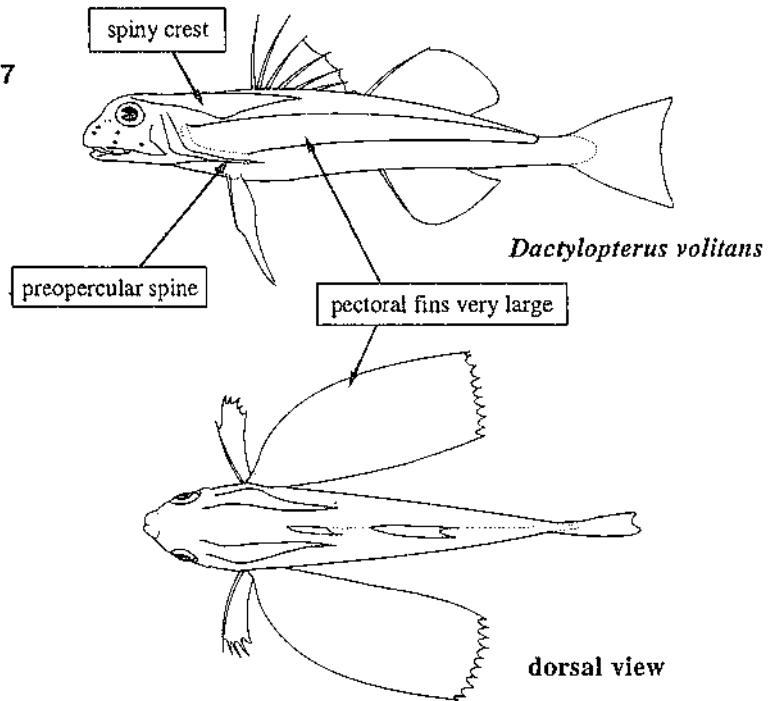
Pectoral fins very large; head encased in a bony shield with a spiny crest from nape to below base of first dorsal fin.

DACTYLOPTERIDAE

page 307

Flying gurnards

To 45 cm. Demersal in shallow coastal marine waters. A single species in the area.



SCORPIONFISHES, SEAROBINS AND ALLIES - Scorpaeniformes

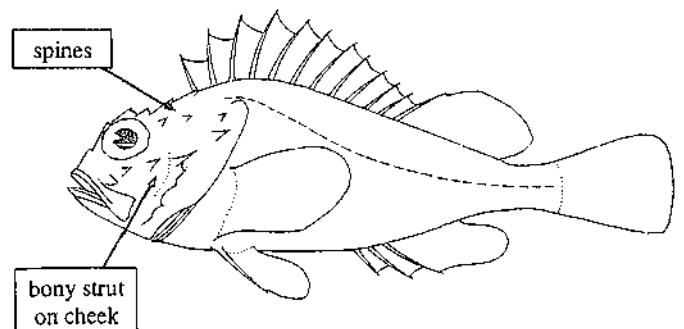
Cheeks with a bony strut (posterior extension of suborbital bone to preopercle); usually well developed spines on head, and prominent spines in dorsal fin; pectoral fins usually rounded, membranes between lower rays often reduced or absent; caudal fin rarely forked.

SCORPAENIDAE

page 419

Scorpionfishes, rockfishes, rosefishes

To 45 cm. Demersal in marine waters, from the coastline to below a depth of 600 m. Nine genera with 28 species in the area.

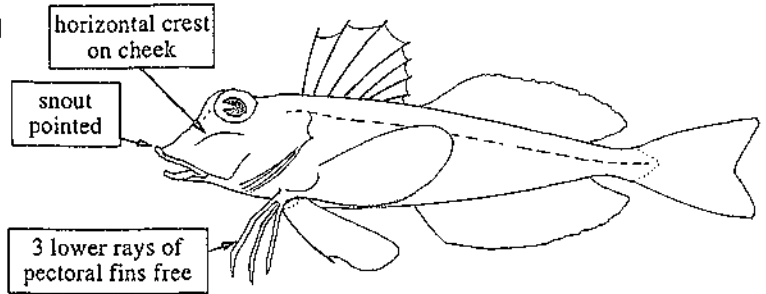


TRIGLIDAE

page 451

Searobins

To about 40 cm. Demersal in marine waters, from the coastline to a depth of about 200 m. Two genera with 8 species in the area.

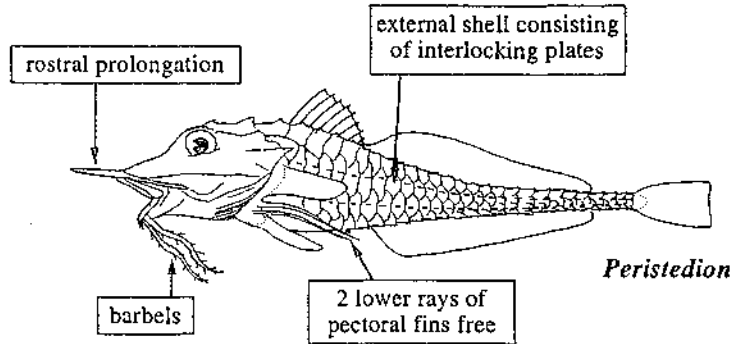


PERISTEDIIDAE

page 378

Armoured searobins

To about 40 cm. Demersal in marine waters, from a depth of about 80 to 400 m. A single genus with several species in the area.



PERCH-LIKE FISHES - Perciformes

The largest and most heterogenous order of bony fishes, divided into 12 suborders (taxonomic status currently under revision).

SUBORDER PERCOIDEI

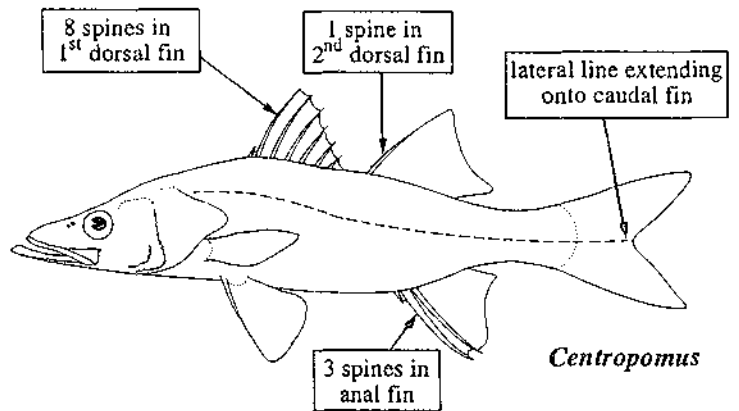
Shape extremely variable; either 2 dorsal fins, or 1 dorsal fin with sharp spines anteriorly; pelvic fins with 1 spine and 5 soft rays, placed well forward on ventral surface of body; maxillary bone not included in gape of mouth, but in dorsal position with respect to the tooth-bearing premaxilla.

CENTROPOMIDAE

page 296

Snooks

To 130 cm. Demersal in coastal marine and brackish waters, usually above a depth of 50 m. A single genus with 5 species in the area.

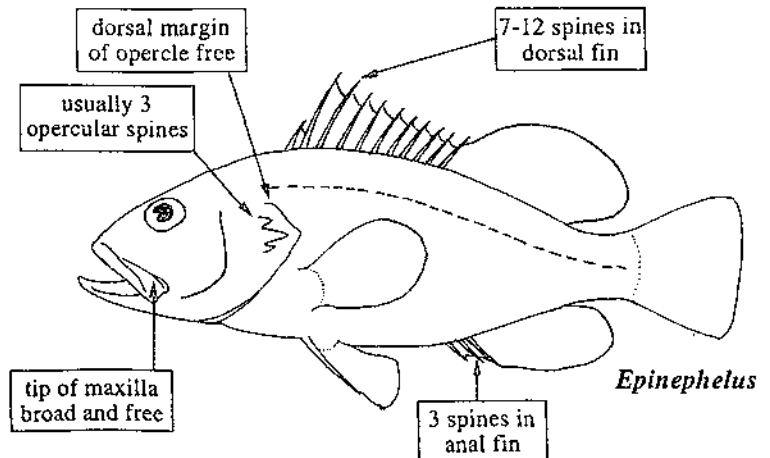


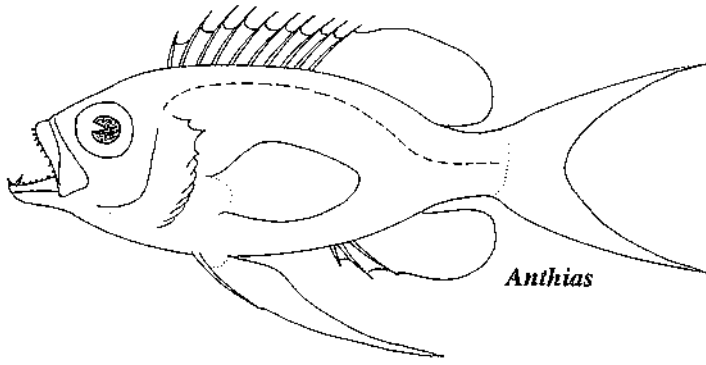
SERRANIDAE

page 423

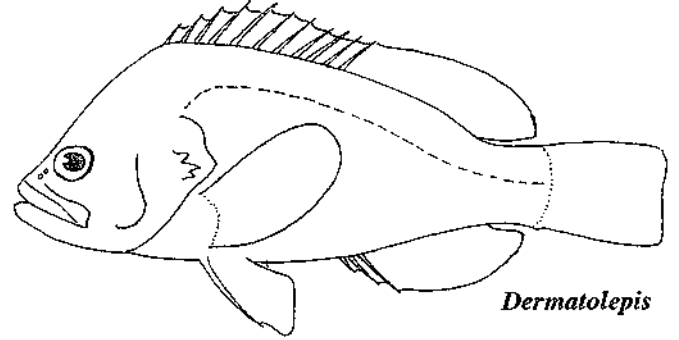
Groupers, hamlets, hinds, sea-basses, sand-perches, tatlays

To about 300 cm (exceptional). Demersal in marine waters, from the coastline to below a depth of 30 m. Four subfamilies, 18 genera and over 60 species in the area.

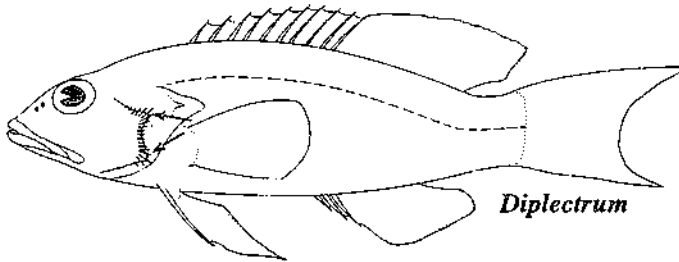




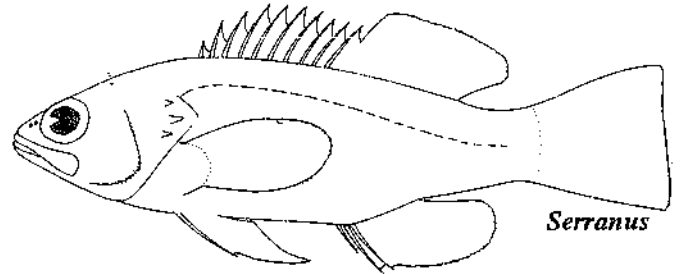
Anthias



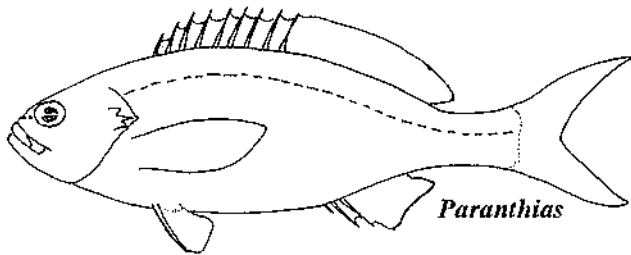
Dermatolepis



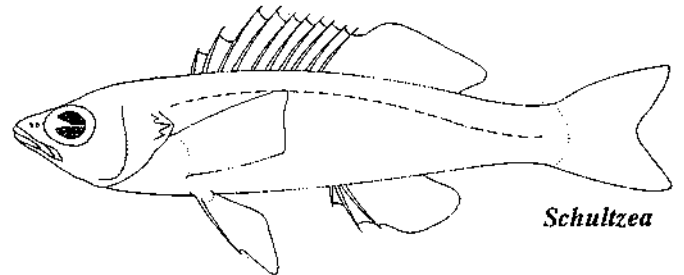
Diplectrum



Serranus



Paranthias

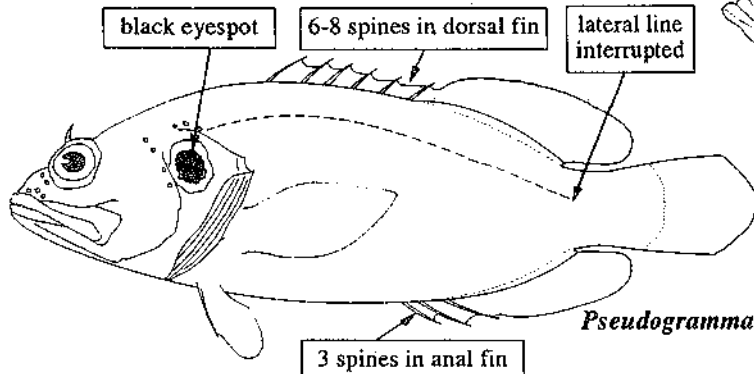


Schultzea

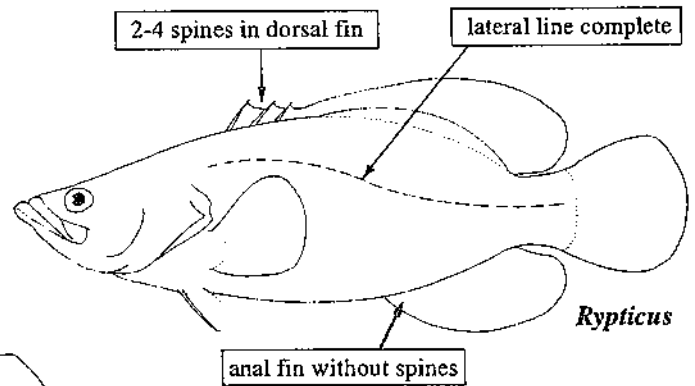
GRAMMISTIDAE

Soapfishes

To 32 cm. Demersal in coastal marine waters, from the coastline to a depth of about 50 m. Two genera with several species in the area.



Pseudogramma

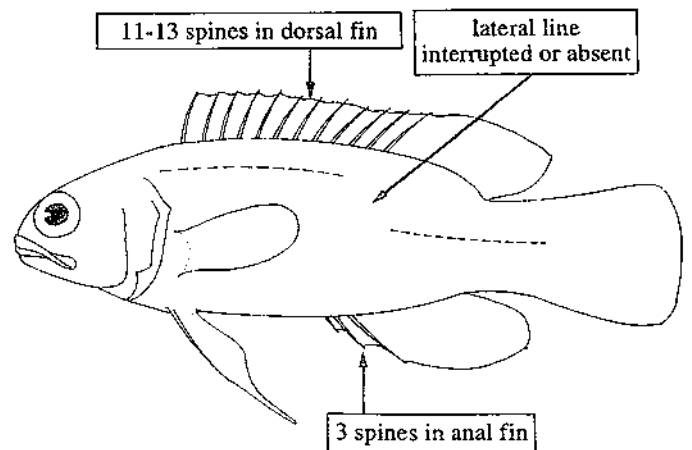


Rypiticus

GRAMMIDAE

Fairy basslets

To about 10 cm length; demersal in marine waters, from the coastline to about 80 m depth. Several genera and species in the area.



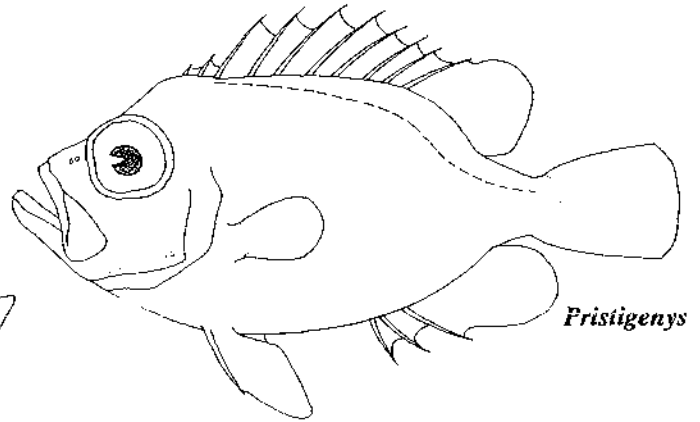
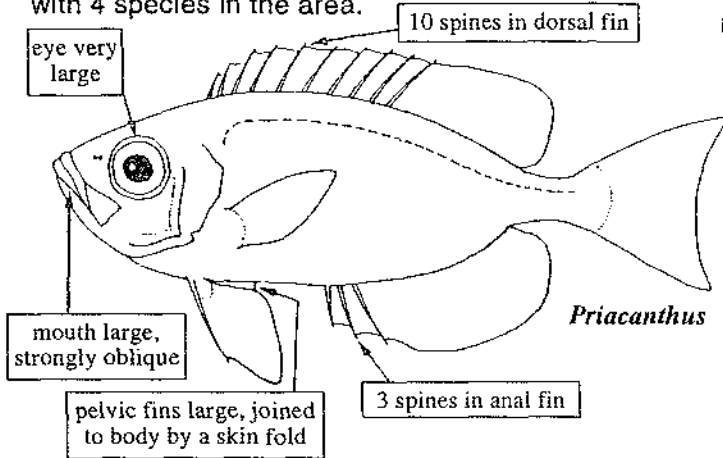
3 spines in anal fin

PRIACANTHIDAE

page 386

Bigeyes

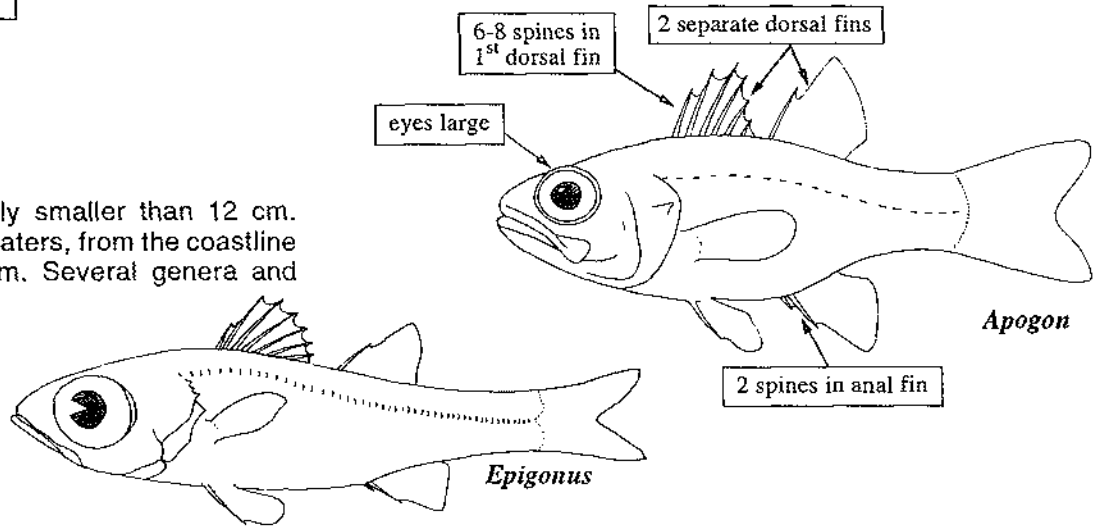
To 50 cm. Demersal in marine waters, from the coastline to a depth of about 200 m. Three genera with 4 species in the area.



APOGONIDAE

Cardinalfishes

To 20 cm, but usually smaller than 12 cm. Demersal in marine waters, from the coastline to a depth of 1 000 m. Several genera and species in the area.

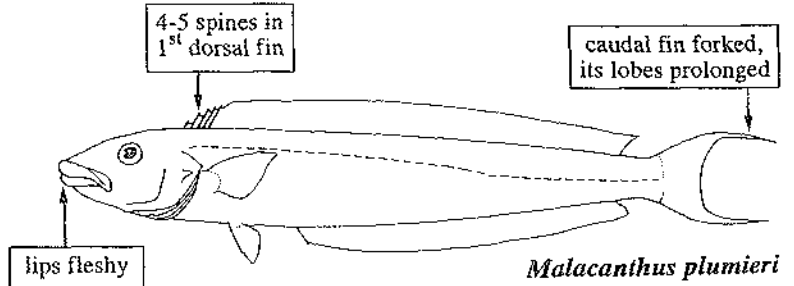


MALACANTHIDAE

page 358

Sand tilefishes

To 60 cm. Demersal in marine waters, from the coastline to a depth of 150 m. A single species in the area.

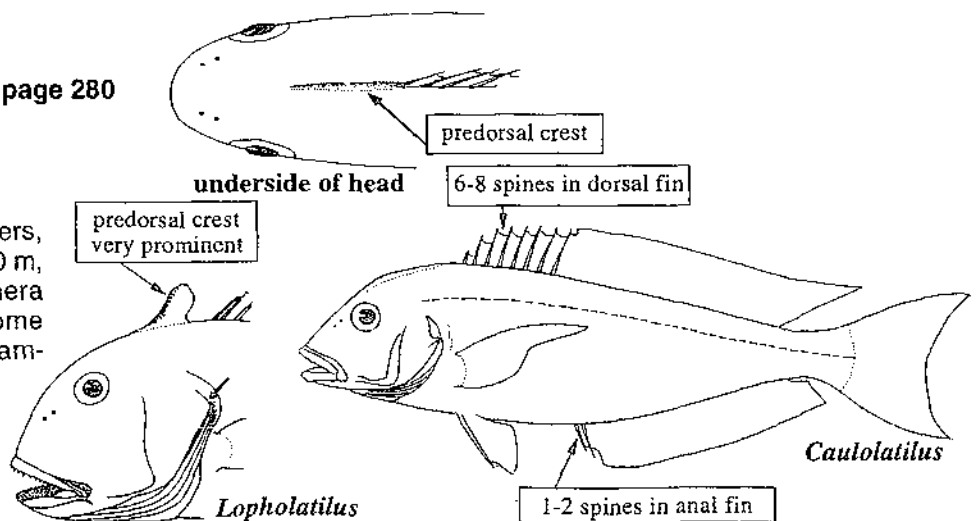


BRANCHIOSTEGIDAE

page 280

Tilefishes

To 125 cm. Demersal in marine waters, from the coastline to a depth of 500 m, but usually above 200 m. Two genera with 5 species in the area. Some authors include this group in the family Malacanthidae.

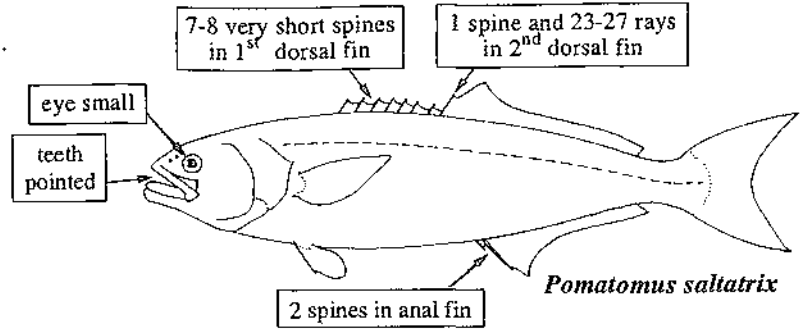


POMATOMIDAE

page 386

Bluefishes

To 110 cm. Pelagic in marine surface waters. A single species.

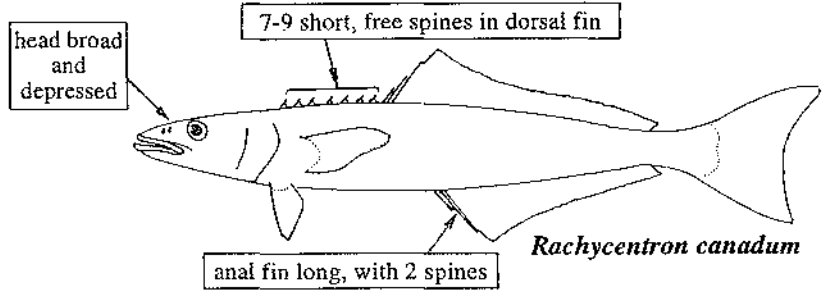


RACHYCENTRIDAE

page 390

Cobias

To 200 cm. Pelagic in marine waters, from the surface to a depth of 50 m. A single species.

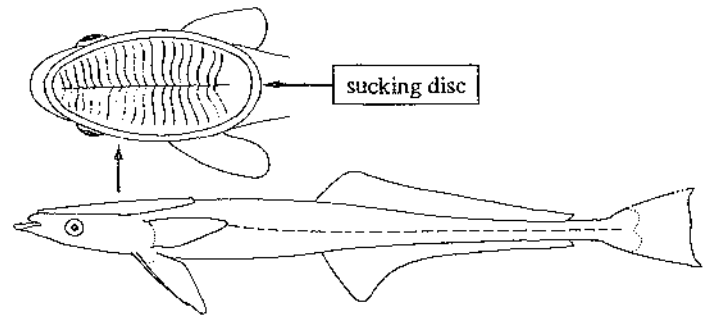


ECHENEIDIDAE

page 307

Remoras, sharksuckers, diskfishes

To 100 cm. Pelagic in coastal and oceanic marine waters. They attach themselves by means of their sucking disk to large fish, sea turtles, and marine mammals. Four genera with 8 species in the area.

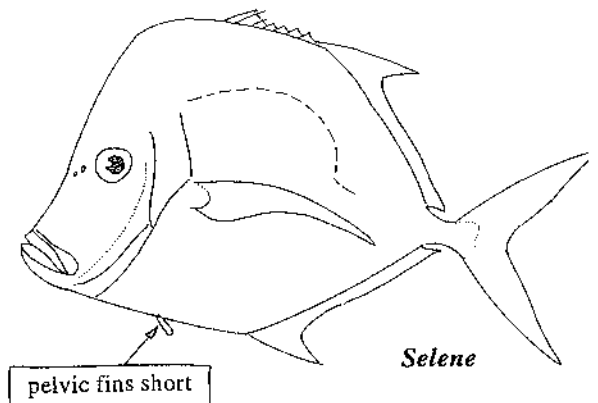
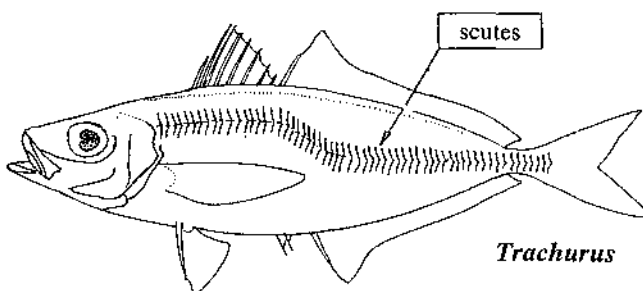
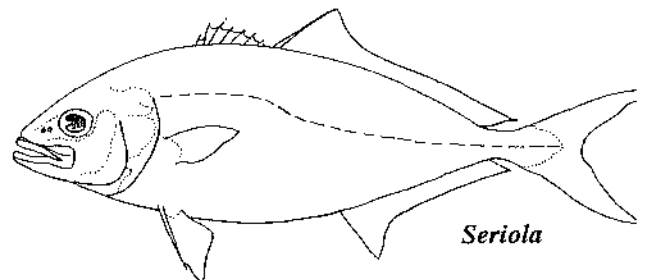
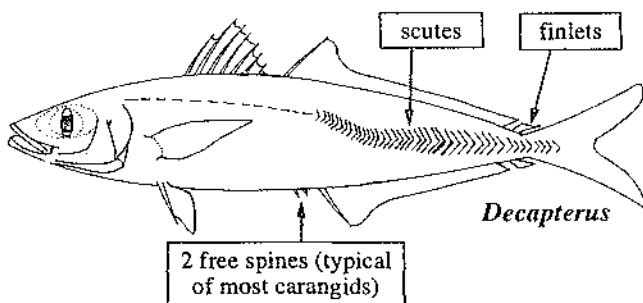
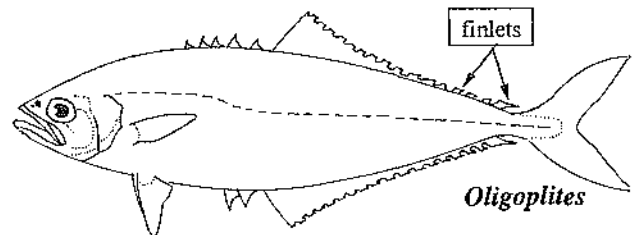


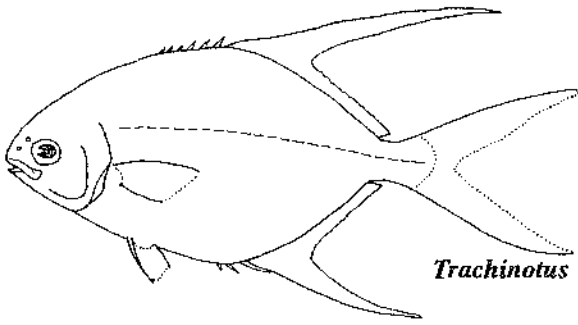
CARANGIDAE

page 283

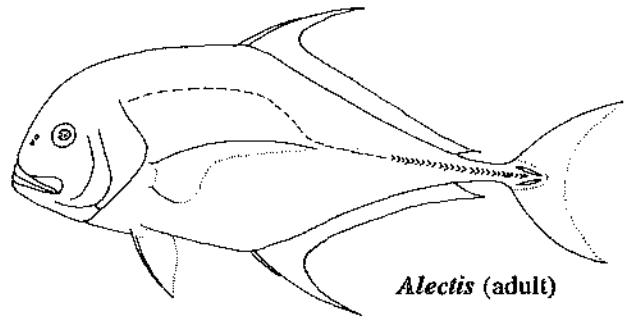
Jacks, scads, leatherjacks, bumpers, runners, pompanos, amberjacks, pilotfishes

To 160 cm. Demersal or pelagic in coastal and oceanic marine waters, from the coastline to a depth of about 200 m. Fifteen genera with 31 species in the area.





Trachinotus



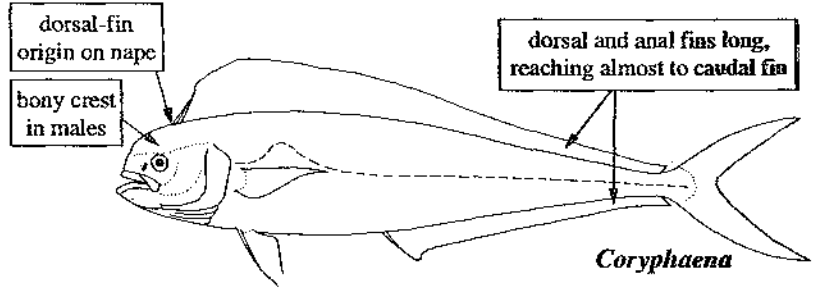
Alectis (adult)

CORYPHAENIDAE

page 304

Dolphinfishes

To 200 cm. Pelagic in oceanic waters. A single genus with 2 species.

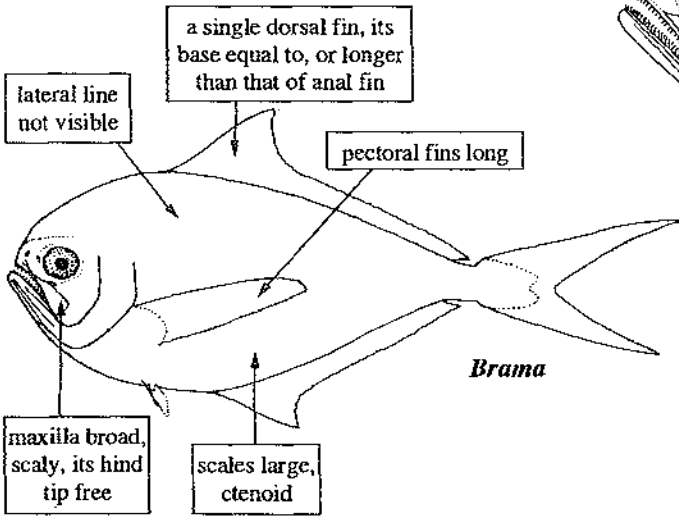


Coryphaena

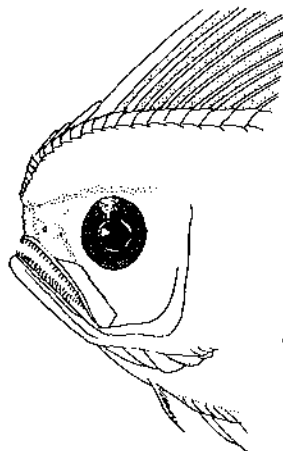
BRAMIDAE

Pomfrets

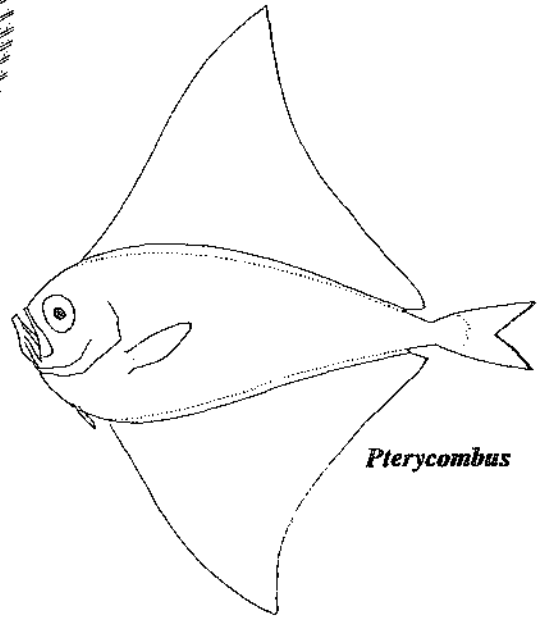
To 100 cm. Epi- or mesopelagic in oceanic waters, from the surface to a depth below 300 m. Several genera and species probably present in the area.



Brama



Pteraclis



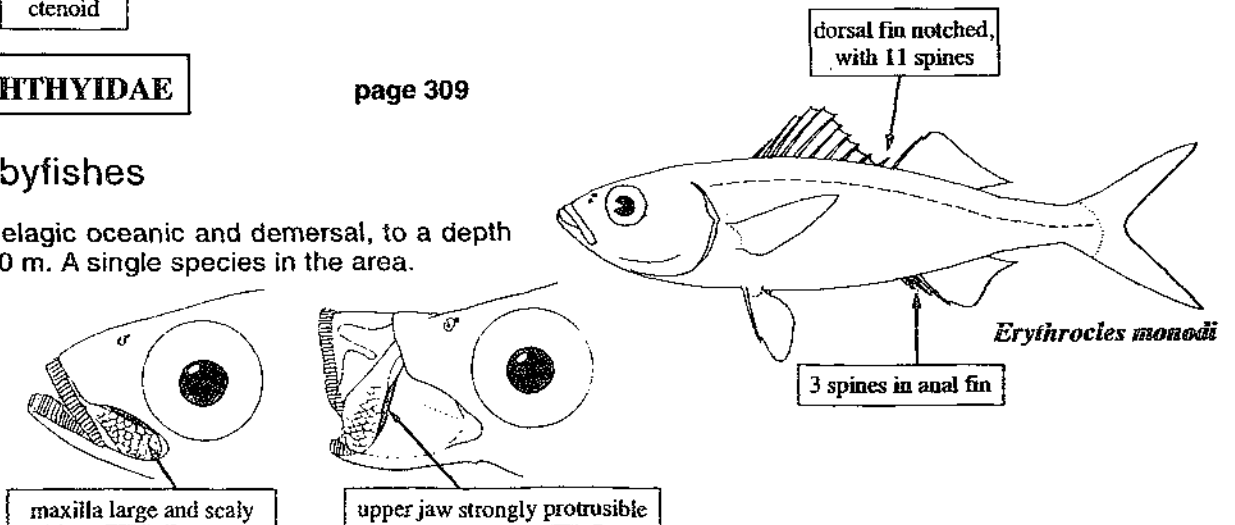
Pterycombus

EMMELICHTHYIDAE

page 309

Rovers, rubyfishes

To 55 cm. Pelagic oceanic and demersal, to a depth of about 300 m. A single species in the area.



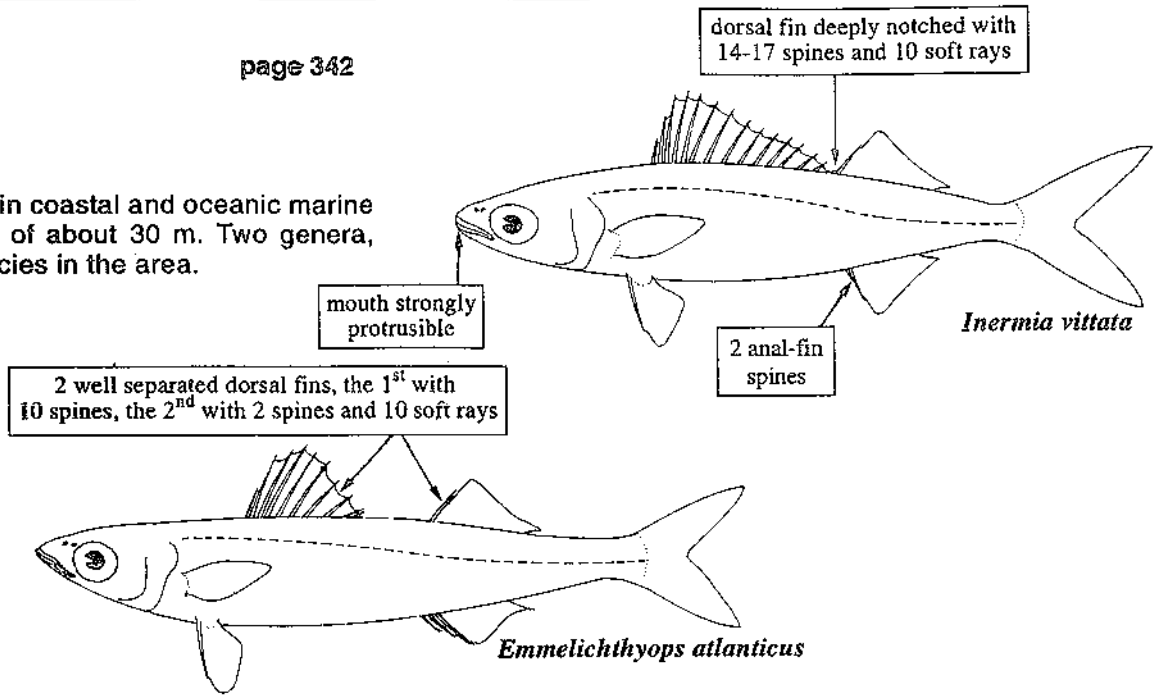
Erythrocles monodi

INERMIDAE

page 342

Bonnetmouths

To 23 cm. Pelagic in coastal and oceanic marine waters to a depth of about 30 m. Two genera, each with one species in the area.

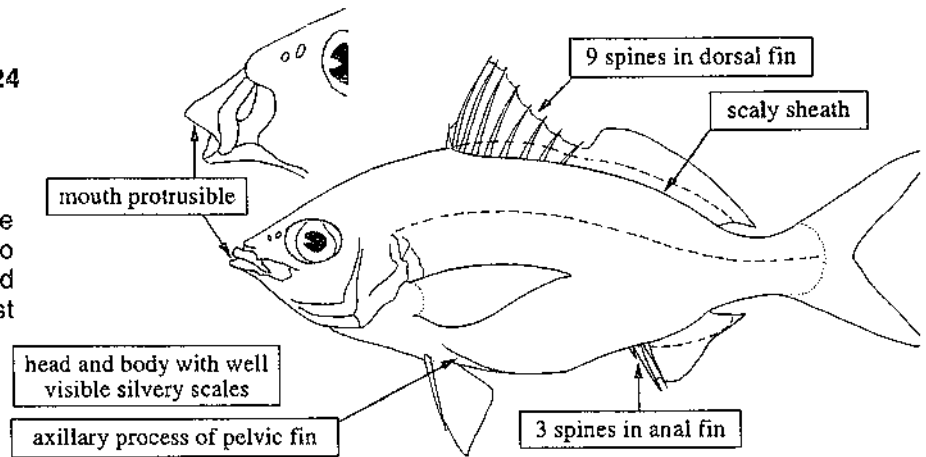


GERREIDAE

page 324

Mojarras

To 40 cm. Demersal in coastal marine waters to a depth of about 50 m; also in brackish and hypersaline waters and in freshwater. Four genera with at least 11 species in the area.

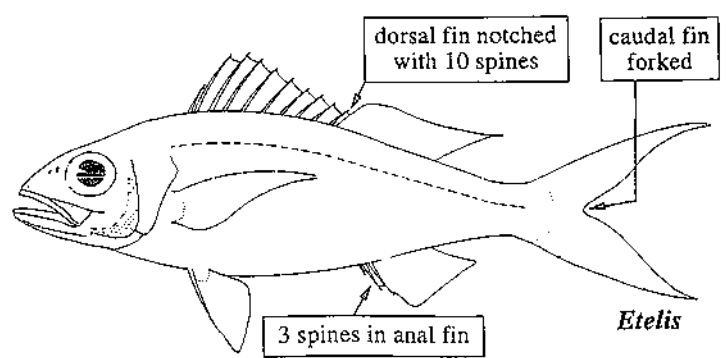
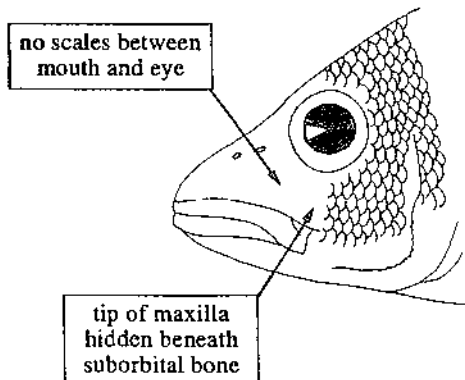
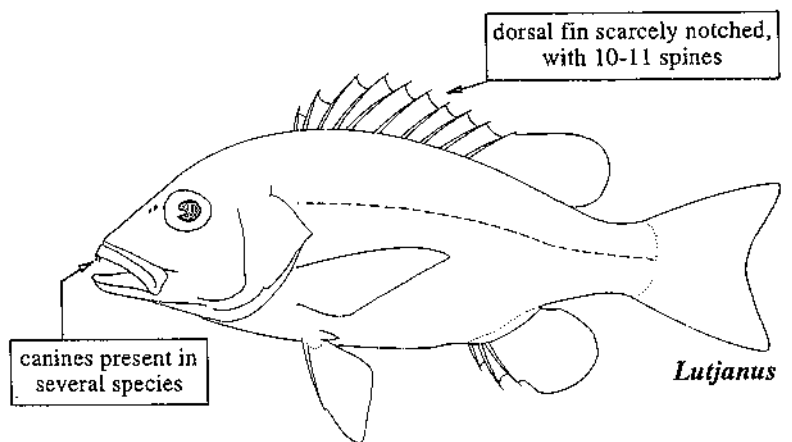


LUTJANIDAE

page 350

Snappers

To 160 cm. Demersal in marine waters, from shallow areas to a depth below 200 m; some species enter brackish or hypersaline waters. Eight genera with 20 species in the area.

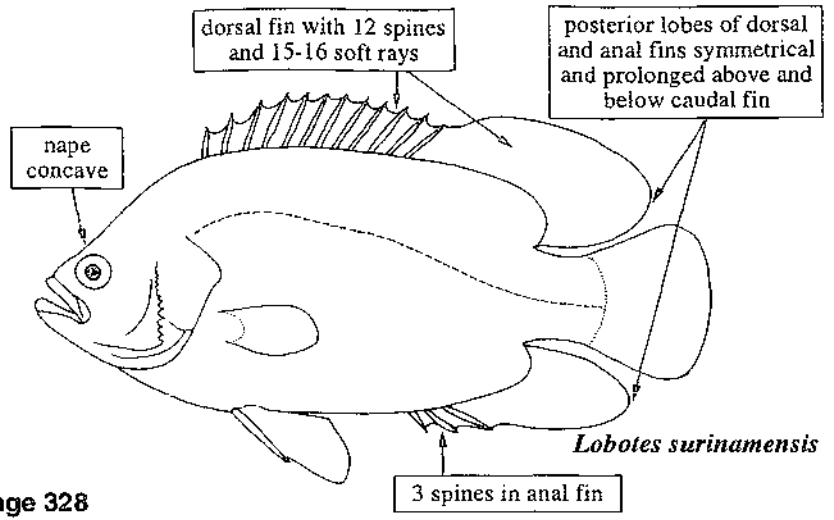


LOBOTIDAE

page 348

Tripletails

To 100 cm. Pelagic in coastal marine waters drifting near the surface, and also in brackish waters. A single species in the area.

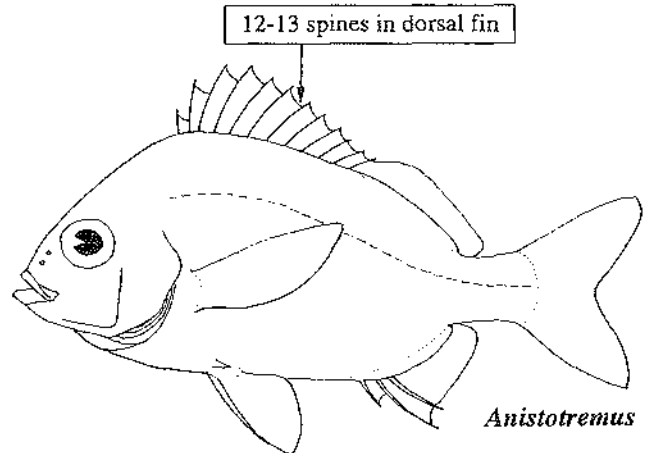
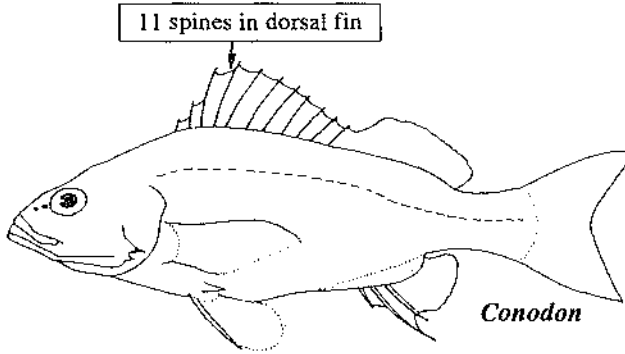
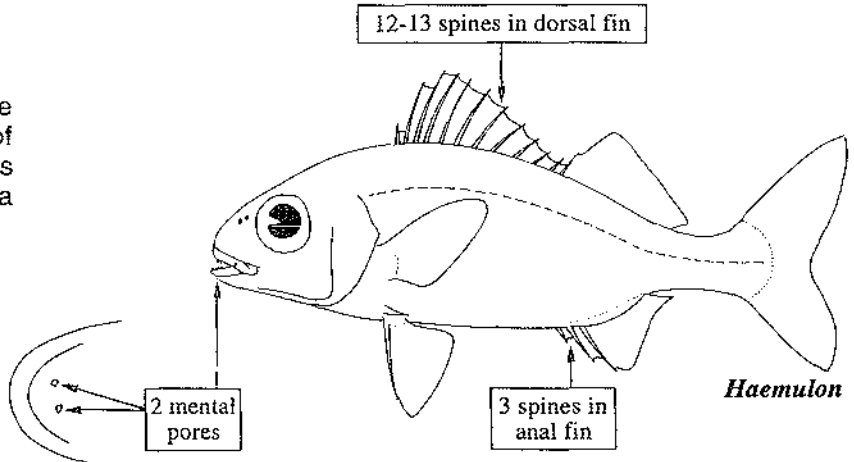
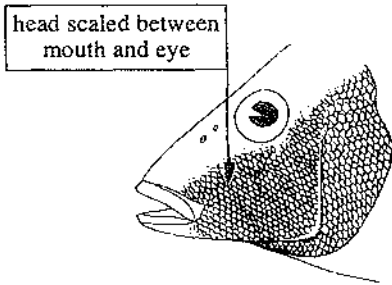


HAEMULIDAE

page 328

Grunts

To 75 cm. Usually demersal in marine waters, from the coastline to a depth of about 100 m, but also in brackish waters and rarely in freshwater. Seven genera with 22 species in the area.

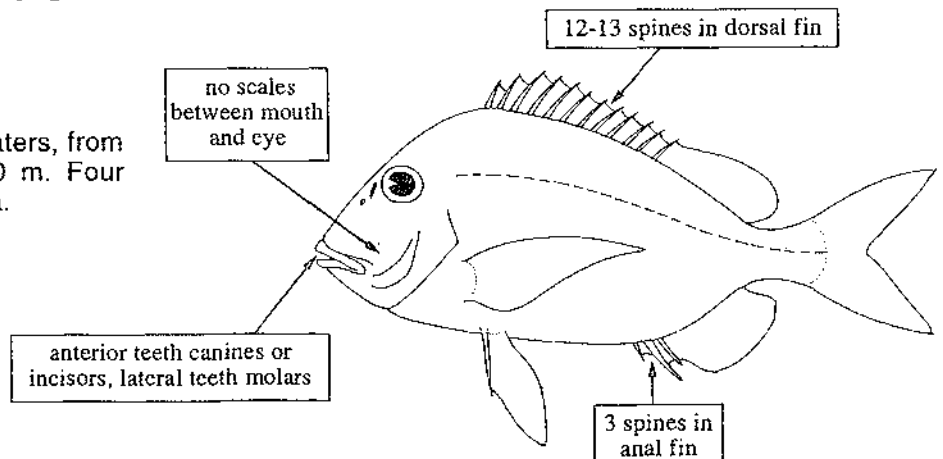


SPARIDAE

page 440

Porgies, seabreams

To 75 cm. Demersal in marine waters, from the coastline to a depth of 120 m. Four genera with 9 species in the area.

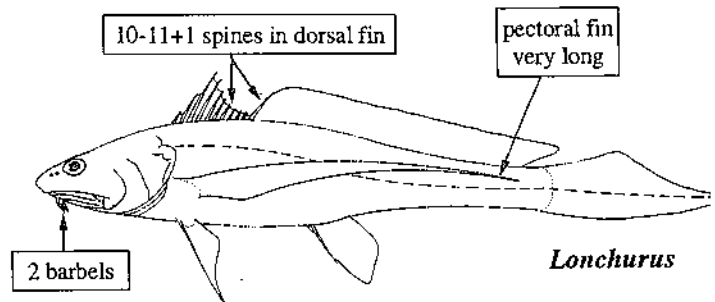
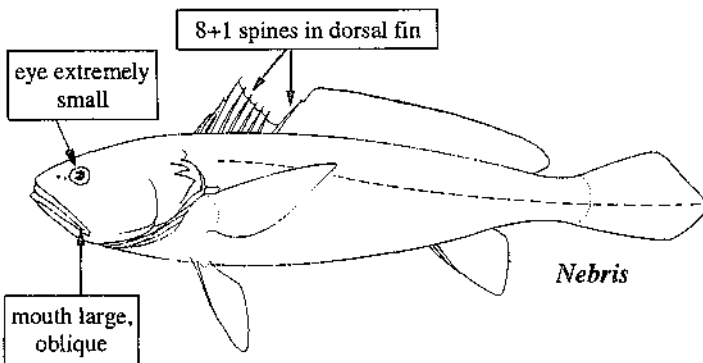
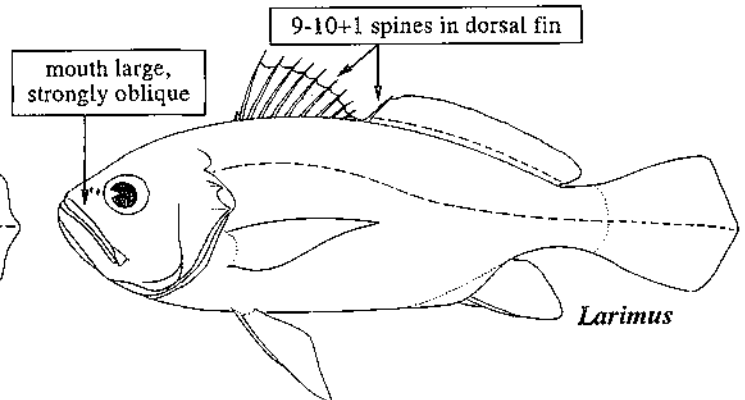
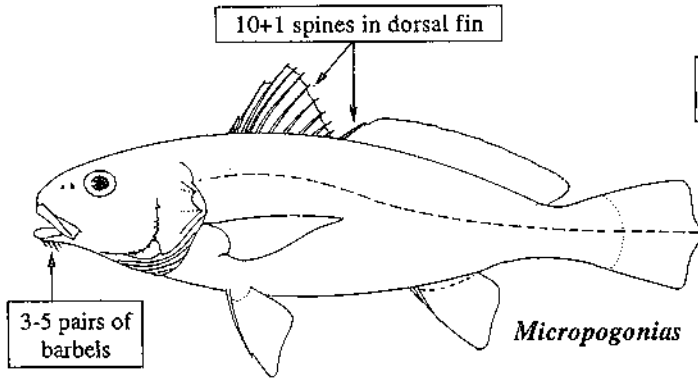
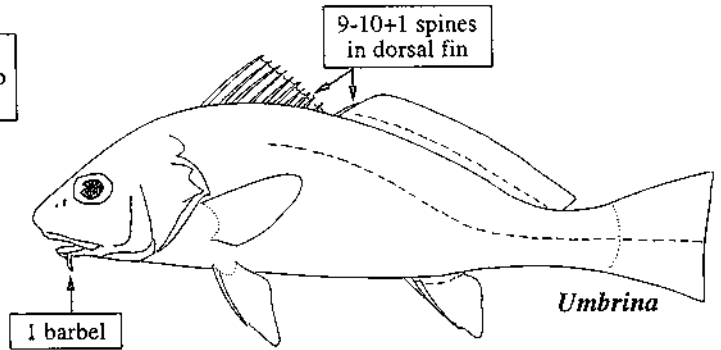
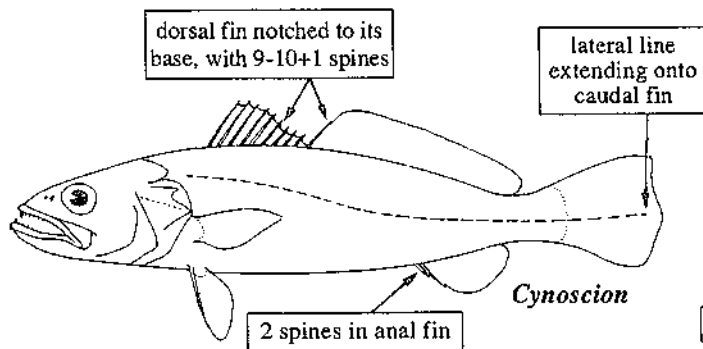
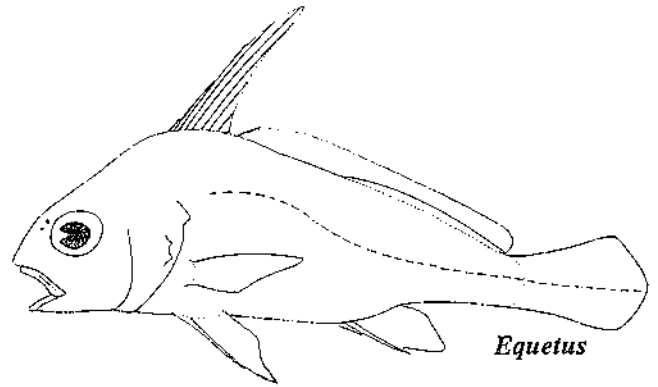


SCIAENIDAE

page 397

Croakers, drums, weakfishes, kingcroakers, stardrums

To 110 cm. Usually demersal in marine waters, from the coastline to a depth of about 600 m, generally above 100 m, but also in brackish waters and in freshwater. Nineteen genera with about 45 species in the area.

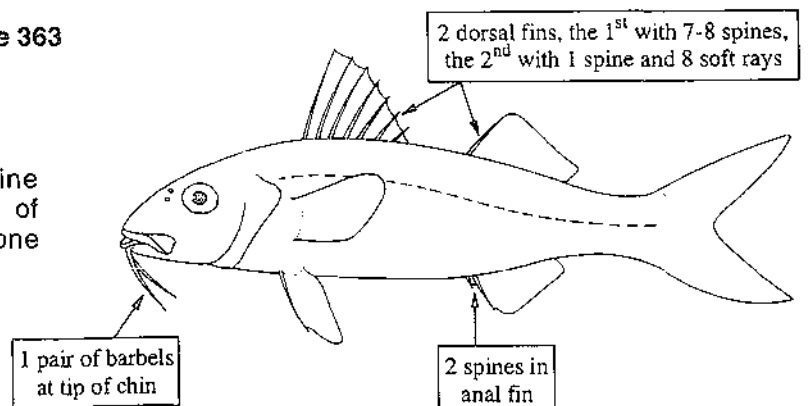


MULLIDAE

page 363

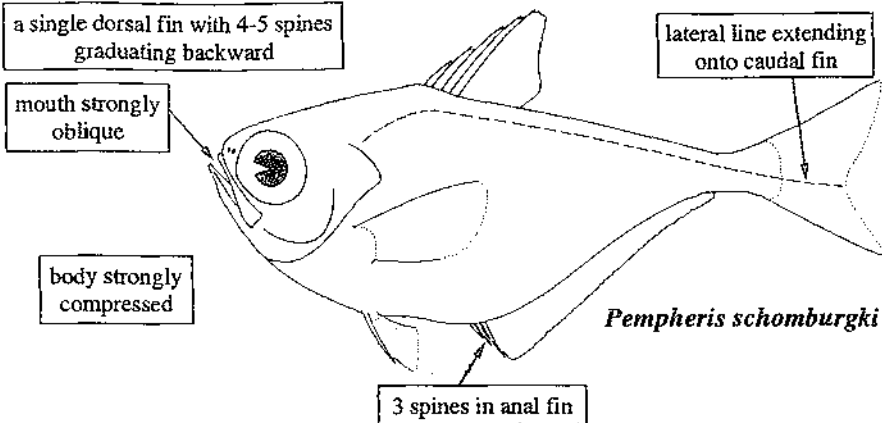
Goatfishes

To 40 cm. Demersal in coastal marine waters, from the coastline to a depth of about 100 m. Four genera, each with one species in the area.



PEMPHERIDIDAE**Sweepers**

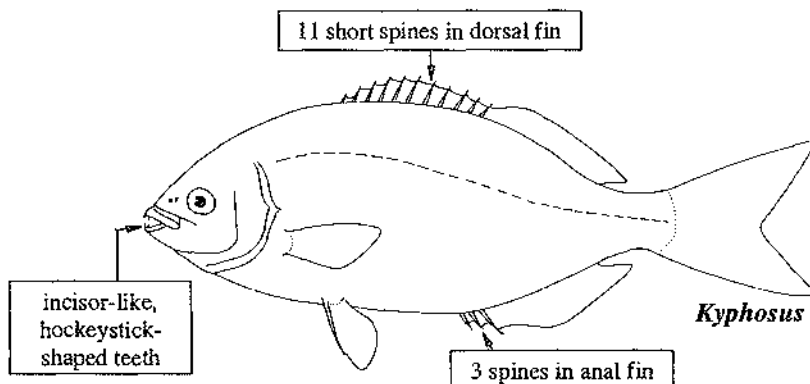
To 15 cm. Usually demersal in marine waters, from the coastline to a depth of 80 m, but also in brackish waters. At least one species in the area.

**KYPHOSIDAE**

page 344

Sea chubs

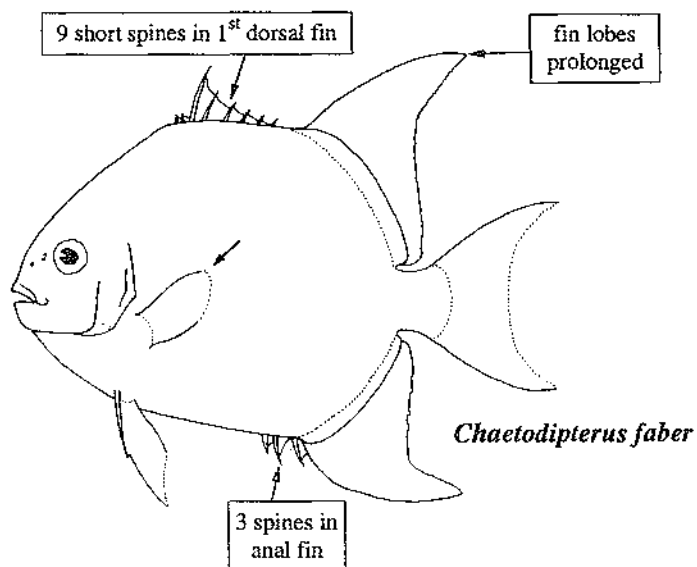
To 76 cm. Demersal in coastal marine waters to a depth of about 50 m. A single genus with 2 species in the area.

**EPHIPPIDAE**

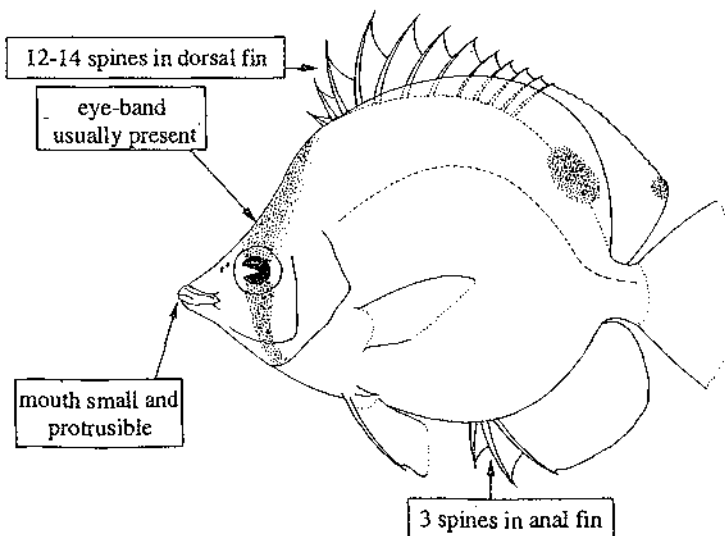
page 317

Spadefishes

To 90 cm. Adults pelagic in coastal marine waters. A single species in the area.

**CHAETODONTIDAE****Butterflyfishes**

To 20 cm. Demersal, mostly in coastal marine waters, but occasionally to a depth of 100 m. Several genera species in the area.

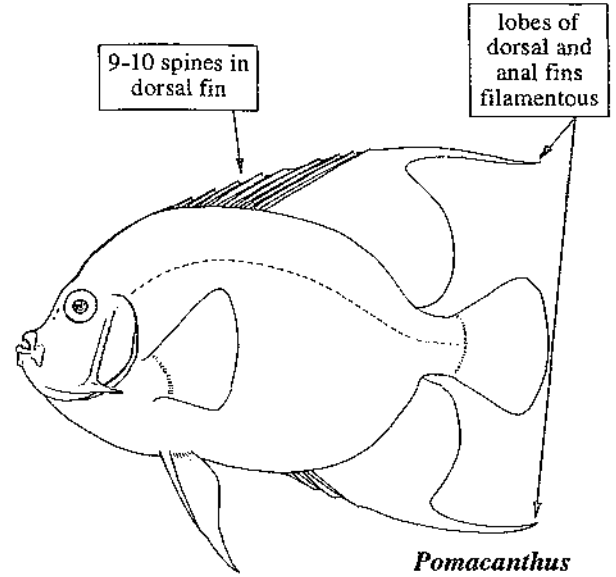
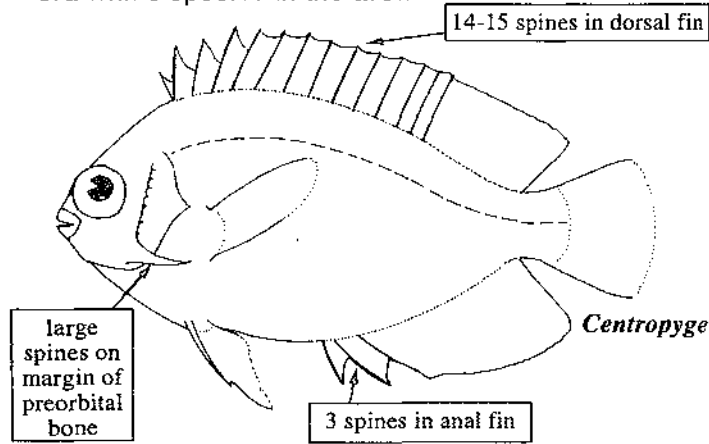


POMACANTHIDAE

page 382

Angelfishes

To 60 cm. Demersal in marine waters, from the coastline to a depth of about 50 m. Three genera with 6 species in the area.

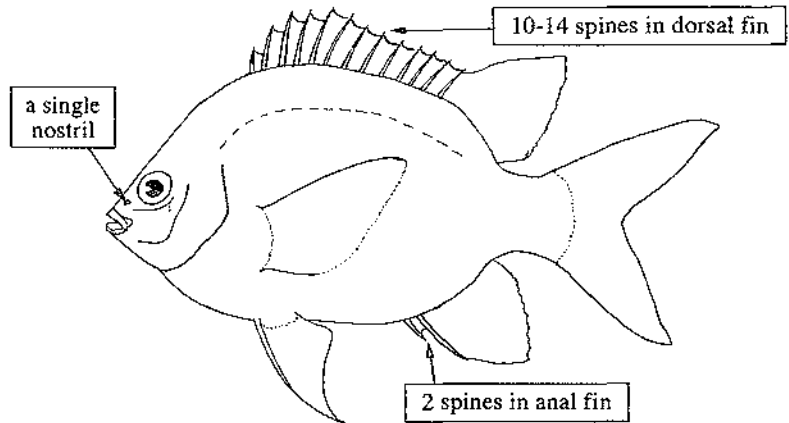


POMACENTRIDAE

page 384

Damselfishes, sergeantfishes, chromis

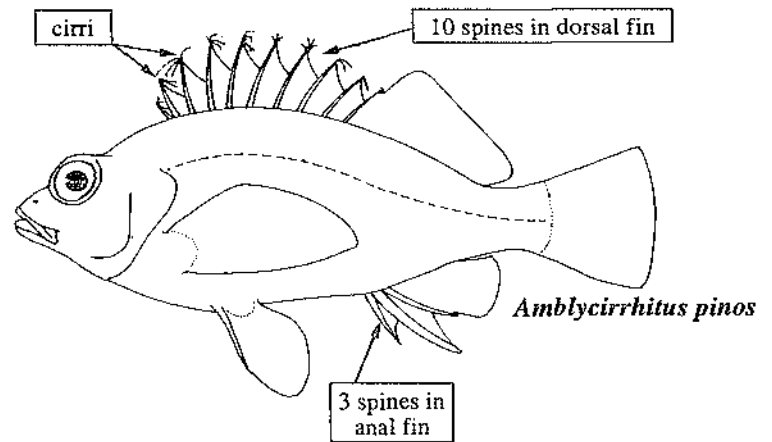
To 25 cm. Demersal in coastal marine waters, generally a depth above 15 m. Four genera with about 19 species in the area.



CIRRHITIDAE

Hawkfishes

To about 9 cm. Demersal in coastal marine waters above a depth of 20 m. A single species in the area.



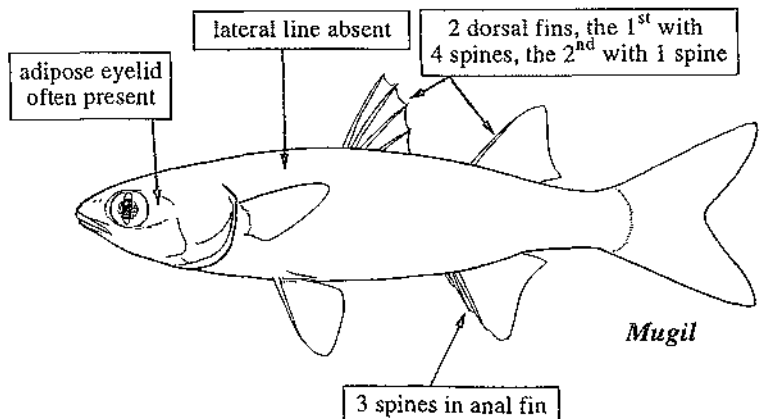
SUBORDER MUGILOIDEI - a single family.

MUGILIDAE

page 361

Mullet

To 80 cm. Usually demersal in coastal marine waters, but also in brackish waters and in freshwater. A single genus with 8 species in marine and brackish waters of the area.



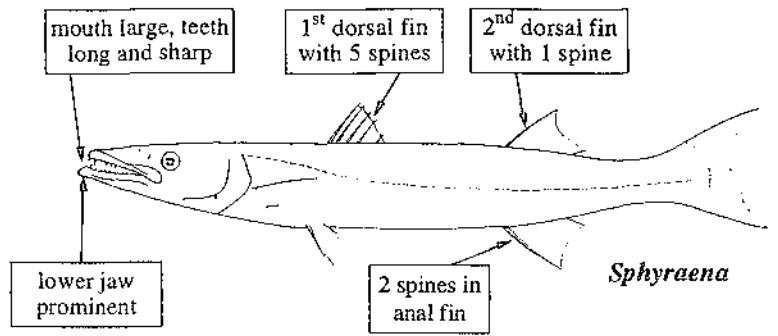
SUBORDER SPHYRAENOIDEI - a single family.

SPHYRAENIDAE

page 443

Barracudas, sennets

To 200 cm. Pelagic in coastal marine waters to a depth of 100 m. A single genus with 3 species in the area.



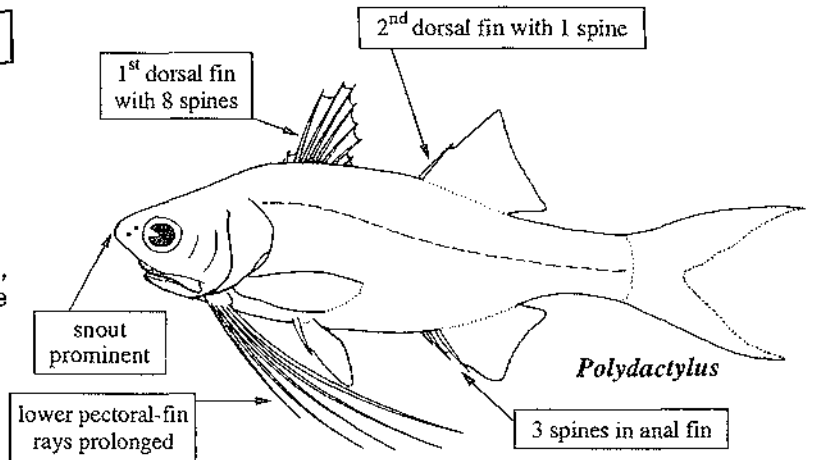
SUBORDER POLYNEMOIDEI - a single family.

POLYNEMIDAE

page 380

Threadfins

To 43 cm. Demersal in coastal marine waters, generally above a depth of 30 m. A single genus with 3 species in the area.



SUBORDER LABROIDEI

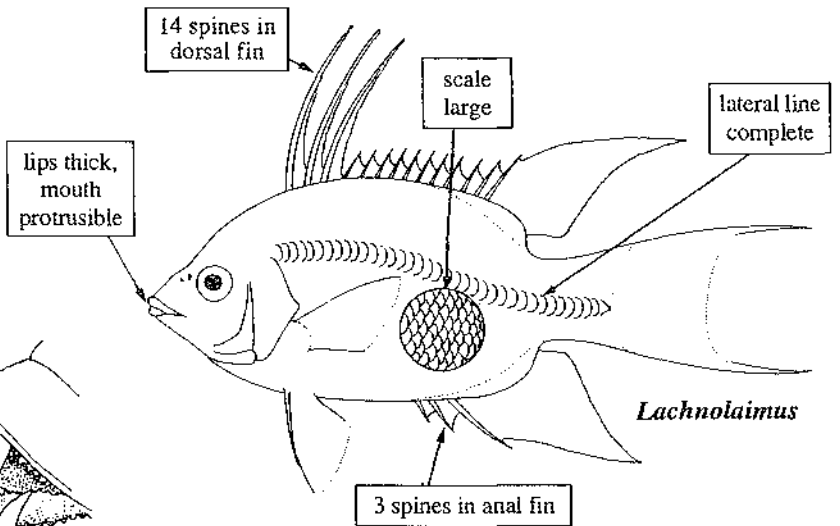
Body compressed; teeth strong, coalesend into plates in most parrotfishes; scales usually large and cycloid.

LABRIDAE

page 344

Wrasses, hogfishes, razorfishes

To 70 cm, but generally smaller than 40 cm. Demersal in marine waters, from the coastline to a depth of about 200 m. Eight genera with 19 species in the area.

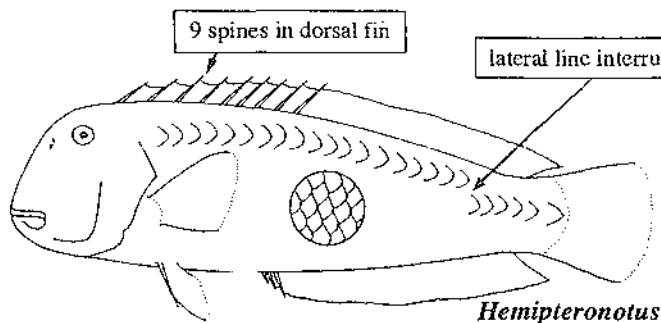


teeth well separated, the anterior usually canines

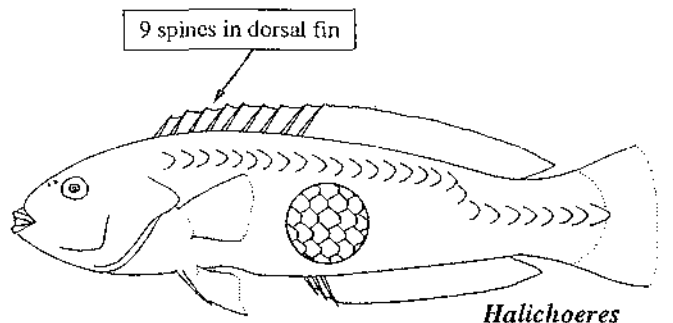


9 spines in dorsal fin

lateral line interrupted



9 spines in dorsal fin

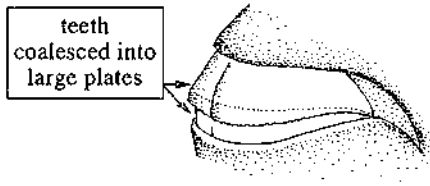
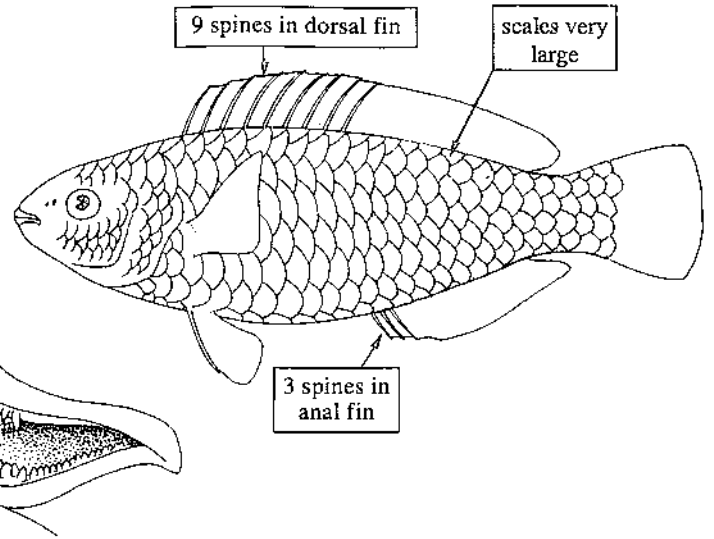


SCARIDAE

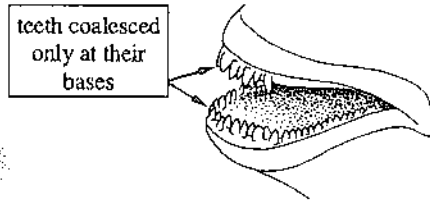
page 391

Parrotfishes

To 90 cm. Demersal in coastal marine waters to a depth of about 60 m. Four genera with 15 species in the area.



Scarus



Nicholsina and Cryptotomus

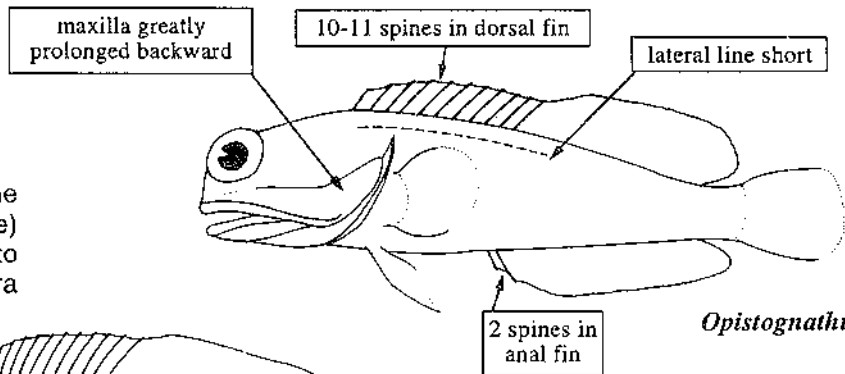
SUBORDER TRACHINOIDEI

A diverse assemblage of families difficult to characterize as a group. This suborder must be regarded as provisional.

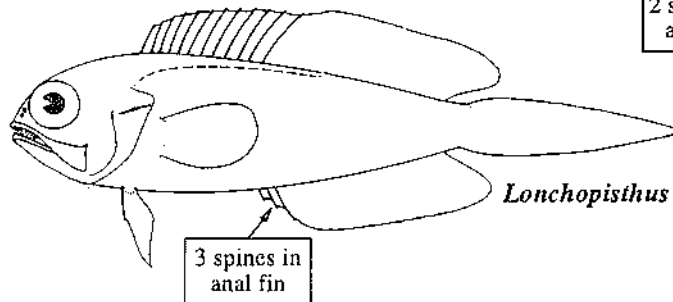
OPISTOGNATHIDAE

Jawfishes

To 19 cm. Demersal and benthic (some species live or burrow in the substrate) in marine waters, from the coastline to a depth of about 200 m. Three genera with several species in the area.



Opistognathus

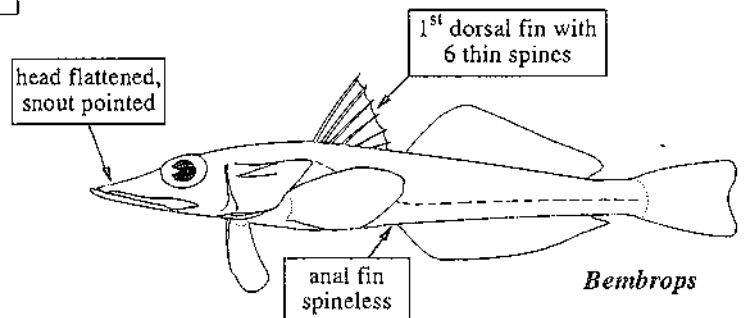


Lonchopisthus

PERCOPHIDAE

Flatheads

To about 35 cm. Demersal in marine waters, between depths of 100 and 400 m. A single genus with at least one species in the area.



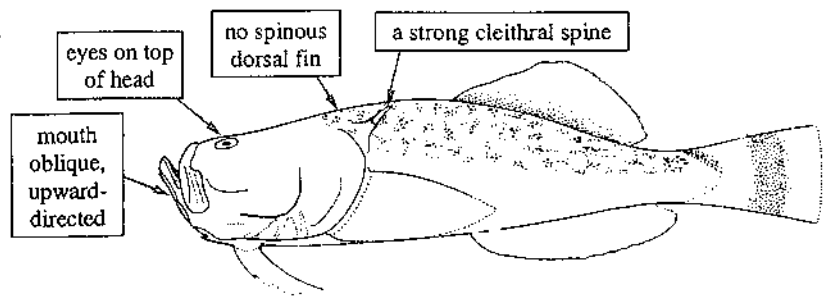
Bembrops

URANOSCOPIDAE

page 454

Stargazers

To 44 cm. Demersal in marine waters, from the shore to a depth of about 600 m. Two genera, each with one species in the area.



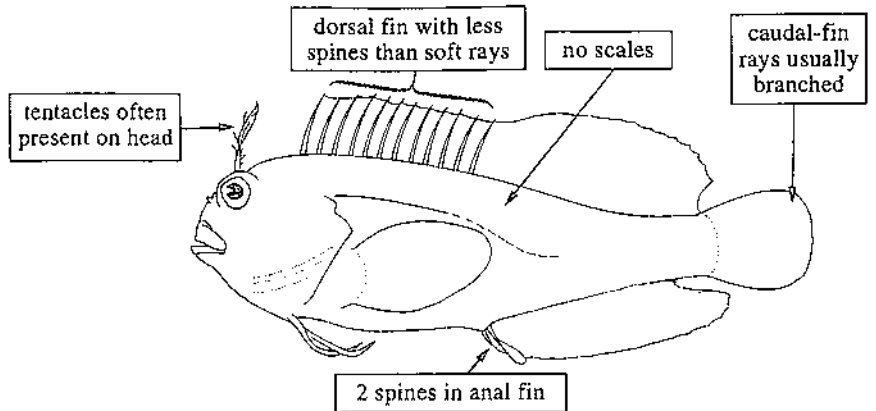
SUBORDER BLENNIOIDEI

Dorsal-fin base long; pelvic fins reduced, with 1 hidden spine and 2-4 soft rays, located ahead of pectoral fins; 2 anal-fin spines (one of them sometimes difficult to see).

BLENNIIDAE

Combtooth blennies

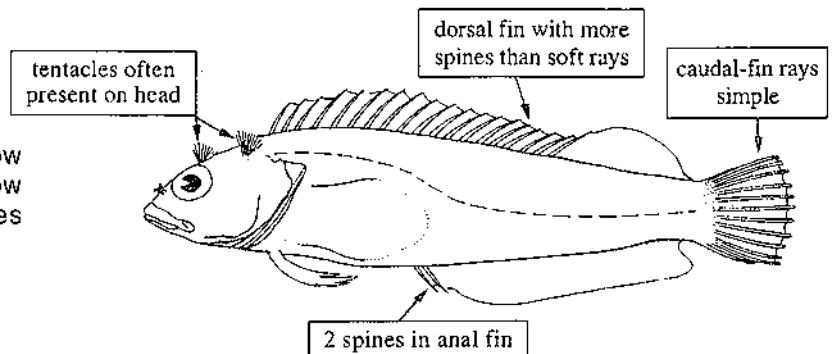
To about 12 cm. Demersal in littoral and coastal marine waters, usually above a depth of 20 m; also in brackish and hypersaline waters. Several genera and species in the area.



CLINIDAE

Clinids

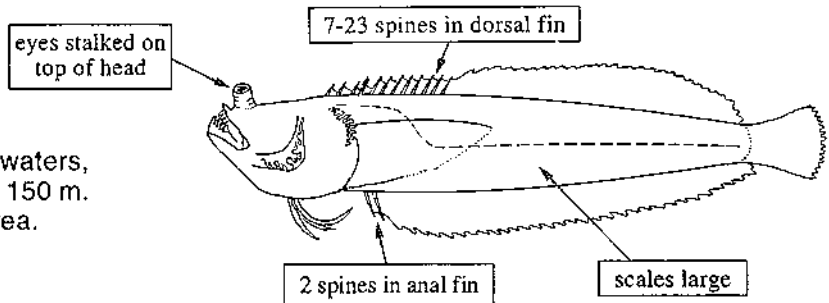
To about 20 cm. Demersal, mostly in shallow marine waters, but some species found below a depth of 100 m. Several genera and species in the area.



DACTYLOSCOPIDAE

Sand stargazers

To about 18 cm. Demersal in marine waters, from the coastline to a depth of about 150 m. Several genera and species in the area.

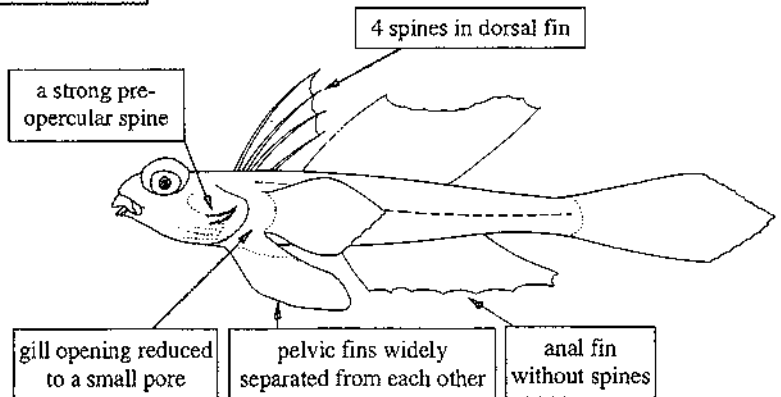


SUBORDER CALLIONYMOIDEI - a single family in the area.

CALLIONYMIDAE

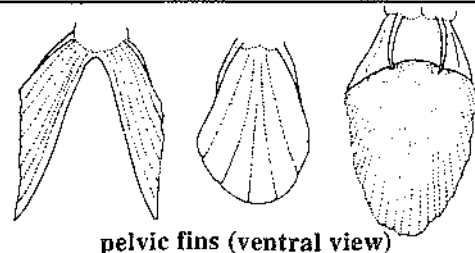
Dragonets

To about 20 cm. Demersal in marine waters, from shallow coastal areas to a depth of about 200 m. Several genera and species in the area.



SUBORDER GOBIOIDEI

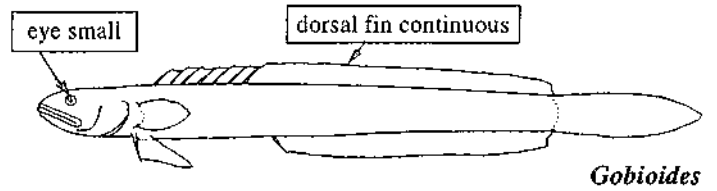
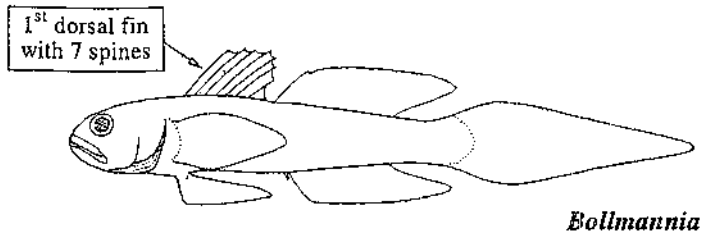
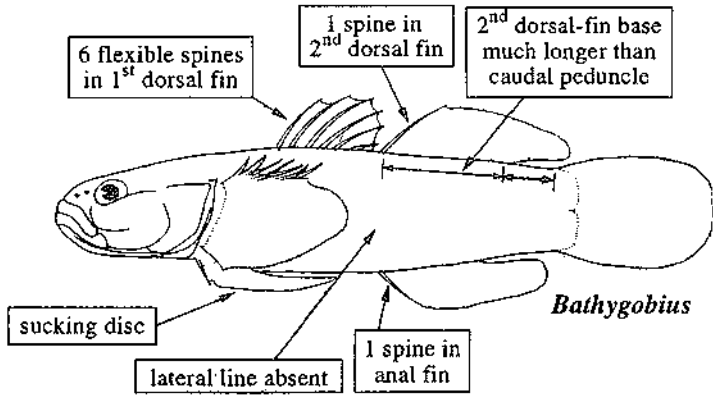
Usually small fishes with pelvic fins close together, or united into a single cup-like structure (disc).



GOBIDAE

Gobies

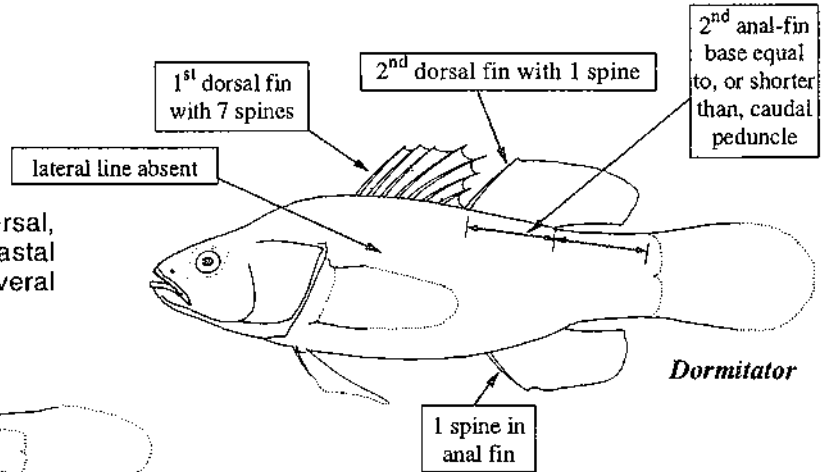
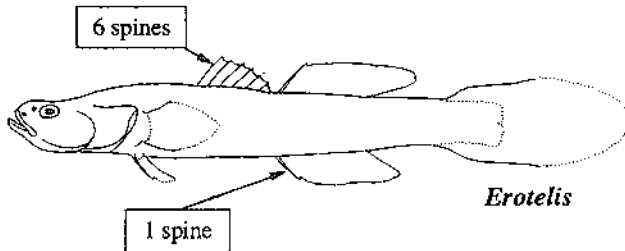
To about 40 cm, but most species smaller than 10 cm. Usually demersal in coastal marine waters, but some species found in depths greater than 150 m; also in brackish waters and occasionally, freshwater. Several genera and species in the area.



ELEOTRIDAE

Sleepers

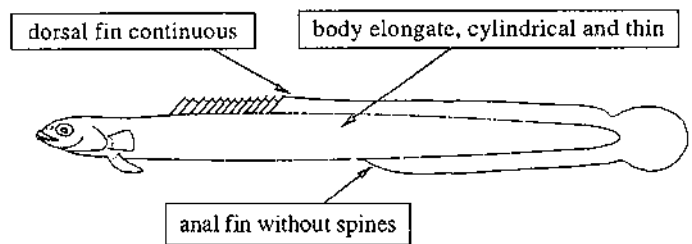
To 30 cm, but generally much smaller. Demersal, mostly in freshwater, some species in coastal marine, brackish or hypersaline waters. Several genera and species in the area.



MICRODESMIDAE

Wormfishes

To 28 cm. Benthic (burrowing in the substrate), in coastal marine waters above a depth of 40 m. Several genera and species in the area.



SUBORDER ACANTHUROIDEI - a single family in the area.

ACANTHURIDAE

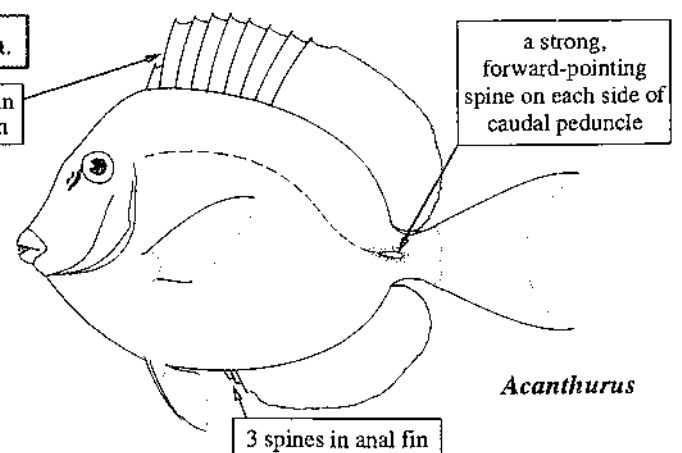
page 251

9 spines in dorsal fin

a strong, forward-pointing spine on each side of caudal peduncle

Surgeonfishes

To about 36 cm. Demersal in coastal marine waters, usually above a depth of 50 m. A single genus with 3 species in the area.



SUBORDER SCOMBROIDEI

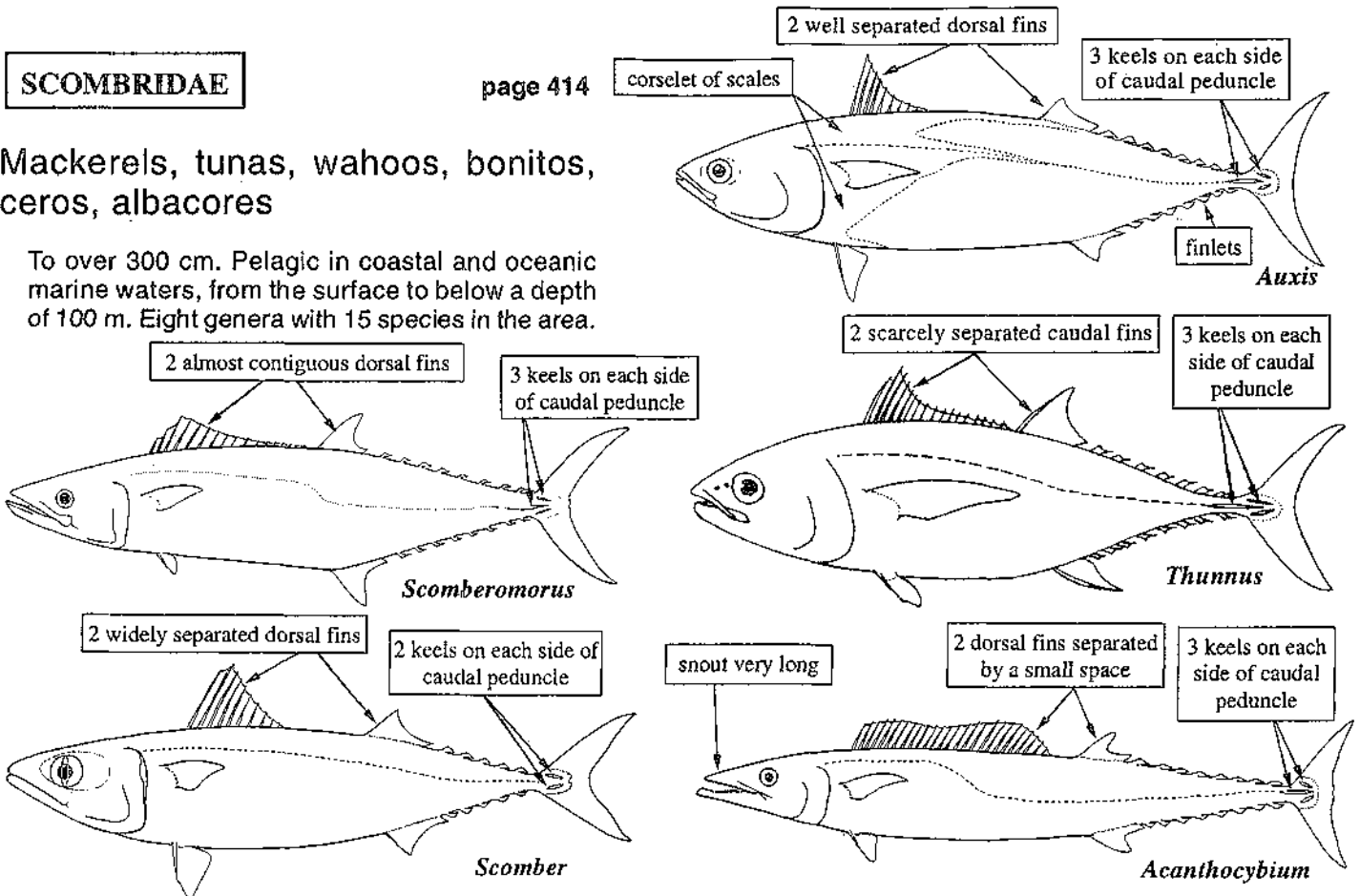
Finlets often present behind dorsal and anal fins; 1-3 keels on each side of caudal peduncle (except in most species of *Gempylidae* and *Luvaridae*).

SCOMBRIDAE

page 414

Mackerels, tunas, wahoos, bonitos, ceros, albacores

To over 300 cm. Pelagic in coastal and oceanic marine waters, from the surface to below a depth of 100 m. Eight genera with 15 species in the area.

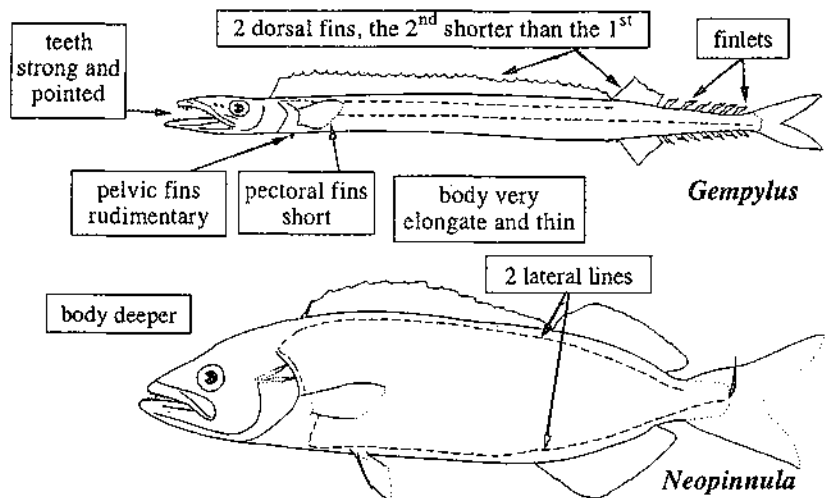


GEMPYLIDAE

page 322

Escolars, oilfishes, snake mackerels

To about 300 cm. Pelagic in oceanic marine waters, from the surface (at night) to below a depth of 200 m. At least 6 genera, each with one species in the area.

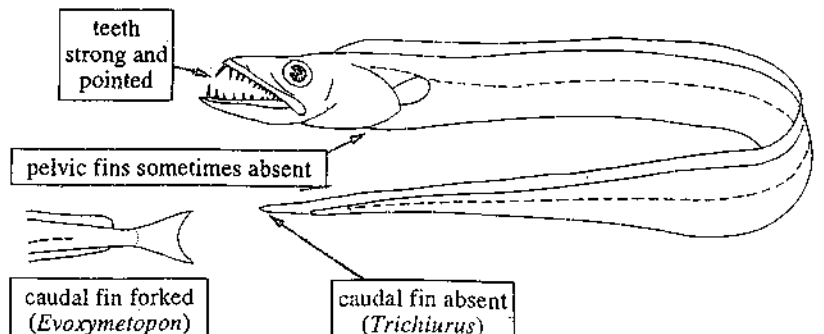


TRICHIURIDAE

page 450

Cutlassfishes, hairtails

To 150 cm. Demersal and pelagic in oceanic waters, from the surface (at night) to below a depth of 200 m. At least 2 genera, each with one species in the area.

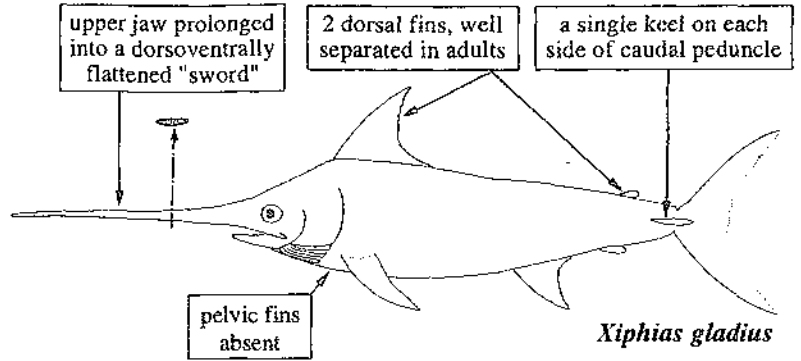


XIPHIIDAE

page 454

Swordfishes

To 450 cm. Pelagic in oceanic waters, from the surface to below a depth of 200 m. A single species.

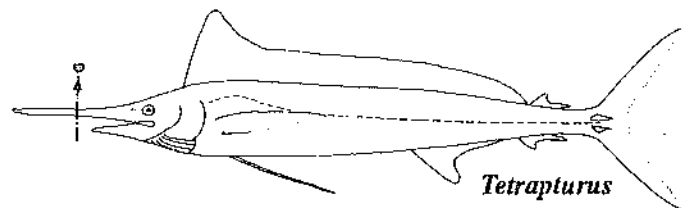
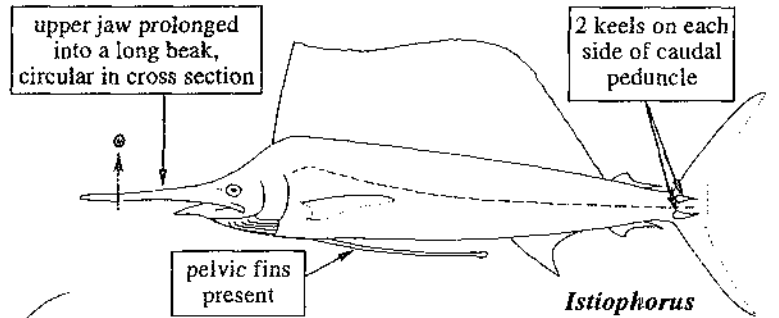
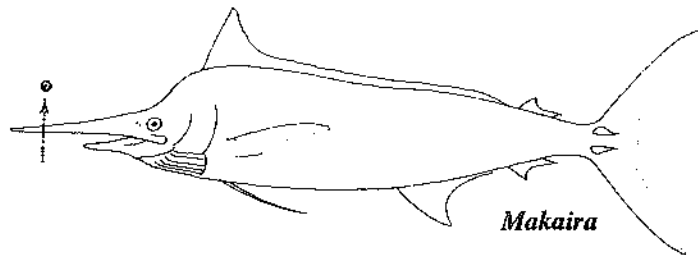


ISTIOPHORIDAE

page 342

Sailfishes, marlins, spearfishes

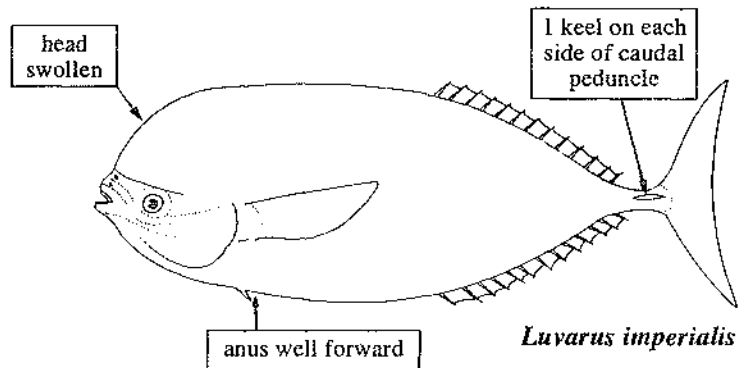
To 400 cm. Epipelagic in oceanic waters. Three genera with 4 species in the area.



LUVARIDAE

Louvar

To about 190 cm. Pelagic in oceanic waters, from the surface to a depth of about 150 m. A single species. A recent study demonstrated that the louvar should be removed from the Scombroidei and placed in the Acanthuroidei.



SUBORDER STROMATEOIDEI

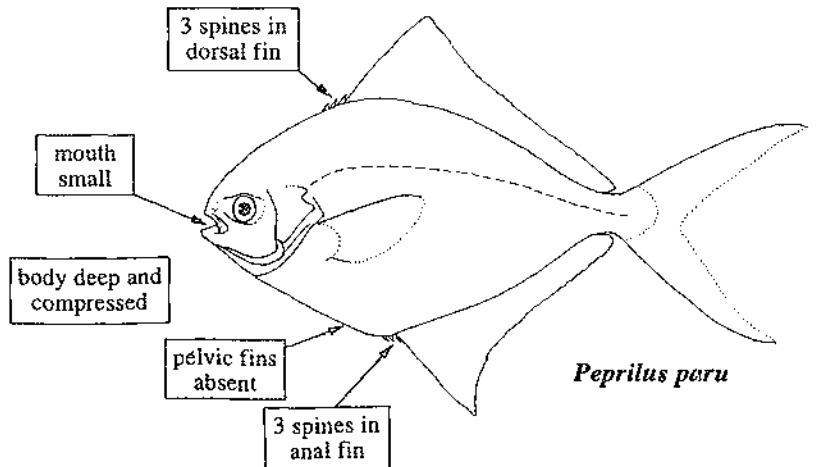
Shape variable; snout blunt and thick; toothed saccular outgrowths present in the gullet immediately behind the last gill arch; teeth small, approximately uniserial.

STROMATEIDAE

page 445

Harvestfishes

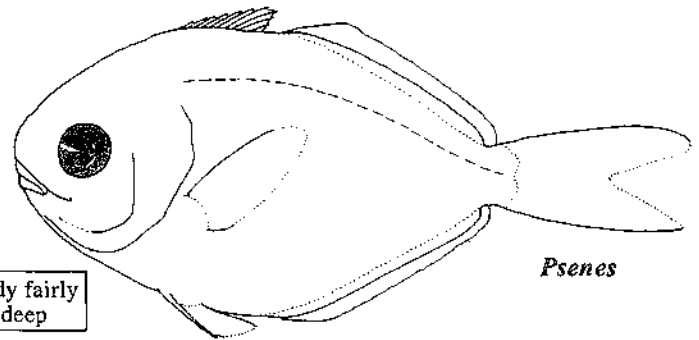
To 30 cm. Adults pelagic and demersal in coastal and oceanic marine waters, between a depth of about 50 and 70 m. A single species in the area.



NOMEIDAE

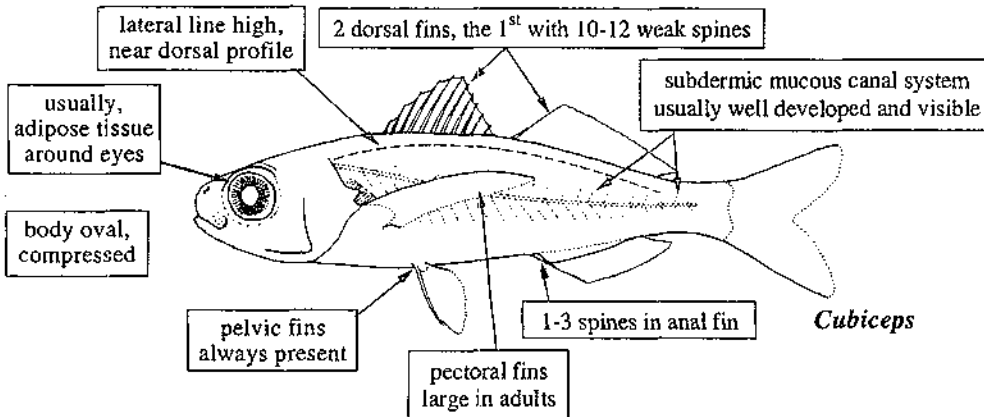
Man-of-war fishes

To about 100 cm. Epi- and mesopelagic in coastal and oceanic waters to below a depth of 100 m, often associated with jellyfish. At least 2 genera with several species in the area, relatively rare. This group is considered by some authors as part of the family Stromateidae.



body fairly deep

Psenes



lateral line high, near dorsal profile

2 dorsal fins, the 1st with 10-12 weak spines

subdermic mucous canal system usually well developed and visible

usually, adipose tissue around eyes

body oval, compressed

pelvic fins always present

1-3 spines in anal fin

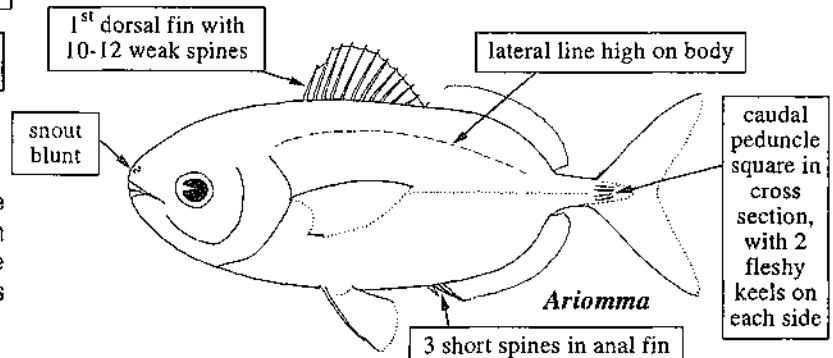
Cubiceps

pectoral fins large in adults

ARIOMMATIDAE (= ARIOMMIDAE)

Driftfishes

To 25 cm. Demersal to benthopelagic in marine waters, from the surface (juveniles) to a depth of 500 m. A single genus with 2 species in the area. Some authors consider this group as part of the family Stromateidae.



1st dorsal fin with 10-12 weak spines

lateral line high on body

snout blunt

caudal peduncle square in cross section, with 2 fleshy keels on each side

Ariomma

3 short spines in anal fin

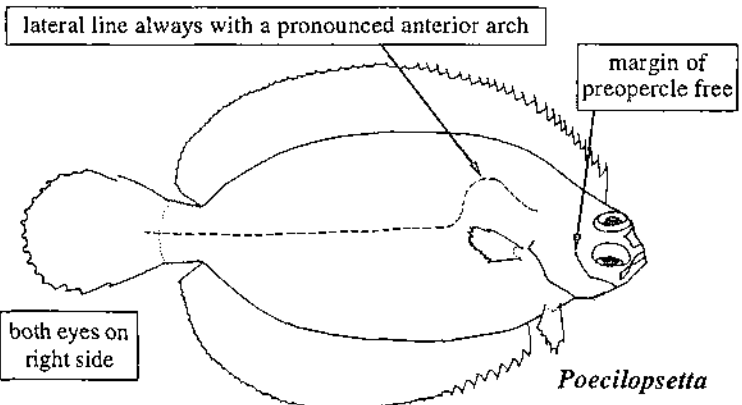
FLATHEADS - Pleuronectiformes

Body flat, both eyes on one side.

PLEURONECTIDAE

Righteye flounders

To about 18 cm. Benthic in marine waters from depths of 150 to 1 600 m. A single genus with several species in the area.



both eyes on right side

margin of preopercle free

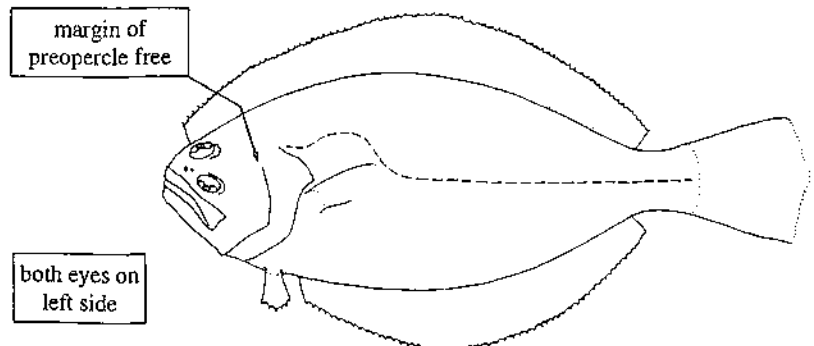
Poecilopsetta

BOTHIDAE

page 271

Lefteye flounders

To about 50 cm. Benthic, usually on the continental shelf to a depth of 200 m, but some species may be found in depths greater than 500 m. Eleven genera with over 28 species in the area.



margin of preopercle free

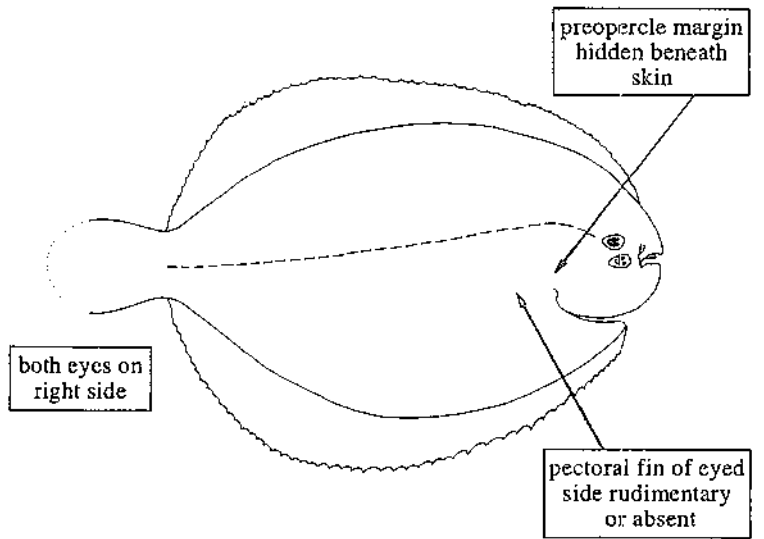
both eyes on left side

SOLEIDAE

page 437

Soles

To 37 cm, but most species around 20 cm or less. Benthic, generally in coastal waters, but may reach a depth of 300 m; some species in brackish or hypersaline waters. Four genera with 6 species in the area.

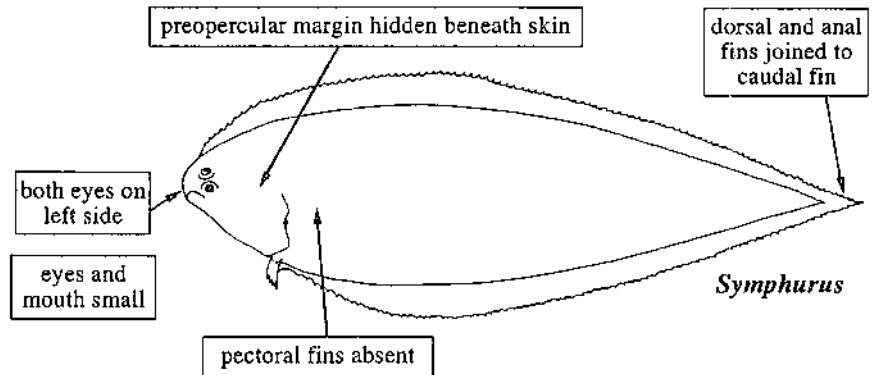


CYNOGLOSSIDAE

page 305

Tongue soles

To 23 cm. Benthic in marine waters, from the shore to a depth of 200 m. A single genus with 6 species in the area.



PUFFERFISHES AND ALLIES - Tetraodontiformes

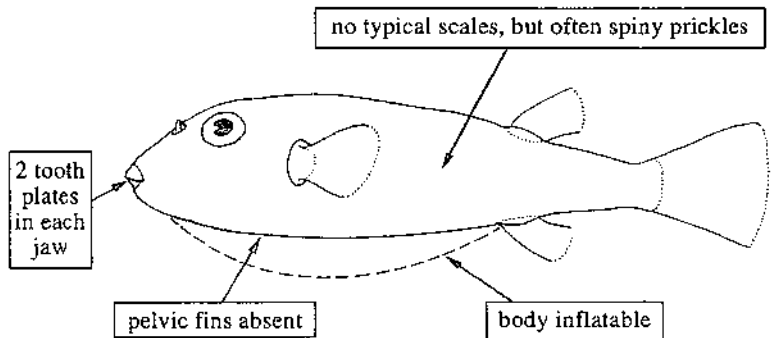
Pelvic fins absent or strongly reduced; a small mouth with strong teeth frequently coalesced into a biting plate; a small gill opening; skin thick or rough, sometimes with prickles, spines, or scaly plates.

TETRAODONTIDAE

page 447

Puffers

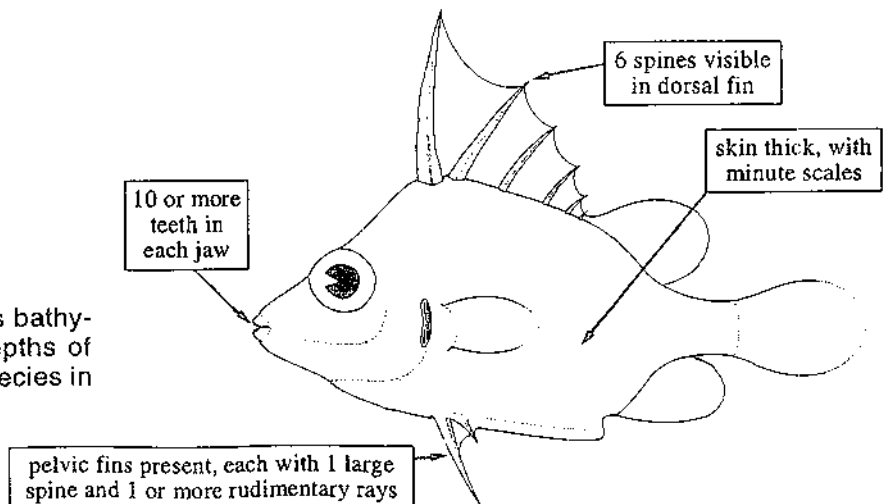
To at least 60 cm. Demersal and pelagic in coastal marine waters to a depth of about 100 m; some species also found in brackish waters and in freshwater. Four genera with about 12 species in the area.



TRIACANTHODIDAE

Spikefishes

To 20 cm. Demersal (one species is bathypelagic) in marine waters, from depths of 35 to 900 m. Several genera and species in the area.

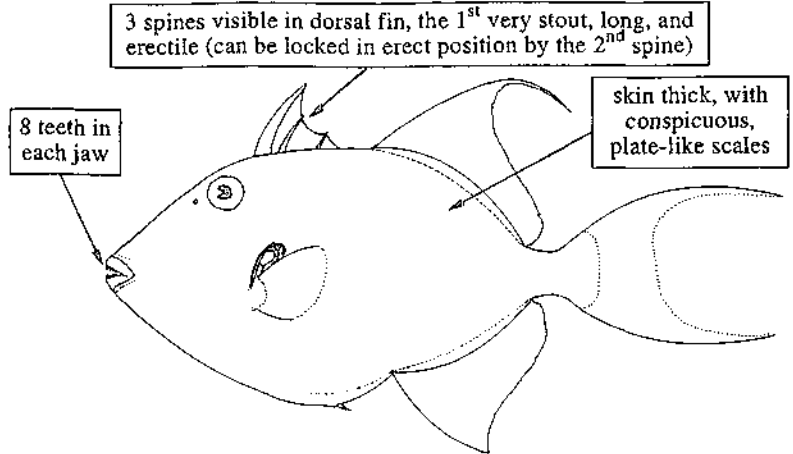


BALISTIDAE

page 264

Triggerfishes, durgons

To 50 cm. Mostly demersal (a few species are pelagic) in marine waters, from the coastline to a depth of about 100 m. Four genera and 6 species in the area.

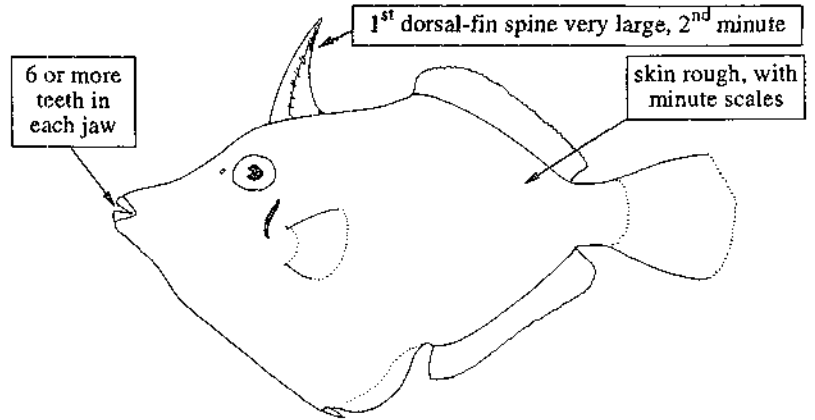


MONACANTHIDAE

page 359

Filefishes, leatherjackets

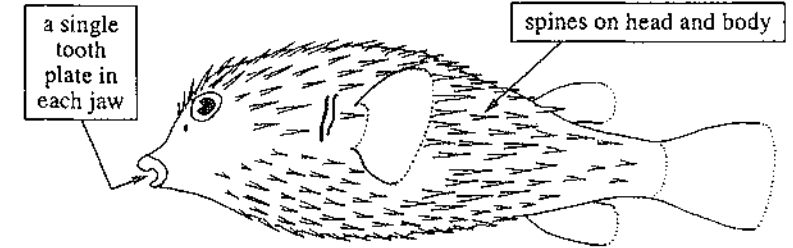
To 100 cm (one species), mostly smaller. Demersal, from the coastline to a depth of about 80 m. Four genera with 10 species in the area.



DIODONTIDAE

Porcupinefishes, burrfishes

To 65 cm. Demersal or pelagic in marine waters, from the coastline to a depth of about 100 m. Two genera with several species in the area.

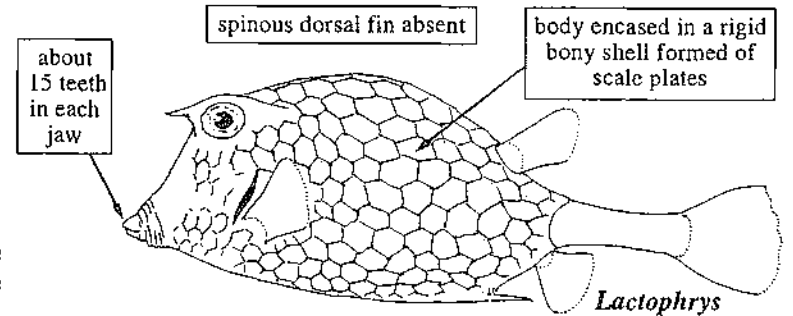


OSTRACIIDAE

page 377

Trunkfishes, boxfishes, cowfishes

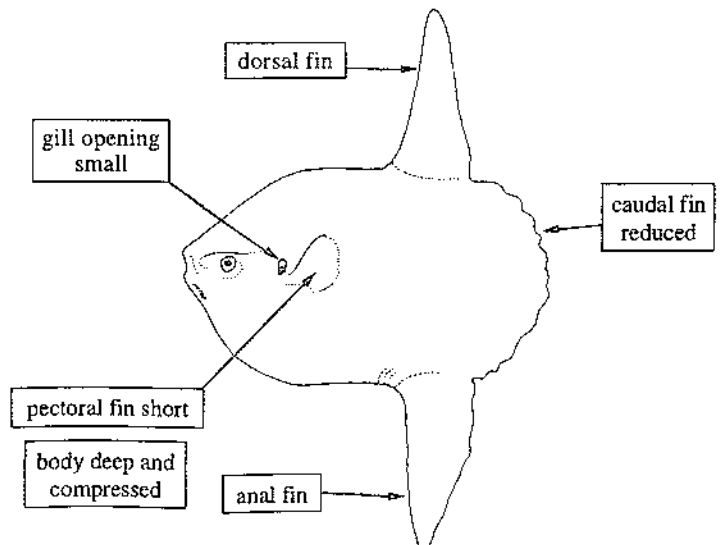
To 45 cm. Benthic in marine waters, from the coastline to a depth of about 50 m. A single genus with 5 species in the area.



MOLIDAE

Molas, sunfishes

To 400 cm. Pelagic in marine waters, from the surface to a depth of about 360 m. Possibly 3 genera, each with one species in the area, but very rare.



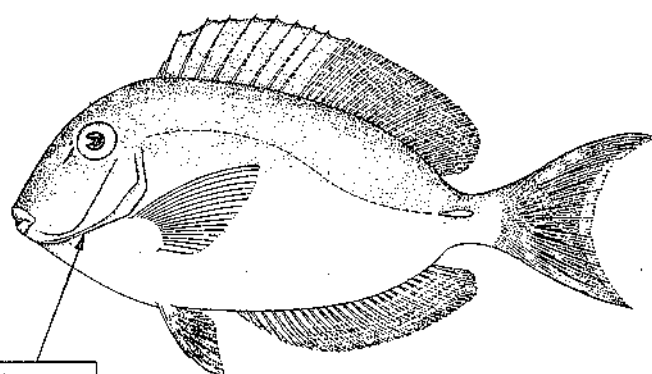
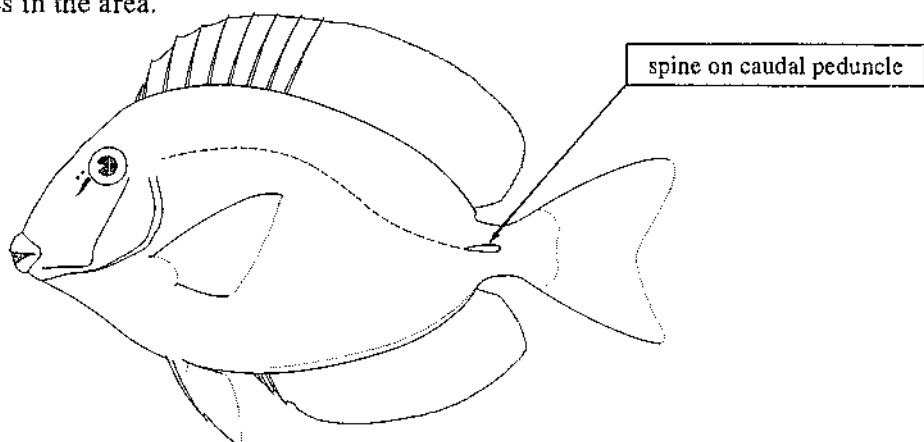
FAMILIES AND SPECIES OF INTEREST TO FISHERIES

ACANTHURIDAE

En: Surgeonfishes. **Fr:** Chirurgiens. **Sp:** Sangradoses, navajones.

Medium-sized fishes (less than 50 cm length) found throughout the area in shallow waters, on hard, mainly rocky, bottoms, but small juveniles may occur on seagrass beds. They are herbivorous and often form large schools in coralline areas. Their flesh is of low quality and hence, their value as a fishery resource is limited. Caught almost exclusively in traps and usually not marketed. They are characterized by the presence of a strong spine on each side of the caudal peduncle, which may inflict painful wounds. The flesh can be toxic and produce ciguatera poisoning in some regions. A single genus with 3 species in the area.

Genus *Acanthurus* - 3 species in the area.



20-22 gill rakers on 1st arch

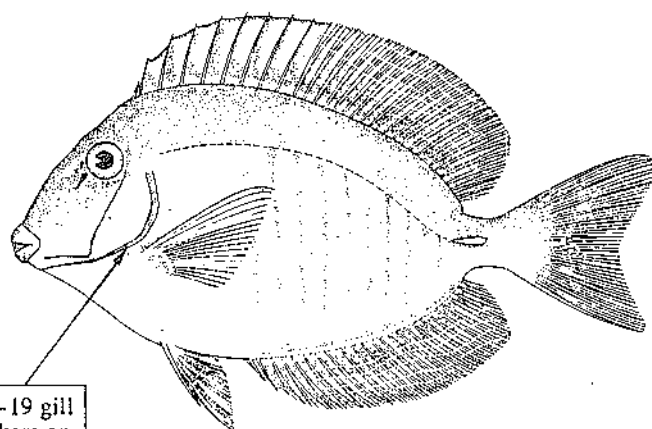
ground colour yellowish brown; longitudinal bluish green stripes on body, and orange-blue stripes on dorsal fin; caudal spine whitish, encircled by a violet area

Acanthurus bahianus Castelnau, 1855
(plate VI, 41)

FAO names: En - Ocean surgeon; Fr - Chirurgien marron; Sp - Navajón pardo.

Common names:

Size: Maximum 36 cm; common to 25 cm.



16-19 gill rakers on 1st arch

ground colour brownish grey, with about 10 narrow vertical bars; caudal spine white with black margins, encircled by a pale blue area; large specimens may be plain-coloured

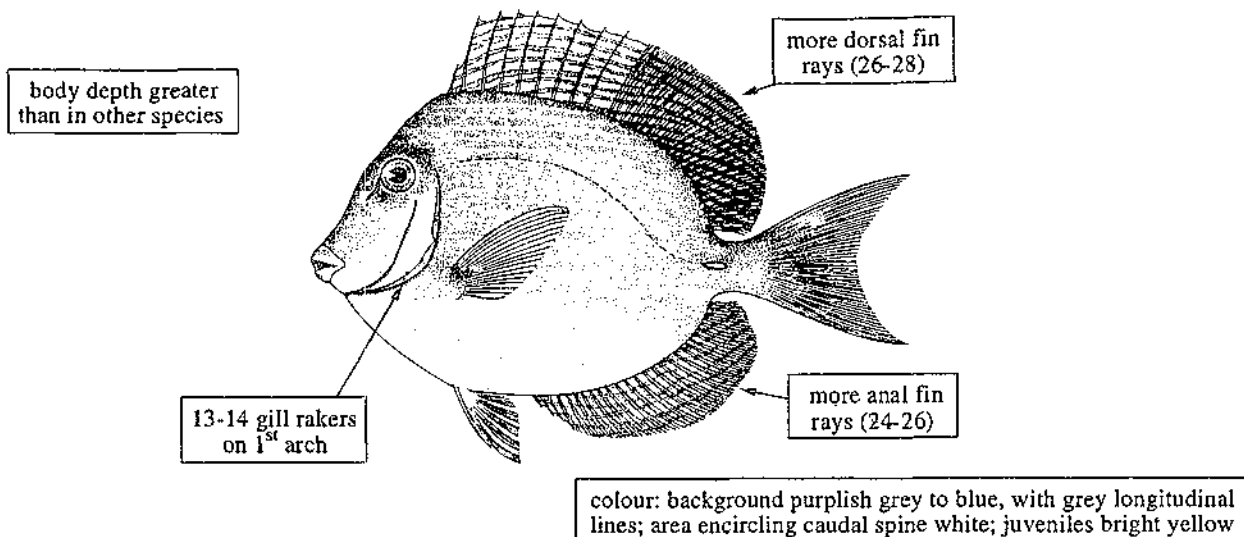
Acanthurus chirurgus (Bloch, 1787)
(plate VI, 42)

FAO names: En - Doctorfish; Fr - Chirurgien docteur; Sp - Navajón cirujano.

Common names:

Size: Maximum 35 cm; common to 25 cm.

ACANTHURIDAE



Acanthurus coeruleus Bloch and Schneider, 1801
(plate VI, 43)

FAO names: En - Blue tang surgeonfish; Fr - Chirurgien bayolle; Sp - Navajón azul.

Common names:

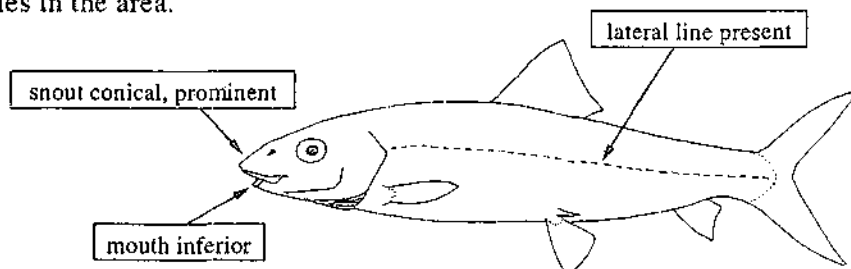
Size: Maximum 36 cm; common to 25 cm.

ALBULIDAE

En: Bonefishes. Fr: Bananes de mer. Sp: Macabíes, ratones.

Elongate fishes inhabiting soft bottoms in shallow waters. They have "leptocephalus" larvae with a forked caudal fin, which are commonly found in littoral waters. A single genus with 2 species in the area.

Genus *Albula* - 2 species in the area.



Albula nemoptera (Fowler, 1910)

(plate VI, 44)

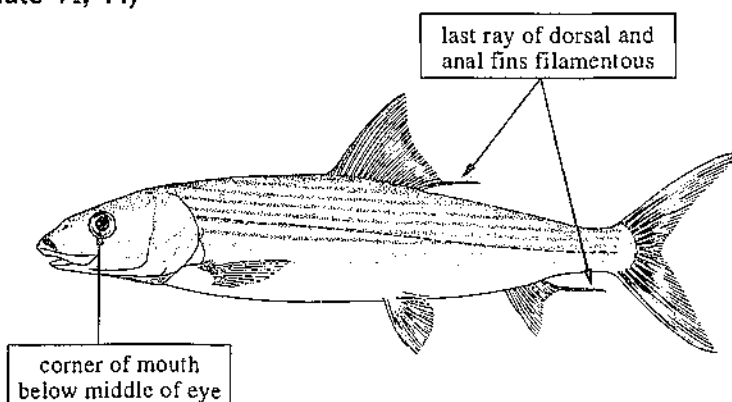
FAO names: En - Threadfin bonefish; Fr - Banane fil; Sp - Macabí de hebra.

Common names:

Size: Maximum about 50 cm; common to 40 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela. On soft bottoms in shallow waters to a depth of about 50 m.

Fisheries: Taken as bycatch in industrial trawling fisheries, mainly those for shrimps. Of little importance as a fishery resource.



***Albula vulpes* (Linnaeus, 1758)**

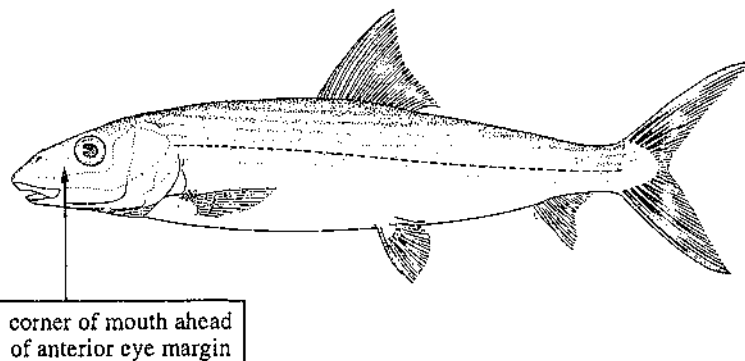
FAO names: En - Bonefish; Fr - Banane de mer; Sp - Macabí.

Common names:

Size: Maximum 77 cm; common to 35 cm.

Distribution and habitat: Throughout the area. In shallow coastal waters, estuaries and bays, on sandy and muddy bottoms to a depth of about 10 m. More abundant in clear waters over sandy substrate around oceanic islands.

Fisheries: Mainly artisanal, with beach seines. Of little value as a foodfish, but of great importance in the hook-and-line sports fishery operating from the shore or from boats.

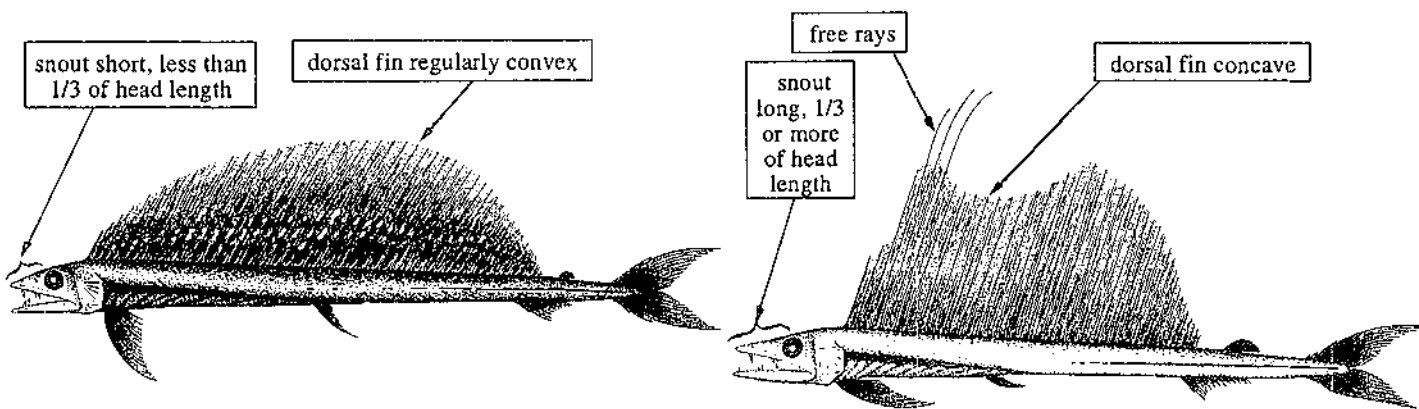
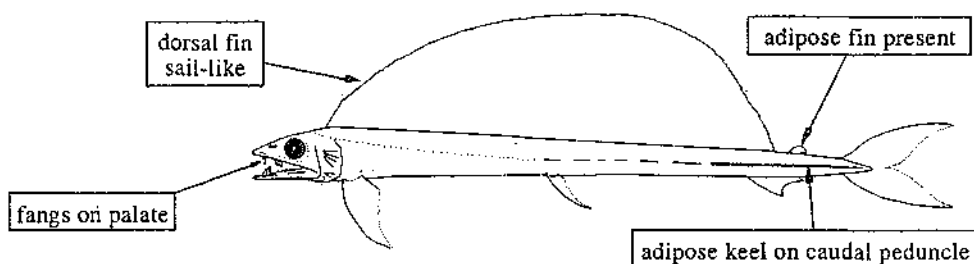


ALEPISAUROIDAE

En: Lancetfishes. **Fr:** Lanciers. **Sp:** Lanzones.

Elongate, scaleless fishes attaining total lengths of over 2 m. They are cosmopolitan in temperate and tropical latitudes and live in oceanic waters at depths of several hundred metres, but migrate to the surface at night. Caught incidentally on floating longlines; occasionally consumed, but at present of little importance because of their rather soft flesh. A single genus with 2 species in the area.

Genus *Alepisaurus* - 2 species in the area.



Alepisaurus brevirostris Gibbs, 1960

Alepisaurus ferox Lowe, 1833

FAO names: En - Shortnose lancetfish; Fr - Lancier à nez court; Sp - Lanzón nariz corta.

Common names:

Size: Maximum about 100 cm; common to 70 cm.

FAO names: En - Longnose lancetfish; Fr - Lancier long-nez; Sp - Lanzón nariz larga.

Common names:

Size: Maximum about 210 cm; common to 150 cm.

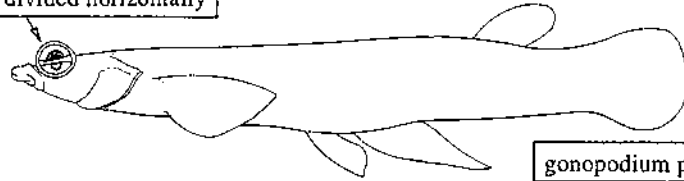
ANABLEPIDAE

En: Foureye. **Fr:** Quatre-yeux. **Sp:** Cipotos, cuatro ojos.

Elongate fishes, smaller than 30 cm, found at the surface in estuaries. During low tide they can remain exposed to the air on muddy bottoms. Often found in aggregations. The eyes are very prominent and divided horizontally by a strip of opaque tissue into an upper and a lower half, which allows simultaneous aerial and underwater vision, hence the name "foureyes." They are viviparous. Caught with fine-meshed beach seines. Of little commercial importance, but consumed in some localities and also marketed for the aquarium trade. Distributed throughout the area, but more common between the Orinoco delta and the mouth of the Amazon. A single genus in the area.

Genus *Anableps* - 2 species in the area, very similar to one another.

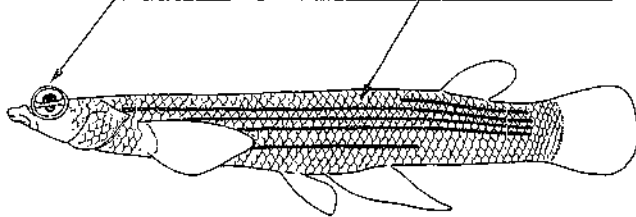
eyes prominent, divided horizontally



gonopodium present in males

interorbital space greater than eye diameter

scales large, in less than 80 vertical scale rows above lateral line (to caudal-fin base)



Anableps anableps (Linnaeus, 1758)

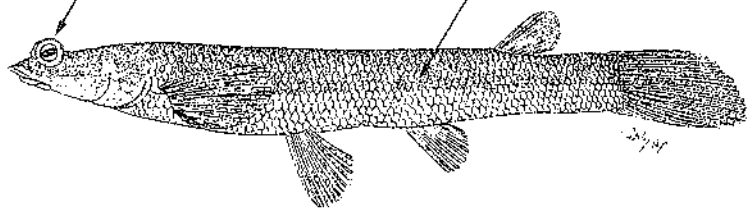
FAO names: **En** - Largescale foureyes; **Fr** - Quatre-yeux à grandes écailles; **Sp** - Cipotero escamoso.

Common names:

Size: Maximum size 18 cm; common to 14 cm.

interorbital space smaller than, or rarely equal to, eye diameter

scales small, in 80-83 vertical scale rows above lateral line (to caudal-fin base)



Anableps microlepis Müller, 1844

FAO names: **En** - Foureyes; **Fr** - Quatre-yeux; **Sp** - Cipotero.

Common names:

Size: Maximum over 20 cm; common to 15 cm.

ANGUILLIDAE

En: Freshwater eels. **Fr:** Anguilles. **Sp:** Anguilas.

Found predominantly in freshwater, but the larvae and juveniles occur in river mouths, and the adults are known to migrate to the Sargasso sea for spawning. There may also be other spawning areas not yet recorded. Records from the southern part of the Caribbean sea are scarce. At present, caught only incidentally and of no commercial importance. A single genus in the area.

Genus *Anguilla* - a single-species in the area.

Anguilla rostrata (LeSueur, 1817)

FAO names: **En** - American eel; **Fr** - Anguille (d'Amérique); **Sp** - Anguila americana.

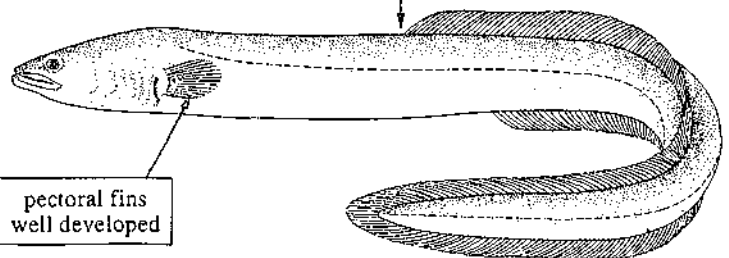
Common names:

Size: Maximum about 150 cm; common to 50 cm.

Distribution and habitat: Confined to brackish waters and to freshwater, except during the spawning migrations.

Fisheries: Caught incidentally with fine-meshed nets and in traps.

origin of dorsal fin placed far backwards



pectoral fins well developed


scales minute, hardly visible

ARGENTINIDAE

En: Argentines. **Fr:** Argentines. **Sp:** Argentinas.

Small, pelagic to benthopelagic marine fishes, usually not exceeding 20 cm in length, living in depths between about 80 and 570 m. The species *Argentina brucei* and *A. striata*, are similar to one another and can be very abundant in catches of industrial trawl fisheries, especially shrimp fisheries. Not marketed at present but they represent a potential fishery resource for human consumption. The species of the genus *Glossanodon* are not abundant and have no commercial importance as food fishes because of their small average size. Two genera with 4 species in the area.

Genus *Argentina* - 2 species in the area.



anterior and posterior teeth large

tongue

***Argentina brucei* Cohen and Atsaiades, 1969**

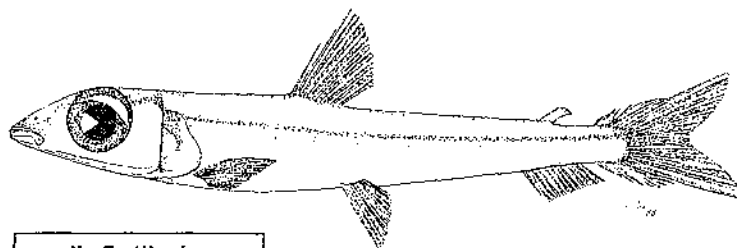
FAO names: **En** - Bruce's argentine; **Fr** - Argentine de Bruce; **Sp** - Argentina de Bruce.

Common names:

Size: Maximum about 15 cm; common to 12 cm.

Distribution and habitat: Throughout the area. Found especially on soft substrates between depths of 200 and 400 m.

Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps and finfishes. At present not utilized as food, but very abundant in some areas.



usually 7 gill rakers on lower limb of 1st arch

swimbladder without silvery pigment

44-46 vertebrae

***Argentina striata* Goode and Bean, 1895**

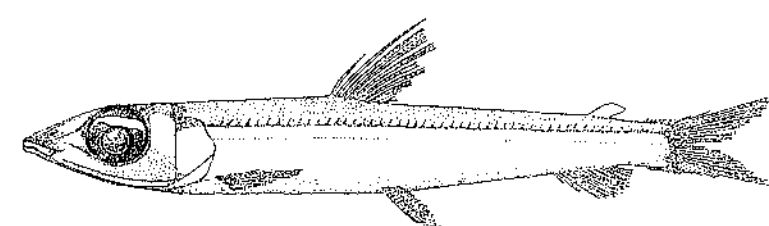
FAO names: **En** - Striated argentine; **Fr** - Argentine strieé; **Sp** - Argentina rayada

Common names:

Size: Maximum 21 cm; common to 15 cm.

Distribution and habitat: Throughout the area. On soft bottoms between depths of 250 and 500 m.

Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps and finfishes. Usually not consumed, but very abundant in some areas. In view of its relatively large size, this species might become a fishery resource of some importance in the future.



usually 6 gill rakers on lower limb of 1st arch

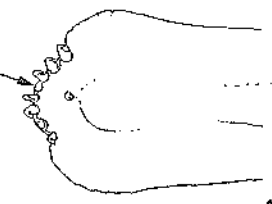
(from Cohen, 1964)

swimbladder with silvery pigment

47-51 vertebrae

Genus *Glossanodon*

2 species in the area, *G. polli*, Cohen, 1958, and *G. pygmaeus*, Cohen, 1958, of no interest to fisheries because of their small average size.



small teeth only on anterior margin

tongue

ARIIDAE

En: Sea catfishes. **Fr:** Mâchoirons. **Sp:** Bagres marinos.

Medium-sized to large demersal fishes occurring in predominantly estuarine waters and occasionally, in freshwater and in coastal sea waters. Some species are also found in hypersaline lagoons. They inhabit shallow, soft bottoms, very rarely below a depth of 30 m and are absent from oceanic insular areas. Sea catfishes are of great commercial importance in artisanal fisheries throughout the area, mainly on the Atlantic coast. There are four genera with about 13 species in marine and brackish waters of the area. The most important genus is *Arius*, both by number of species and commercial value. In all species, the males are mouth brooders, carrying the very large eggs (to 1 cm in diameter) and newly hatched larvae in their mouth. The brooders do not eat during the incubation period.

Genus *Ariopsis* - a single species in the area.

Ariopsis bonillai (Miles, 1945)

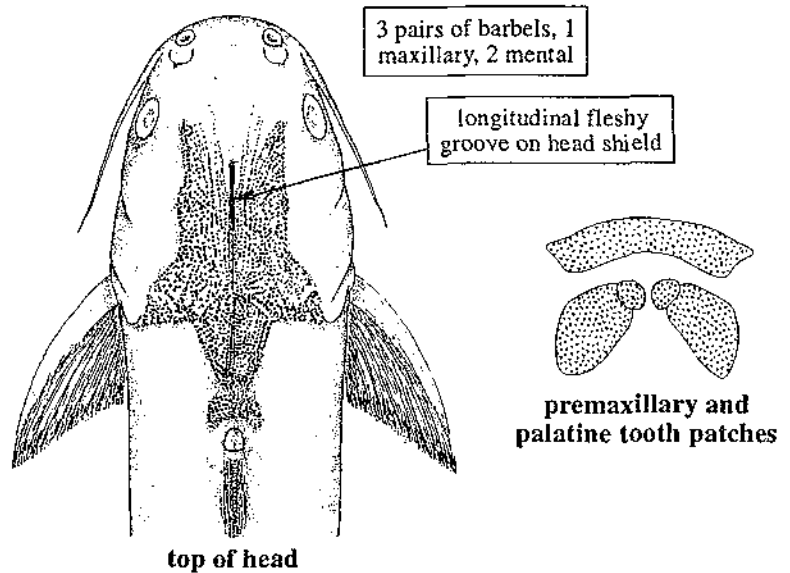
FAO names: **En** - New Granada sea catfish; **Fr** - Mâchoiron requin; **Sp** - Bagre cazón.

Common names:

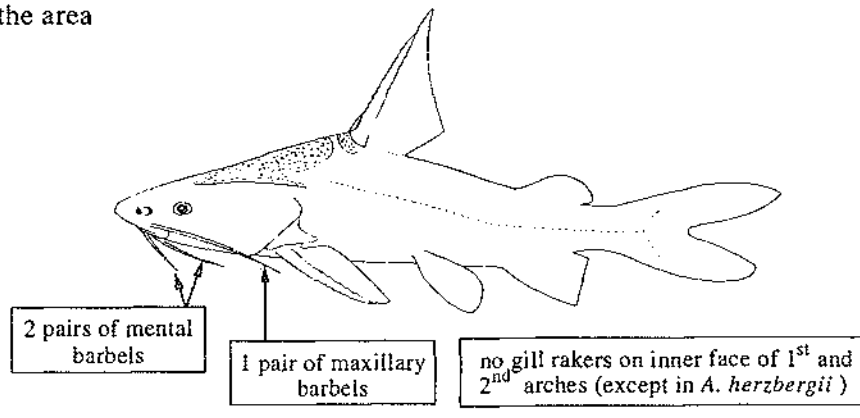
Size: Maximum 80 cm; common to 40 cm.

Distribution and habitat: Northern coast of Colombia. On shallow muddy bottoms.

Fisheries: Predominantly artisanal. Caught with beach nets and on hook-and-line.



Genus *Arius* - 9 species in the area



Arius couma (Valenciennes, 1864)

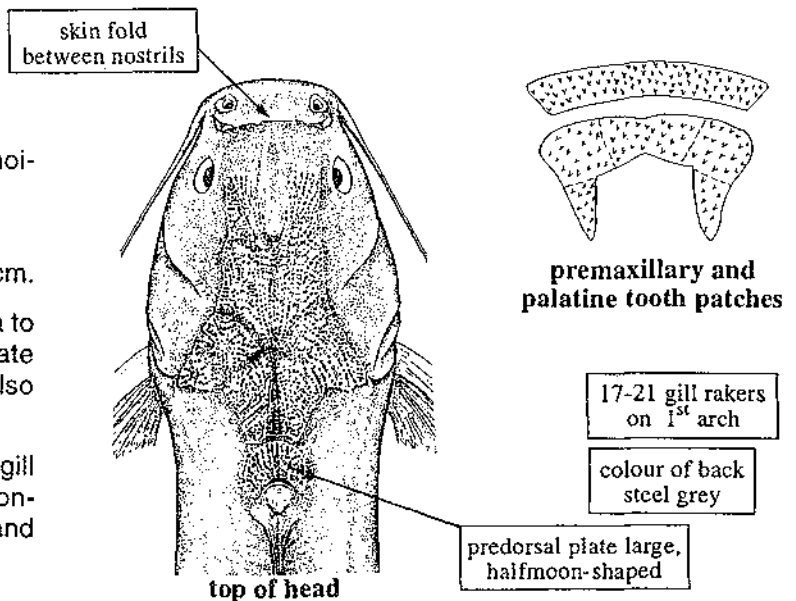
FAO names: **En** - Couma sea catfish; **Fr** - Mâchoiron couma; **Sp** - Bagre cuma.

Common names:

Size: Maximum 97 cm and 30 kg; common to 50 cm.

Distribution and habitat: From the Gulf of Paria to the mouth of the Amazon river. On muddy substrate in very shallow estuarine waters of low salinity; also enters freshwater.

Fisheries: Predominantly artisanal. Caught with gill nets and beach seines, on hook-and-line or on longlines. An important food fish. Marketed fresh and salted.



ARIIDAE

Arius grandicassis Valenciennes, 1840

(plate VI, 45)

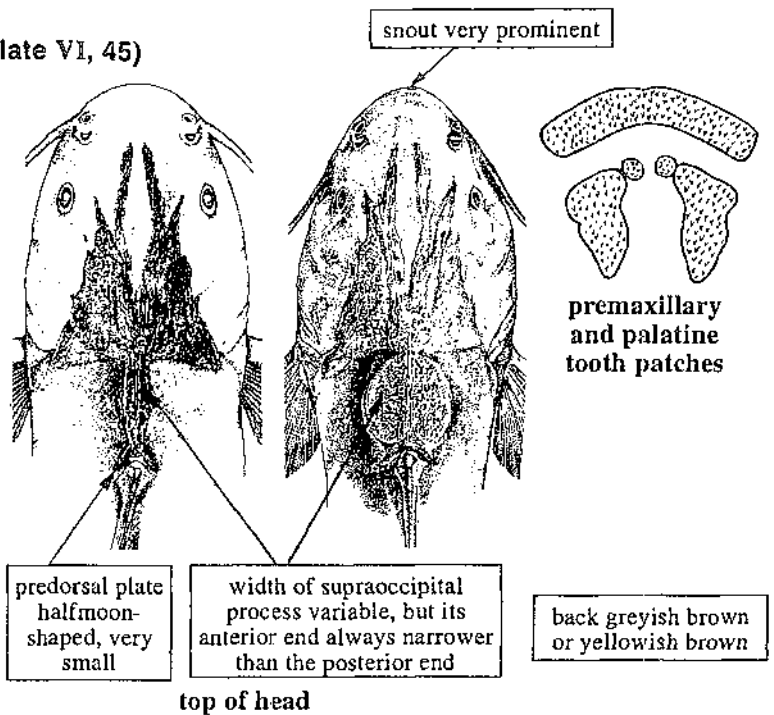
FAO names: En - Thomas sea catfish; Fr - Mâchoiron grondé; Sp - Bagre Tomás.
Common names:

Size: Maximum 63 cm and over 2 kg; common to 40 cm.

Distribution and habitat: From the Gulf of Venezuela, in the western part of that country, to the mouth of the Amazon river. Occurs in shallow brackish, and occasionally marine waters, on muddy bottoms to a depth of about 20 m.

Fisheries: Predominantly artisanal. Caught with gill nets or beach seines and; also taken as bycatch in the industrial trawl fishery for shrimps. Usually marketed fresh.

Note: Extremely variable morphologically; possibly more than one species represented by this name.



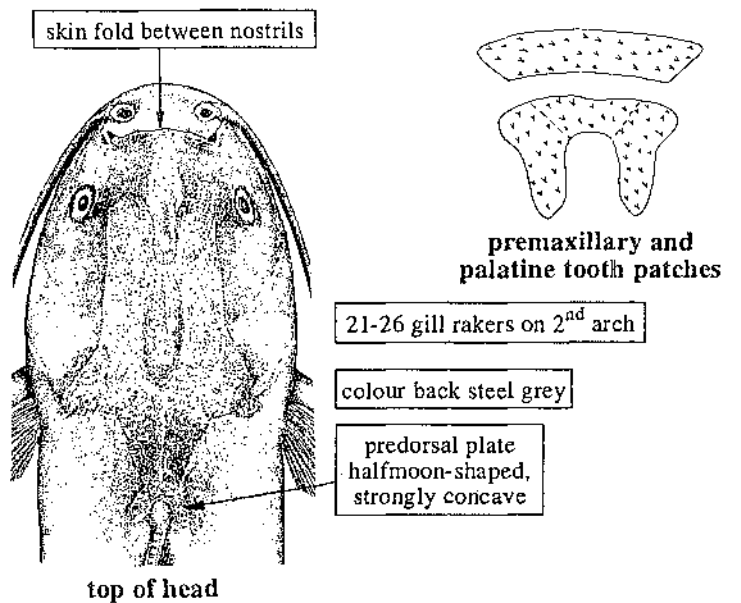
Arius herzbergii (Bloch, 1794)

FAO names: En - Pemecou sea catfish; Fr - Mâchoiron pémeçou; Sp - Bagre guatero.
Common names:

Size: Maximum 54 cm and 1.5 kg; common to 30 cm.

Distribution and habitat: Throughout the area. An euryhaline species occurring in estuaries, hypersaline lagoons, and occasionally shallow marine waters. Always found on soft, mainly muddy, substrate.

Fisheries: Predominantly artisanal, with beach nets and seines. Although very abundant, it is not of great importance as a food fish because its flesh, though edible, is not of very good quality.



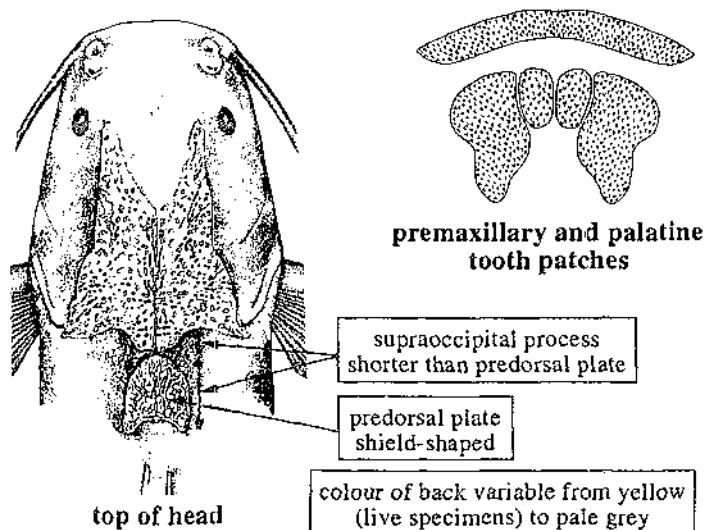
Arius parkeri (Trail, 1832)

FAO names: En - Gillbacker sea catfish; Fr - Mâchoiron jaune; Sp - Bagre amarillo.
Common names:

Size: Maximum over 100 cm and 50 kg; common to 60 cm.

Distribution and habitat: From the Gulf of Paria to the mouth of the Amazon river. On muddy bottoms in shallow estuaries.

Fisheries: Predominantly artisanal. Caught with gill nets, beach seines, hook-and-line, and longlines. An important food fish because of the excellent quality of its flesh. Marketed fresh and salted.



ARIIDAE

Arius passany (Valenciennes, 1839)

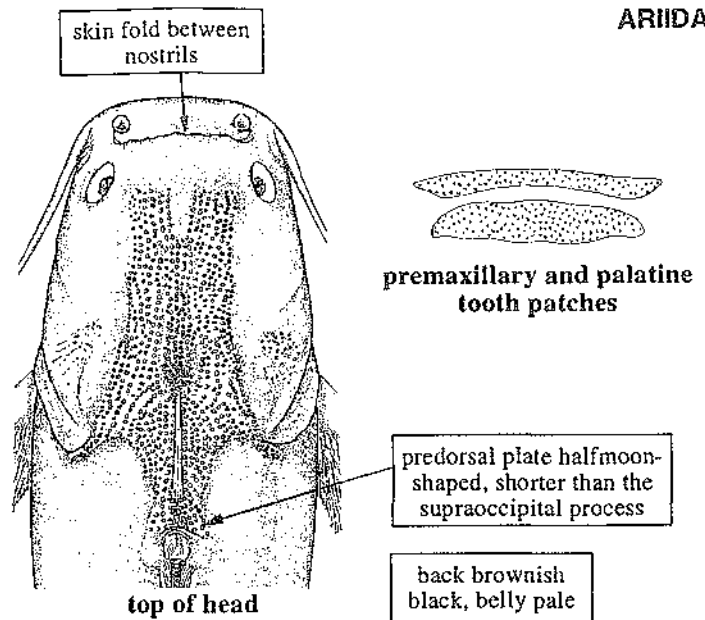
FAO names: En - Passany sea catfish; Fr - Mâchoiron passany; Sp - Bagre chato.

Common names:

Size: Maximum over 100 cm and 15 kg; common to 50 cm.

Distribution and habitat: From the Gulf of Paria to the mouth of the Amazon river. On shallow muddy bottoms in estuaries.

Fisheries: Predominantly artisanal. Caught with gill nets, beach seines, hook-and-line, and on longlines. An important food fish because of the good quality of its flesh. Marketed fresh and salted.



Arius phrygiatus Valenciennes, 1840

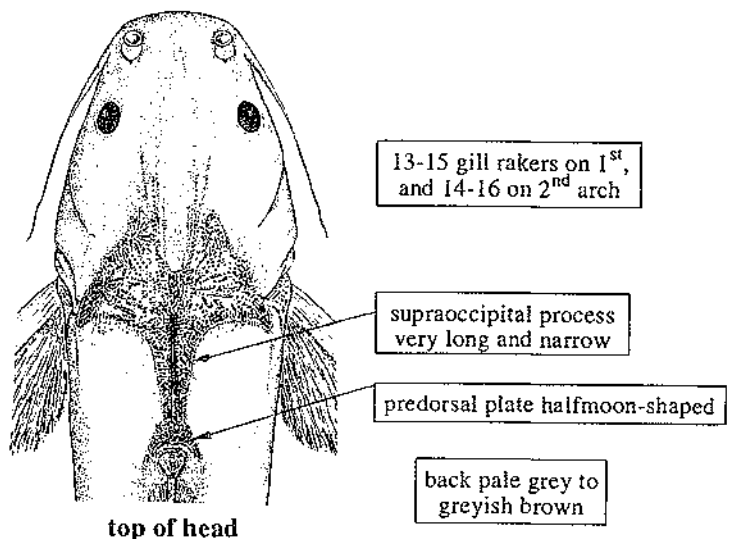
FAO names: En - Kukwari sea catfish; Fr - Mâchoiron kukwari; Sp - Bagre mucuro.

Common names:

Size: Maximum 30 cm; common to 20 cm.

Distribution and habitat: From the lower reaches of the Orinoco delta to the mouth of the Amazon river. On muddy bottoms in very shallow, low-salinity estuarine waters, and occasionally in fresh-water.

Fisheries: Predominantly artisanal. Caught with beach seines. Of negligible commercial importance because of its small average size.



Arius proops (Valenciennes, 1839)

(plate VI, 46)

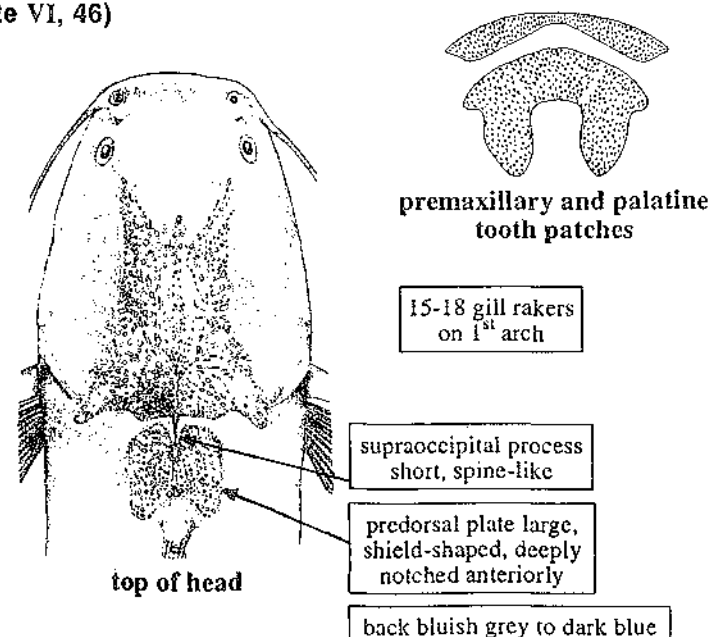
FAO names: En - Crucifix sea catfish; Fr - Mâchoiron crucifix; Sp - Bagre piedra.

Common names:

Size: Maximum about 100 cm and 9 kg; common to 50 cm.

Distribution and habitat: Throughout most of the area, from the northern coast of Colombia to the mouth of the Amazon river. On shallow, muddy bottoms, mainly in estuaries, but also in coastal marine waters.

Fisheries: Predominantly artisanal. Caught with beach seines. A species of some importance to fisheries, even though it is one of the catfishes in lesser demand because its flesh is not of excellent quality. Usually marketed fresh.



Arius quadriscutis Valenciennes, 1840

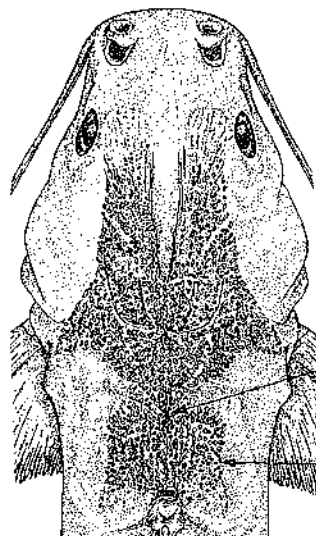
FAO names: En - Bressou sea catfish;
Fr - Mâchoiron bressou; Sp - Bagre bresú.

Common names:

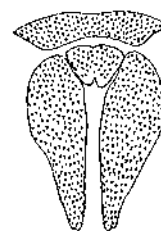
Size: Maximum 50 cm; common to 30 cm.

Distribution and habitat: From the Orinoco delta to the mouth of the Amazon river. On shallow muddy bottoms in estuaries.

Fisheries: Predominantly artisanal. Caught with beach seines, and occasionally as by-catch in industrial trawl fisheries for shrimp. Of minor importance as a fishery resource. Marketed fresh and exported frozen.



top of head



premaxillary and palatine tooth patches

11-14 gill rakers on 1st arch

supraoccipital process short and pointed

predorsal plate large, shield-shaped, its front margin concave, central area rugose, and lateral margins smooth

back greyish brown

Arius rugispinis Valenciennes, 1840

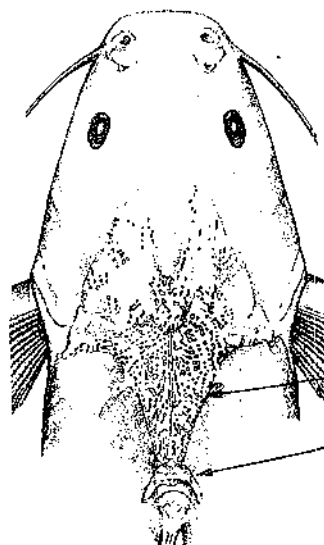
FAO names: En - Softhead sea catfish;
Fr - Mâchoiron petite-gueule; Sp - Bagre tumbeló.

Common names:

Size: Maximum 42 cm; common to 30 cm.

Distribution and habitat: From the Gulf of Paria to the mouth of the Amazon river, on shallow muddy bottoms in estuaries.

Fisheries: Predominantly artisanal. Caught with beach seines and occasionally as by-catch in industrial trawl fisheries for shrimp. An important fishery resource, marketed fresh and salted, and also exported frozen.



top of head

premaxillary and palatine tooth patches

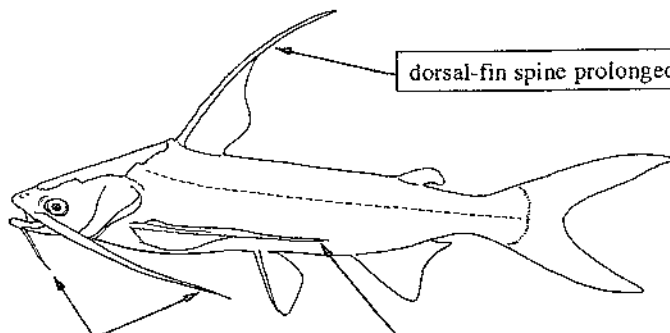
15-17 gill rakers on 1st, and 18-20 on 2nd arch

supraoccipital process long, narrow and conical

predorsal plate halfmoon-shaped, very narrow

back grey to greyish brown

Genus *Bagre* - 2 species in the area.



dorsal-fin spine prolonged

only 2 pairs of barbels, one maxillary and one mental pair

pectoral spine prolonged

***Bagre bagre* (Linnaeus, 1766)**

(plate VI, 47)

ARIIDAE

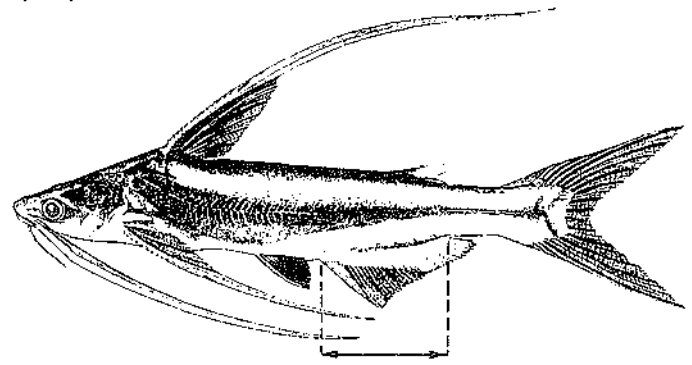
FAO names: En - Coco sea catfish; Fr - Mâchoiron coco;
Sp - Bagre doncella.

Common names:

Size: Maximum 55 cm and over 1 kg; common to 40 cm.

Distribution and habitat: From the northern coast of Colombia to the mouth of the Amazon river. Mainly in estuaries, but also rather frequent in marine waters; always on soft, mainly muddy bottoms to a depth of about 50 m (usually less).

Fisheries: Predominantly artisanal. Caught with gill nets and beach seines. Also taken as bycatch in industrial trawl fisheries for shrimps. Usually marketed fresh.



back bluish grey,
belly paler

anal fin long-based,
with 29-36 rays

***Bagre marinus* (Mitchill, 1815)**

(plate VI, 48)

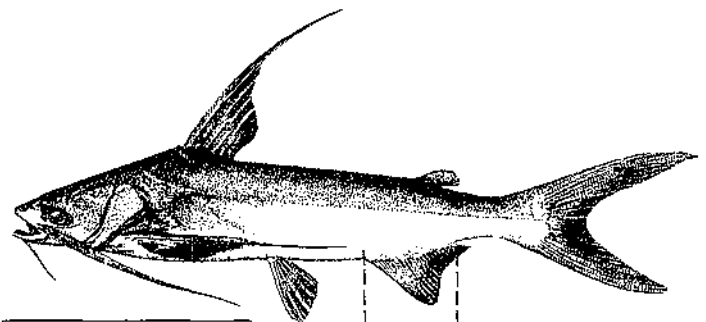
FAO names: En - Gafftopsail sea catfish; Fr - Mâchoiron antenne; Sp - Bagre cacumo.

Common names:

Size: Maximum 60 cm; common to 50 cm.

Distribution and habitat: Throughout the area. Lives on soft bottoms in marine shelf waters to a depth of about 50 m (usually less); also found in estuaries of relatively high salinities. This is the catfish species best adapted to seawater.

Fisheries: Predominantly artisanal. Caught with gill nets and beach seines. Also taken as bycatch in industrial trawl fisheries for shrimp. An important fishery resource because of its relative abundance and the good quality of its flesh. Usually marketed fresh.



back bluish to brownish
grey, belly paler

anal fin short-based,
with 22-28 rays

Genus *Cathorops* - mostly restricted to freshwater. A single species in marine and brackish waters of the area.

***Cathorops spixii* (Agassiz, 1829)**

(plate VII, 49)

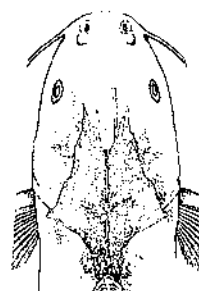
FAO names: En - Madamango sea catfish;
Fr - Mâchoiron mamango; Sp - Bagre cuinche;

Common names:

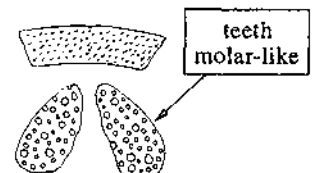
Size: Maximum 30 cm; common to 20 cm.

Distribution and habitat: Throughout the area. A very abundant species in some regions, such as the northeastern coast of Venezuela and the Orinoco delta. In coastal marine waters, estuaries, and also present in hypersaline lagoons; always on soft, mainly muddy substrate to a depth of about 50 m.

Fisheries: Artisanal. Caught with beach seines, and as bycatch in industrial shrimp trawl fisheries. In spite of its abundance and the good quality of its flesh, it is not very important as a food fish resource because of its small average size.

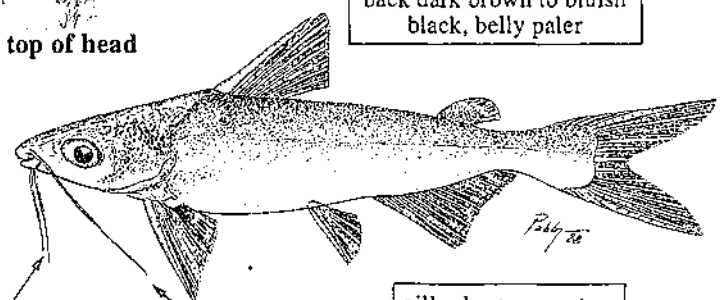


top of head



premaxillary and palatine
tooth patches

back dark brown to bluish
black, belly paler



2 pairs of mental
barbels

1 pair of maxillary
barbels

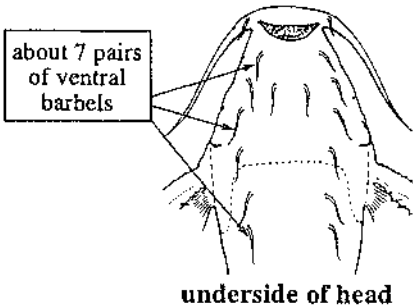
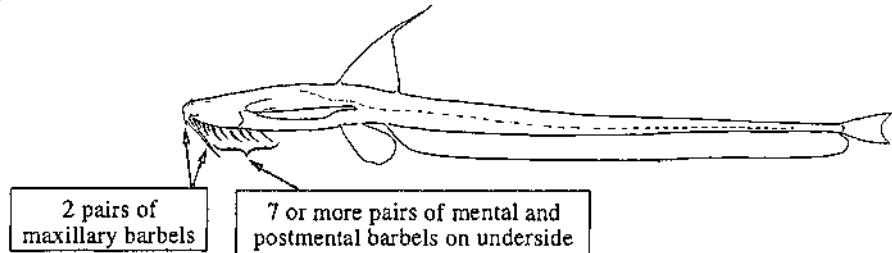
gill rakers present on
inner margin of 1st
two arches

ASPREDINIDAE

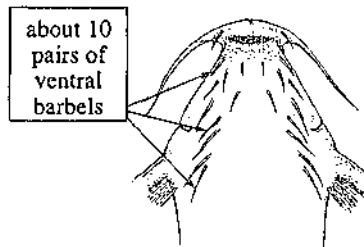
En: Banjo catfishes. **Fr:** Claqueurs, croncrons. **Sp:** Bagres roncadores, chicharritas.

Small to medium-sized, dorso-ventrally flattened fishes. Most species are restricted to freshwater; all those living in brackish, and occasionally, marine waters, belong to the subfamily Aspredininae. They are mainly found on soft, predominantly muddy bottoms in shallow, turbid water, in or near river mouths. The eggs are bred by the female which carries them firmly attached to its belly throughout the incubation period. Although of little importance as food fish, banjo catfishes are occasionally taken in great quantities by shrimp trawlers operating in inshore waters. Three genera and 4 species in the area, from the Gulf of Paria and the Orinoco delta to northern Brazil.

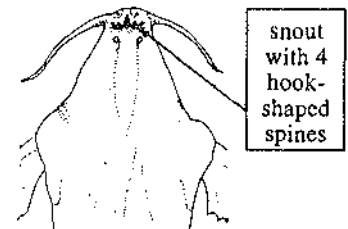
Genus *Aspredinichthys* - 2 species in the area.



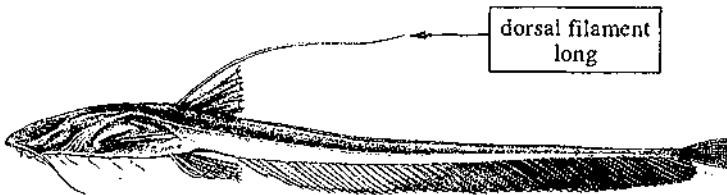
underside of head



underside of head



top of head



Aspredinichthys filamentosus (Cuv. and Val., 1840)

FAO names: **En** - Sevenbarbed banjo; **Fr** - Claqueur sept-barbes; **Sp** - Bagre roncador sietebarras.

Common names:

Size: Maximum 22 cm, common to 15 cm.

Aspredinichthys tibicen (Temminck, 1840)

FAO names: **En** - Tenbarbed banjo; **Fr** - Claqueur dix-barbes; **Sp** - Bagre roncador diez barbas.

Common names:

Size: Maximum 18 cm; common to 15 cm.

Genus *Aspredo* - a single species in the area.

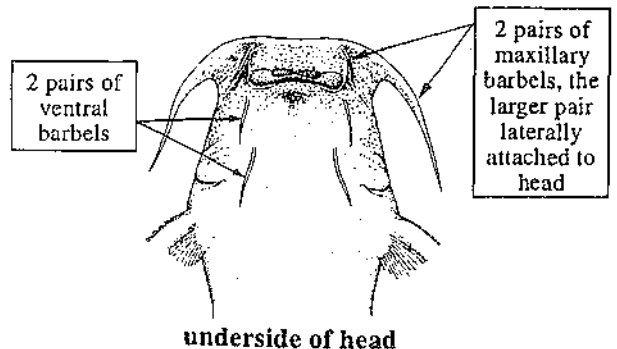


Aspredo aspredo (Linnaeus, 1758)

FAO names: **En** - Banjo; **Fr** - Croncron; **Sp** - Chicharrita.

Common names:

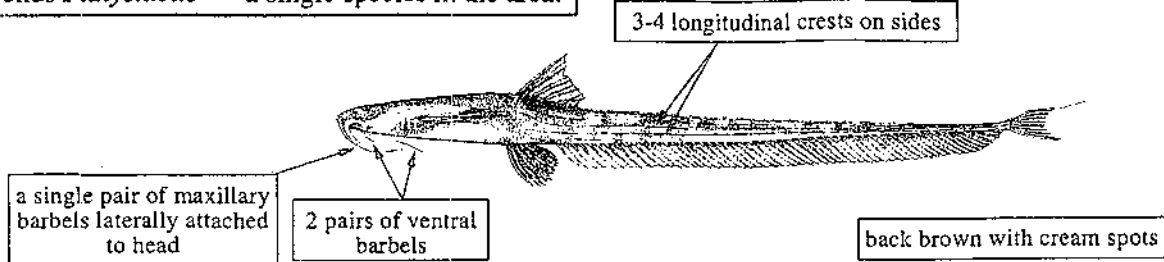
Size: Maximum over 40 cm; common to 35 cm.



underside of head

Genus *Platystacus* - a single species in the area.

ASPREDINIDAE



Platystacus cotylephorus Bloch, 1794

FAO names: En - Banded banjo; Fr - Croncron rayé; Sp - Chicharrita rayada.

Common names:

Size: Maximum over 20 cm, common to 15 cm.

ATHERINIDAE

En: Silversides. Fr: Athérines. Sp: Pejerreyes, tinicalos.

Small, elongate fishes, always less than 17 cm in length, pelagic or benthopelagic in coastal waters, except *Melanorhinus microps*, which is oceanic and the only species lacking the lateral silvery stripe. Some species form more or less large aggregations in coral reef areas (for example *Atherinomorus stipes*) while others are found off sandy beaches or on seagrass beds, in the sea or inside hypersaline lagoons or bays. Presently there is no special fishery for the marine silversides of this area but it is likely that they will become a commercially important resource in the future, because of the excellent quality of their flesh. All species are attracted by artificial light and most of them feed on zooplanktonic organisms. The large majority of atherinid species are restricted to freshwater; only 6 genera, each with one species, occur in marine or brackish waters of our area.

Genus *Adenops* - a single species in the area.

Adenops analis Schultz, 1948

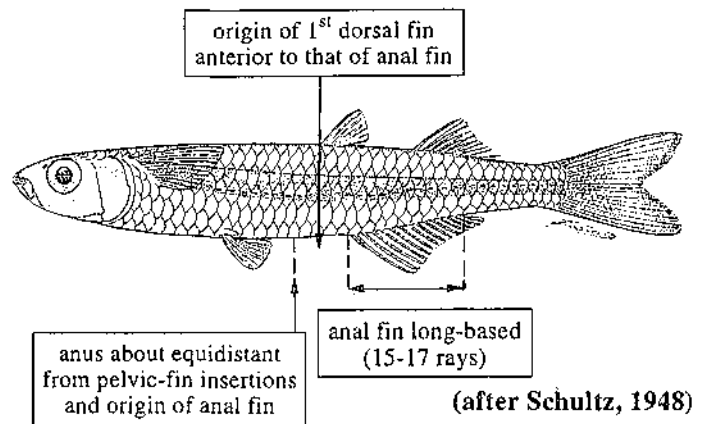
FAO names: En - Backwaters silverside; Fr - Athérine lacunaire; Sp - Tinicalo lagunar.

Common names:

Size: Maximum about 12 cm; common to 10 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela. On muddy bottoms in lagoons or bays of brackish or hypersaline waters.

Fisheries: Artisanal. Caught with fine-meshed beach seines and cast nets.



Genus *Atherinomorus* - a single species in the area.

Atherinomorus stipes (Mueller and Troschel, 1848)

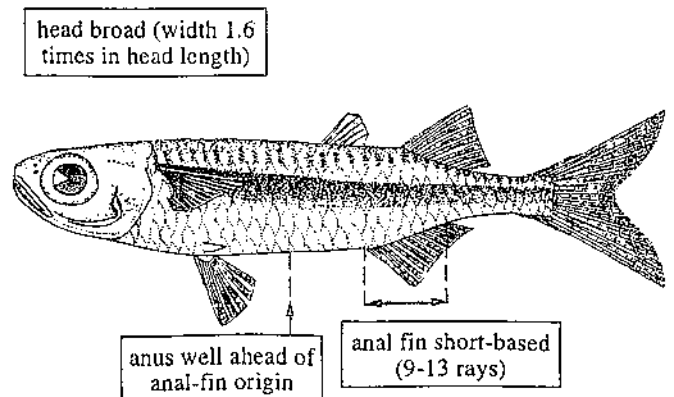
FAO names: En - Hardhead silverside; Fr - Athérine tête-dure; Sp - Tinicalo cabezón.

Common names:

Size: Maximum 10 cm; common to 7.5 cm.

Distribution and habitat: Throughout the area. Coastal pelagic, over soft substrates as well as in coral reef areas.

Fisheries: Artisanal. Caught with fine-meshed beach seines and cast nets.



ATHERINIDAE

Genus *Coleotropis* - a single species in the area.

Coleotropis blackburni Schultz, 1949

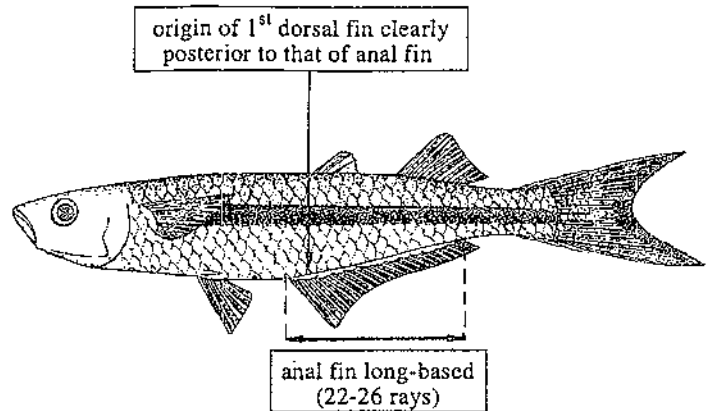
FAO names: En - Beach silverside; Fr - Athérine de plage; Sp - Tinícalo playón.

Common names:

Size: Maximum 13 cm; common to 10 cm.

Distribution and habitat: Southern part of the Caribbean sea. Over sand in the proximity of beaches exposed to strong wave action.

Fisheries: Artisanal. Caught with fine-meshed beach seines and cast nets.



Genus *Hypoatherina* - a single species in the area.

Hypoatherina harringtonensis (Goode, 1877)

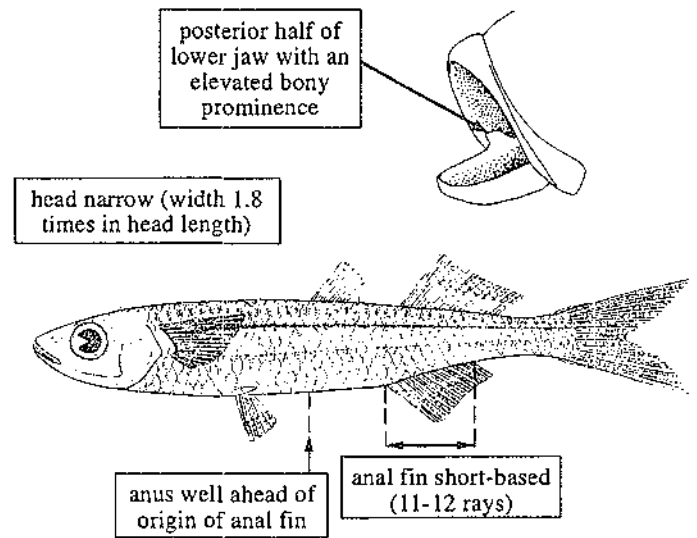
FAO names: En - Reef silverside; Fr - Athérine des récifs; Sp - Tinícalo de arrecife.

Common names:

Size: Maximum 7.5 cm; common to 6 cm.

Distribution and habitat: Southern part of the Caribbean sea. Typical of coral reef areas, among which it may form large, dense schools.

Fisheries: Artisanal. Caught with small nets ("sala-bardes"), using artificial light.



Genus *Xenomelaniris* - a single species in the area.

Xenomelaniris brasiliensis (Quoy and Gaimard, 1824)

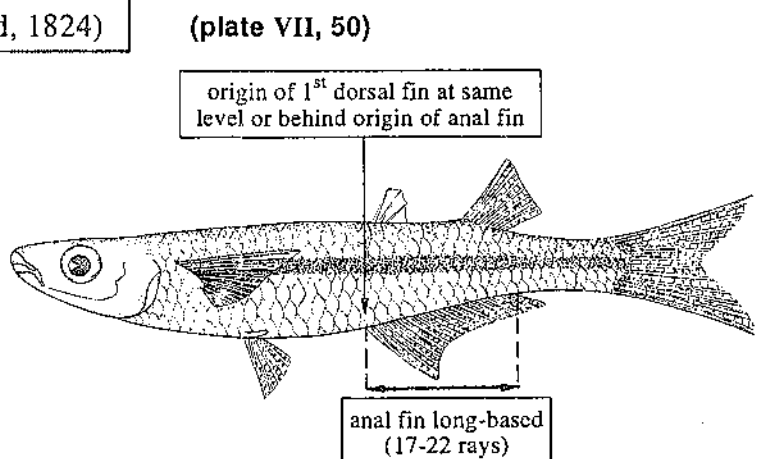
FAO names: En - Brazilian silverside; Fr - Athérine brésilienne; Sp - Tinícalo común.

Common names:

Size: Maximum 16 cm; common to 12 cm.

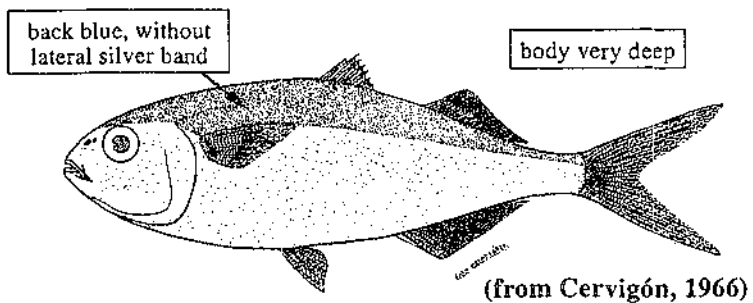
Distribution and habitat: Throughout the area. On soft substrates (including seagrass beds), in brackish waters, hypersaline littoral lagoons and protected marine areas.

Fisheries: Artisanal. Caught with fine-meshed beach seines and cast nets.



Other species:

Melanorhinus, with a single species, *M. microps* (Poey, 1860), oceanic, of no interest to fisheries.



AUCHENIPTERIDAE

En: Cocosoda catfishes. **Fr:** Cocosodas. **Sp:** Bagres cabezones.

Small to medium-sized catfishes usually inhabiting freshwaters of South American rivers. Only one species in brackish waters of the area.

Genus *Pseudauchenipterus* - a single species in the area.

Pseudauchenipterus nodosus (Bloch, 1794)

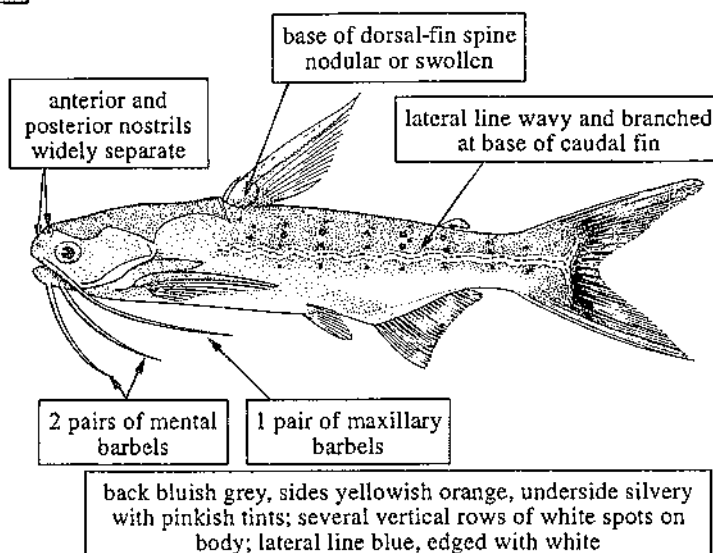
FAO names: **En** - Cocosoda catfish; **Fr** - Cocosoda kakinette; **Sp** - Bagre patriota.

Common names:

Size: Maximum 30 cm; common to 25 cm.

Distribution and habitat: From the Gulf of Paria and Trinidad to northern Brazil. On soft, mainly muddy substrate in brackish waters in and around river mouths.

Fisheries: Predominantly artisanal. Caught with beach seines. Marketed fresh, but of little commercial importance because of its small average size.



AULOSTOMIDAE

En: Trumpetfishes. **Fr:** Trompettes. **Sp:** Trompetas.

Elongate, colourful fishes inhabiting shallow, clear waters over rocky bottoms and soft or hard corals.

Genus *Aulostomus* - a single species in the area.

Aulostomus maculatus Valenciennes, 1842

(plate VII, 51)

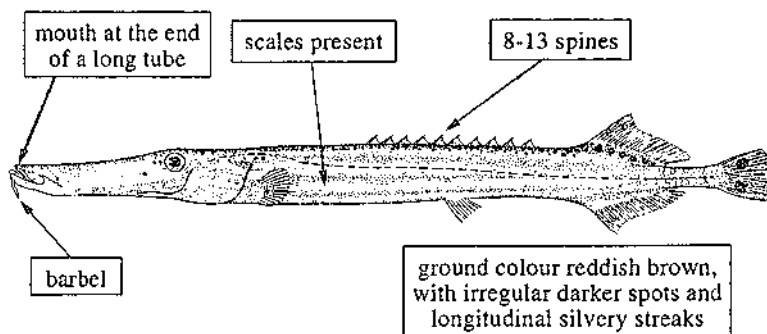
FAO names: **En** - Trumpetfish; **Fr** - Trompette tachetée; **Sp** - Trompeta pintada.

Common names:

Size: Maximum 75 cm; common to 50 cm.

Distribution and habitat: Throughout the area. In clear, shallow waters around coral reefs. Often swims in vertical position.

Fisheries: Predominantly artisanal. Caught with beach seines and pots. Of no commercial importance as a food fish.

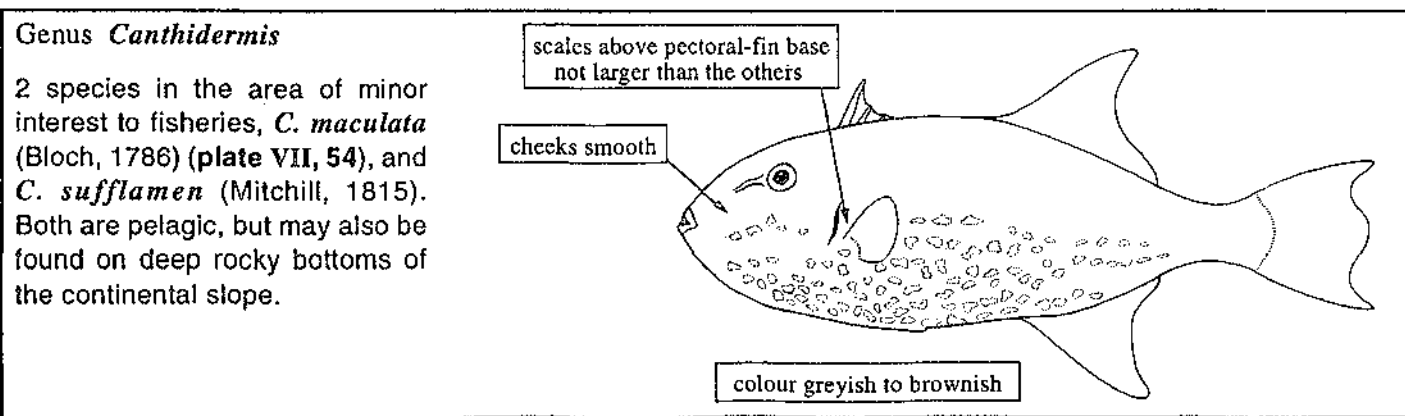
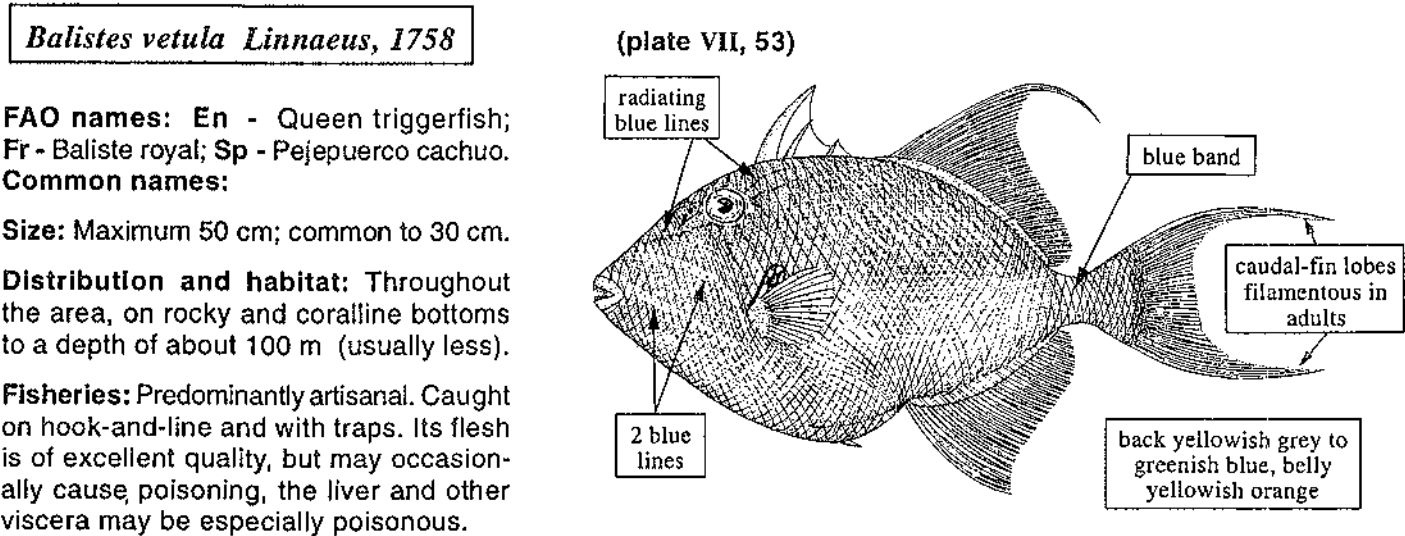
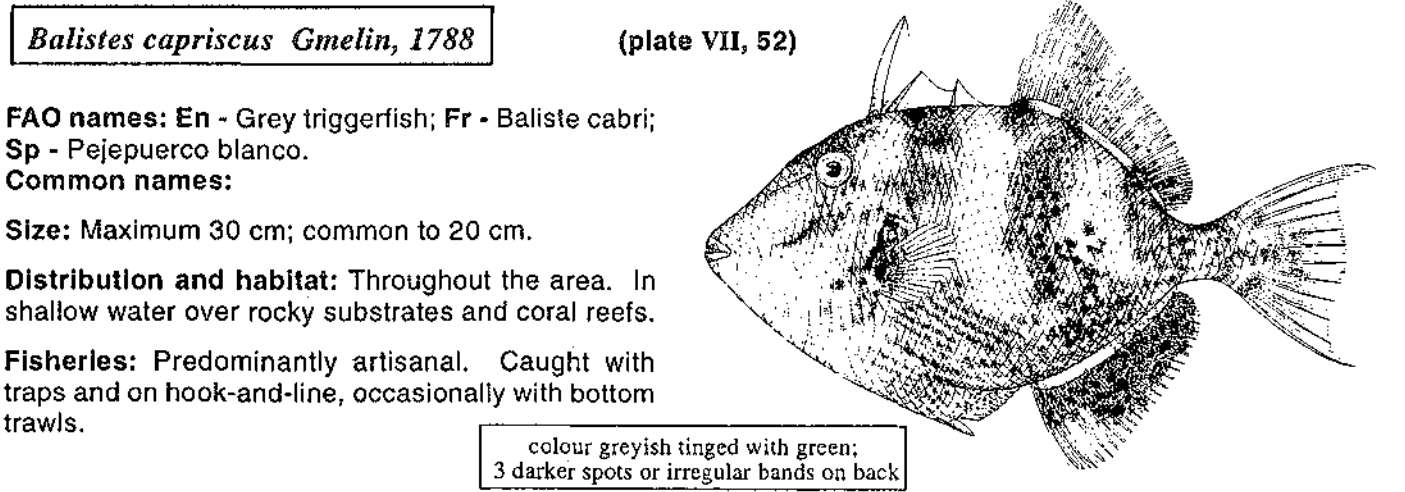
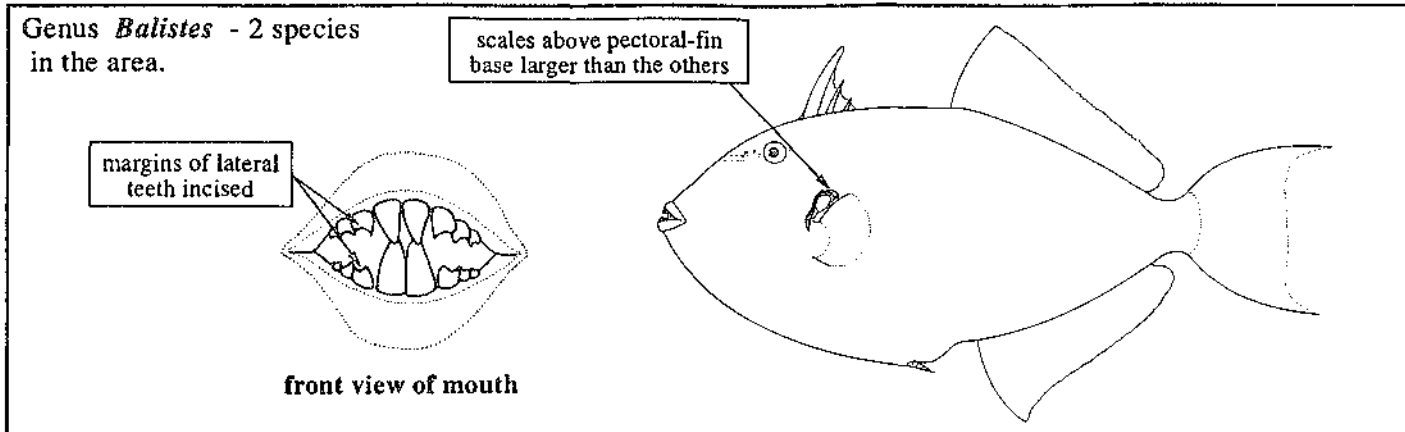


BALISTIDAE

En: Triggerfishes. **Fr:** Balistes. **Sp:** Pejepuercoos, calafates, gatillos.

Medium-sized, usually brightly coloured fishes. The larvae and juveniles are pelagic, while the adults of most species inhabit rocky or coralline bottoms in shallow waters. Only a few species maintain their pelagic habits as adults. All are omnivorous. Four genera with 6 species in the area, only two are important as food fish.

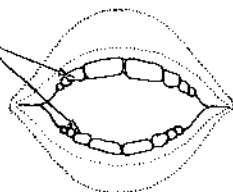
BALISTIDAE



Genus *Melichthys*

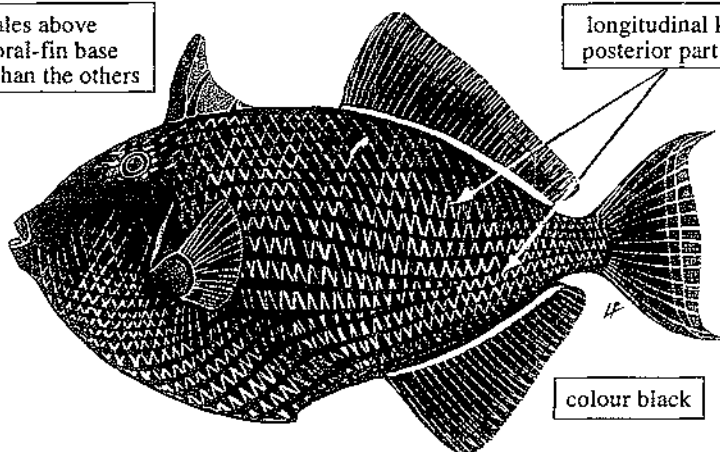
A single species in the area, *M. niger* (Bloch, 1786) (plate VII, 55), large (to 50 cm), benthic, of minor interest to fisheries.

lateral teeth not incised



front view of mouth

scales above pectoral-fin base larger than the others



longitudinal keels on posterior part of body

colour black

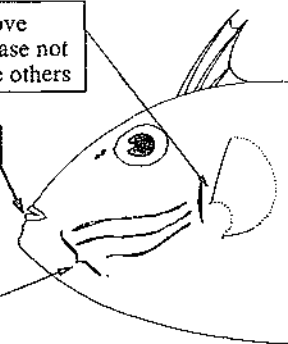
Genus *Xanthichthys*

A single species in the area, *X. ringens* (Linnaeus, 1758), benthic below a depth of 30 m, of minor interest to fisheries.

scales above pectoral-fin base not larger than the others

mouth superior

cheeks with 3 longitudinal, scaleless grooves



BATRACHOIDIDAE

En: Toadfishes, midshipmen. **Fr:** Crapauds. **Sp:** Sapos.

Small to medium-sized fishes, body robust and generally somewhat flat dorsally. Most species live on soft bottoms of the continental shelf, from the coastline to about a depth of 200 m. Their colour patterns are predominantly brownish, except in species of the genus *Sanopus*, none of which has as yet been recorded from the area. Four genera with 11 species in brackish and freshwaters of the area.

Genus *Amphichthys* - a single species in the area.

Amphichthys cryptocentrus (Valenciennes, 1837)

FAO names: **En** - Bocon toadfish; **Fr** - Crapaud goulu; **Sp** - Sapo bocón.

Common names:

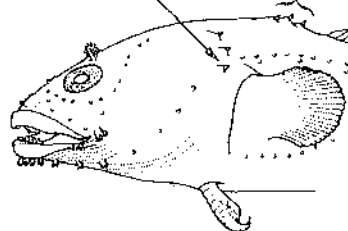
Size: Maximum 40 cm and 1.2 kg (exceptional); common to 25 cm.

Distribution and habitat: Throughout the area. In littoral waters on sandy and rocky substrates; usually found in caves. Deposits its eggs in empty mollusc shells or on stones.

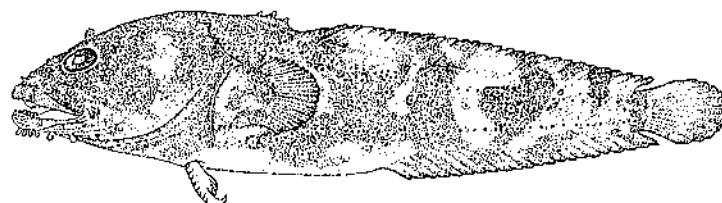
Fisheries: Exclusively artisanal. Caught in traps and manually with harpoons (garrapiños). Highly appreciated in some localities for the excellent quality of its flesh. Marketed fresh.

a single subopercular spine

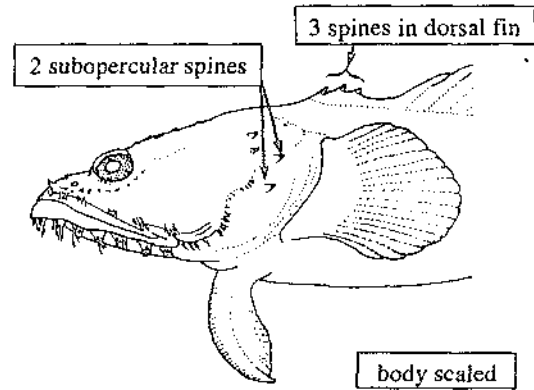
3 spines in dorsal fin



body unscaled



Genus *Batrachoides* - 2 species in the area.



Batrachoides manglae Cervigón, 1964

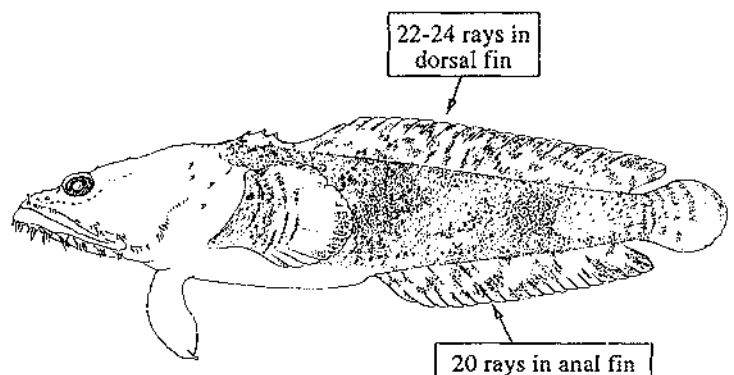
FAO names: En - Cotuero toadfish; Fr - Crapaud lagunaire; Sp - Sapo lagunero.

Common names:

Size: Maximum 30 cm; common to 20 cm.

Distribution and habitat: Northern coasts of Venezuela and Colombia. On shallow muddy bottoms. Abundant or at least common in littoral mangrove lagoons.

Fisheries: Exclusively artisanal. Caught with traps or manually with harpoons (garrapiños). Marketed locally, but less appreciated than the bocon toadfish.



Batrachoides surinamensis (Bloch and Schneider, 1801)

(plate VII, 56)

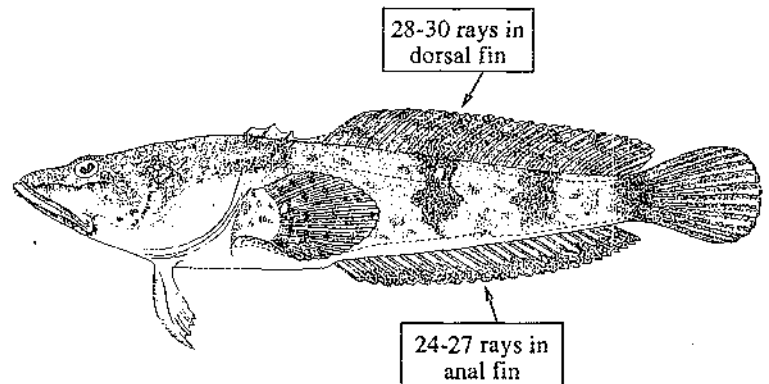
FAO names: En - Pacuma toadfish; Fr - Crapaud guyanais; Sp - Sapo guayanés.

Common names:

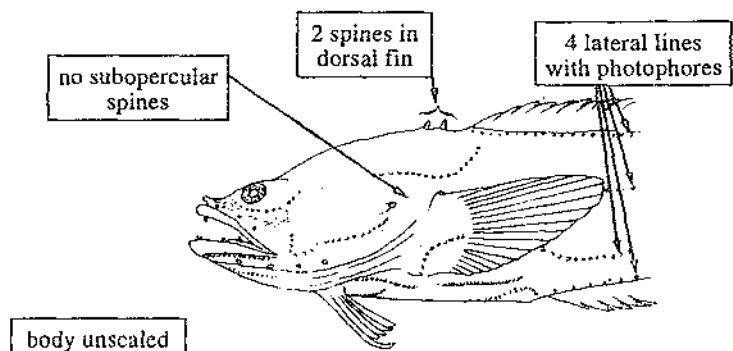
Size: Maximum 50 cm and 2.3 kg; common to 35 cm.

Distribution and habitat: Throughout the area. On muddy bottoms in shallow, mainly brackish waters to about a depth of 20 m.

Fisheries: Mostly artisanal. Caught with gill nets, and taken as bycatch in the industrial trawl fishery for shrimps. Marketed fresh in some localities.



Genus *Porichthys* - 5 species in the area, of which only *P. plectrodon* is of any interest to fisheries.



***Porichthys plectrodon* Goode and Bean 1882**

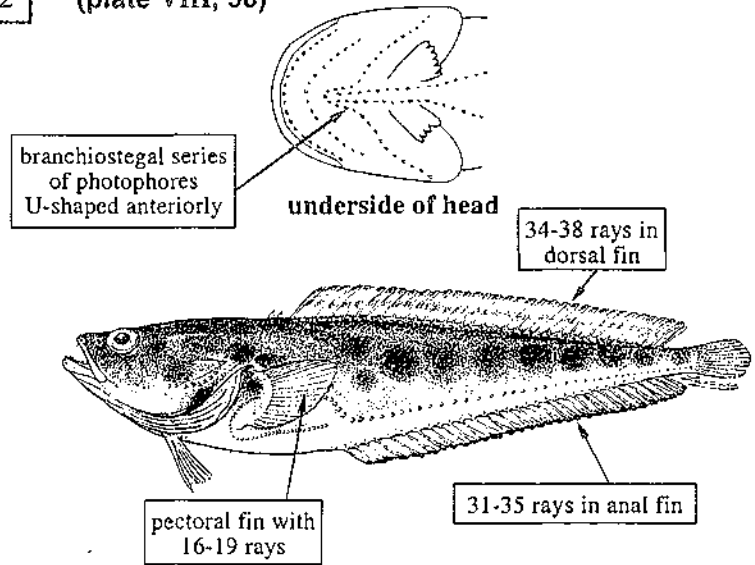
(plate VIII, 58)

FAO names: En - Atlantic midshipman; Fr - Crapaud enchainé; Sp - Sapo cadena.
Common names:

Size: Maximum 29 cm; common to 20 cm.

Distribution and habitat: Throughout the area. On soft, mainly muddy and sandy bottoms to a depth of about 100 m.

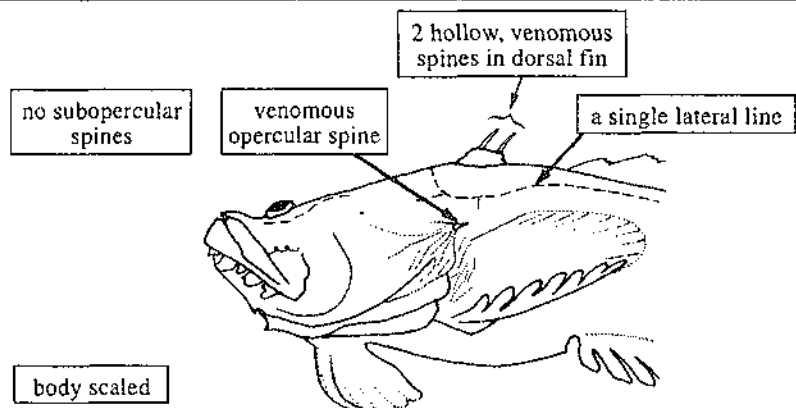
Fisheries: One of the species taken as bycatch in the industrial shrimp trawl fishery. Only occasionally marketed, or consumed locally.



Other species:

P. bathoiketes Gilbert, 1968 (very similar to *P. plectrodon*, but attaining only 11 cm in length, and usually with 16 or 17 rays in pectoral fin); *P. kymosemeum* Gilbert, 1968; *P. oculo-frenum* Gilbert, 1968; and *P. pauciradiatus* Caldwell and Caldwell, 1963 (plate VIII, 57) (branchiostegal series of photophores forming an open V). None presently of interest to fisheries.

Genus *Thalassophryne* - 3 species in the area, of which only *T. maculosa* is of interest to fisheries.

***Thalassophryne maculosa* Günther 1861**

(plate VIII, 59)

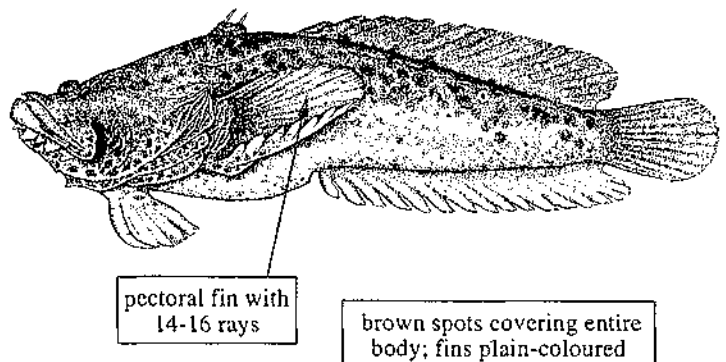
FAO names: En - Cano toadfish; Fr - Crapaud tacheté; Sp - Sapo cano.

Common names:

Size: Maximum 20 cm; common to 12 cm.

Distribution and habitat: Throughout the area. On muddy and sandy bottoms in very shallow, often littoral waters. Usually found buried in the substrate with only the eyes visible.

Fisheries: Caught occasionally with beach nets or with shrimp trawls. Although edible, it is generally not consumed. The poison injected by the spines may cause very painful wounds.



Other species:

Thalassophryne megalops Bean and Weed, 1910, and *T. nattereri* Steindachner, 1876, both of no interest to fisheries due to their small size.

BELONIDAE

En: Needlefishes. **Fr:** Aiguillies, aiguillettes, orphies. **Sp:** Agujones, maraos.

Very elongate, epipelagic fishes, capable of leaping out of the water and skittering over the surface for some distance. They are attracted by artificial light. Their eggs are large and easily recognized, since they are covered with sticky filaments. These fishes have the typical protective coloration of animals living at the water surface, with green/blue backs sharply contrasting with the silvery whitish lower sides and belly. Four genera with 6 species in the area.

Genus *Ablennes* - a single species in the area.

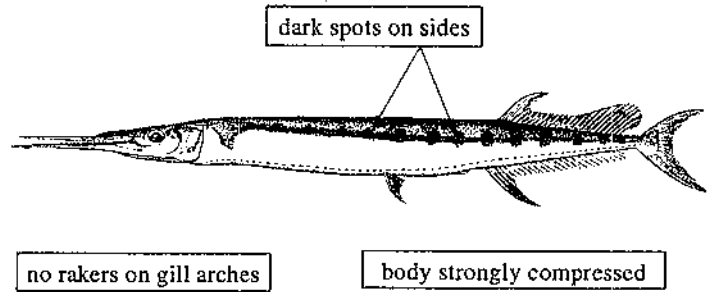
Ablennes hians (Valenciennes, 1846)

FAO names: **En** - Flat needlefish; **Fr** - Orphie plate; **Sp** - Marao machete.
Common names:

Size: Maximum 96 cm; common to 85 cm.

Distribution and habitat: Throughout the area. Pelagic in offshore surface waters; inshore occurrences seem to be more frequent around islands than along the mainland coast. Sometimes forms large schools.

Fisheries: Caught mainly by casting or trolling surface or near-surface lures; occasionally with beach seines. Marketed fresh or salted, but the green colour of its flesh reduces its market value.



Genus *Platybelone* - a single species in the area.

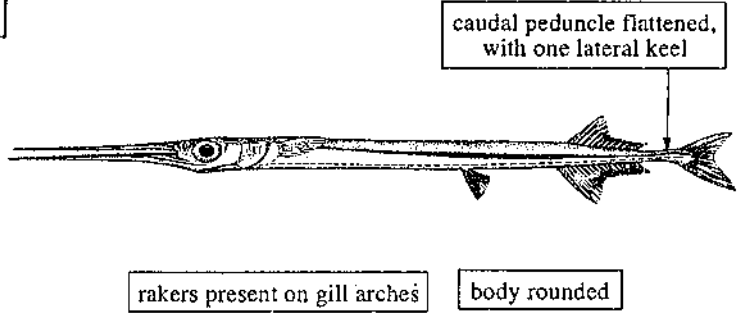
Platybelone argalus argalus (LeSueur, 1821)

FAO names: **En** - Keeltail needlefish; **Fr** - Orphie carénée; **Sp** - Marao de quilla.
Common names:

Size: Maximum 42.5 cm, common to 35 cm.

Distribution and habitat: Throughout the area, particularly abundant around islands. Often approaches the shore at night.

Fisheries: Occasionally caught with beach seines. Of minor importance as a food fish because of its small average size.



Genus *Strongylura* - 2 species in the area.
» body rounded; caudal peduncle as broad as deep; no rakers on gill arches; 12-17 rays in dorsal fin.

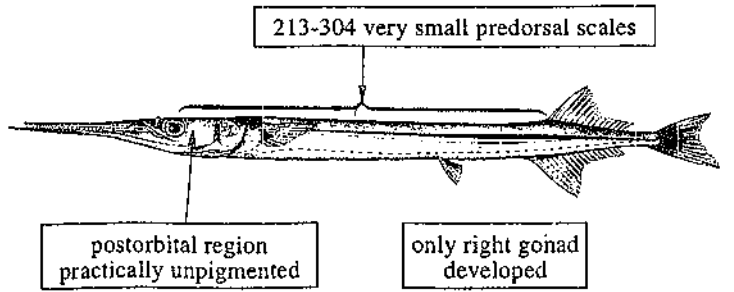
Strongylura marina (Walbaum, 1792) (plate VIII, 60)

FAO names: **En** - Atlantic needlefish; **Fr** - Aiguillette verte; **Sp** - Agujón verde.
Common names:

Size: Maximum 79.5 cm, common to 60 cm.

Distribution and habitat: Throughout the area. Coastal pelagic, usually in protected areas.

Fisheries: Exclusively artisanal. Caught with cast nets and beach seines. Of minor importance as a foodfish.



***Strongylura timucu* (Walbaum, 1792)**

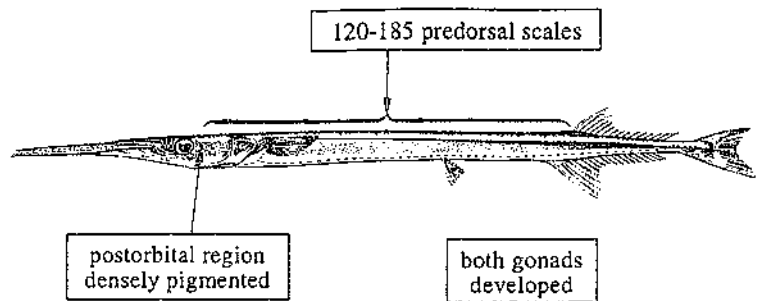
BELONIDAE

FAO names: En - Timucu; Fr - Aiguillette timucu;
Sp - Agujón timucu.
Common names:

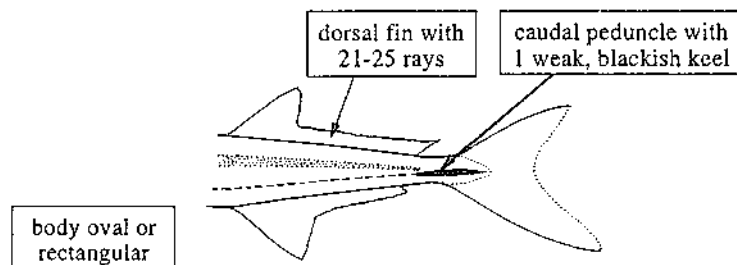
Size: Maximum: 50 cm; common to 35 cm.

Distribution and habitat: Throughout the area. Epipelagic, mainly in protected areas, bays and lagoons.

Fisheries: Artisanal. Caught only occasionally with cast nets, mainly in subsistence fisheries. Of minor importance as a food fish because of its small average size.



Genus *Tylosurus* - 2 species in the area.

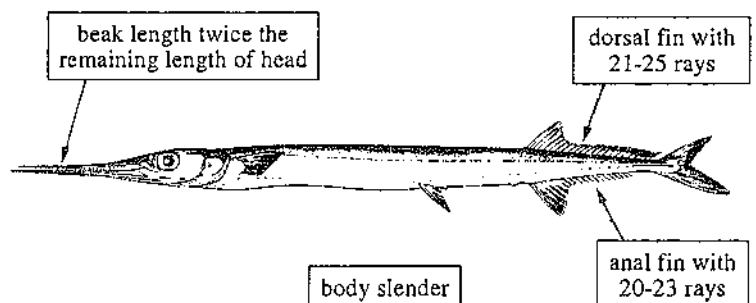
***Tylosurus acus acus* (Lacepède, 1803)**

FAO names: En - Agujon needlefish; Fr - Aiguille voyeuse; Sp - Marao ojón.
Common names:

Size: Maximum 90 cm; common to 70 cm.

Distribution and habitat: Throughout the area. Coastal pelagic near the surface, occasionally far offshore.

Fisheries: Almost exclusively artisanal. Caught by trolling and with beach seines. Consumed fresh and salted, but not highly esteemed because of the green colour of its flesh.

***Tylosurus crocodilus crocodilus* (Peron and LeSueur, 1821)**

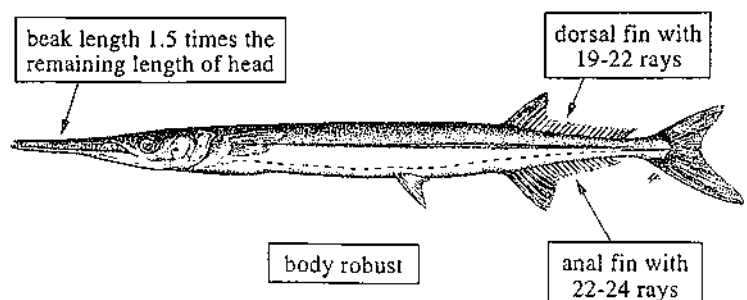
(plate VIII, 61)

FAO names: En - Hound needlefish; Fr - Aiguille crocodile; Sp - Marao lisero.
Common names:

Size: Maximum 150 cm, and over 4.5 kg; common to 100 cm.

Distribution and habitat: Throughout the area. Coastal pelagic, occasionally rather far offshore.

Fisheries: Almost exclusively artisanal. Caught by trolling and with beach seines. Although its flesh is of good quality, its acceptance in markets is limited due to its green colour.



BERYCIDAE

En: Alfonsinos. **Fr:** Béryx. **Sp:** Alfonsinos.

Small to medium-sized, elongate, laterally compressed and usually reddish fishes. Found near the bottom, from depths of about 300 to at least 600 m. A single genus with one species in the area.

Genus *Beryx* - a single species in the area.

Beryx decadactylus Cuvier, 1829

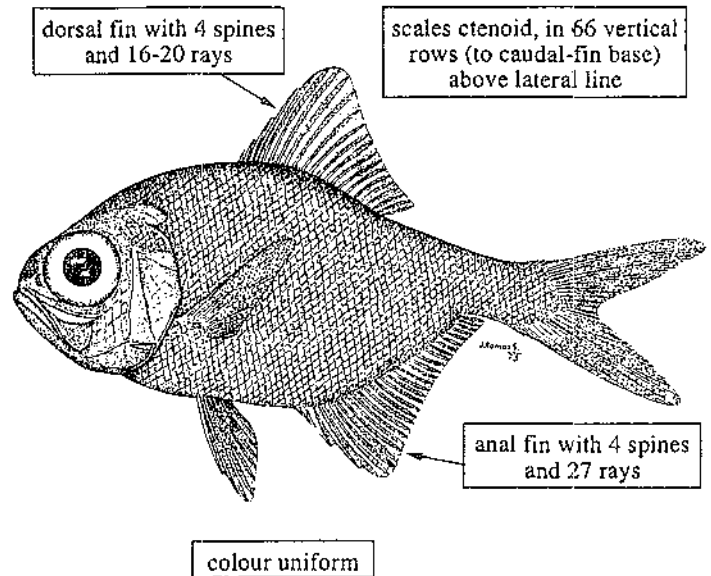
FAO names: **En** - Alfonsino; **Fr** - Béryx commun;
Sp - Alfonsino palometón.

Common names:

Size: Maximum 40 cm, common to 35 cm and 2.5 kg.

Distribution and habitat: Probably throughout the area. Found below a depth of 300 m off Venezuela. Records from the Caribbean sea are scarce.

Fisheries: Caught on hook-and-line gear and with bottom trawls. The flesh is of good quality, but there is no precise information on the abundance of this species or of its potential importance to fisheries.

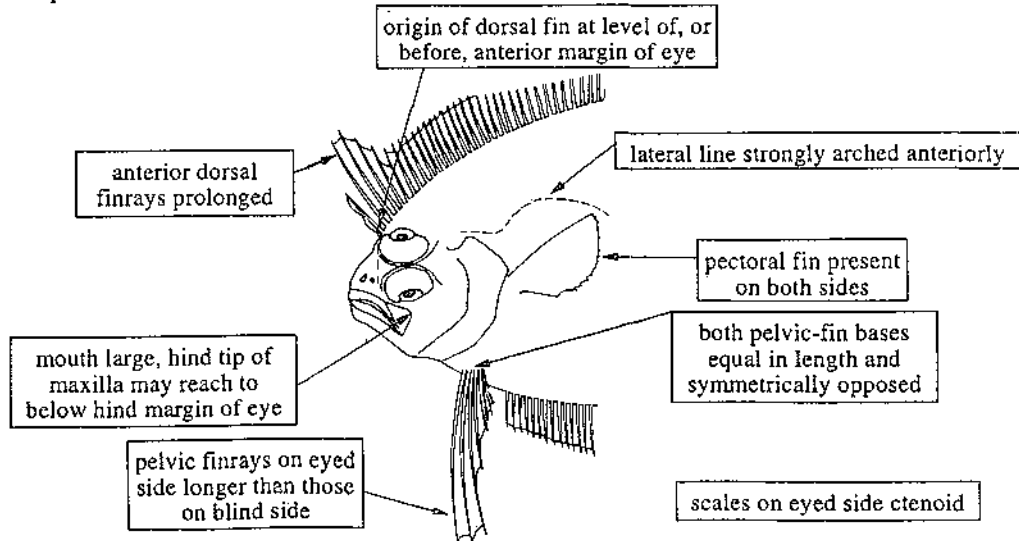


BOTHIDAE

En: Lefteye flounders. **Fr:** Arnoglosses, monolènes, perpeires, rombox. **Sp:** Lenguados.

A group of flatfishes with small to medium-sized representatives in our area, characterized by the location of both eyes on the left, coloured side of the body. They usually inhabit shallow, soft (mainly sand and mud) bottoms of the continental shelf to a depth of about 200 m, both in neritic waters off mainland coasts and in clear waters around oceanic islands. However, some species are found in greater depths, to 500 m or more. All lefteye flounders are edible, but most of the species occurring in our area are of small average size, and hence, their market value is limited. Many species have a marked sexual dimorphism, evidenced in males by the greater separation of the eyes and the presence of prolonged anterior dorsal and/or upper pectoral finrays. Eleven genera with more than 28 species in the area.

Genus *Ancylosetta* - 2 species in the area.



Ancylosetta cycloidea Tyler, 1959

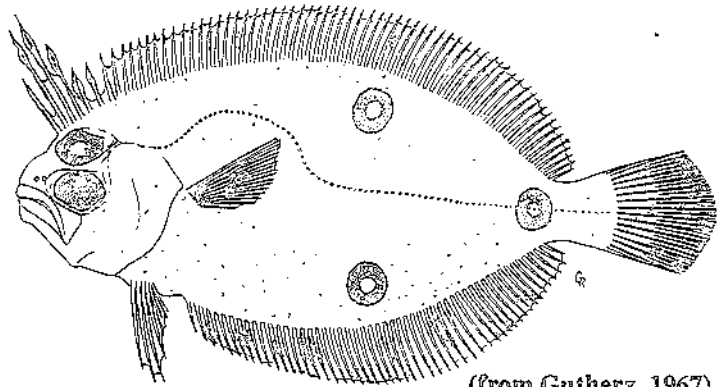
FAO names: En - Cyclope flounder; Fr - Rombou cyclope; Sp - Lenguado de tres manchas.

Common names:

Size: Maximum at least 25 cm; common to 20 cm.

Distribution and habitat: Throughout the area. On soft bottoms of the continental shelf between depths of 70 and 260 m.

Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps and finfishes. Marketed fresh.



(from Gutherz, 1967)

3 large eyespots on body

Ancylosetta kumperae Tyler, 1959

(plate VIII, 62)

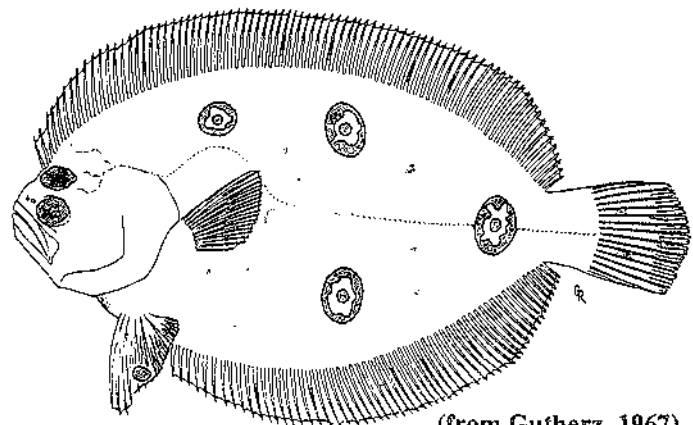
FAO names: En - Foureyed flounder; Fr - Rombou à quatre yeux; Sp - Lenguado de cuatro manchas.

Common names:

Size: Maximum at least 25 cm; common to 20 cm.

Distribution and habitat: Throughout the area. On soft bottoms of the continental shelf between depths of about 30 and 90 m.

Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps and finfishes. Of little commercial importance; marketed fresh.



(from Gutherz, 1967)

4 large eyespots on body

Genus *Bothus* - 4 species in the area.

eyes separated by a space greater than eye diameter; much greater in males

body deep, its maximum depth 50% or more of standard length

lateral line arched anteriorly

pectoral fin present on both sides

pelvic-fin base of eyed side much longer than that of blind side

mouth small, hind tip of maxilla not reaching beyond level of eye centre

female

male

BOTHIDAE

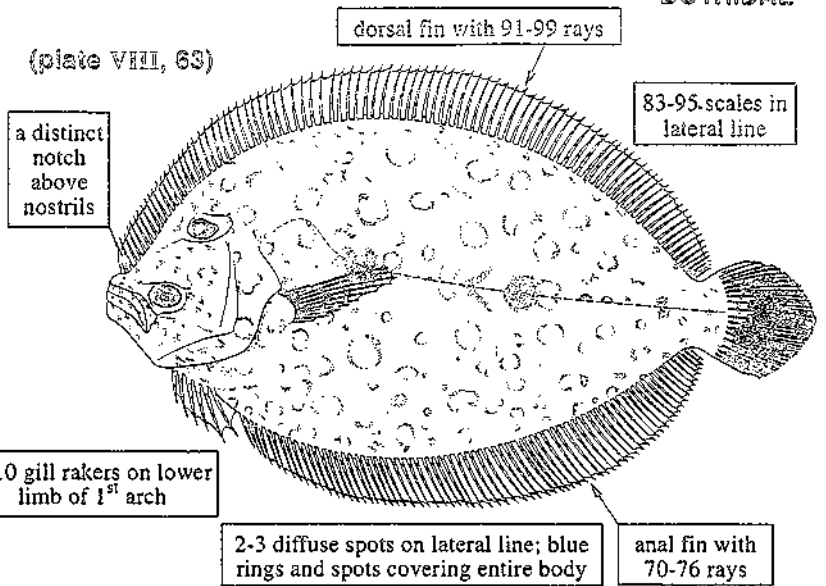
***Bothus lunatus* (Linnaeus, 1758)**

FAO names: En - Peacock flounder; Fr - Rombou lune; Sp - Lenguado ocelado.
Common names:

Size: Maximum 45 cm; common to 35 cm.

Distribution and habitat: Throughout the area. In shallow clear waters on clean sand or seagrass beds. Common in insular areas among coral reefs.

Fisheries: Predominantly artisanal. Caught on hook-and-line, and with harpoons or beach nets. Of little commercial importance; marketed fresh.



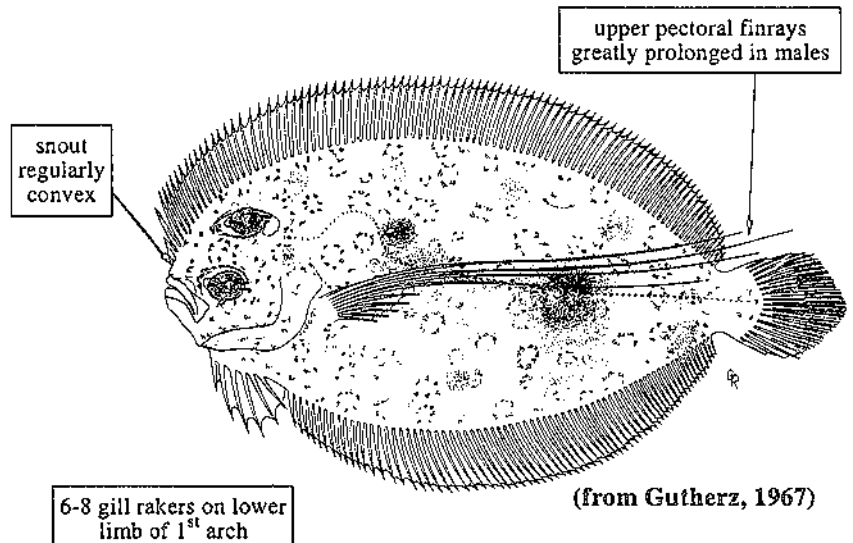
***Bothus maculiferus* (Poey, 1860)**

FAO names: En - Mottled flounder; Fr - Rombou tacheté; Sp - Lenguado manchado.
Common names:

Size: Maximum at least 25 cm; common to 18 cm.

Distribution and habitat: On soft bottoms throughout the area. Common to a depth of about 45 m.

Pesca: Taken as bycatch in shrimp trawl fisheries.



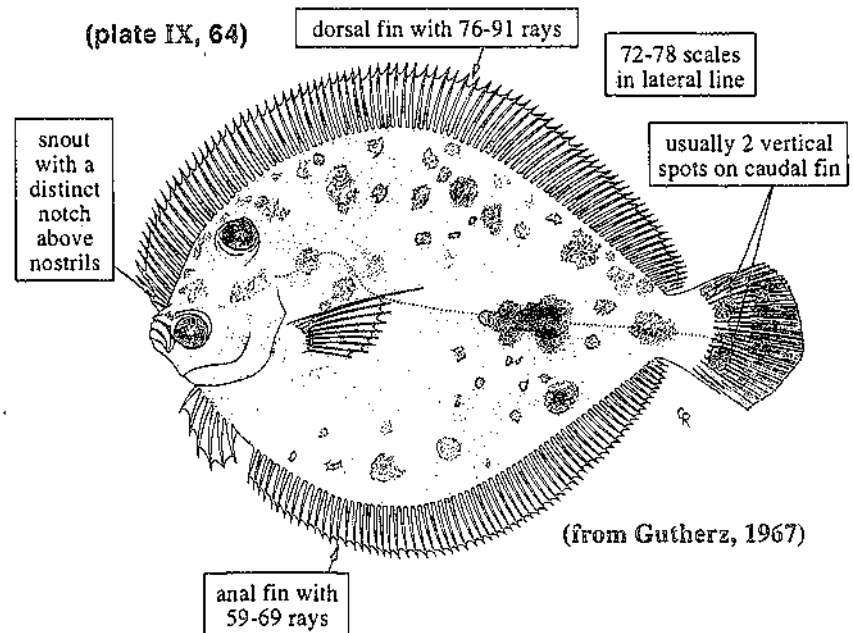
***Bothus ocellatus* (Agassiz, 1839)**

FAO names: En - Eyed flounder; Fr - Rombou ocellé; Sp - Lenguado de charco de charco.
Common names:

Size: Maximum at least 16 cm; common to 12 cm.

Distribution and habitat: Throughout the area. On soft bottoms, mainly in neritic waters between depths of 10 and 95 m, common to about 50 m.

Fisheries: Taken mainly as bycatch in shrimp trawl fisheries. Of minor commercial importance because of its small average size.



BOTHIDAE

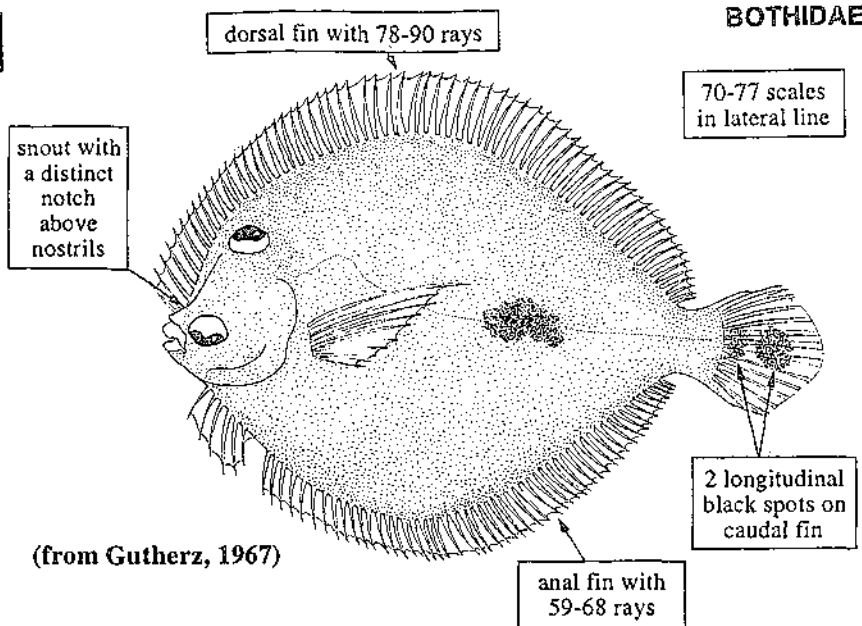
***Bothus robinsi* Topp and Hoff, 1972**

FAO names: En - Twospot flounder; Fr - Rombou noir; Sp - Lenguado negro.
Common names:

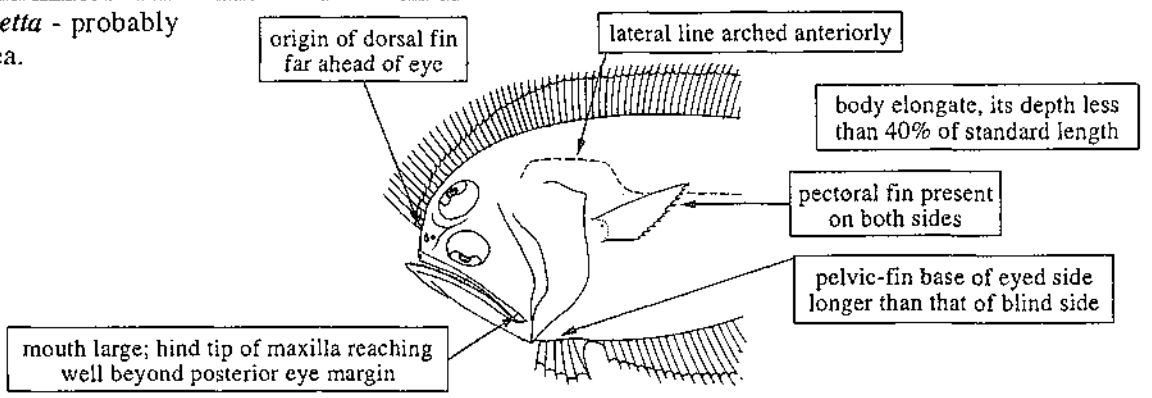
Size: Maximum at least 25 cm; common to 18 cm.

Distribution and habitat: Throughout the area. On soft bottoms of the continental shelf to a depth of about 90 m, more common between 10 and 50 m.

Fisheries: Taken mainly as bycatch in shrimp trawl fisheries. Of minor commercial importance because of its small average size.



Genus *Chascanopsetta* - probably 2 species in the area.



***Chascanopsetta lugubris* Alcock, 1894**

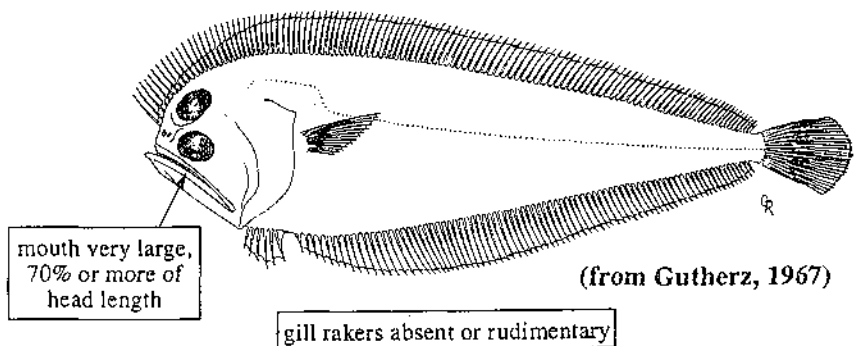
FAO names En - Pelican flounder; Fr - Rombou pélican; Sp - Lenguado bocón.

Common names:

Size: Maximum 30 cm; common to 20 cm.

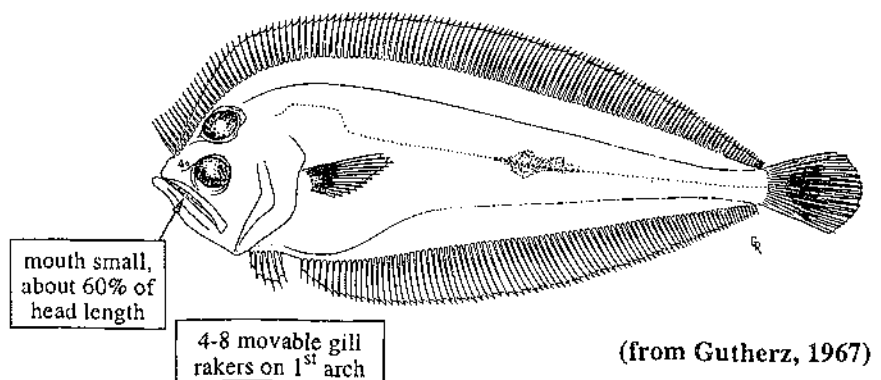
Distribution and habitat: Throughout the area. On soft bottoms of the continental shelf, between a depth of about 230 and 550 m.

Fisheries: Taken as bycatch in bottom trawl fisheries, but apparently not abundant.



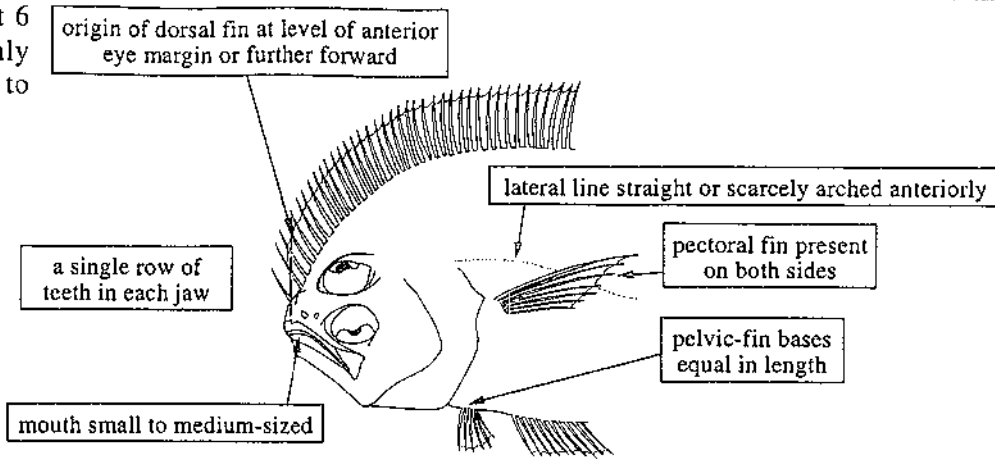
Other species:

Chascanopsetta proligera
 Gilbert, 1905, its presence in the area doubtful.



BOTHIDAE

Genus *Citharichthys* - at least 6 species in the area, of which only *C. spilopterus* is of some interest to fisheries.



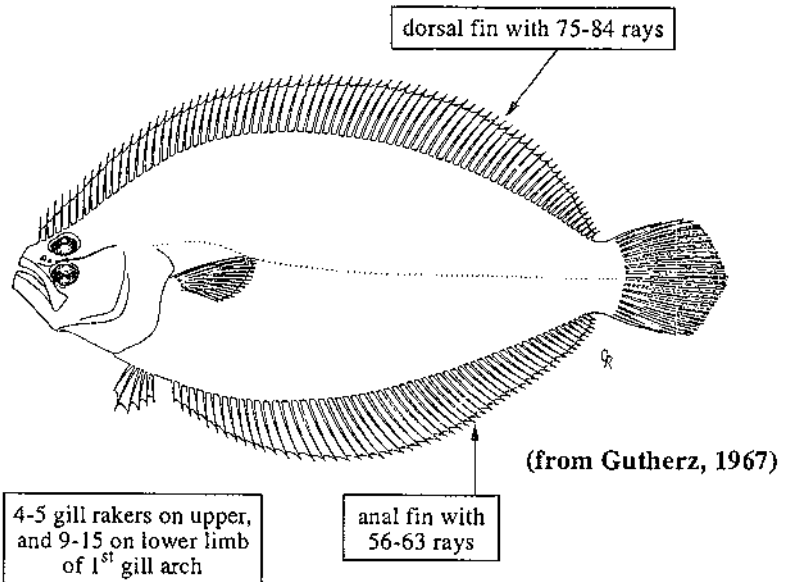
***Citharichthys spilopterus* Günther, 1862**

FAO names: En - Bay whiff; Fr - Rombou de plage; Sp - Lenguado playero.
Common names:

Size: Maximum 20 cm; common to 15 cm.

Distribution and habitat: Throughout the area. Inhabits shallow bottoms of the continental shelf, from the coastline to a depth of about 75 m (usually less); also found in the vicinity of brackish-water estuaries and in hypersaline lagoons.

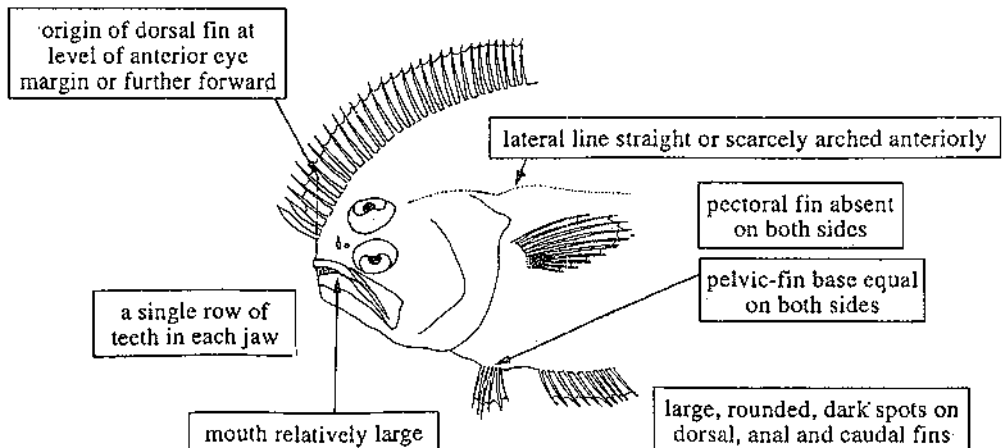
Fisheries: Mainly artisanal, with beach nets. Of little importance as a fishery resource.



Other species:

Citharichthys amblybregmatus Gutherz and Blackman, 1970, *C. arenaceus* Everman and Marsh, 1900, *C. cornutus* (Günther, 1880), *C. minutus* Cervigón, 1982, *C. valdezi* Cervigón, 1986. All very small and hence, of no interest to fisheries in the area.

Genus *Cyclopsetta* - 2 species in the area.



BOTHIDAE

Cyclopsetta chittendeni Bean, 1895

(plate IX, 65)

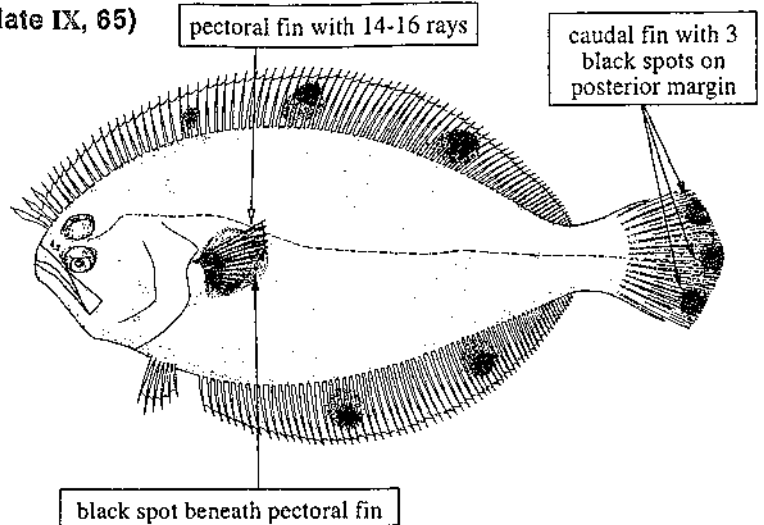
FAO names: En - Mexican flounder; Fr - Perpeire;
Sp - Lenguado aleta manchada.

Common names:

Size: Maximum 32 cm; common to 25 cm.

Distribution and habitat: On soft bottoms throughout the area. Mainly between depths of 20 and 150 m.

Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps. Marketed fresh.

*Cyclopsetta fimbriata* (Goode and Bean, 1885)

(plate IX, 66)

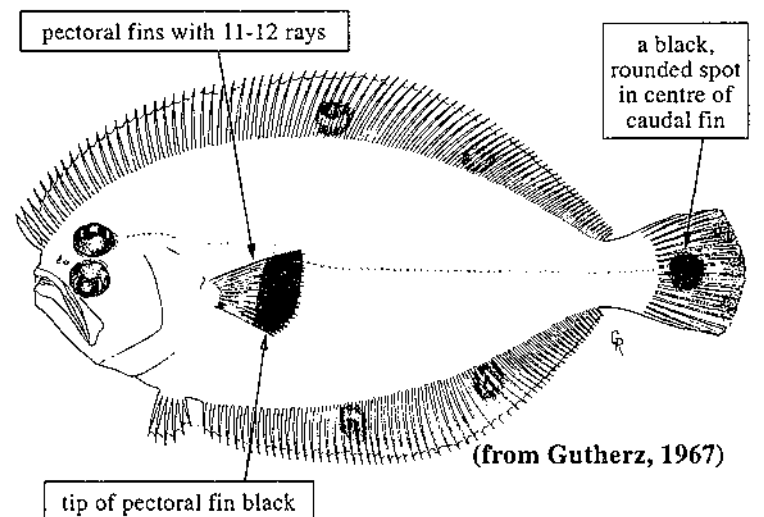
FAO names: En - Spotfin flounder; Fr - Perpeire à queue tachetée; Sp - Lenguado rabo manchado.

Common names:

Size: Maximum 33 cm; common to 25 cm.

Distribution and habitat: Throughout the area. On soft bottoms between depths of about 20 and 230 m.

Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps. Marketed fresh.



Genus *Etropus* - a single species in the area.

Etropus crossotus Jordan and Gilbert, 1882

(plate IX, 67)

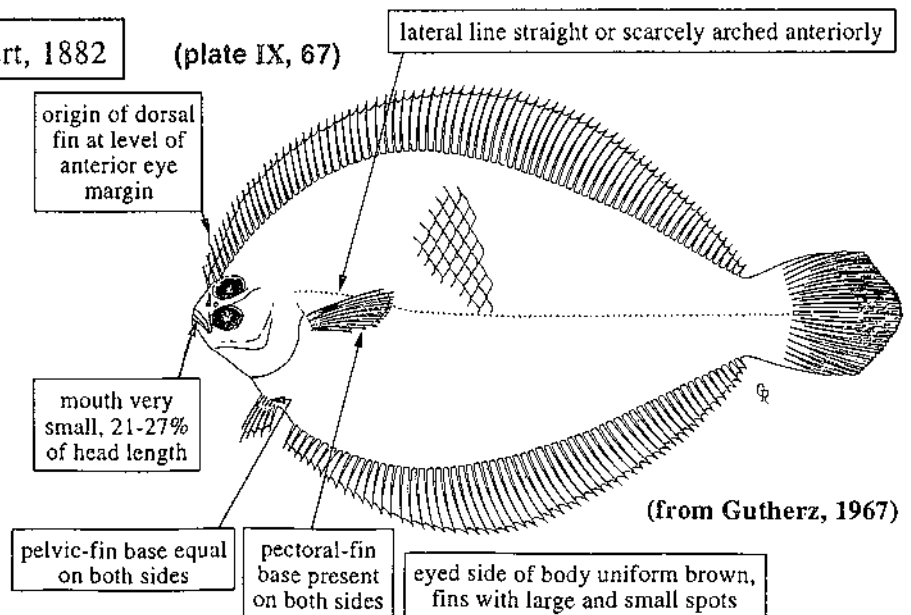
FAO names: En - Fringed flounder; Fr - Rombou petite gueule; Sp - Lenguado boca chica.

Common names:

Size: Maximum 20 cm; common to 15 cm.

Distribution and habitat: Throughout the area. On very shallow, soft bottoms, from the coastline to about a depth of 30 m, occasionally to 65 m.

Fisheries: Artisanal. Caught with beach nets. Of minor commercial importance because of its small average size.



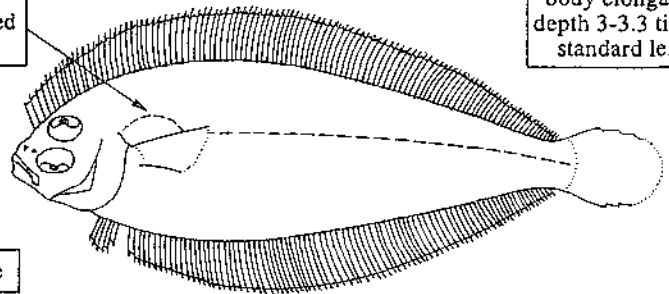
BOTHIDAE

Genus *Monolene* - 3 or 4 species in the area, of which only *M. sessilicauda* may be of some interest to fisheries.

lateral line strongly arched anteriorly

body elongate, its depth 3-3.3 times in standard length

pectoral fin absent on blind side



***Monolene sessilicauda* Goode, 1880**

FAO names: En - Deepwater flounder; Fr - Monolène du large; Sp - Lenguado de fondo.

Common names:

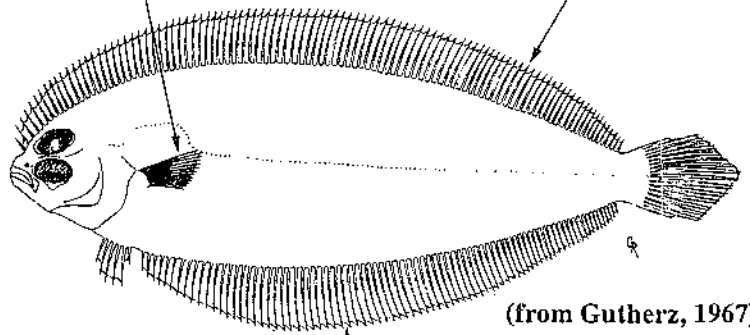
Size: Maximum 18 cm; common to 14 cm.

Distribution and habitat: Throughout the area. On soft bottoms between depths of 150 and 550 m.

Fisheries: Taken as bycatch in industrial trawl fisheries. Of minor commercial importance because of its small average size.

pectoral fin with 11-15 rays

dorsal fin with 92-109 rays



(from Gutherz, 1967)

anal fin with 76-89 rays

Other species:

Monolene antillarum Norman, 1933: all meristic and morphometric characters intergrade with those of *M. sessilicauda*, and the pigmentation is also similar; hence, probably a synonym of the latter species; *M. atrimana* Goode and Bean, 1886: dorsal fin with 119-125 rays; anal fin with 98-108 rays; *M. megalepis* Woods, 1961: pectoral fin with 17-19 rays. None of these species is of interest to fisheries because of their small size.

Genus *Paralichthys* - a single species in the area.

***Paralichthys tropicus* Ginsburg, 1933**

FAO names: En - Tropical flounder; Fr - Cardeau tropical; Sp - Lenguado criollo.

Common names:

Size: Maximum at least 50 cm; common to 40 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela and in Trinidad and Tobago. On shallow soft bottoms to a depth of about 185 m (usually less).

Fisheries: Taken mainly as bycatch in bottom trawl fisheries; also caught with harpoons and beach nets. This is commercially the most important flatfish in the area, because of its large average size, its abundance, and the good quality of its flesh. Marketed only fresh.

(plate IX, 68)

origin of dorsal fin at level of anterior eye margin

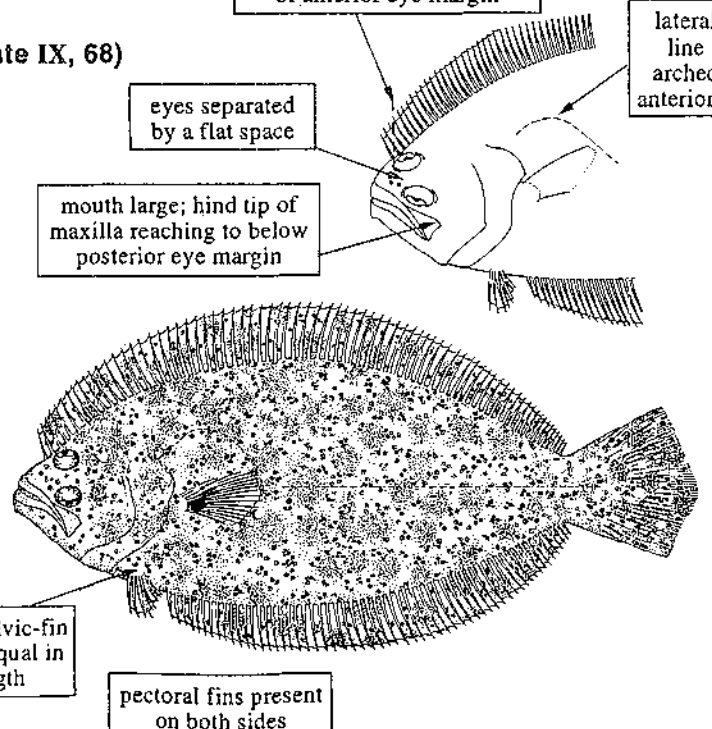
lateral line arched anteriorly

eyes separated by a flat space

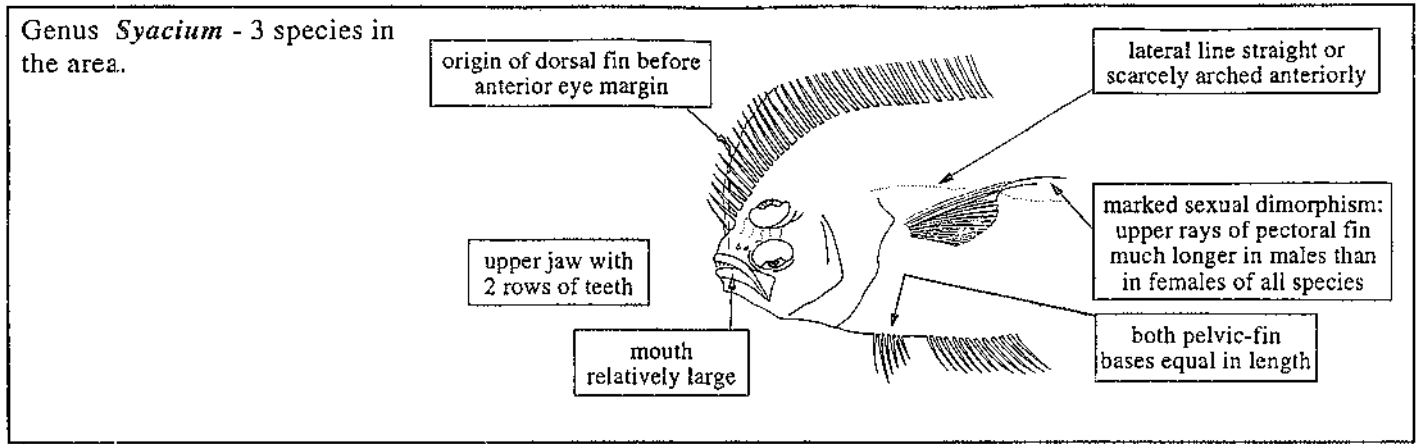
mouth large; hind tip of maxilla reaching to below posterior eye margin

both pelvic-fin bases equal in length

pectoral fins present on both sides



BOTHIDAE



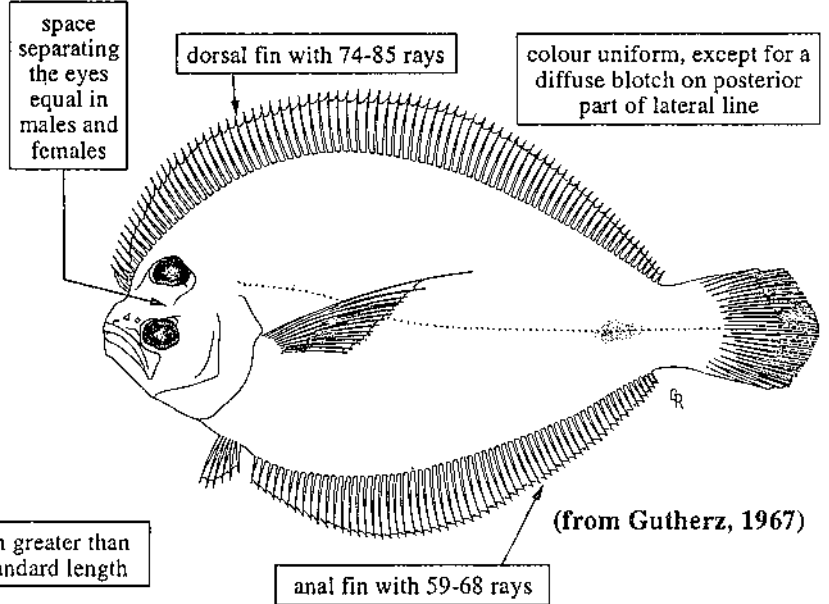
***Syacium gunteri* Ginsburg, 1933**

FAO names: En - Shoal flounder; Fr - Fausse limande de banc; Sp - Lenguado de bajo.
Common names:

Size: Maximum 20 cm; common to 15 cm.

Distribution and habitat: On shallow, soft bottoms throughout the area, to a depth of about 95 m (usually less).

Fisheries: Taken as bycatch in the industrial trawl fishery for shrimps.



***Syacium micrurum* Ranzani, 1840**

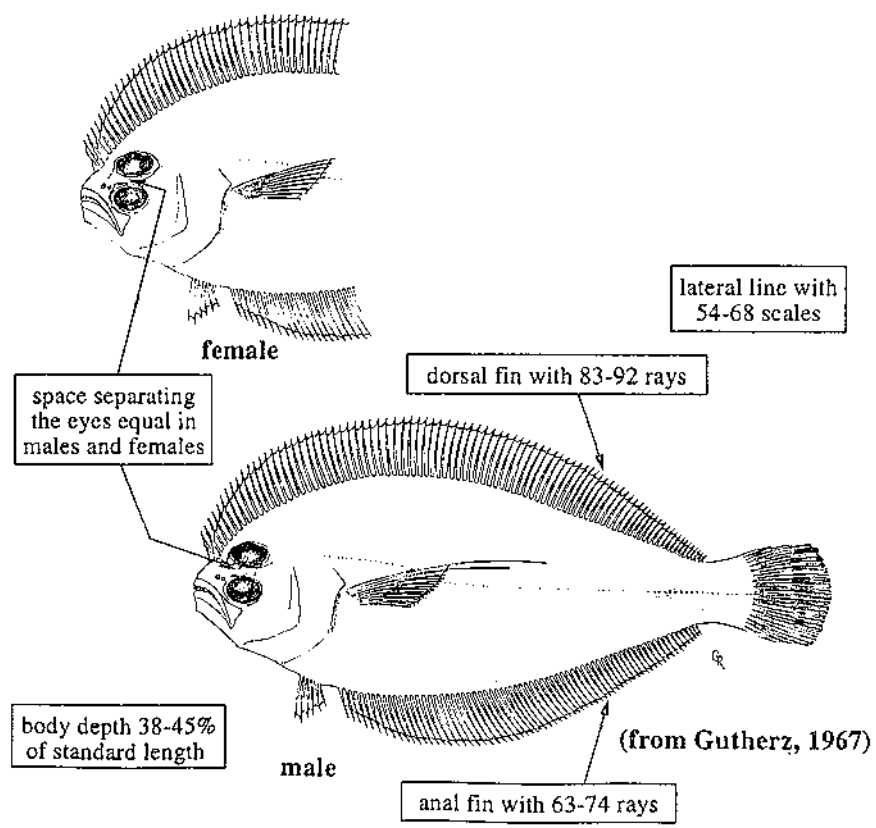
FAO names: En - Channel flounder; Fr - Rombou de canal; Sp - Lenguado de canal.

Common names:

Size: Maximum 27 cm; common to 20 cm.

Distribution and habitat: Throughout the area. On soft bottoms to below a depth of 400 m, but usually in less than 100 m.

Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps; also caught with beach nets.



***Syacium papillosum* (Linnaeus, 1758)**

(plate IX, 69,70)

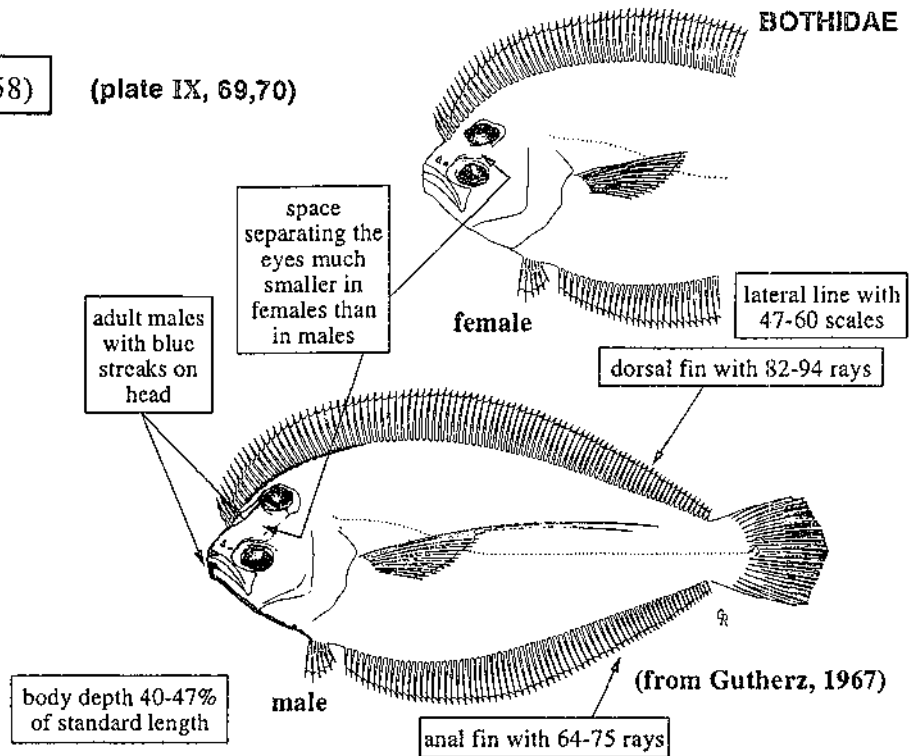
FAO names: En - Dusky flounder; Fr - Fausse limande sombre; Sp - Lengüado fusco.

Common names:

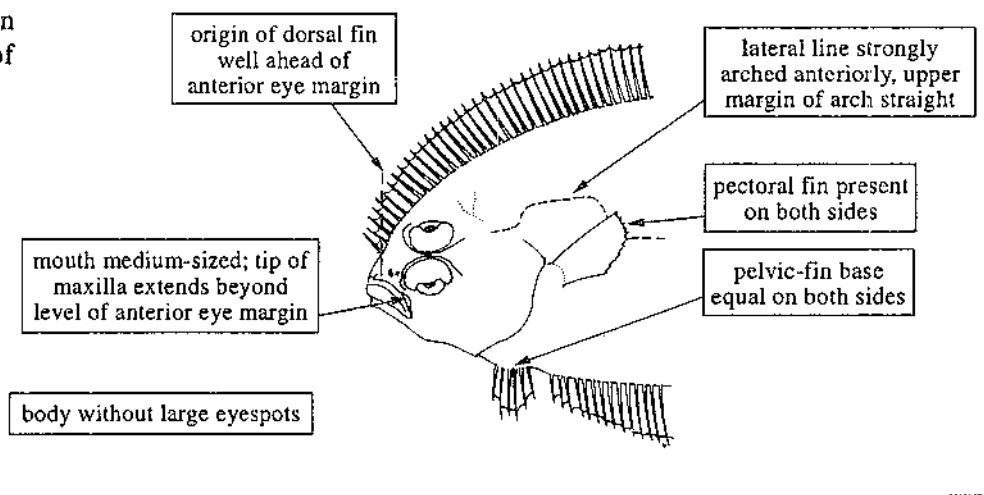
Size: Maximum 25 cm; common to 20 cm.

Distribution and habitat: Throughout the area. On shallow soft bottoms usually between depths of 10 and 90 m, but it has also been taken in deeper waters, to a depth of 140 m.

Fisheries: Taken as bycatch in the industrial trawl fisheries for shrimps and finfishes. This is the most important commercial species of the genus because of its acceptable average size and relative abundance. Marketed fresh.



Genus *Trichopsetta* - 2 species in the area, of which only one is of interest to fisheries.



***Trichopsetta caribbaea* Anderson and Gutherz, 1967**

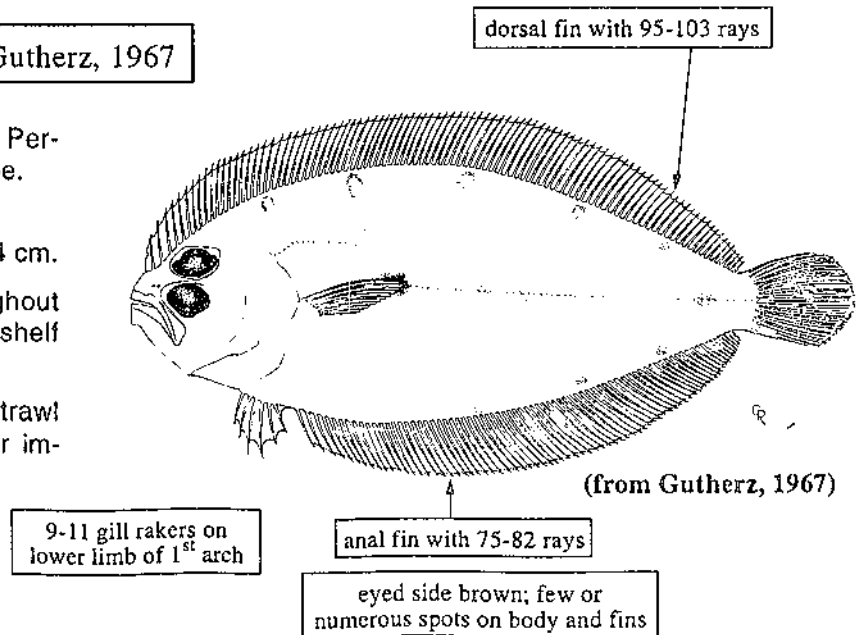
FAO names: En - Caribbean flounder; Fr - Perpeire des Caraïbes; Sp - Lengüado del Caribe.

Common names:

Size: Maximum at least 18 cm; common to 14 cm.

Distribution and habitat: Probably throughout the area. On soft bottoms of the continental shelf between depths of about 70 and 300 m.

Fisheries: Taken as bycatch in the industrial trawl fisheries for shrimps and finfishes. Of minor importance due to its small average size.



BRANCHIOSTEGIDAE

Caulolatilus guppyi Beebe and Tee-Van, 1937

(plate X, 74)

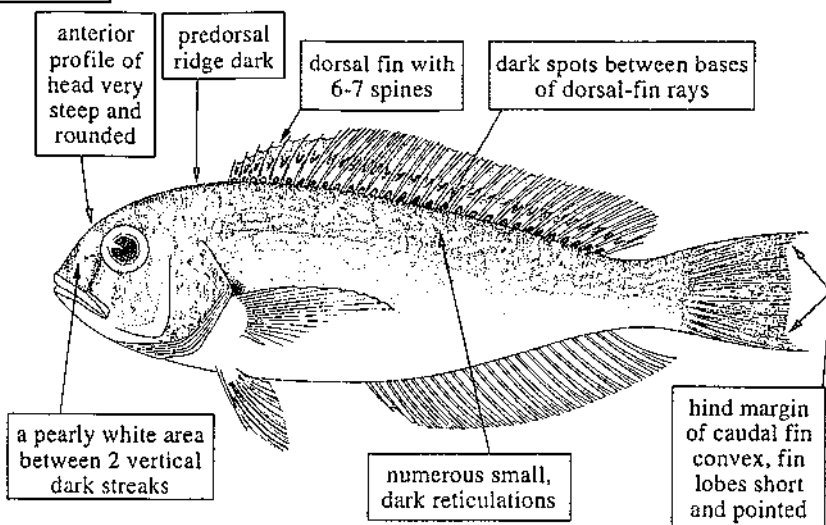
FAO names: En - Reticulated tilefish; Fr - Tile réticulé; Sp - Blanquillo vermiculado.

Common names:

Size: Maximum 35 cm; common to 20 cm.

Distribution and habitat: Northern coasts of Venezuela and the Guianas, at least to Suriname. On semi-hard substrates of sand and shell debris, usually between depths of 60 and 110 m.

Fisheries: Taken as bycatch in industrial trawl fisheries, mainly by shrimps trawlers. Of little importance as a food fish resource because its flesh is not highly esteemed.



Genus *Lopholatilus* - a single species in the area.

Lopholatilus chamaeleonticeps Goode and Bean, 1879

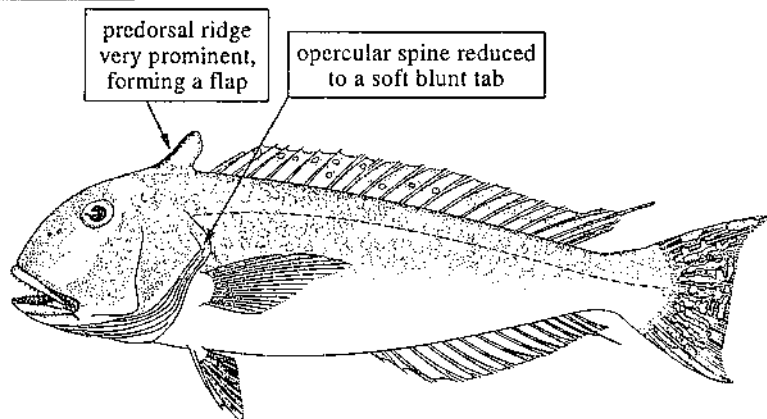
FAO names: En - Great northern tilefish; Fr - Tile chameau; Sp - Blanquillo camello.

Common names:

Size: Maximum 125 cm and 25 kg; common to 90 cm and 15 kg.

Distribution and habitat: Probably throughout the area, but has only been recorded only from a few isolated localities. Found mainly around a depth of 200 m, but its depth range extends from 80 to 540 m.

Fisheries: On hook-and-line, with handlines and longlines. At present, this species is rarely landed.



CAPROIDAE

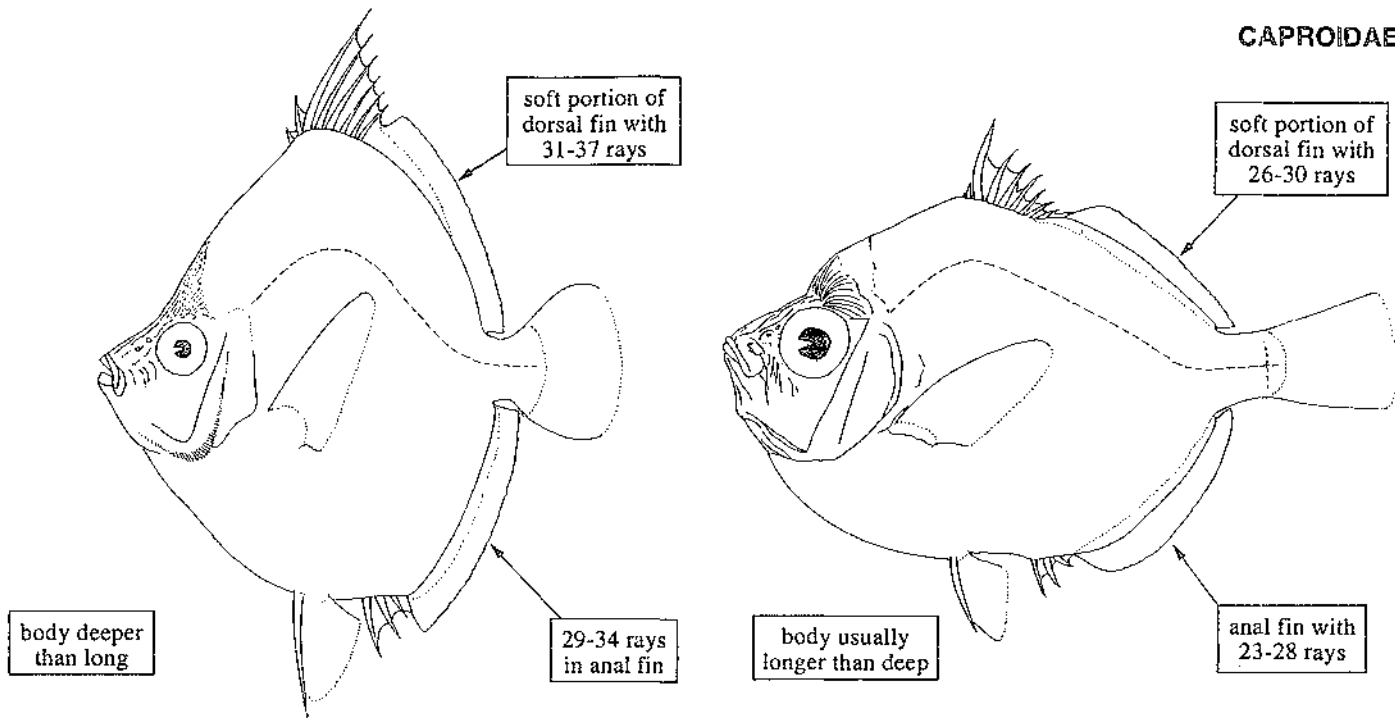
En: Boarfishes. **Fr:** Sangliers. **Sp:** Ochavos, galletas.

Short, very deep-bodied, reddish fishes. They inhabit the deeper areas of the continental shelf and the slope, between depths of 65 and 600 m. Although they are of little importance as a food fish, they are sometimes caught in large quantities throughout the area, mainly in industrial trawl fisheries. The flesh is edible, but they are not regularly marketed. A single genus with 2 species in the area.

Genus *Antigonia* - 2 species in the area.

» body deep and strongly compressed; top of head with denticulated ridges; mouth small, nearly vertical, lower jaw prominent; caudal fin short and truncate.

CAPROIDAE

*Antignonia capros* Lowe, 1843

FAO names: En - Deepbody boarfish; Fr - Sanglier chevette; Sp - Ochavo.

Common names:

Size: Maximum 17.2 cm and 170 g, common to 14 cm.

Distribution and habitat: Occurs between depths of 100 and 900 m.

Antignonia combatia (Berry and Rathjen, 1957)

FAO names: En - Shortspine boarfish; Fr - Sanglier rond; Sp - Ochavo redondo.

Common names:

Size: Maximum about 15 cm, common to 10 cm.

Distribution and habitat: Occurs off the coast of Venezuela, commonly to a depth of about 340 m.

CARANGIDAE

En: Jacks, scads, leatherjacks, bumpers, runners, pompanos, amberjacks, pilotfishes. **Fr:** Carangues, chinchards, iiches, palomines, poissons-pilote, pompaneaux, sélars, sérioles. **Sp:** Jureles, pámpanos, cojinúas, zapateros.

Medium-sized to large fishes (from about 30 to over 100 cm in length), extremely variable in shape, ranging from elongate and fusiform to deep and strongly compressed. In the majority of species, the adults are coastal pelagic, living more or less near the surface, but there are also oceanic or semi-oceanic species, and others that have particular preferences for clear waters of insular areas. In most cases, the juveniles are demersal and occur very near to the shore, in the vicinity of sandy beaches or on seagrass beds, but they are also frequently found in association with jellyfish or siphonophores, or simply under floating objects farther offshore; the juveniles of many species occur in brackish-water estuaries. Most species have a typical countershaded coloration, with blue-green backs and whitish bellies; darker cross bands on sides are often present in juveniles. Considered as a whole, the representatives of this family have major importance as food fishes. They are usually caught with various types of nets and marketed fresh and salted. Fifteen genera with 31 species in the area.

CARANGIDAE

Genus *Alectis* - a single species in the area.

Alectis ciliaris (Bloch, 1788)

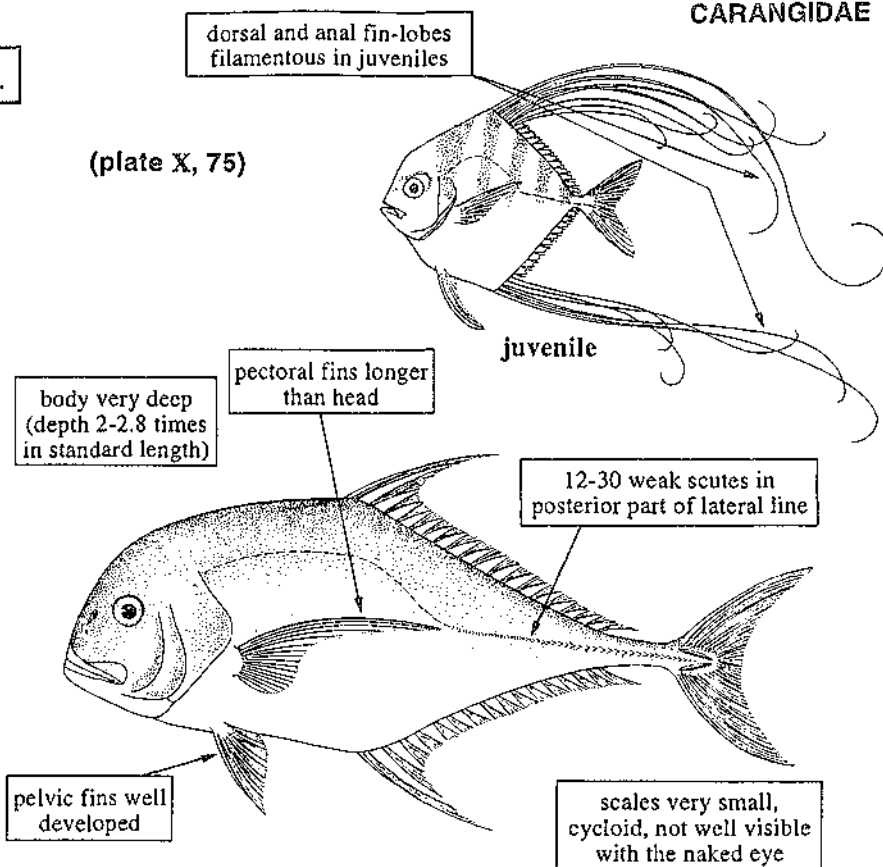
FAO names: En - African pompano; Fr - Cordonnier; Sp - Pámpano de hebra.
Common names:

Size: Maximum about 150 cm and over 13 kg; common to 80 cm.

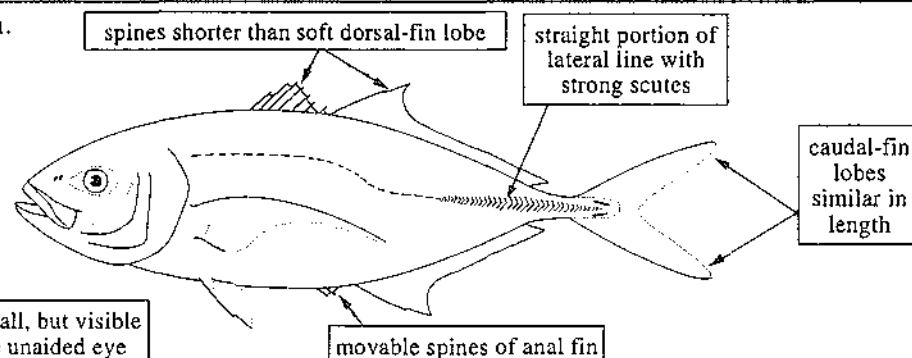
Distribution and habitat: Throughout the area. Pelagic in neritic and oceanic waters, sometimes near the bottom, to depths of at least 60 m. Small juveniles may be found close to the shore.

Fisheries: Predominantly artisanal. Caught hook-and-line using live bait, on rod and reel, and with gillnets and occasionally, beach nets. Marketed fresh; the flesh is of excellent quality, but the catches are generally not abundant.

(plate X, 75)



Genus *Caranx* - 6 species in the area.



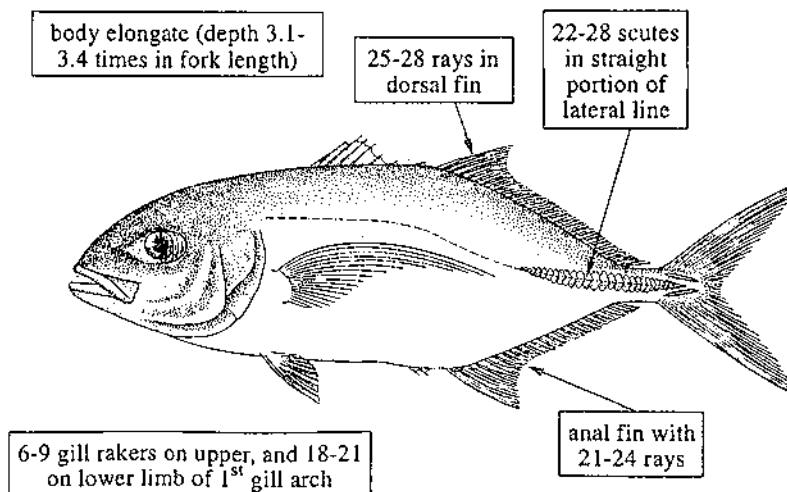
Caranx (Carangoides) bartholomaei Cuvier, 1833

FAO names: En - Yellow jack; Fr - Carangue grasse; Sp - Cojinua amarilla.
Common names:

Size: Maximum about 100 cm and over 7 kg; common to 50 cm.

Distribution and habitat: Throughout the area. Pelagic, more common in oceanic than in neritic waters. Small juveniles may be found close to the shore on seagrass beds, or associated with floating *Sargassum* or jellyfish.

Fisheries: Predominantly artisanal. Caught on hook-and-line using live bait, and with gill nets.



CARANGIDAE

Caranx crysos (Mitchill, 1815)

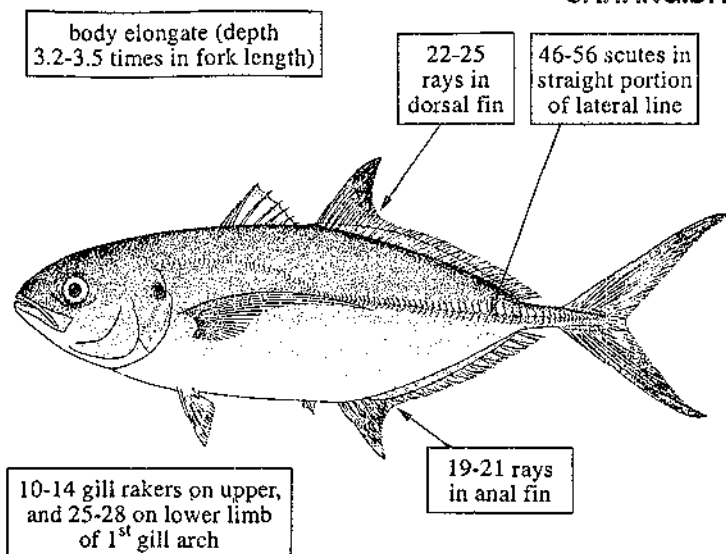
FAO names: En - Blue runner; Fr - Carangue coubali; Sp - Cojinua negra.

Common names:

Size: Maximum about 70 cm; common to 40 cm.

Distribution and habitat: Throughout the area. Pelagic, occurring in schools, usually not far from the shore. The juveniles may be found in association with floating *Sargassum*.

Fisheries: Predominantly artisanal. Caught on hook-and-line using live bait, with gillnets and occasionally, with beach nets. Marketed usually fresh; the flesh is of excellent quality.



Caranx hippos (Linnaeus, 1766)

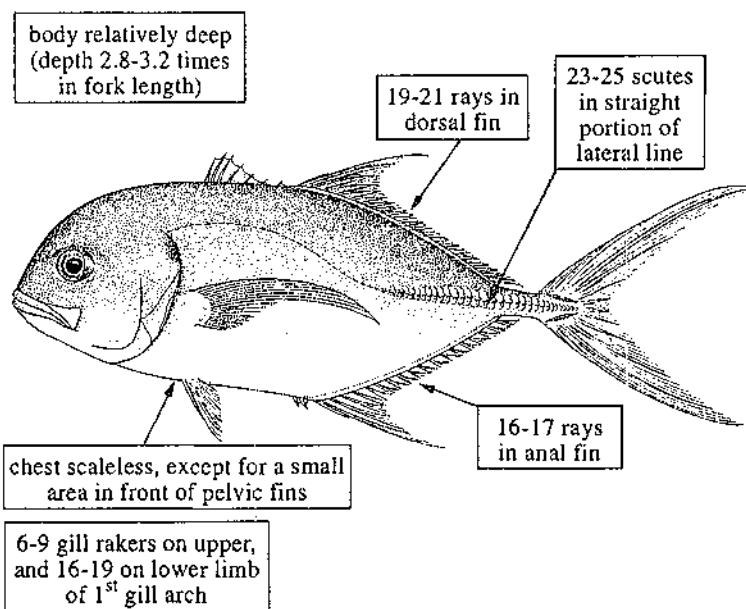
FAO names: En - Crevalle jack; Fr - Carangue crevalle; Sp - Jurel común.

Common names:

Size: Maximum 124 cm and about 25 kg; common to 70 cm.

Distribution and habitat: Throughout the area. Pelagic, usually in neritic waters over the continental shelf. Juveniles are abundant on muddy substrate in brackish estuarine waters, as well as near sandy beaches and on seagrass beds in coastal marine waters.

Fisheries: Artisanal or semi-industrial. Caught with large beach nets. An important food fish in the southern part of the Caribbean sea.



Caranx latus Agassiz, 1831

FAO names: En - Horse-eye jack; Fr - Carangue mayole; Sp - Jurel ojón.

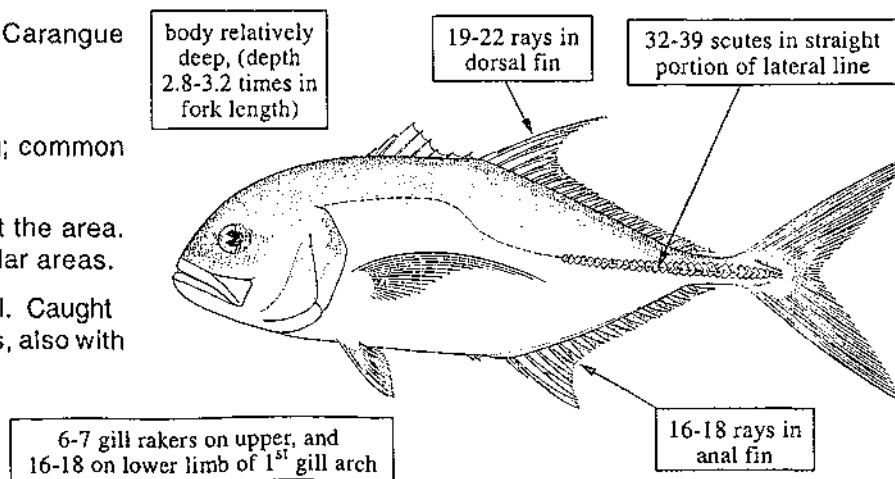
Common names:

Size: Maximum 80 cm and about 5 kg; common to 60 cm.

Distribution and habitat: Throughout the area. Pelagic, mainly in clear waters of insular areas.

Fisheries: Artisanal or semi-industrial. Caught mainly on hook-and-line using live baits, also with gill nets.

(plate X, 76)



CARANGIDAE

Caranx lugubris Poey, 1860

FAO names: En - Black jack; Fr - Carangue noire; Sp - Jurel negro.

Common names:

Size: Maximum 99 cm; common to 70 cm.

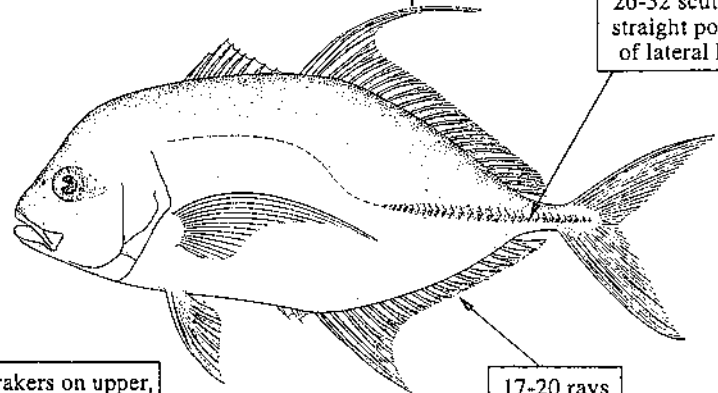
Distribution and habitat: Throughout the area. In clear oceanic waters, usually between depths of 24 and 65 m, but sometimes deeper.

Fisheries: Artisanal. Caught on hook-and-line.

body very deep
(depth 2.4-2.9 times
in fork length)

20-22 rays
in dorsal fin

26-32 scutes in
straight portion
of lateral line



6-8 gill rakers on upper,
and 18-21 on lower
limb of 1st gill arch

ground colour blackish

17-20 rays
in anal fin

Caranx (Carangoides) ruber (Bloch, 1793)

(plate X, 77)

a black streak running below soft dorsal
fin and through lower caudal fin-lobe

FAO names: En - Bar jack; Fr - Carangue comade; Sp - Cojinua carbonera.

Common names:

Size: Maximum 69 cm and 3.5 kg; common to 50 cm.

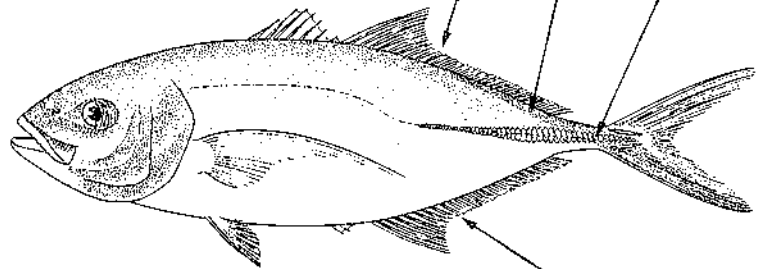
Distribution and habitat: Northern coasts of Colombia, Venezuela and Trinidad and Tobago. Mainly in clear waters of insular areas or in coral reef habitats off mainland coasts. Occurs in aggregations or very large schools close to the shore.

Fisheries: Predominantly artisanal. Caught with gillnets. Marketed usually fresh.

body elongate (depth
3.2-3.5 times in fork length)

26-30 rays in
dorsal fin

23-29 scutes in
straight portion
of lateral line



10-14 gill rakers on upper,
and 31-35 on lower limb
of 1st gill arch

23-26 rays
in anal fin

Genus *Chloroscombrus* - a single species in the area.

Chloroscombrus chrysurus (Linnaeus, 1758)

(plate X, 78)

FAO names: En - Atlantic bumper; Fr - Sapater; Sp - Casabe.

Common names:

Size: Maximum about 33.5 cm; common to 25 cm.

Distribution and habitat: Throughout the area. Usually on soft bottoms of the continental shelf to a depth of about 50 m, sometimes occurring in schools near the surface. The juveniles are frequent in brackish estuarine waters.

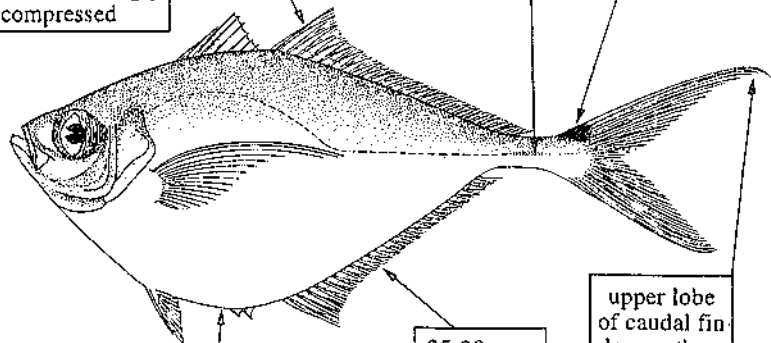
Fisheries: Artisanal and industrial. Caught with small-scale beach nets, and mainly with commercial shrimp trawlers. A species of some commercial importance, mainly because of its abundance.

body deep (depth
2.3-2.8 times in fork
length), and strongly
compressed

25-28 rays in
dorsal fin

scutes in lateral
line very weak
and confined to
caudal peduncle

a black saddle
spot on upper
part of caudal
peduncle



25-28 rays
in anal fin

upper lobe
of caudal fin
longer than
lower lobe

ventral profile more strongly
convex than dorsal profile

CARANGIDAE

Genus *Decapterus* - 3 species in the area.

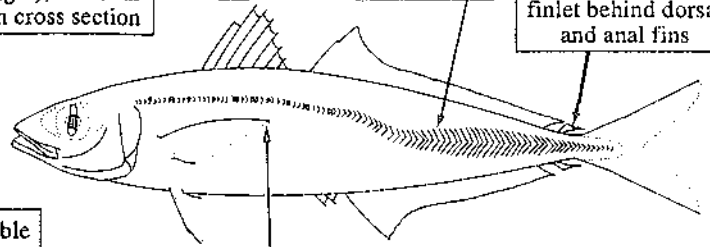
body very elongate (depth 20-25% of fork length), and oval to nearly circular in cross section

straight portion of lateral line with bony scutes

one independent finlet behind dorsal and anal fins

scales small, but visible with the naked eye

pectoral fins as long as, or shorter than, head



Decapterus macarellus (Cuvier, 1833)

(plate X, 79)

FAO names: En - Mackerel scad; Fr - Comète maquereau; Sp - Macarela caballa.

Common names:

Size: Maximum 40 cm; common to 25 cm.

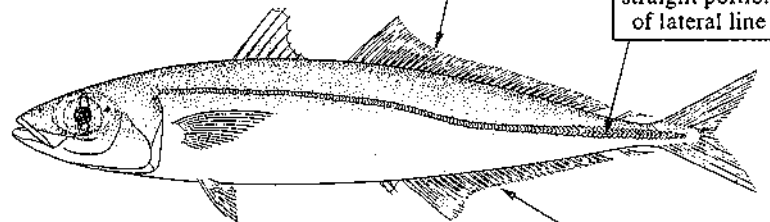
Distribution and habitat: Throughout the area. Pelagic, with a preference for clear oceanic waters; frequently found around islands.

Fisheries: Predominantly artisanal with beach seines. Marketed fresh.

body depth 5.6-6.3 times in fork length

31-37 rays in dorsal fin

23-32 scutes in straight portion of lateral line



9-13 gill rakers on upper, and 31-39 on lower limb of 1st gill arch

27-31 rays in anal fin

total number of scales and scutes in lateral line 119-133

Decapterus punctatus (Cuvier, 1829)

FAO names: En - Round scad; Fr - Comète quiaquia; Sp - Macarela chuparaco.

Common names:

Size: Maximum over 20 cm; common to 18 cm.

Distribution and habitat: Throughout the area; usually near the bottom to a depth of about 90 m, but also occurring in schools near the surface. A species of neritic waters, often coming very close to sand beaches.

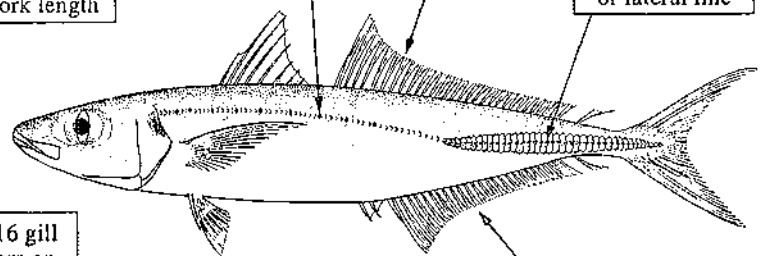
Fisheries: Artisanal, mainly with beach nets.

body depth 4.7-5.9 times in fork length

a row of conspicuous black dots on anterior part of lateral line

29-34 rays in dorsal fin

32-46 scutes in straight portion of lateral line



11-16 gill rakers on upper, and 32-44 on lower limb of 1st gill arch

25-30 rays in anal fin

total number of scales and scutes in lateral line 77-98

Decapterus tabl Berry, 1968

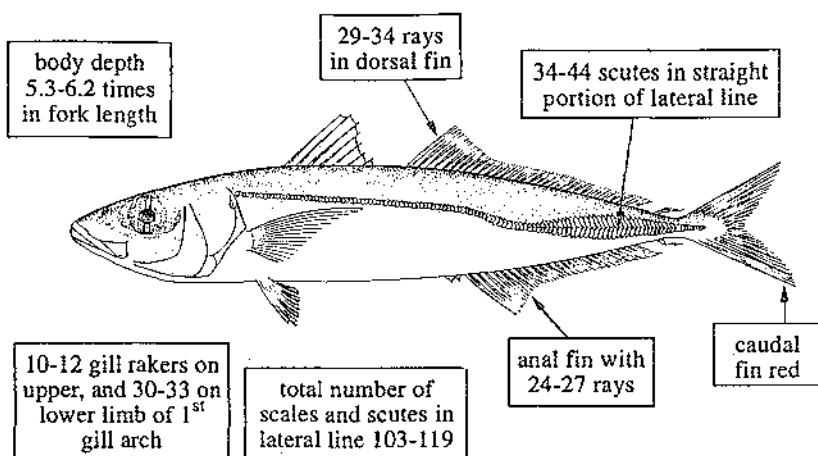
FAO names: En - Redtail scad; Fr - Comète queue rouge; Sp - Macareia rabo colorado.

Common names:

Size: Maximum 41 cm; common to 25 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela. Usually between depths of 150 and 220 m. Also occurs in schools near the surface.

Fisheries: Predominantly artisanal and as bycatch in industrial trawl fisheries for shrimps and finfishes. Marketed mostly fresh.



Genus *Elagatis* - a single species in the area.

Elagatis bipinnulata (Quoy and Gaimard, 1824)

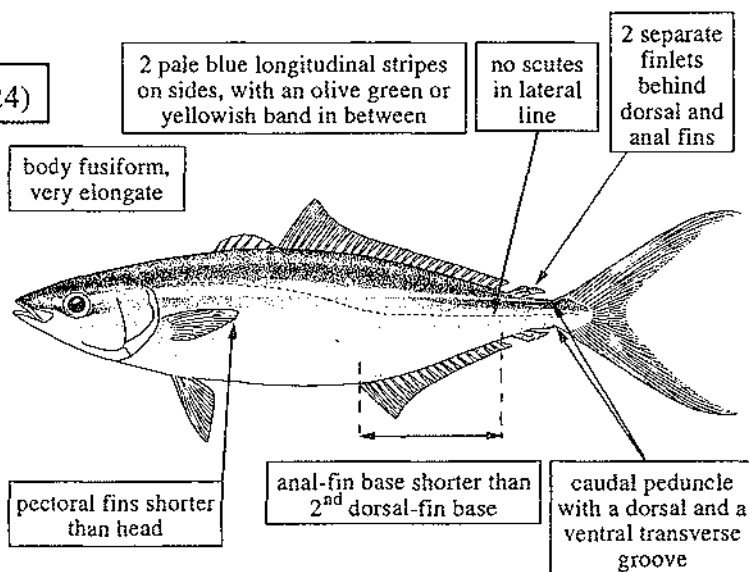
FAO names: En - Rainbow runner; Fr - Comète saumon; Sp - Macarela salmón.

Common names:

Size: Maximum 120 cm and 10.5 kg; common to 90 cm.

Distribution and habitat: Throughout the area. Pelagic oceanic, frequently occurring in the vicinity of oceanic islands with coral reef growth.

Fisheries: Artisanal. Caught on hook-and-line using live bait, trolling, gillnets, and beach nets. Marketed dried and salted. An important food fish.



Genus *Hemicaranx* - a single species in the area.

Hemicaranx amblyrhynchus (Cuvier, 1833)

(plate X, 80)

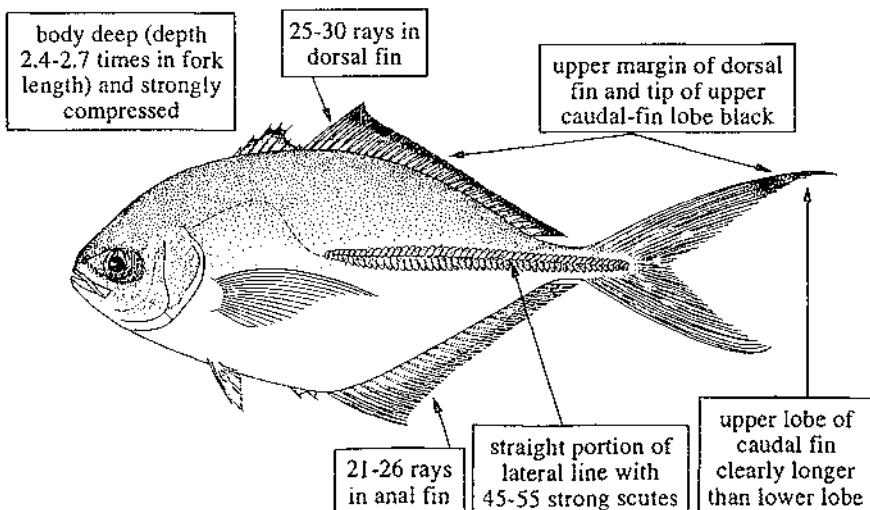
FAO names: En - Bluntnose jack; Fr - Carangue nez court; Sp - Casabe chicharra.

Common names:

Size: Maximum 45 cm; common to 25 cm.

Distribution and habitat: Throughout the area. Usually occurring close to the bottom, in less than a depth of 100 m. The juveniles are common in brackish-water estuaries.

Fisheries: Artisanal and industrial. Caught with gillnets and beach nets, as bycatch in commercial shrimp trawl fisheries.



Genus *Naucrates* - a single species in the area.

Naucrates ductor (Linnaeus, 1758)

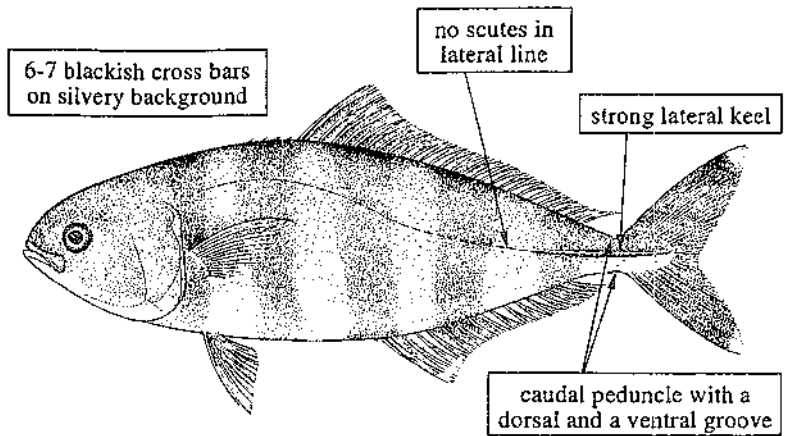
FAO names: En - Pilotfish; Fr - Poisson pilote; Sp - Pez piloto.

Common names:

Size: Maximum 70 cm; common to 40 cm.

Distribution and habitat: Throughout the area. A pelagic oceanic species that has a semi-obligate commensal relationship with large sharks, rays, bony fishes and turtles. Also associated with ships, driftwood and other large floating objects.

Fisheries: Caught with gillnets and on hook-and-line. Not commercially important.



Genus *Oligoplites* - 3 species in the area.

body elongate (depth 3.2-4.4 times in fork length), without scutes in lateral line

19-22 rays in dorsal fin

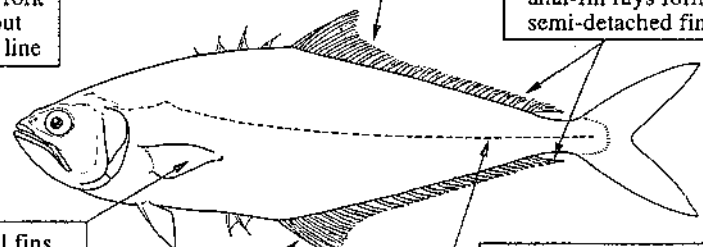
posterior dorsal and anal-fin rays forming semi-detached finlets

pectoral fins shorter than head

19-22 rays in anal fin

no scutes in lateral line

rows of needle-like horizontal scales resembling longitudinal stripes



Oligoplites palometa (Cuvier, 1833)

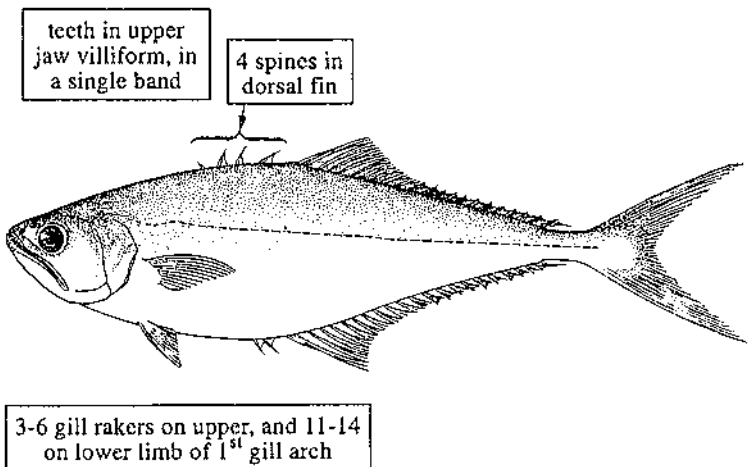
FAO names: En - Maracaibo leatherjack; Fr - Sauteur palomette; Sp - Zapatero palometa.

Common names:

Size: Maximum 50 cm; common to 30 cm.

Distribution and habitat: A pelagic species occurring mainly in brackish waters and in freshwater, but also in coastal marine waters over mud bottoms to a depth of about 45 m.

Fisheries: Artisanal and industrial. Caught with beach nets, as bycatch of the shrimp trawl fishery. Not commercially important.



Oligoplites saliens (Bloch, 1793)

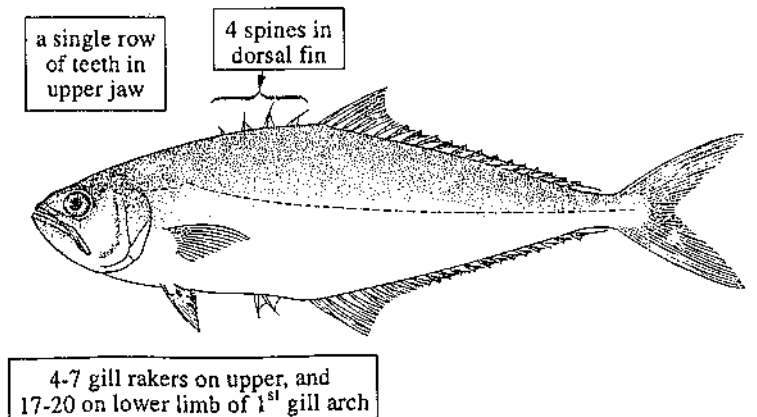
FAO names: En - Castin leatherjack; Fr - Sauteur castin; Sp - Zapatero castin.

Common names:

Size: Maximum 50 cm; common to 35 cm.

Distribution and habitat: Throughout the area. Coastal pelagic, but occupying the entire water column and often found near the bottom. Also occurring in estuaries.

Fisheries: Artisanal and industrial. Caught with beach nets, and as bycatch in the industrial shrimp trawl fishery. Not commercially important.



Oligoplites saurus (Bloch and Schneider, 1801)

(plate XI, 81)

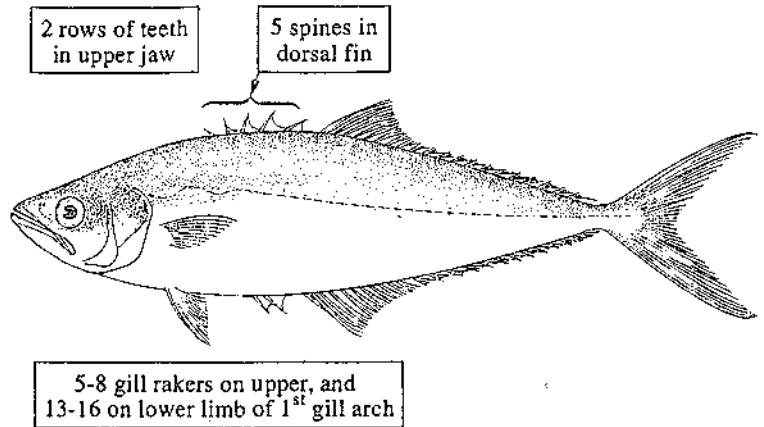
FAO names: En - Atlantic leatherjack (AFS: Leatherjacket); Fr - Sauteur cuir; Sp - Zapatero sietecueros.

Common names:

Size: Maximum 35 cm; common to 27 cm.

Distribution and habitat: Throughout the area. Coastal pelagic, frequently occurring in protected marine areas such as coves, creeks and bays, occupying the entire water column; also found in estuarine waters and even in freshwater. Often leaps out of the water.

Fisheries: Caught mainly with beach nets and gillnets. Not commercially important.



Genus *Selar* - a single species in the area.

Selar crumenophthalmus (Bloch, 1793)

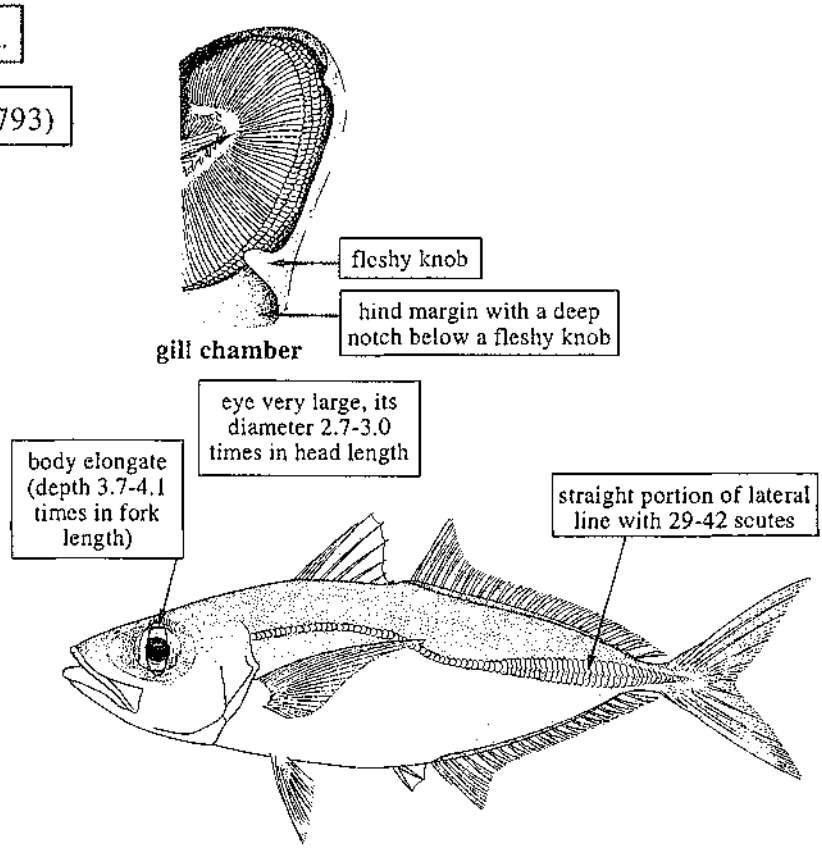
FAO names: En - Bigeye scad; Fr - Sélar coulisou; Sp - Chicharro ojón.

Common names:

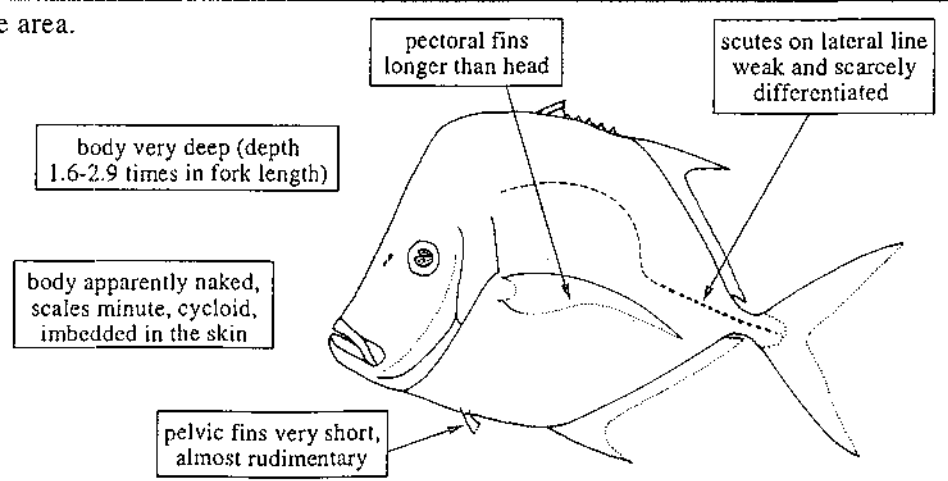
Size: Maximum about 35 cm; common to 25 cm.

Distribution and habitat: Throughout the area. Present in neritic areas, but prefers clear oceanic waters around islands, often occurring in large schools.

Fisheries: Predominantly artisanal. Caught purse seines and on hook-and-line. An abundant and commercially important food fish in the southern part of the Caribbean sea. Marketed fresh.



Genus *Selene* - 3 species in the area.



CARANGIDAE

***Selene brownii* (Agassiz, 1831)**

Synonyms: *Selene spixii* (Swainson, 1839)

FAO names: En - Full moonfish; Fr - Musso lune; Sp - Jorobado luna.

Common names:

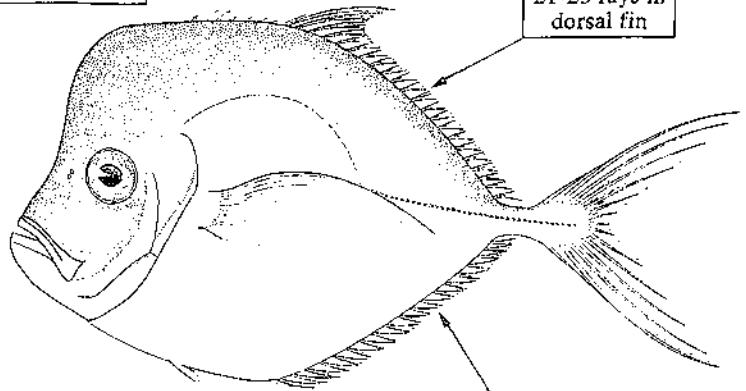
Size: Maximum 29 cm; common to 20 cm.

Distribution and habitat: So far only recorded from the eastern and western extremes of the area. Occurs near the bottom in waters over the continental shelf.

Fisheries: Caught with bottom trawls.

body depth
1.6-1.9 times
in fork length

21-23 rays in
dorsal fin



6-8 gill rakers on upper, and
24-28 on lower limb of 1st arch

17-19 rays
in anal fin

***Selene setapinnis* (Mitchill, 1815)**

(plate XI, 82)

FAO names: En - Atlantic moonfish; Fr - Musso atlantique; Sp - Jorobado lamparosa.

Common names:

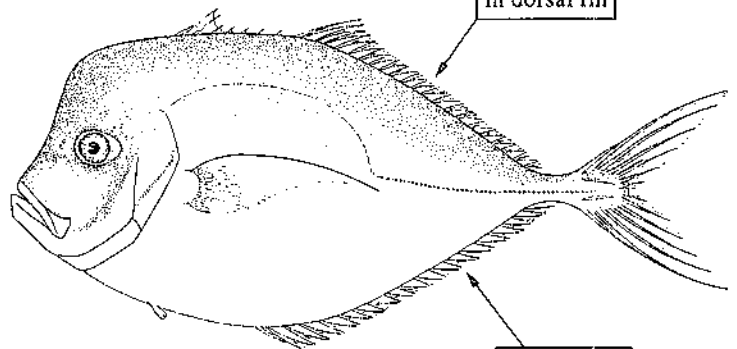
Size: Maximum 46.5 cm and 1 kg; common to 25 cm.

Distribution and habitat: Throughout the area. The juveniles are common over mud bottoms in brackish estuarine areas, and also in coastal marine waters. The adults live usually near the bottom to a depth of about 54 m, but they may also occur in schools near the surface. More abundant in coastal shelf areas than in oceanic waters.

Fisheries: Artisanal, with beach nets and industrial, with bottom trawls. A commercially important food fish, marketed mostly fresh.

body depth 1.8-2.3
times in fork length

21-24 rays
in dorsal fin



7-10 gill rakers on upper, and
27-35 on lower limb of 1st gill arch

16-19 rays
in anal fin

***Selene vomer* (Linnaeus, 1758)**

(plate XI, 83)

FAO names: En - Atlantic look down (AFS: Lookdown); Fr - Musso panache; Sp - Jorobado de penacho.

Common names:

Size: Maximum 48.3 cm and 1.5 kg; common to 35 cm.

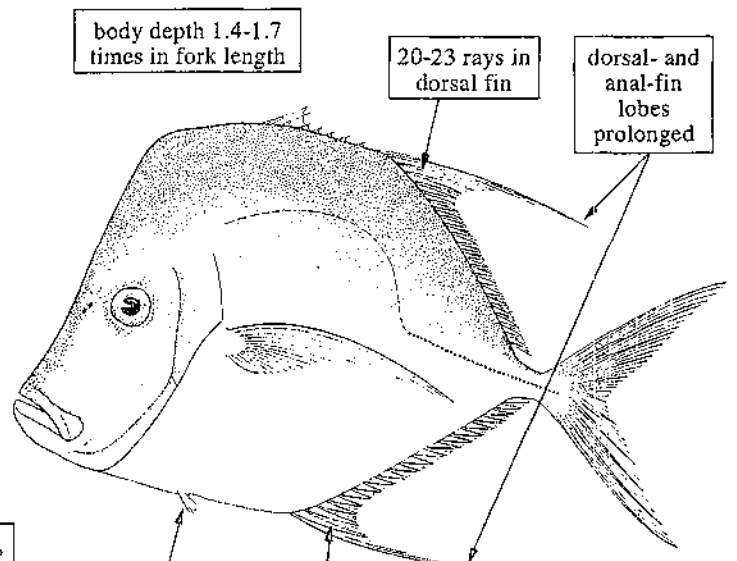
Distribution and habitat: Throughout the area. The juveniles are common in estuarine areas and in marine waters off sandy beaches. The adults occur in coastal waters, usually near the bottom, sometimes forming schools.

Fisheries: Artisanal and industrial. Caught with beach nets and in shrimp trawls. A commercially important food fish.

body depth 1.4-1.7
times in fork length

20-23 rays in
dorsal fin

dorsal- and
anal-fin
lobes
prolonged

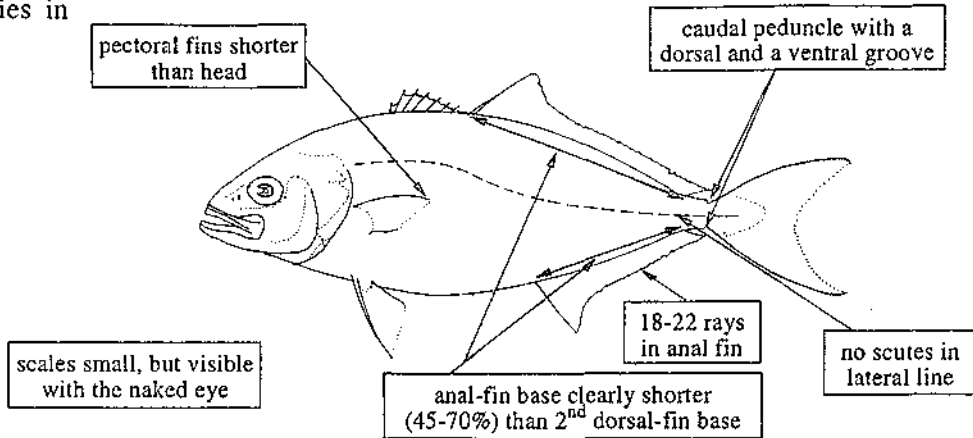


6-9 gill rakers on upper,
and 23-27 on lower limb
of 1st gill arch

pelvic fins very
long in juveniles

17-20 rays
in anal fin

Genus *Seriola* - 4 species in the area.



Seriola dumerili (Risso, 1810)

(plate XI, 84)

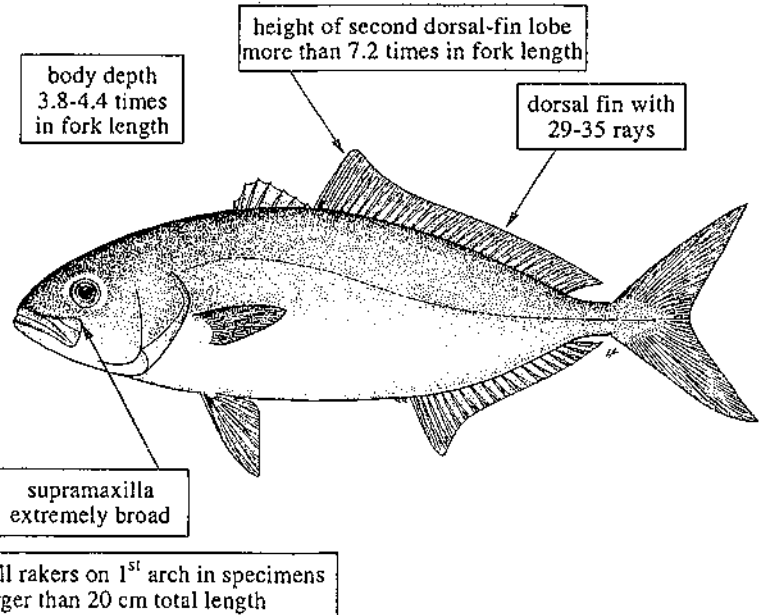
FAO names: En - Greater amberjack; Fr - Sériole couronnée; Sp - Medregal coronado.

Common names:

Size: Maximum 160 cm and about 60 kg; common to 80 cm.

Distribution and habitat: Throughout the area. Pelagic and demersal to a depth of about 360 m, near the coast as well as in offshore waters.

Fisheries: Usually artisanal. Caught on hook-and-line and with gill nets.



Seriola fasciata (Bloch, 1793)

(plate XI, 85)

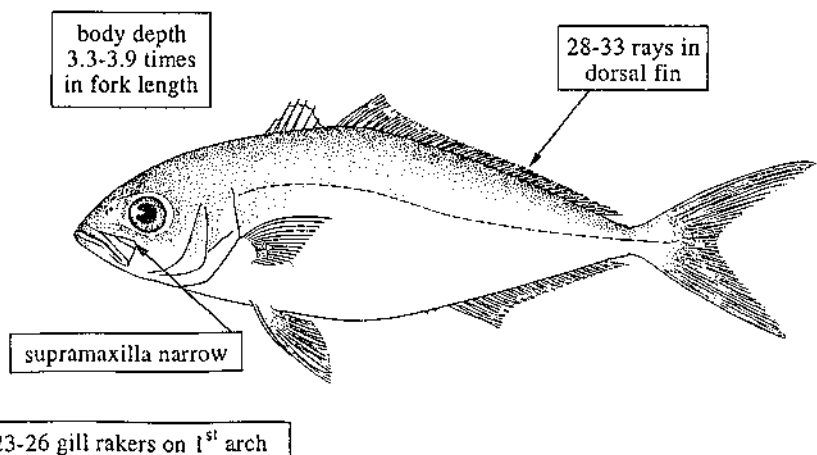
FAO names: En - Lesser amberjack; Fr - Sériole babiane; Sp - Medregal listado.

Common names:

Size: Maximum 70 cm and 4.6 kg; common to 50 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, but well documented records of this species are rare. Coastal pelagic and demersal to a depth of about 130 m.

Fisheries: Mainly artisanal. Caught on hook-and-line and with gill nets.



CARANGIDAE

Seriola rivoliana Cuvier, 1833

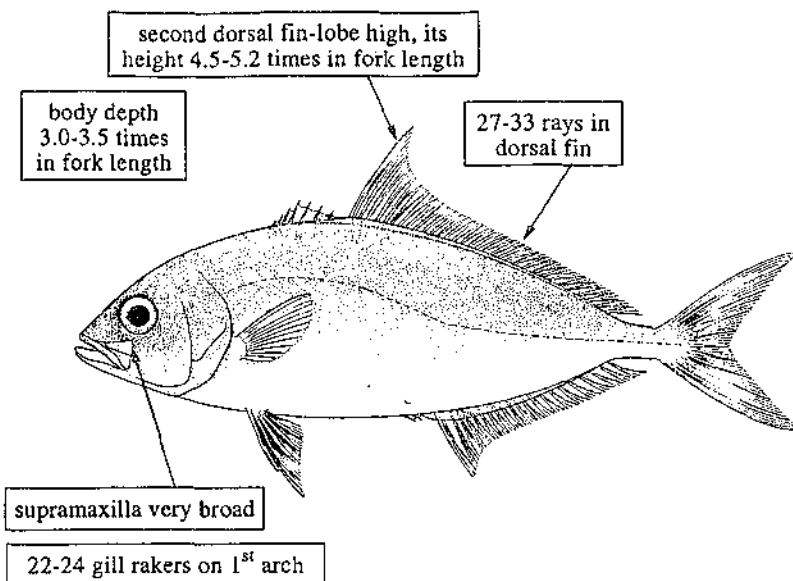
FAO names: En - Almaco jack; Fr - Sériole limon; Sp - Medregal limon.

Common names:

Size: Maximum slightly over 100 cm and about 10 kg; common to 80 cm.

Distribution and habitat: Throughout the area. Pelagic and demersal to below a depth of 100 m, usually occurring in oceanic waters, sometimes around islands.

Fisheries: Mainly artisanal. Caught on hook-and-line, in traps, and with gill nets, but the catches are not abundant. The flesh is edible, but this is one of the species most frequently responsible for ciguatera poisoning, particularly in coral reef areas.



Seriola zonata (Mitchill, 1815)

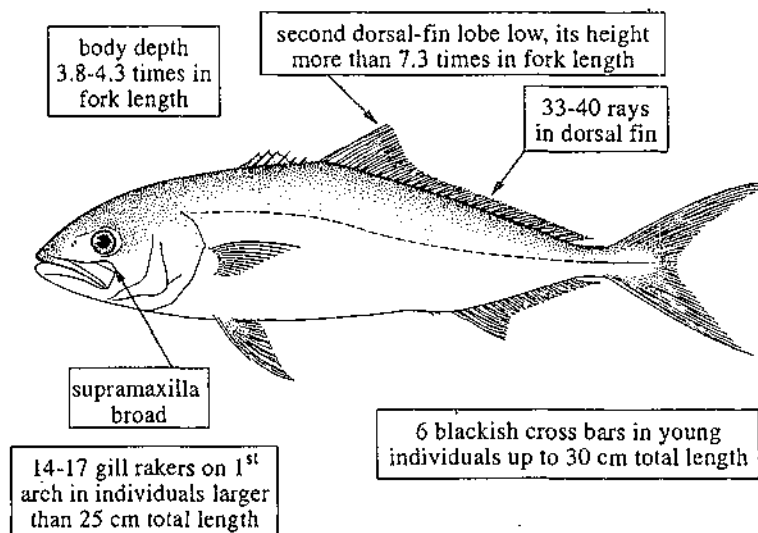
FAO names: En - Banded rudderfish; Fr - Sériole guaimeque; Sp - Medregal guaimeque.

Common names:

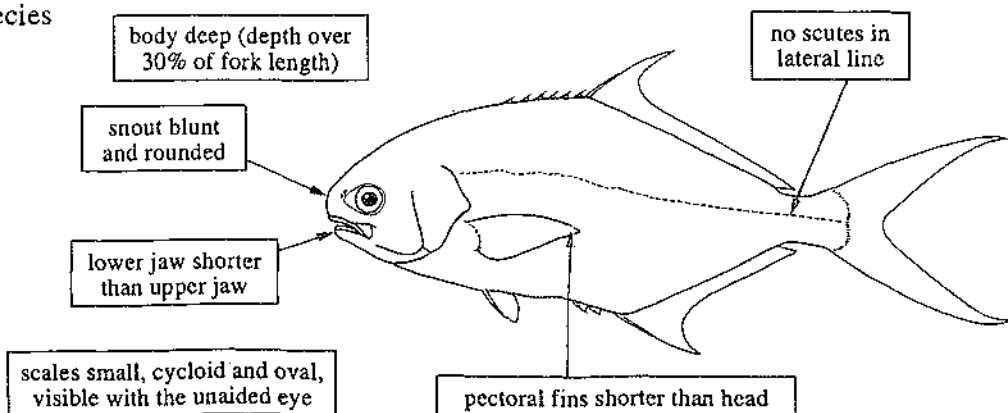
Size: Maximum about 75 cm; common to 50 cm.

Distribution and habitat: Throughout the area. Pelagic and demersal, usually in coastal shelf waters.

Fisheries: Caught on hook-and-line, by trolling, and with beach nets.



Genus *Trachinotus* - 5 species in the area.



***Trachinotus carolinus* (Linnaeus, 1766)**

(plate XI, 86)

FAO names: En - Florida pompano; Fr - Pompaneau sole; Sp - Pámpano amarillo.

Common names:

Size: 60 cm and 2.6 kg; common to 40 cm.

Distribution and habitat: Throughout the area. The juveniles are often abundant in the vicinity of sandy beaches exposed to wave action. The adults are also found in coastal waters to a depth of about 40 m. Absent from oceanic insular areas with coralline habitats.

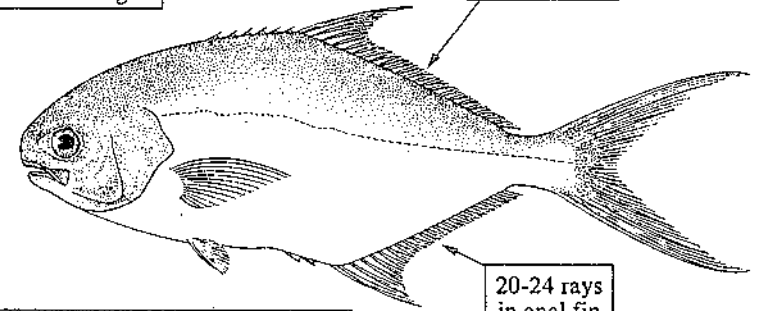
Fisheries: Caught with gill nets, occasionally with beach nets, and on hook-and-line.

body depth
2.0-2.8 times
in fork length

22-27 rays in
dorsal fin

5-7 gill rakers on upper, and
8-14 on lower limb of 1st gill arch

20-24 rays
in anal fin

***Trachinotus cayennensis* Cuvier, 1833**

FAO names: En - Cayenne pompano; Fr - Pompaneau cordonnier; Sp - Pámpano zapatero.

Common names:

Size: Maximum about 60 cm; common to 40 cm.

Distribution and habitat: Known to occur along the northern coast of Venezuela and off Trinidad, but more abundant along the coasts of the Guianas. The juveniles are found mainly in estuaries. The adults live in coastal marine waters, over soft bottoms to a depth of about 70 m (usually less).

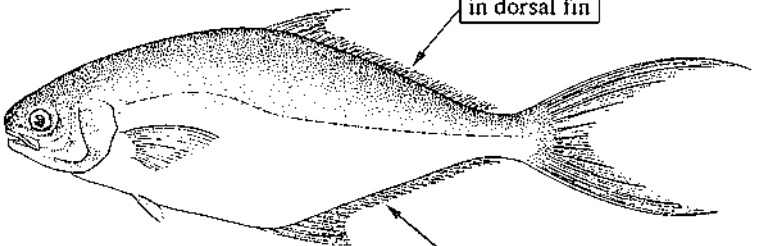
Fisheries: Predominantly industrial. Caught with bottom trawls.

body depth
2.3-3.0 times
in fork length

26-29 rays in
dorsal fin

6-8 gill rakers on upper, and
14-17 on lower limb of 1st gill arch

23-27 rays
in anal fin

***Trachinotus falcatus* (Linnaeus, 1758)**

(plate XI, 87)

FAO names: En - Permit; Fr - Pompaneau plume; Sp - Pámpano palometa.

Common names:

Size: Maximum 105 cm and to about 36 kg; common 90 cm.

Distribution and habitat: Throughout the area. The juveniles are often abundant in the vicinity of sandy beaches exposed to wave action. The adults are also found relatively close to the shore.

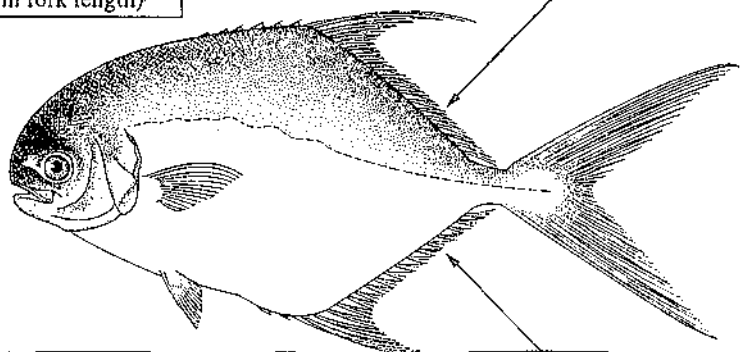
Fisheries: Caught usually with gill nets.

body very deep
(depth 1.7-2.6 times
in fork length)

17-21 rays in
dorsal fin

5-8 gill rakers on upper, and
11-14 on lower limb of 1st gill arch

16-19 rays
in anal fin



CARANGIDAE

Trachinotus goodei Jordan and Evermann, 1896

(plate XI, 88)

FAO names: En - Palometa pompano (AFS: Palometa); Fr - Pompaneau guatie; Sp - Pámpano listado.
Common names:

Size: Maximum 50 cm; common to 35 cm.

Distribution and habitat: The juveniles are common in the vicinity of clean sandy beaches. The adults occur in small aggregations or schools in clear coastal waters, mainly in coralline habitats.

Fisheries: Caught mainly with gill nets and beach seines.

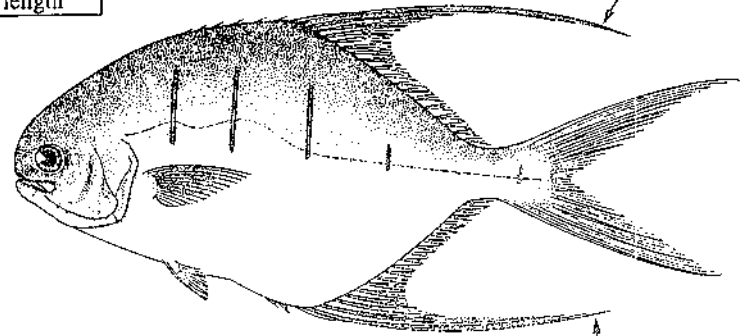
body depth 2.0-2.5 times in fork length

3-5 narrow, blackish cross bars

dorsal fin with 19-20 rays, its lobe greatly prolonged

5-7 gill rakers on upper, and 8-14 on lower limb of 1st gill arch

anal fin with 16-18 rays, its lobe greatly prolonged



Genus *Trachurus* - a single species in the area.

Trachurus lathami Nichols, 1920

FAO names: En - Rough scad; Fr - Chinchard frappeur; Sp - Chicharro garretón.
Common names:

Size: Maximum about 40 cm and 500 g; common to 30 cm.

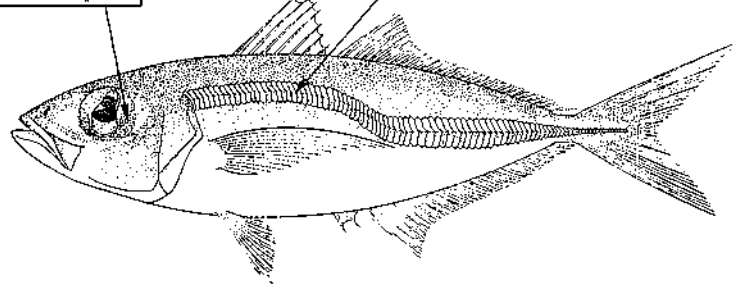
Distribution and habitat: Coastal pelagic and demersal in waters over the continental shelf, to below a depth of 90 m (usually less). Rare or absent in oceanic insular areas.

Fisheries: Artisanal and industrial. Caught on hook-and-line, and as bycatch in shrimp and finfish trawl fisheries. A species of commercial importance, rather abundant.

body elongate (depth 4.0-4.5 times in fork length)

scutes on entire length of lateral line

adipose eyelid well developed



Genus *Uraspis* - a single species in the area.

Uraspis secunda Poey, 1860

(plate XII, 89)

FAO names: En - Cottonmouth jack; Fr - Carangue-coton; Sp - Jurel volantín.
Common names:

Size: Maximum 50 cm; common to 35 cm.

Distribution and habitat: Probably throughout the area, but rarely caught in the southern part of the Caribbean sea; documented records from this area are also very scarce.

Fisheries: Caught occasionally with bottom trawls.

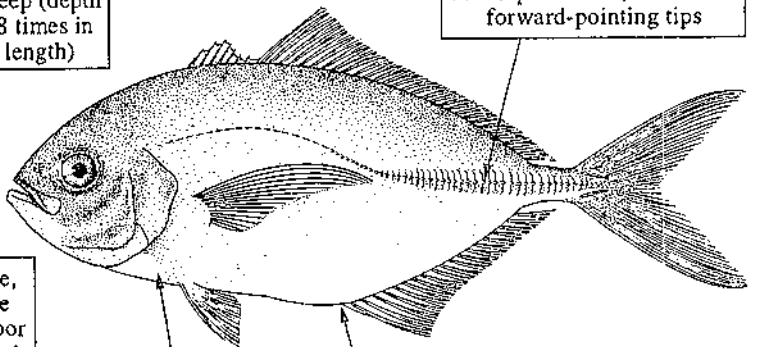
body deep (depth 2.5-2.8 times in fork length)

straight portion of lateral line with 26-40 well developed scutes, some with forward-pointing tips

tongue, palate and floor of mouth white

chest scaleless

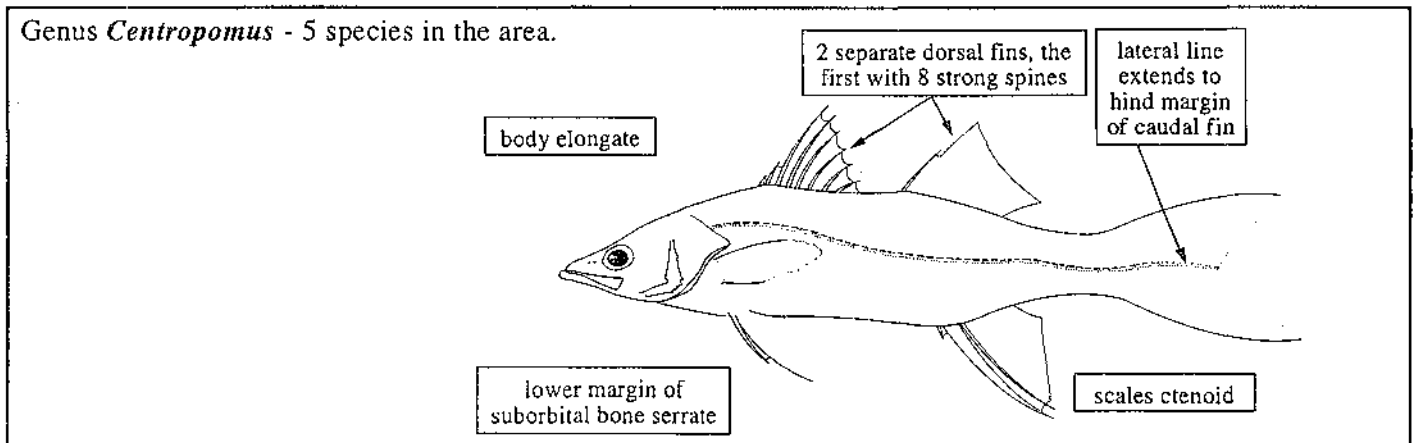
anal-fin spines reduced or absent



CENTROPOMIDAE

En: Snooks. **Fr:** Crossies. **Sp:** Róbalos.

A small group of medium-sized, elongate, silvery fishes occurring throughout the area. They are demersal and inhabit soft bottoms in shallow coastal waters to a depth of about 50 m (but usually less), generally near or inside estuaries; also in hypersaline lagoons and occasionally, freshwater. They are often found in mangrove areas on the mainland coasts or on islands, but never occur in clear insular or oceanic waters with coralline habitats. A single genus with 5 species in the area, all of them valuable food fishes that are marketed fresh or salted.

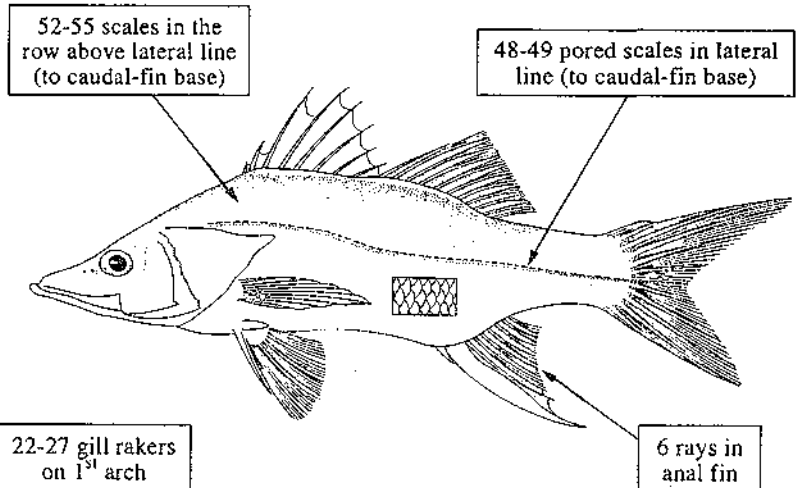
*Centropomus ensiferus* Poey, 1860

FAO names: **En** - Swordspine snook; **Fr** - Crossie épée; **Sp** - Róbalo maqueque.
Common names:

Size: Maximum 34 cm and 1 025 g; common to 25 cm.

Distribution and habitat: Throughout the area. On soft bottoms in shallow waters of estuaries and in hypersaline lagoons.

Fisheries: Predominantly artisanal. Caught on hook-and-line, and with cast nets, gillnets and beach nets.

*Centropomus mexicanus* Bocourt, 1868

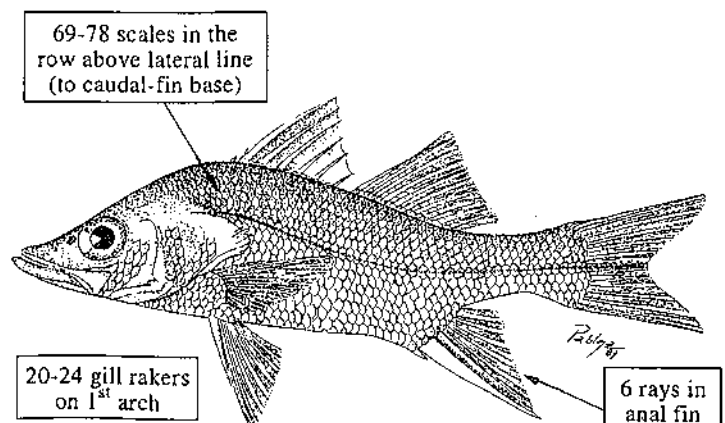
FAO names: **En** - Mexican snook; **Fr** - Crossie mexicaine; **Sp** - Róbalo mexicano.

Common names:

Size: Maximum 47.5 cm; common to 35 cm.

Distribution and habitat: Coasts of the Guianas, in and around river mouths. Well documented records of this species are very scarce, and it is probably often confused with *C. parallelus* which is a very similar form.

Fisheries: Artisanal. Caught mainly with gillnets and on hook-and-line.



CENTROPOMIDAE

***Centropomus parallelus* Poey, 1860**

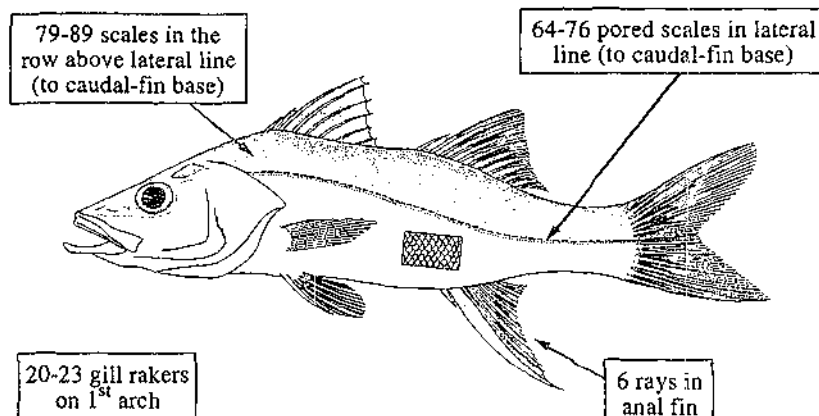
FAO names: En - Fat snook; Fr - Crossie chucumite; Sp - Róbalo chucumite.

Common names:

Size: Maximum 58 cm; common to 40 cm.

Distribution and habitat: Throughout the area. Mainly in estuaries and even fresh-water, but also in coastal marine waters and occasionally, hypersaline lagoons. Always found on soft bottoms in very shallow water.

Fisheries: Predominantly artisanal. Caught on hook-and-line and with beach nets or gillnets.

***Centropomus pectinatus* Poey, 1860**

FAO names: En - Tarpon snook; Fr - Crossie constantin; Sp - Róbalo constantino.

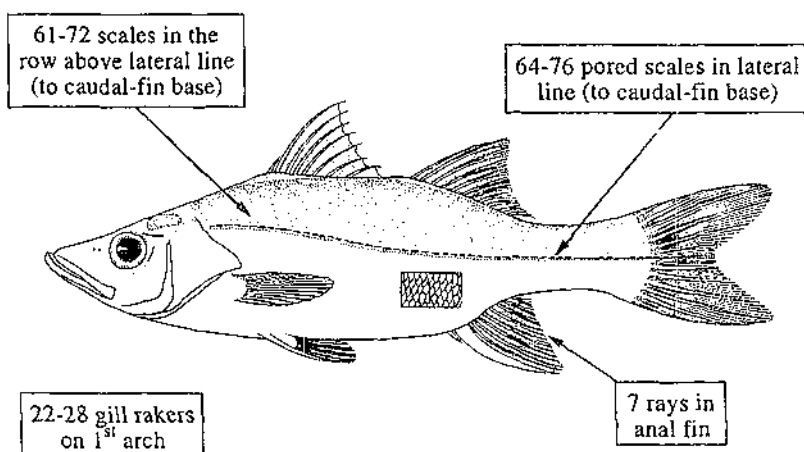
Common names:

Size: Maximum 56 cm and 1 507 g; common to 40 cm.

Distribution and habitat: Throughout the area. In coastal marine waters and in estuaries and coastal lagoons. Always found on soft bottoms in very shallow water.

Fisheries: Predominantly artisanal. Caught on hook-and-line and with cast nets, beach nets and gillnets.

(plate XII, 90)

***Centropomus undecimalis* (Bloch, 1792)**

FAO names: En - Common snook; Fr - Crossie blanc; Sp - Róbalo blanco.

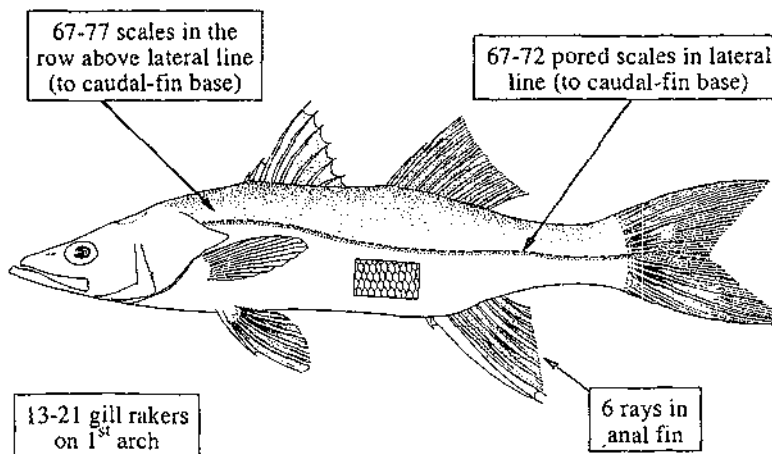
Common names:

Size: Maximum 125 cm (exceptional in the area) and 24.3 kg; common to 50 cm.

Distribution and habitat: Throughout the area. The juveniles occur in estuaries and in hypersaline lagoons, while the adults are usually found on soft bottoms in shallow coastal marine waters, in a depth less than 50 m.

Fisheries: Predominantly artisanal. Caught on hook-and-line and with gillnets or beach nets. Marketed fresh and salted. This is the most highly esteemed species of the genus.

(plate XII, 91)



CLUPEIDAE

En: Herrings, shads, gizzard shads, menhadens. **Fr:** Aloses, harengules, menhadens, shadines, poissons-papier. **Sp:** Sardinias, sardinelas, sardinetas, sábalos, lachas, arenquillos, machuelos, piquitingas.

Small, plankton-feeding fishes occurring mainly in coastal marine areas, but some species are found in brackish waters or in freshwater. They are usually pelagic and may occur in large schools. This family is of major interest to fisheries mainly in other parts of the world where some of its species are of primary commercial importance. In the area it is represented by 7 genera and 12 species.

Note: The subfamily Pristigasterinae has recently been removed from the Clupeidae and set up as a new family, the Pristigasteridae, which is treated separately here.

Genus *Etrumeus* - a single species in the area.

Etrumeus teres (De Kay, 1842)

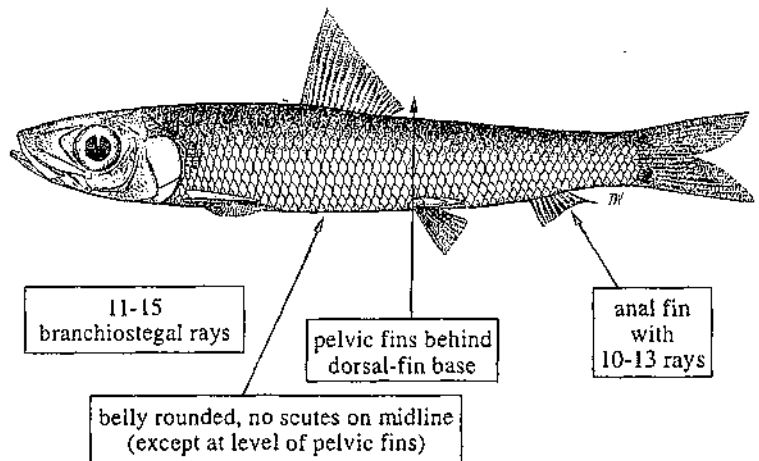
FAO names: **En** - Round herring; **Fr** - Shadine ronde; **Sp** - Sardineta canalera.

Common names:

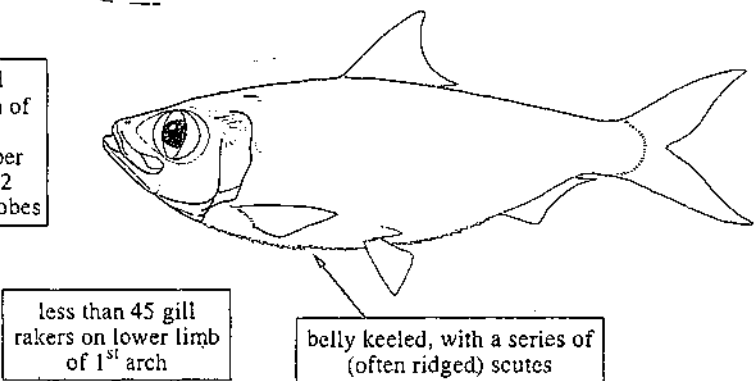
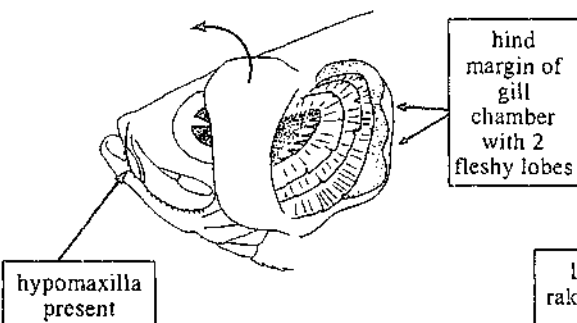
Size: Maximum 25 cm; common to 18 cm.

Distribution and habitat: Throughout the area. Generally referred to as a pelagic species, but in the southern Caribbean sea the majority of round-herring landings come from depths below 60 m.

Fisheries: Taken mainly as bycatch in the industrial trawl fishery for shrimps. At present of negligible interest to fisheries.



Genus *Harengula* - 3 species in the area.



Harengula clupeola (Cuvier, 1829)

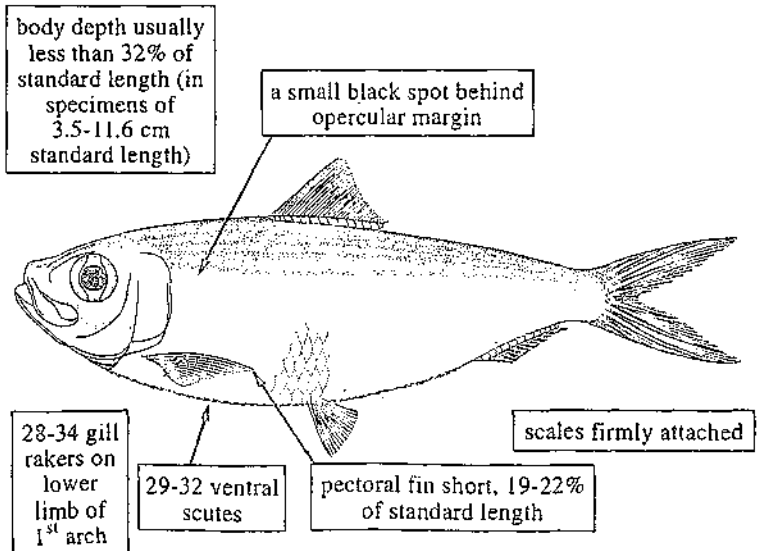
FAO names: **En** - False herring (AFS: False pilchard); **Fr** - Harengule écailléux; **Sp** - Sardineta escamuda.

Common names:

Size: Maximum 16.6 cm; common to 9 cm.

Distribution and habitat: Throughout the area. Pelagic in coastal marine areas, estuaries and lagoons. Occurs in turbid waters along the mainland coast as well as in clear waters of insular coral-reef habitats.

Fisheries: Usually artisanal with beach nets. Not a target species and usually not consumed because of its strong smell and taste, but processed as fishmeal and other subproducts.



***Harengula humeralis* (Cuvier, 1829)**

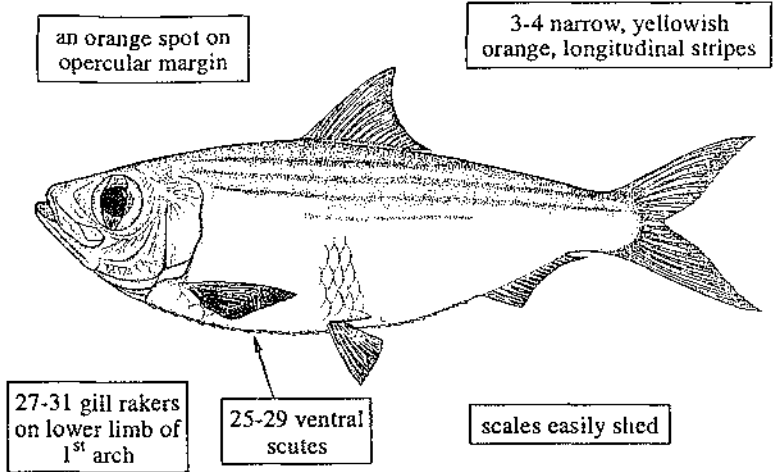
FAO names: En - Redear herring (AFS: Redear sardine); Fr - Harengule joue rouge; Sp - Manzanillera.

Common names:

Size: Maximum 19.2 cm; common to 15 cm.

Distribution and habitat: Throughout the area. In clear coastal waters of coral-reef habitats. It may occur in large, dense schools in the vicinity of sand beaches, mainly on seagrass beds of *Thalassia*.

Fisheries: Caught with beach nets. Usually not actively fished, since the flesh may occasionally be deadly poisonous, but utilized as bait or in the preparation of fish feeds in aquaculture.



***Harengula jaguana* Poey, 1865**

(plate XII, 92)

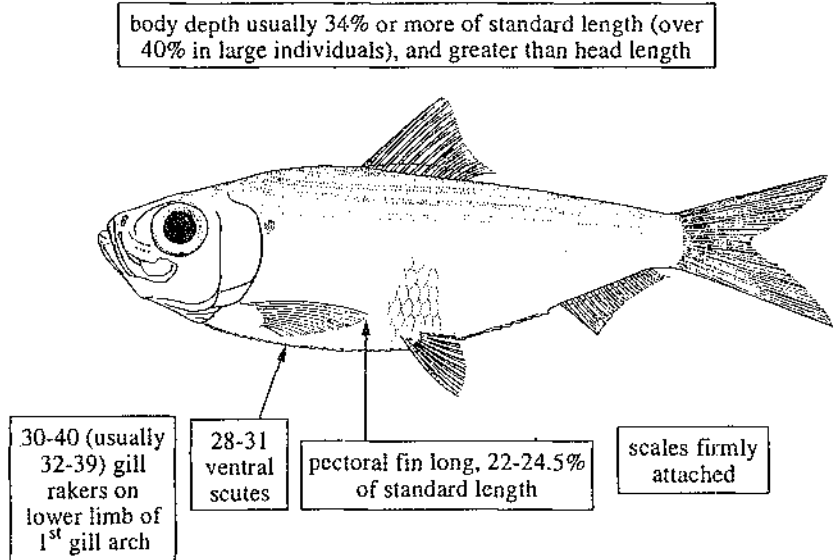
FAO names: En - Scaled herring (AFS: Scaled sardine); Fr - Harengule jagane; Sp - Sardineta jaguana.

Common names:

Size: Maximum 21.2 cm; common to 12 cm.

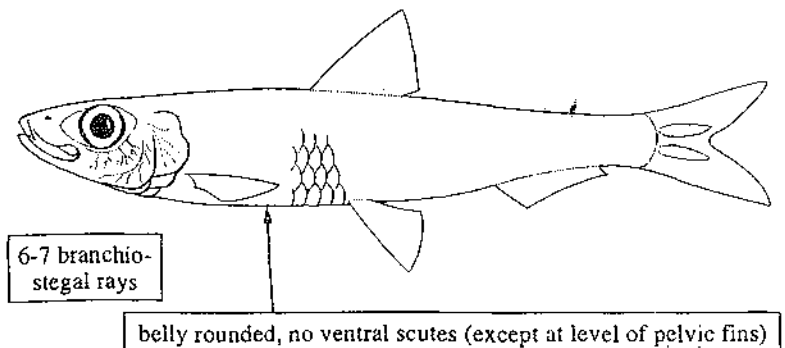
Distribution and habitat: Throughout the area. Pelagic and demersal in coastal waters, over muddy or sandy bottoms, often near estuaries and sometimes in hypersaline lagoons.

Fisheries: Not actively fished, but taken in beach nets and as bycatch in the industrial trawl fishery for shrimps.



Genus *Jenkinsia*

3 species in the area: *J. lamprotaenia* (Gosse, 1851), *J. parvula* Cervigón and Velasquez, 1978, and *J. stolifera* (Jordan and Gilbert, 1884). These are coastal pelagic species of small size (less than 8 cm length), found along the coasts of Colombia, Venezuela and Trinidad and Tobago, sometimes occurring in large schools close to the shore. Although not exploited at present, they represent a potential resource. They are morphologically very similar and hence, difficult to distinguish from one another in the field.



Genus *Lile* - a single species in the area.

Lile piquitinga (Schreiner and Ribeiro, 1903)

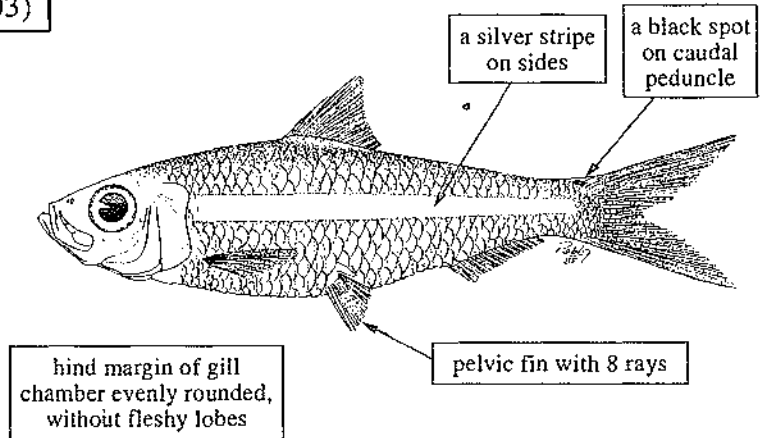
FAO names: **En** - Atlantic piquitinga; **Fr** - Harengule piquitinge; **Sp** - Sardineta piquitinga.

Common names:

Size: Maximum 12 cm; common to 6 cm.

Distribution and habitat: Probably throughout the area. In protected coastal waters, over muddy bottoms; also in estuaries and hypersaline lagoons.

Fisheries: Not specially fished, but taken in beach nets and with cast nets.



Genus *Opisthonema* - a single species in the area.

Opisthonema oglinum (LeSueur, 1818)

(plate XII, 93)

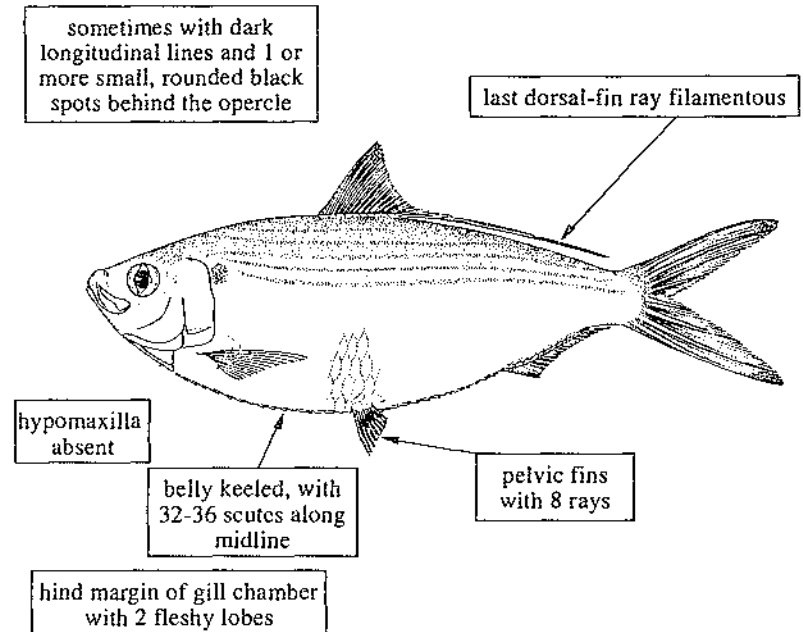
FAO names: **En** - Atlantic thread herring; **Fr** - Chardin fil; **Sp** - Machuelo hebra atlántico.

Common names:

Size: Maximum 38 cm (exceptional) and 375 g; common to 20 cm.

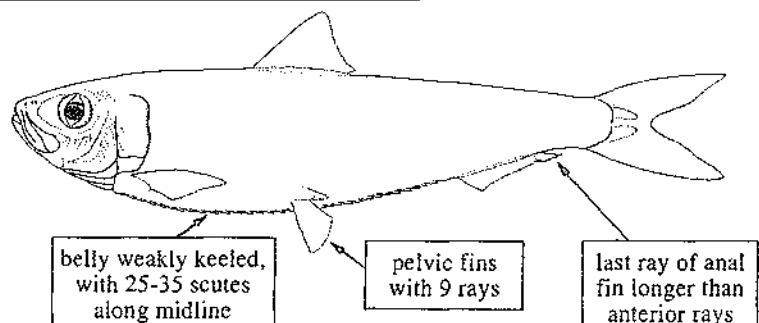
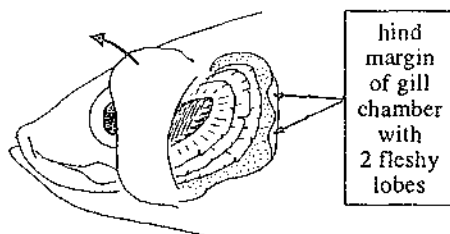
Distribution and habitat: Throughout the area. Pelagic in marine coastal waters, sometimes occurring in large schools. In some seasons it may be found very near to the bottom, especially the larger individuals.

Fisheries: Predominantly artisanal and industrial. Caught with beach nets, and sometimes gillnets (large specimens) and as bycatch in the trawl fishery for shrimps. This species represents a relatively important fishery resource in some regions. Usually marketed fresh; occasionally canned as "sardine."



Genus *Sardinella* - 2 species in the area.

number of gill rakers increasing with age, those on lower limb of first arch may vary from 60 in small specimens to over 200 in large fish



Sardinella aurita Valenciennes, 1847

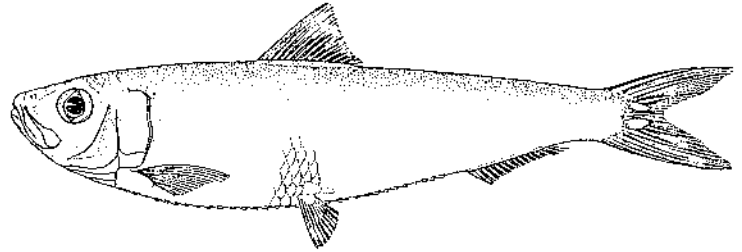
(plate XII, 94)

FAO names: En - Round sardinella (AFS: Spanish sardine); Fr - Allache; Sp - Sardinela atlántica.
Common names:

Size: Maximum 29 cm and about 225 g (exceptional); common to 20 cm.

Distribution and habitat: Throughout the area. Coastal pelagic, predominantly in shelf waters of high plankton productivity; rare in oceanic insular areas.

Fisheries: Predominantly artisanal. Caught with beach nets and small quantities are occasionally taken with bottom trawls. A food fish of major commercial importance. Marketed fresh and canned; also widely used as bait in fisheries for carangids, scombrids, and many other species.



at present not distinguishable from *S. brasiliensis* on the basis of external characters

Sardinella brasiliensis (Steindachner, 1879)

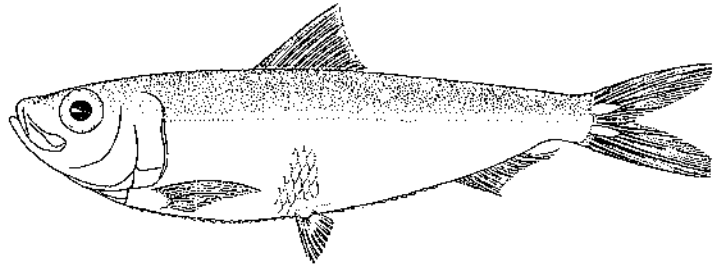
FAO names: En - Brazilian sardinella (AFS: Orange-spot sardine); Fr - Sardinelle brésilienne; Sp - Sardinela brasileña.

Common names:

Size: Maximum 25 cm; common to 20 cm.

Distribution and habitat: Probably throughout the area, in habitats similar to those of *S. aurita*.

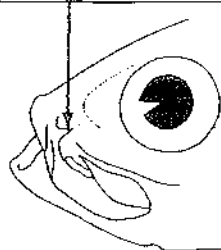
Fisheries: Predominantly artisanal. Caught with beach nets and occasionally taken in small quantities with bottom trawls. Of major commercial importance as a food fish. Marketed fresh and canned, and widely used as bait in fisheries for scombrids, carangids and other species.



Other genera:

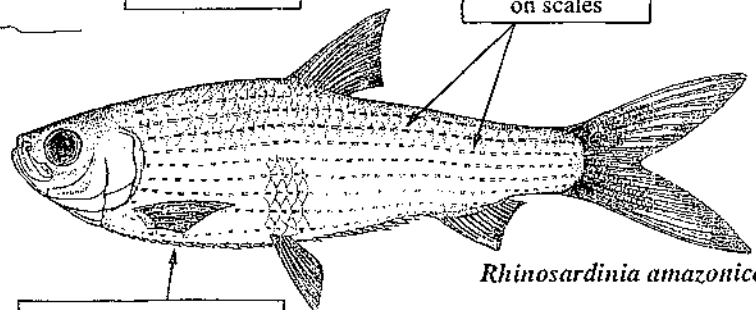
Rhinosardinia, with 2 species in the area, *R. amazonica* (Steindachner, 1879) and *R. baiensis* Steindachner, 1879), of about 9 cm length, restricted to brackish waters and freshwater, the former between the Gulf of Paria and northern Brazil and the latter between the Orinoco delta and eastern Brazil (Bahia). At present they are of no interest to fisheries.

a sharp, backward-pointing spine on anterior part of maxilla



hind margin of gill chamber evenly convex, without fleshy knobs

2 parallel streaks on scales



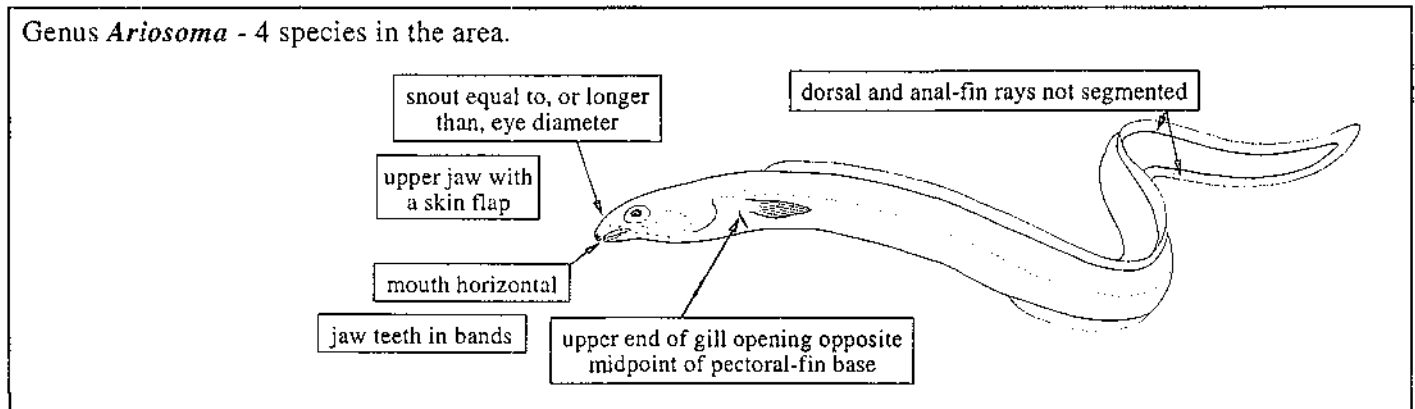
Rhinosardinia amazonica

belly keeled, with scutes along midline

CONGRIDAE

En: Conger eels. **Fr:** Congres. **Sp:** Congrios and congrillos.

Elongate, eel-like fishes, more or less circular in cross section and greatly varying in size. Most species occur on soft bottoms of the continental shelf and the upper part of the slope, often burrowing in the substrate, at least in daytime and therefore not abundant in bottom trawl catches. They are of little importance as food fishes, and only the species of the genus *Conger*, one species of *Ariosoma*, one of *Hildebrandia*, and perhaps one of *Paraconger*, may find acceptance in markets in view of their relatively large size. The transparent larvae (leptocephali) are pelagic, thus accounting for the relatively wide distributional range of some species. Most conger eels are inconspicuously coloured, with greyish brown backs and white undersides. So far, 13 genera with 25 species have been recorded from the area.

*Ariosoma balearicum* (Delaroche, 1809)

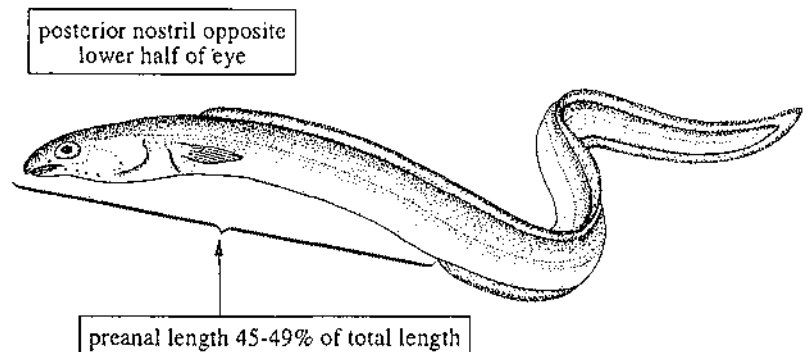
FAO names: **En-** Bandtooth conger; **Fr** - Congre des Baléares; **Sp** - Congrillo de charco.

Common names:

Size: Maximum 34 cm; common to 25 cm.

Distribution and habitat: Probably throughout the area. Soft bottoms of the continental shelf to a depth of about 100 m.

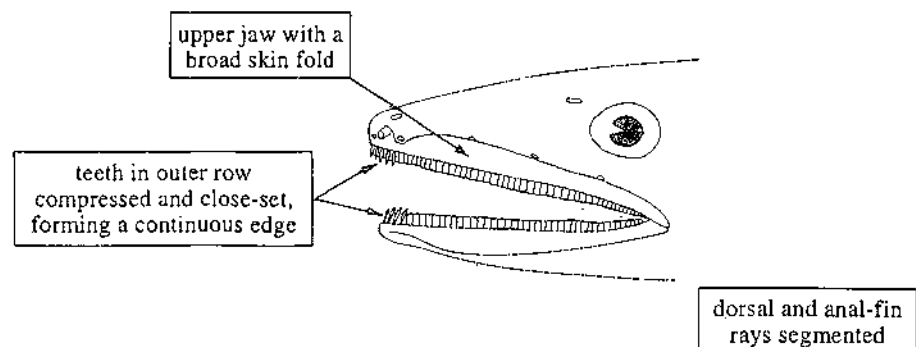
Fisheries: Taken as bycatch in the industrial trawl fishery for shrimps.



Other species:

The other species of the genus, *Ariosoma analis* (Poey, 1858), *A. coquettei* Smith and Kanazawa, 1977, and *A. selenops* Reid, are of no interest to fisheries.

Genus *Conger* - 2 species in the area.



Conger esculentus (Poey, 1858)

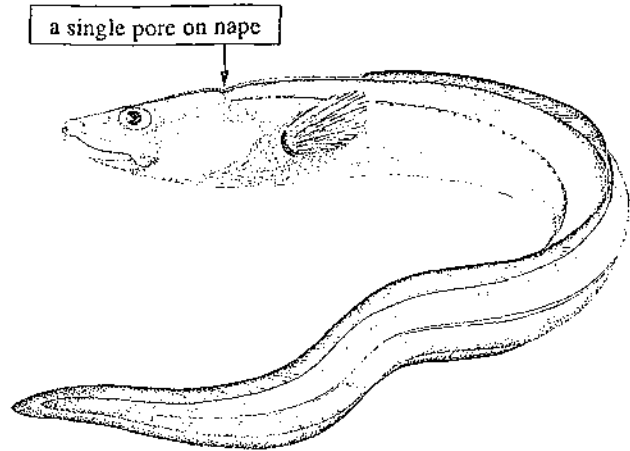
FAO names: En - Grey conger; Fr - Congre gris; Sp - Congrio gris.

Common names:

Size: Maximum 116 cm; common to 90 cm.

Distribution and habitat: Probably throughout the area. On rocky bottoms or in coralline habitats, to a depth of at least 100 m. Well documented records of this species are scarce.

Fisheries: Taken in traps, on hook-and-line and on longlines. Not a target species in fisheries, but catches have been increasing lately. Marketed fresh.



Conger triporiceps Kanazawa, 1958

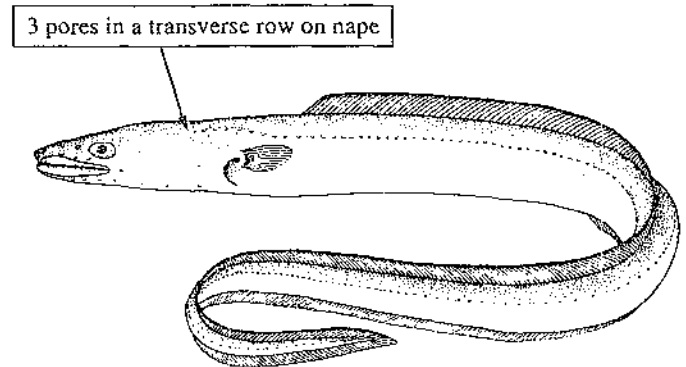
FAO names: En - Manytooth conger; Fr - Congre dentu; Sp - Congrio dentón.

Common names:

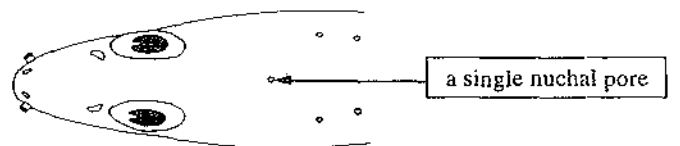
Size: Maximum 100 cm; common to 80 cm.

Distribution and habitat: Probably throughout the area. On hard bottoms, mainly in rocky and coralline habitats, to a depth of about 55 m. Documented records of this species are very scarce.

Fisheries: Caught in traps and on hook-and-line.



Genus *Hildebrandia* - 3 species in the area.



upper jaw with a narrow skin fold

top of head

jaw teeth conical and in bands

dorsal and anal-fin rays segmented

Hildebrandia flava (Goode and Bean, 1896)

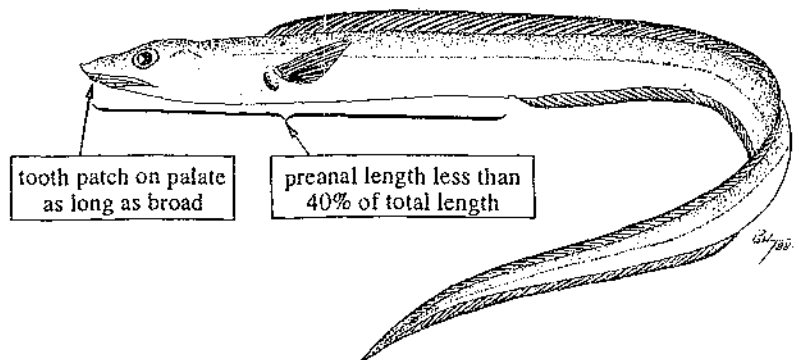
FAO names: En - Yellow conger; Fr - Congre jaune; Sp - Congrillo amarillo.

Common names:

Size: Maximum 50 cm; common to 30 cm.

Distribution and habitat: Probably throughout the area, on soft bottoms between depths of 25 and 165 m. A common species off Venezuela.

Fisheries: Taken as bycatch in industrial trawl fisheries, especially those for shrimps.



CONGRIDAE

Other species:

The species *Hildebrandia gracilior* (Ginsburg, 1951), and *H. guppyi* (Norman, 1925) are of no interest to fisheries, either because of their small average size, or because they are caught rarely and in small quantities.

Genus *Paraconger* - probably a single species in the area.

Paraconger caudilimbatus (Poey, 1867) (plate XII,95)

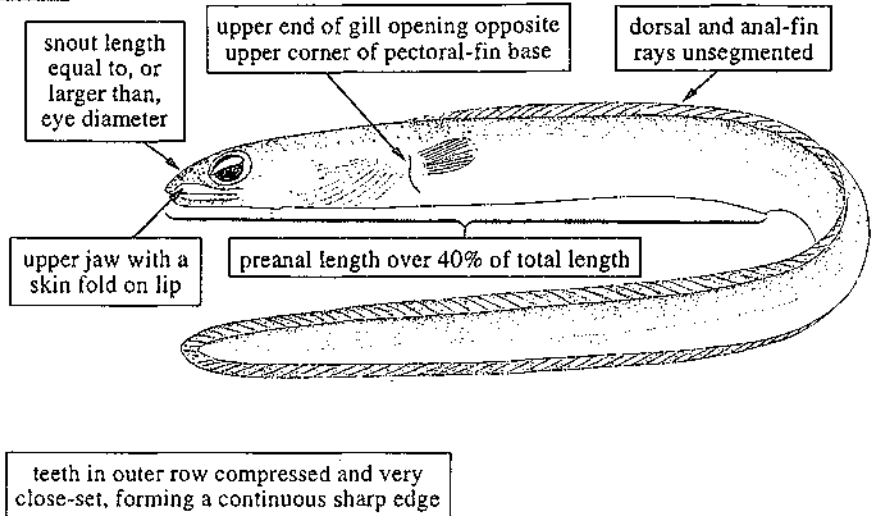
FAO names: En - Margintail conger; Fr - Congre de plage; Sp - Congrillo playón.

Common names:

Size: Maximum 51 cm; common to 35 cm.

Distribution and habitat: Coasts of Venezuela and possibly, Colombia. On shallow muddy or sandy bottoms to a depth of about 75 m. Common in the northeastern region of Venezuela. Apparently confined to neritic waters of the continental shelf, since it has not been observed near oceanic islands.

Fisheries: Taken mainly as bycatch in the industrial trawl fishery for shrimps. At present only of minor commercial importance.



Other genera:

Acromycter, *Bathyroconger*, *Gnathophis*, *Heteroconger*, *Japonoconger*, *Parabathymyrus*, *Pseudoplichthys*, *Rhechias* and *Uroconger*. All of these genera include species recorded from our area, but none is of interest to fisheries.

CORYPHAENIDAE

En: Dolphinfishes. **Fr:** Coryphènes. **Sp:** Dorados.

Rather large, pelagic fishes ranging in size from 75 to 200 cm. They are usually found well offshore and in the vicinity of oceanic islands. Colours are rather bright, with brilliant metallic greens or blues on back and golden hues on sides in live fish. They are excellent food fishes. A single genus with 2 species.

Genus *Coryphaena* - 2 species in the area.

Coryphaena equiselis Linnaeus, 1758

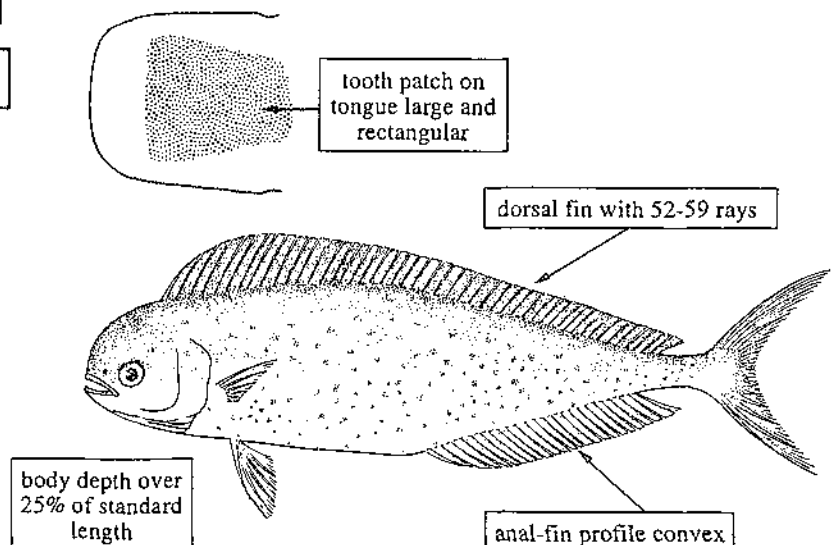
FAO names: En - Pompano dolphinfish; Fr - Coryphène dauphin; Sp - Dorado.

Common names:

Size: Maximum 75 cm; common to 50 cm.

Distribution and habitat: Probably throughout the area, but documented records are scarce. A pelagic oceanic species, occasionally coming close to the shore.

Fisheries: Important in sports fisheries. Caught by trolling. Marketed fresh.



CORYPHAENIDAE

Coryphaena hippurus Linnaeus, 1758

(plate XII, 96)

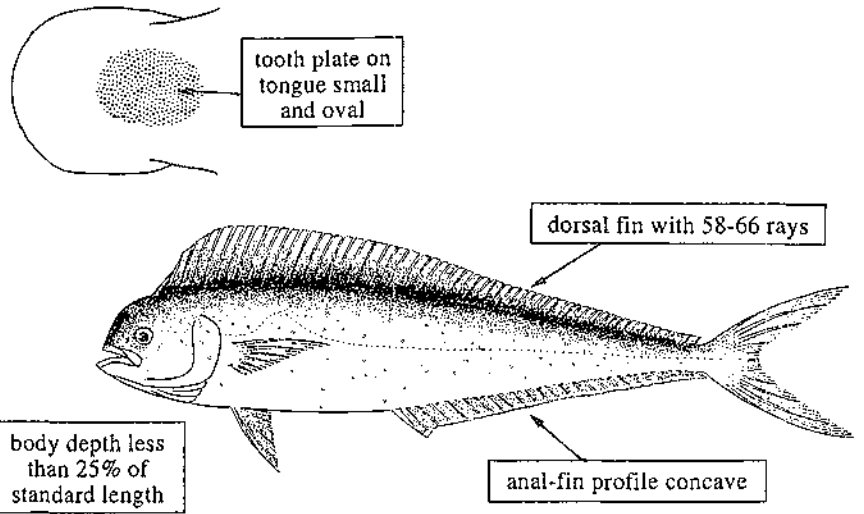
FAO names: Fr - Coryphène commune; Sp - Dorado común; En - Common dolphinfish.

Common names:

Size: Maximum 200 cm; common to 100 cm.

Distribution and habitat: Throughout the area. A pelagic oceanic species occasionally found in coastal waters; frequently concentrates in small groups under floating objects.

Fisheries: Important in sports fisheries. Caught by trolling and on floating long-lines. Marketed fresh; flesh of excellent quality.

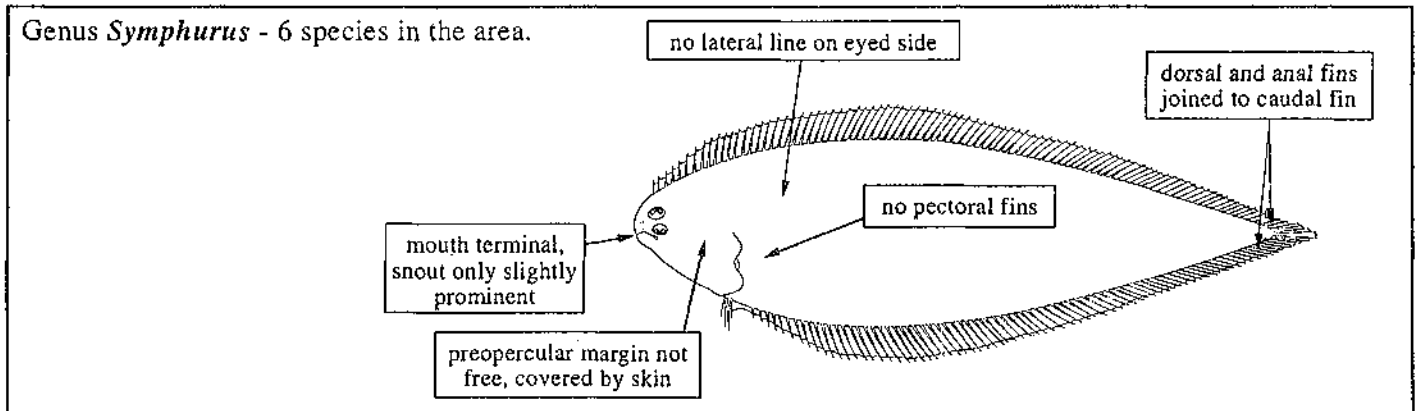


CYNOGLOSSIDAE

En: Tongue soles. **Fr:** Langues. **Sp:** Lenguas, lenguetas.

Elongate flatfishes normally resting on soft substrates, mostly in shallow waters. A single genus with 4 species recorded from the area, two of which are of interest to fisheries.

Note: Munroe (Fish. Bull., vol. 89, 1991) has reclassified the species of *Symphurus* occurring in the region, describing also two new species. Following Munroe, the text and the slide included in this guide regarding *S. plagusia* belong to *S. tessellatus* (Quoy and Gaimard, 1824). This increases to 6 the total number of species in the area.



Symphurus diomedianus (Goode and Bean, 1885)

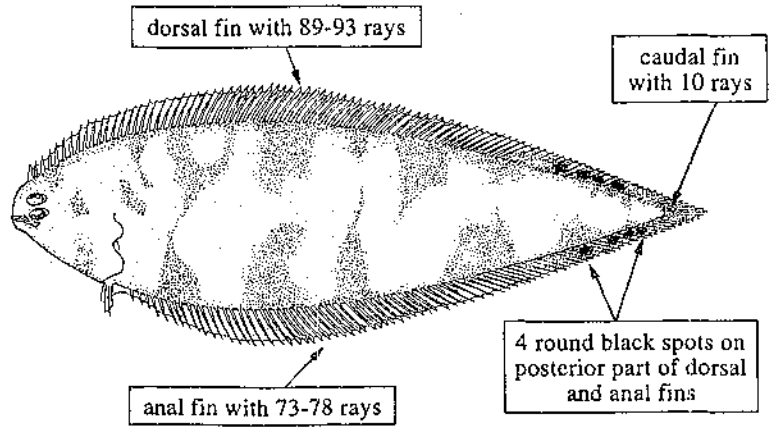
(plate XIII, 97)

FAO names: En - Spottedfin tonguefish; Fr - Langue fil noir; Sp - Lengua filonegro. **Common names:**

Size: Maximum 21 cm; common to 18 cm.

Distribution and habitat: Throughout the area. On soft, mainly muddy bottoms to a depth of about 180 m, but usually between 25 and 75 m.

Fisheries: Caught with bottom trawls. Although at present the demand for this species is low, it is likely to gain importance in the future.



CYNOGLOSSIDAE

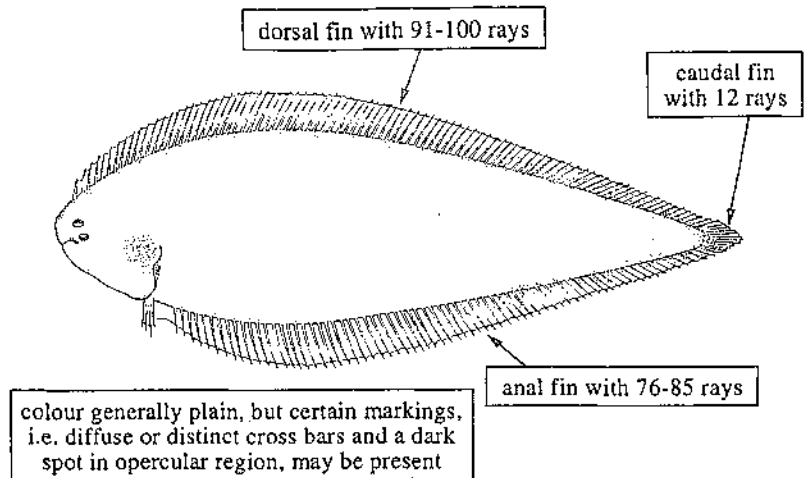
***Symphurus plagusia* (Bloch and Schneider, 1801)** (plate XIII, 98)

FAO names: En - Duskycheek tonguefish;
Fr - Langue joue cendre; Sp - Lengua ceniza.
Common names:

Size: Maximum 23 cm; common to 20 cm.

Distribution and habitat: Probably throughout the area, on muddy and sandy bottoms to a depth of about 75 m.

Fisheries: Usually taken as bycatch in the industrial trawl fishery for shrimps. Not a target species, but it might become more important in the future.

**Other species:**

Symphurus arawak Robins and Randall, 1965, *S. pelicanus* Ginsburg, 1951, *S. caribbeanus* Munroe, 1991, and *S. oculifellus* Munroe, 1991, all of small size except for the last one, that attains 18.9 cm standard length. Scarcely of interest to fisheries.

CYPRINODONTIDAE

En: Killifishes. **Fr:** Pétotes. **Sp:** Petotas, borrachones, guajacones, pipones.

Small fishes, usually less than 20 cm in total length, highly adaptable to varying conditions of temperature and salinity. All species are oviparous and most of them restricted to freshwater. However, a few species occur in brackish waters and one in hypersaline lagoons. They are mainly important in the aquarium trade, but some of the larger representatives are also used as food fishes. A single species in salt waters of the area (hypersaline lagoons).

Genus *Cyprinodon* - a single species in salt waters of the area.

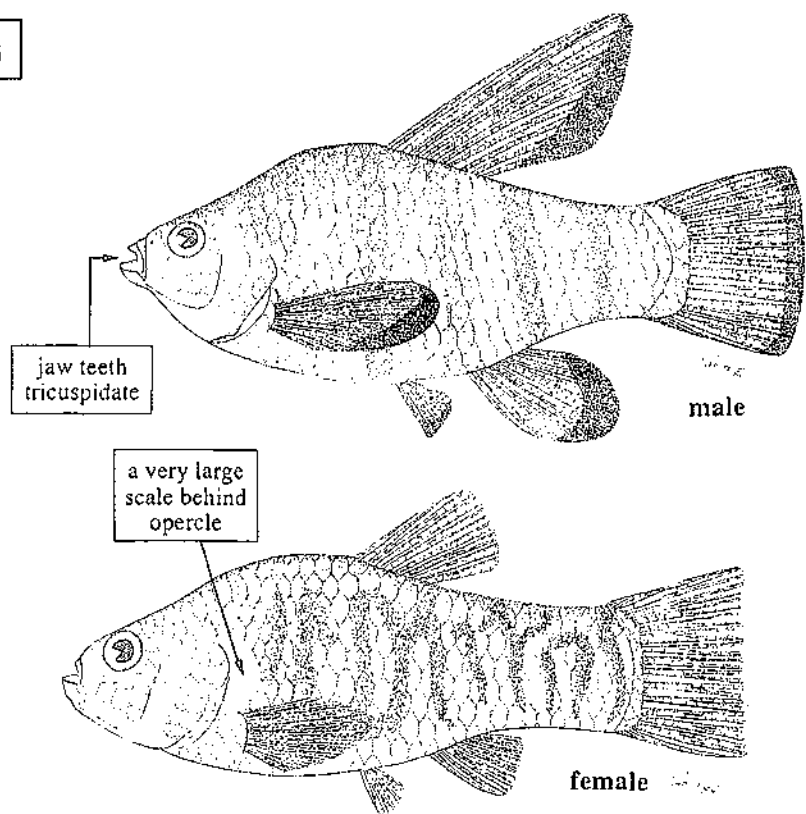
***Cyprinodon variegatus* Lacepède, 1803**

FAO names: En - Sheepshead minnow;
Fr - Pétote; Sp - Petota.
Common names:

Size: Maximum 6 cm (exceptional); common to 3 cm.

Distribution and habitat: Probably throughout the area. In hypersaline lagoons and connecting channels. Lives on muddy bottoms in turbid waters. This species has a strong sexual dimorphism.

Fisheries: Caught with fine-meshed nets. Very abundant and easily reproduced in captivity. Used as a forage fish in mariculture.



DACTYLOPTERIDAE

En: Flying gurnards. **Fr:** Poules de mer. **Sp:** Alones.

A single species in the area.

Dactylopterus volitans (Linnaeus, 1758) (plate XIII, 99-100)

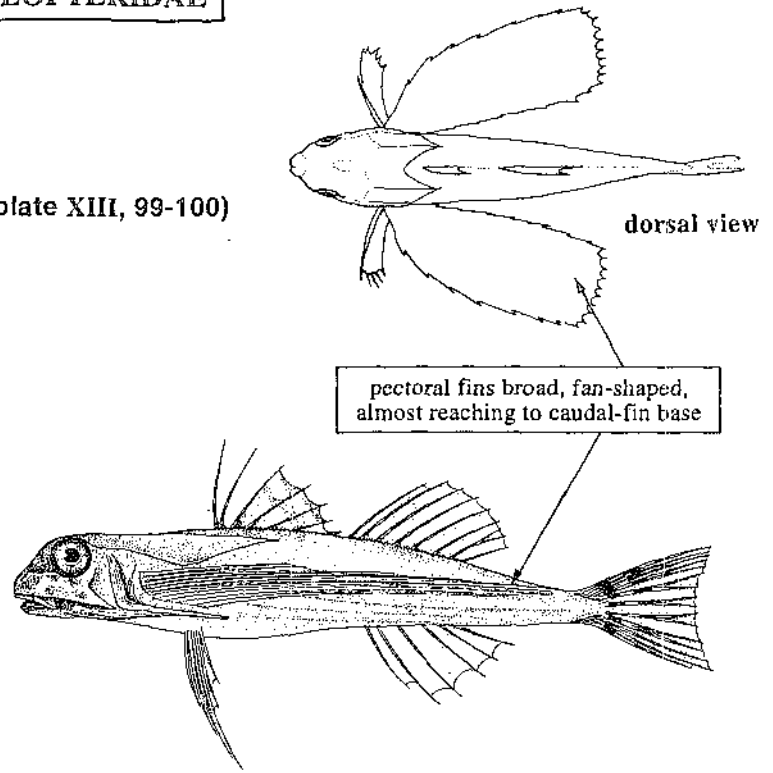
FAO names: **En** - Flying gurnard; **Fr** - Poule de mer; **Sp** - Alón.

Common names:

Size: Maximum 45 cm; common to 20 cm.

Distribution and habitat: Throughout the area, in shallow coastal waters over muddy or sandy bottoms. Unlike true flyingfishes (Exocoetidae), this species is not capable of gliding through the air above the water surface. Small juveniles are pelagic.

Fisheries: Predominantly artisanal with beach nets. Consumed by the local population, but only of minor importance to fisheries.

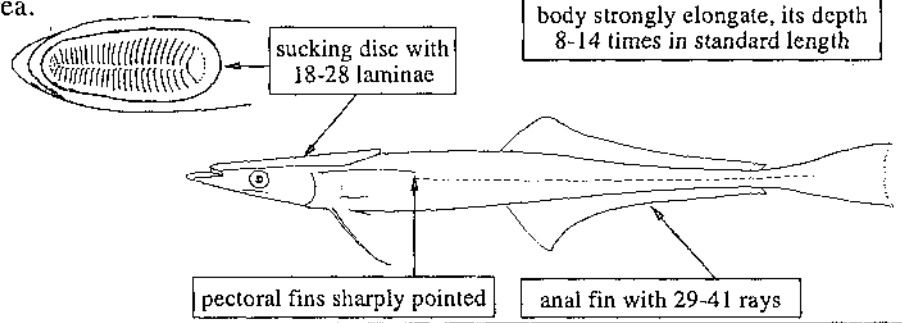


ECHENEIDIDAE

En: Remoras, sharksuckers, diskfishes. **Fr:** Rémoras. **Sp:** Rémoras, pegas.

Elongate fishes with an oval, laminated cephalic disk which they use to attach themselves to many different marine vertebrates such as sharks, rays, large bony fishes, sea turtles, whales and dolphins. Some species are free-swimming, occur in shallow, inshore waters, and are large enough to be used as food by man. Four genera with 8 species in the area, only 2 of which may be considered of interest to fisheries.

Genus *Echeneis* - 2 species in the area.



Echeneis naucrates Linnaeus, 1758

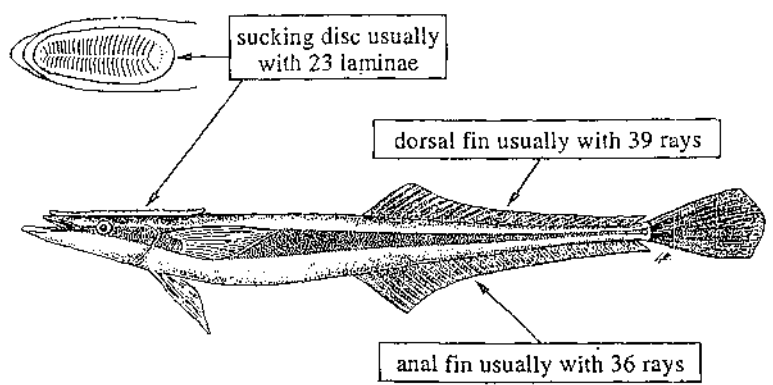
FAO names: **En** - Live sharksucker (AFS: Shark-sucker); **Fr** - Rémora commun; **Sp** - Pegatimón.

Common names:

Size: Maximum over 100 cm; common to 60 cm.

Distribution and habitat: Throughout the area. In oceanic as well as in inshore waters. A host of many sharks, large bony fishes, sea turtles, and marine mammals, but also free-swimming.

Fisheries: Usually caught together with the host but also on hook-and-line and with trammel nets.



ECHENEIDIDAE

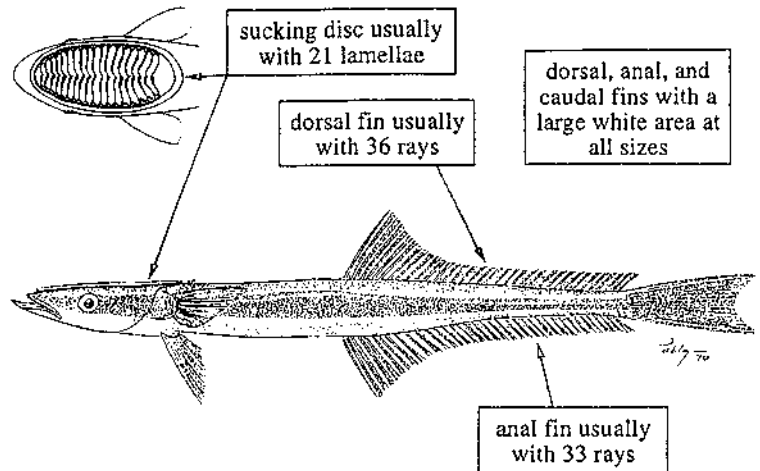
Echeneis neucratoides Zuiew, 1789

FAO names: En - Whitefin sharksucker; Fr - Rémora blanche; Sp - Pega aletablanca.
Common names:

Size: Maximum 75 cm; common to 50 cm.

Distribution and habitat: Throughout the area. In oceanic as well as in inshore waters.

Fisheries: Caught together with the host and also on hook-and-line.



Other genera:

Phtheirichthys, *Remora* and *Remorina*, with several species of no interest to fisheries.

ELOPIDAE

En: Ladyfishes. **Fr:** Guinéés. **Sp:** Malachos.

A single genus with one species.

Genus *Elops* - a single species in the area.

Elops saurus (Linnaeus, 1766)

(plate XIII, 101)

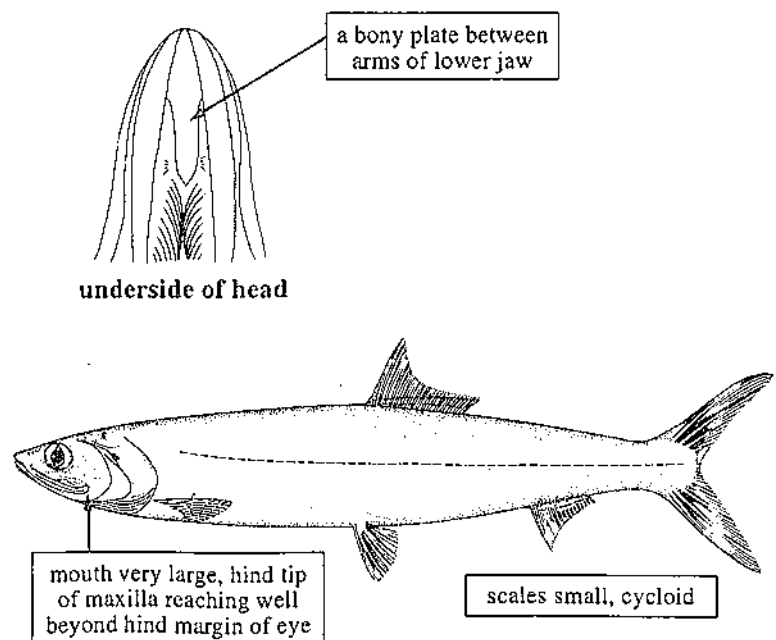
FAO names: En - Ladyfish; Fr - Guinée machète; Sp - Malacho.

Common names:

Size: Maximum 100 cm; common to 60 cm.

Distribution and habitat: Throughout the area. Demersal in shallow coastal waters over muddy bottoms, but also found in brackish-water estuaries; juveniles are common in hypersaline lagoons and bays. Spawning occurs in the sea and the transparent larvae (leptocephali) which have a forked caudal fin, migrate to the nursery areas (salt marshes and mangrove areas).

Fisheries: Predominantly artisanal. Caught with beach nets, gill nets and on hook-and-line. Of little commercial importance and considered a second-rate food fish because of its numerous spines, but the flesh is of good quality and used as fillings for hamburgers, "empanadas," and other local dishes.



EMMELICHTHYIDAE

En: Rovers, rubyfishes. **Fr:** Poissons rubis, andorrèves. **Sp:** Conoros, andorreros.

A single genus with one species in the area.

Genus *Erythrocles* - a single species in the area.

Erythrocles monodi Poll and Cadenat, 1954

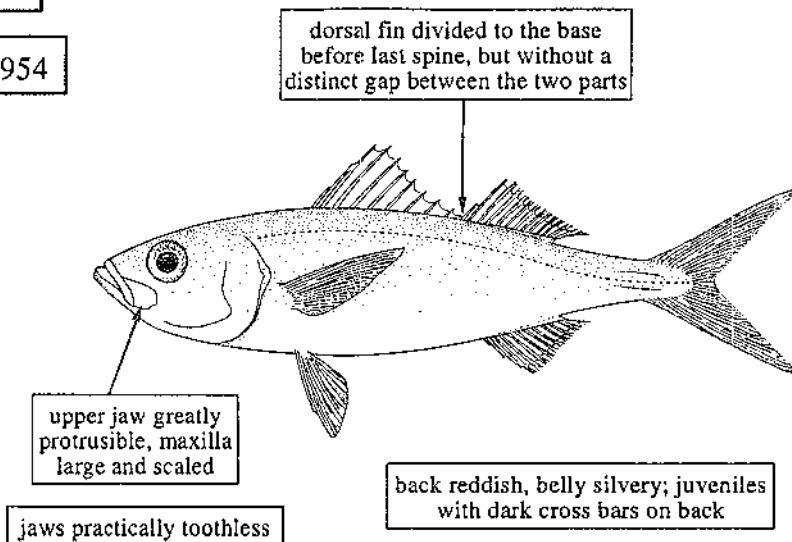
FAO names: **En** - Atlantic rubyfish; **Fr** - Poisson rubis; **Sp** - Conoro.

Common names:

Size: Maximum 55 cm; common to 40 cm.

Distribution and habitat: Reported only from the northern coast of Venezuela, but probably more widely distributed in the area. Pelagic in clear waters, but also demersal to a depth of about 300 m.

Fisheries: Taken mainly as bycatch in trawl fisheries. Not abundant, but its flesh is of excellent quality.

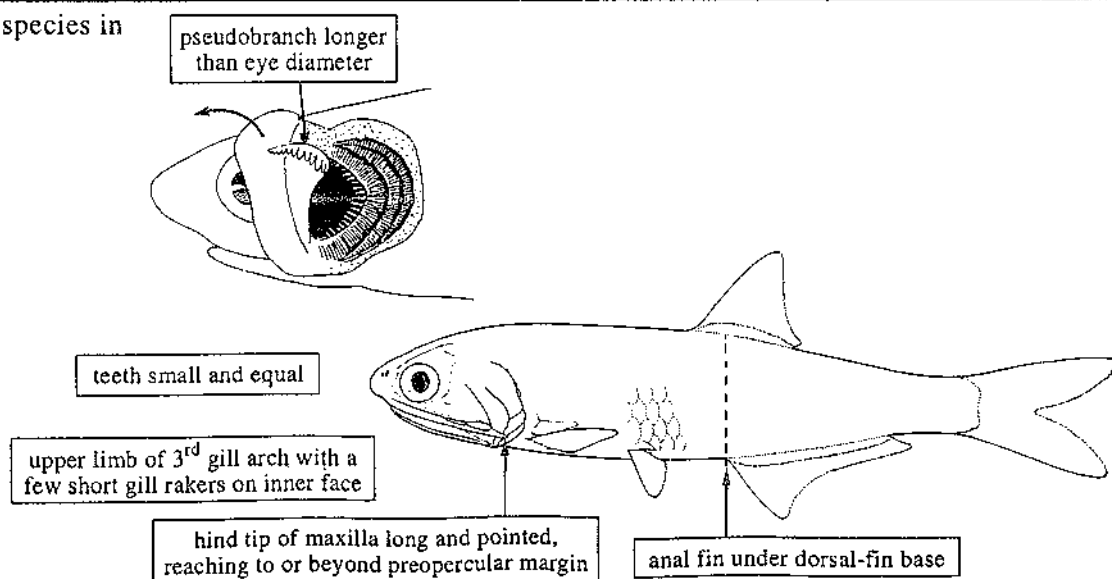


ENGRAULIDIDAE

En: Anchovies. **Fr:** Anchois. **Sp:** Anchoas, anchovetas.

Small fishes, usually less than 30 cm in length, occurring in marine, brackish waters, and in freshwater. The marine species, which represent a large majority, are coastal pelagic and often occur in big and very dense schools. Most of them are plankton filter feeders and are major foraging species in the natural food chain. Some brackish-water species are bottom-living carnivores. Although all species are edible, transportation and large-scale marketing of these fishes is difficult because of the soft consistency of their flesh, especially for the smaller species of the genera *Anchoa* and *Anchoiella*, which are only consumed locally at the fishing sites. Except in a few areas of the region, the majority of anchovies are under-exploited at present. Nevertheless they are a potential food fish resource and their presence in markets has been steadily increasing in the past few years. Anchovies are usually caught with fine-meshed beach seines. One species is more intensively fished and used mainly in the production of fish meal. Seven genera with 24 species are present in our area. These species greatly resemble each other in shape and colour, and it is difficult for the field worker to distinguish them on the basis of external characters.

Genus *Anchoa* - 10 species in the area.



ENGRAULIDIDAE

Anchoa cayorum (Fowler, 1906)

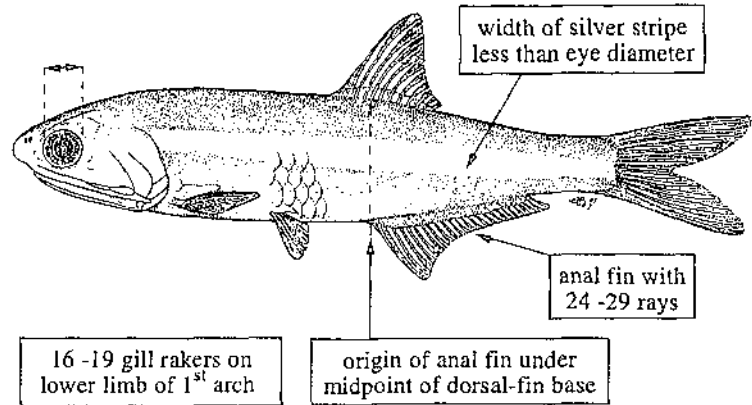
FAO names: En - Key anchovy; Fr - Anchois de banc; Sp - Anchoa de cayo.

Common names:

Size: Maximum 11 cm; common to 8 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad and Tobago. Pelagic in coastal shelf areas as well as in clear oceanic waters around islands. A plankton-feeding species often occurring in schools.

Fisheries: Caught occasionally with beach seines.

*Anchoa colonensis* Hildebrand, 1943

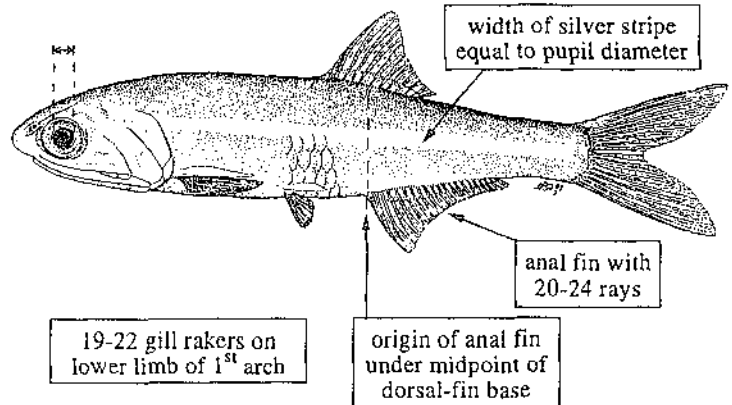
FAO names: En - Narrow-striped anchovy; Fr - Anchois à bande étroite; Sp - Anchoa banda estrecha.

Common names:

Size: Maximum 14 cm; common to 10 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad and Tobago. A plankton-feeding coastal pelagic species, often occurring in dense schools.

Fisheries: Taken occasionally with beach seines. In view of its large size, it is one of the anchovy species best suited for marketing purposes in our area.

*Anchoa cubana* (Poey, 1868)

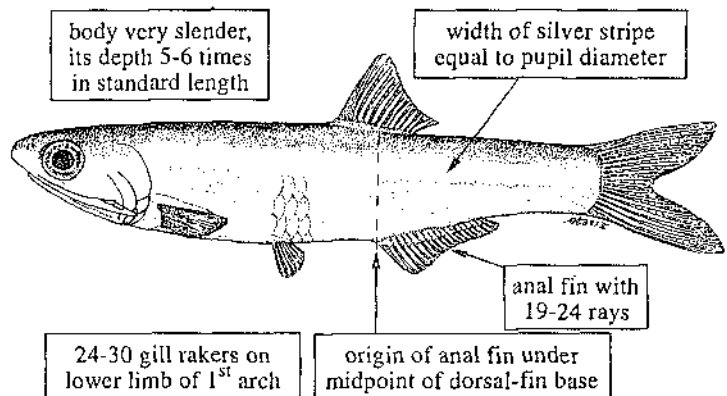
FAO names: En - Cuban anchovy; Fr - Anchois cubain; Sp - Anchoa cubana.

Common names:

Size: Maximum 10 cm; common to 8 cm.

Distribution and habitat: Throughout the area. Coastal pelagic in continental shelf areas as well as in clear waters around islands. A plankton-feeding species, often occurring in large schools.

Fisheries: Caught occasionally with beach seines.

*Anchoa filifera* (Fowler, 1915)

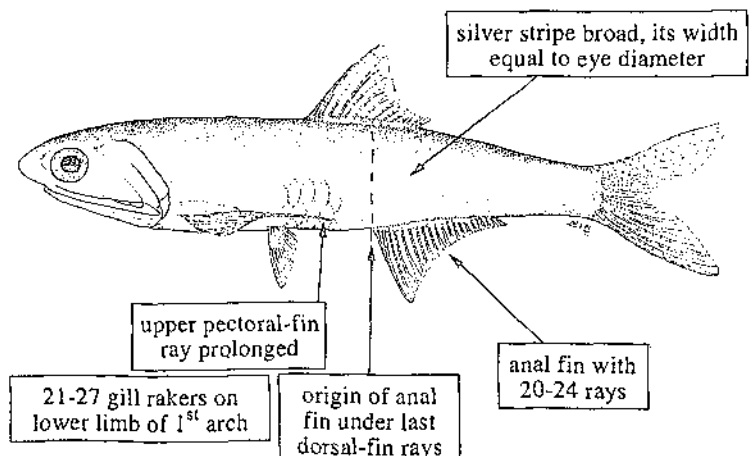
FAO names: En - Longfinger anchovy; Fr - Anchois fil; Sp - Anchoa de hebra.

Common names:

Size: Maximum 12 cm; common to 10 cm.

Distribution and habitat: Throughout the area. Coastal pelagic in continental shelf areas as well as in clear waters around islands. It has also been reported from brackish waters in Brazil. A plankton-feeding species often occurring in large schools. It has been taken in trawls down to depths of 25 m off Brazil.

Fisheries: Caught occasionally with beach seines.



***Anchoa hepsetus* (Linnaeus, 1758)**

(plate XIII,102)

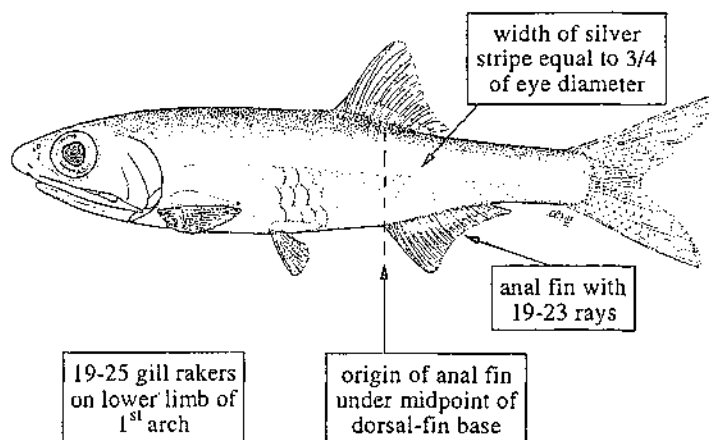
FAO names: En - Broad-striped anchovy; Fr - Anchois à bande large; Sp - Anchoa banda ancha.

Common names:

Size: Maximum 15 cm; common to 11 cm.

Distribution and habitat: From western Venezuela to Brazil. Coastal pelagic in continental shelf areas, ranging from hypersaline to brackish waters of very low salinity (almost freshwater). A plankton-feeding species often occurring in dense schools.

Fisheries: Caught occasionally with beach seines. In view of its relatively large size, it is, together with *A. colonensis*, one of the anchovy species best suited for marketing purposes in our area.



***Anchoa lamprotaenia* Hildebrand, 1943**

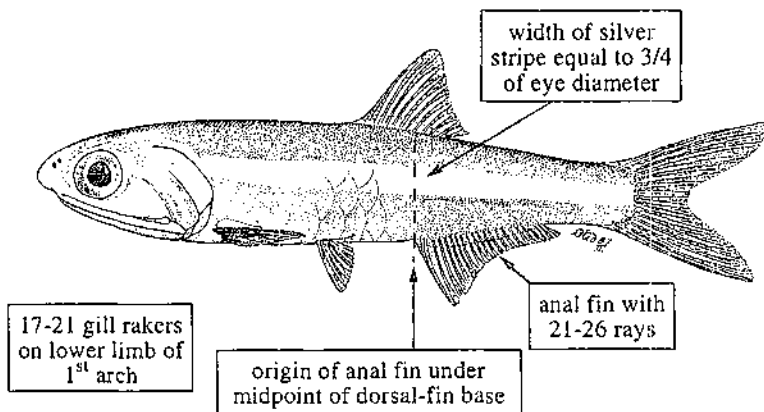
FAO names: En - Bigeye anchovy; Fr - Anchois grandoeil; Sp - Anchoa ojo gordo.

Common names:

Size: Maximum 12 cm; common to 10 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad and Tobago. Coastal pelagic in continental shelf areas, and in clear waters around islands. A plankton-feeding species occurring in dense schools.

Fisheries: Caught occasionally with beach seines.



***Anchoa lyolepis* (Evermann and Marsh, 1902)**

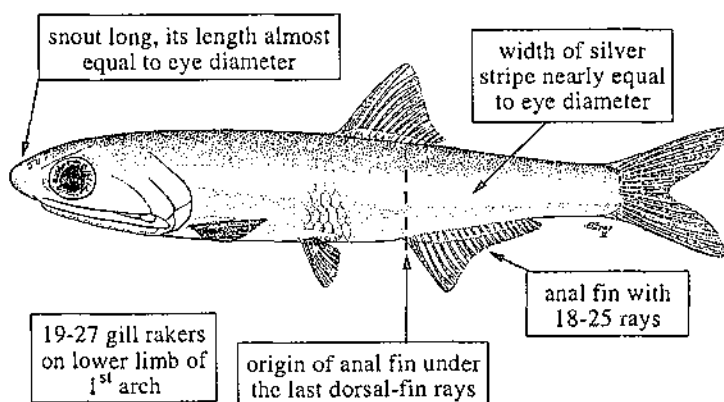
FAO names: En - Shortfinger anchovy; Fr - Anchois longnez; Sp - Anchoa trompalarga.

Common names:

Size: Maximum 12 cm; common to 9 cm.

Distribution and habitat: Throughout the area. Coastal pelagic in continental shelf areas, as well as in clear waters around islands. A plankton-feeding species occurring in dense schools. It has been taken in depths to 25 m.

Fisheries: Caught occasionally with beach seines.



***Anchoa parva* (Meek and Hildebrand, 1923)**

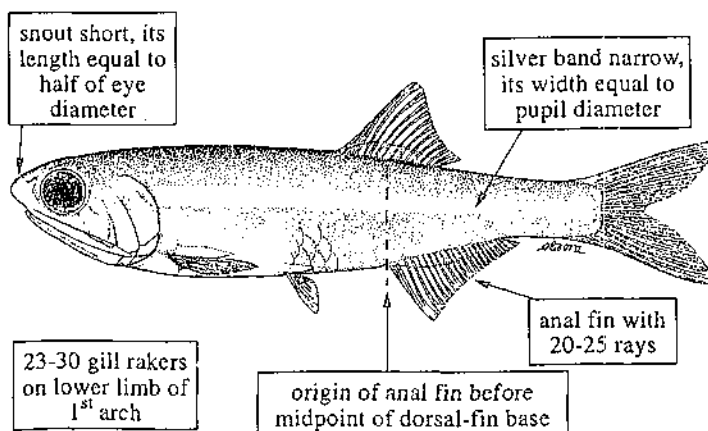
FAO names: En - Little anchovy; Fr - Anchois nain; Sp - Anchoa enana.

Common names:

Size: Maximum 8 cm; common to 5 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad and Tobago. Coastal pelagic in continental shelf waters. A plankton-feeding species occurring in schools. According to some authors, this species occasionally enters freshwater.

Fisheries: Caught occasionally with beach seines. Not suited for marketing because of its small size and soft flesh.



***Anchoa spinifer* (Valenciennes, 1848)** (plate XIII,103)

FAO names: En - Spicule anchovy; Fr - Anchois spicule; Sp - Anchoa de charco.

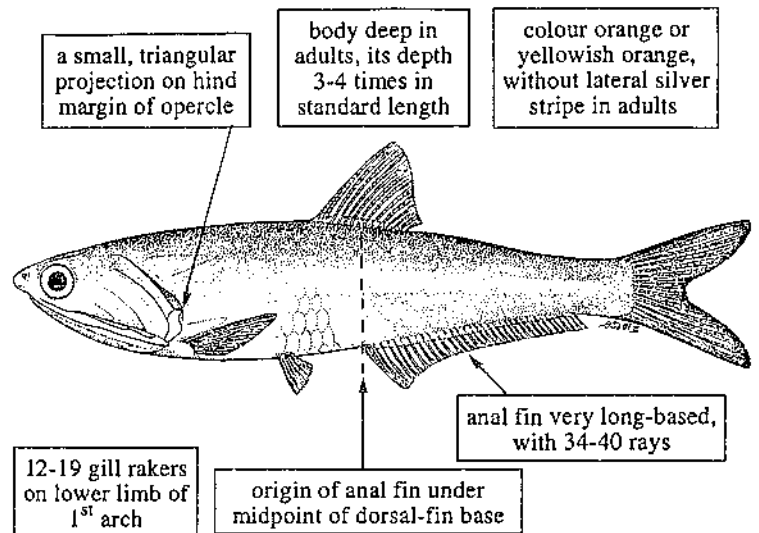
Common names:

Size: Maximum 24 cm; common to 20 cm.

Distribution and habitat: Throughout the area. Demersal over soft bottoms of the continental shelf, near river mouths; also in brackish waters, and occasionally, freshwater. It may occur to a depth of 55 m, but is usually found in shallower water, above 30 m. A carnivorous species. According to some authors it may occur in large schools.

Fisheries: Taken mainly as bycatch in the industrial trawl fishery for shrimps. Although not marketed for human consumption at present, it is landed in large quantities and used in the manufacture of byproducts.

Note: According to some authors, a very similar species, *A. argenteus* Schultz, 1949, occurs in Lake Maracaibo, and is distinguished from *A. spinifer* mainly by a lower number of vertebrae.

***Anchoa trinitatis* (Fowler, 1915)**

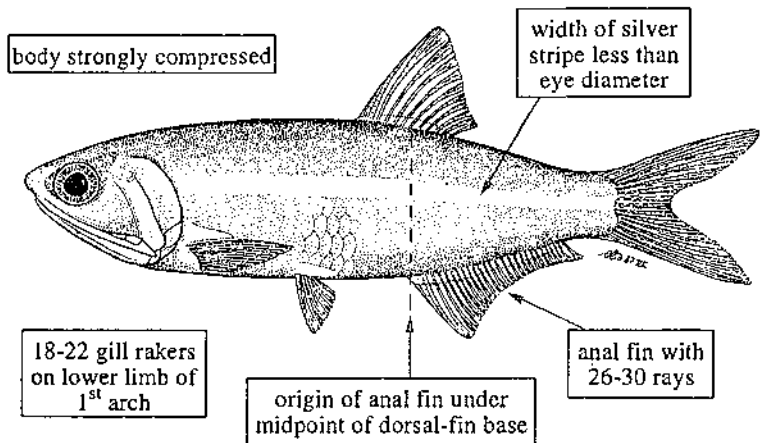
FAO names: En - Trinidad anchovy; Fr - Anchois machète; Sp - Anchoa machete.

Common names:

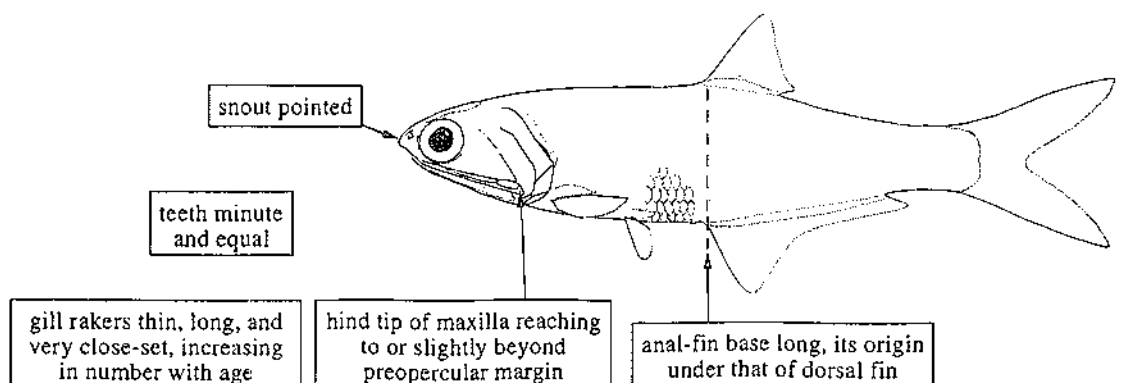
Size: Maximum 14 cm; common to 12 cm.

Distribution and habitat: Northern coasts of Colombia, and Venezuela and on Trinidad. Coastal pelagic, sometimes very close to the bottom over soft substrates. Occasionally occurs in large schools.

Fisheries: Caught with beach seines. Not very suitable as a food fish because of its strongly compressed body.



Genus *Anchovia* - 2 species in the area.



***Anchovia clupeioides* (Swainson, 1839)**

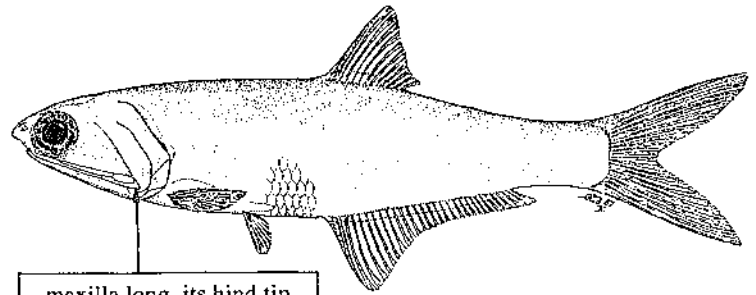
FAO names: En - Zabaleta anchovy; Fr - Anchois hachue; Sp - Anchoa bocona.

Common names:

Size: Maximum 24 cm; common to 17 cm.

Distribution and habitat: Throughout the area. Demersal over shallow, soft, usually muddy bottoms, normally in the vicinity of river mouths. Tolerates a wide range of salinities and is hence also found in brackish waters, hypersaline lagoons, and occasionally, freshwater. A plankton-feeding species often occurring in schools.

Fisheries: Artisanal. Caught mainly with beach seines and occasionally with bottom trawls. Usually not consumed due to the low quality of its flesh.



maxilla long, its hind tip reaching to or slightly beyond preopercular margin

gill rakers very numerous, over 100 on lower limb of 1st arch, at sizes of 13 cm length

***Anchovia surinamensis* (Bleeker, 1866)**

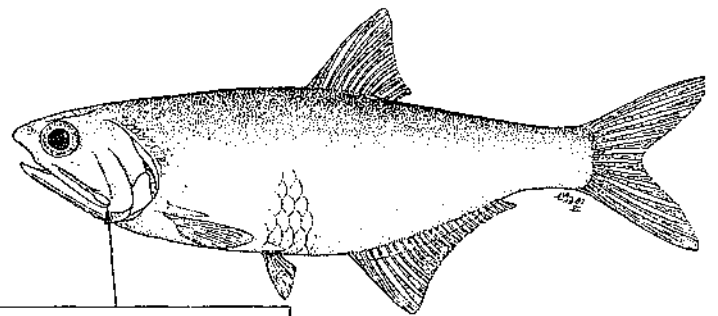
FAO names: En - Suriname anchovy; Fr - Anchois de Suriname; Sp - Anchoa de río.

Common names:

Size: Maximum 13 cm; common to 8 cm.

Distribution and habitat: From the Gulf of Paria to Brazil. This is mainly a freshwater species that occasionally enters brackish waters. Predominantly demersal over soft bottoms.

Fisheries: Exclusively artisanal. Caught with fine-meshed beach seines. Occasionally consumed in some localities.



maxilla short, its tip not reaching preopercular margin

51-60 gill rakers on lower limb of 1st arch

Genus *Anchoviella* - 6 species in the area.

pseudobranch shorter than eye diameter

teeth small and equal

upper limb of 3rd gill arch with a few short rakers on inner face

hind tip of maxilla short and blunt, usually not reaching to preopercular margin

***Anchoviella brevirostris* (Günther, 1888)**

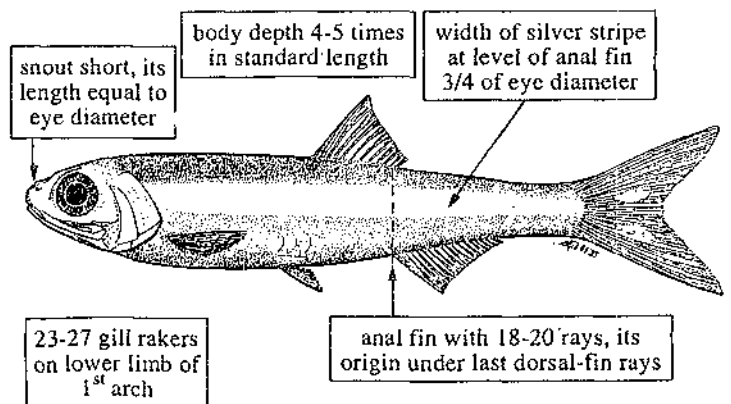
FAO names: En - Snubnose anchovy; Fr - Anchois nez court; Sp - Anchoveta chata.

Common names:

Size: Maximum 9 cm; common to 7 cm.

Distribution and habitat: From the mouth of the Orinoco river to Brazil. Coastal pelagic to a depth of 50 m, but also found in estuaries, sometimes at very low salinities.

Fisheries: Caught occasionally with beach seines.



ENGRAULIDIDAE

Anchoviella cayennensis (Puyo, 1945)

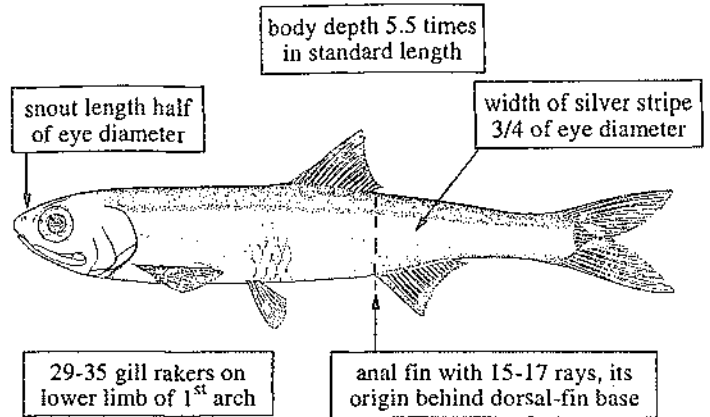
FAO names: En - Cayenne anchovy; Fr - Anchois de Cayennes; Sp - Anchovieta de Cayena.

Common names:

Size: Maximum 12 cm; common to 9 cm.

Distribution and habitat: From the Guianas to Brazil. Occurs in estuaries and it is unknown if it occurs in marine waters or in freshwater.

Fisheries: Probably a component of anchovy catches in artisanal fisheries, but apparently not abundant.

*Anchoviella elongata* (Meek and Hildebrand, 1923)

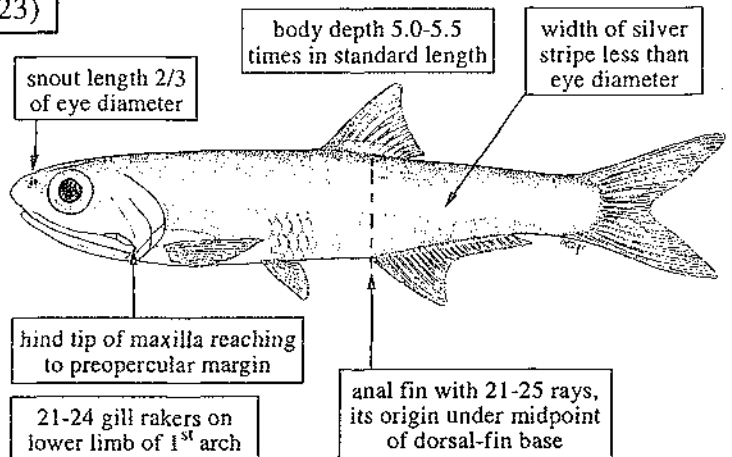
FAO names: En - Elongate anchovy; Fr - Anchois allongé; Sp - Anchovieta alargada.

Common names:

Size: Maximum 11 cm; common to 9 cm.

Distribution and habitat: Western part of the Colombian coast. Occurs in the vicinity of sand beaches; also, in estuaries, lagoons and other brackish-water habitats; apparently tolerates a very wide range of salinities, but probably does not enter freshwater.

Fisheries: Probably one of the components in anchovy catches of artisanal fisheries.

*Anchoviella guianensis* (Eigenmann, 1912)

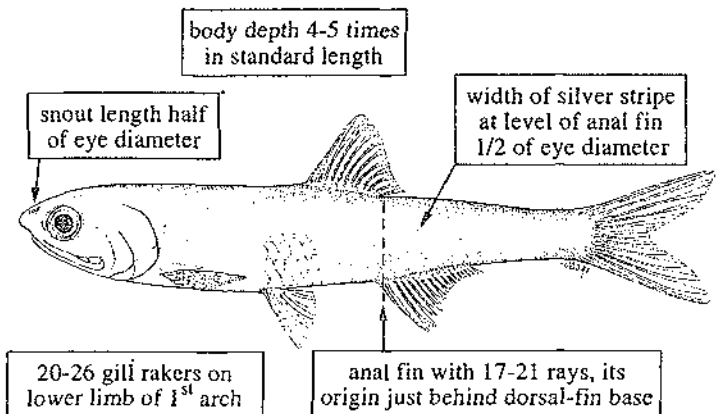
FAO names: En - Guiana anchovy; Fr - Anchois de Guiane; Sp - Anchovieta de río.

Common names:

Size: Maximum 9 cm; common to 6 cm.

Distribution and habitat: From the Gulf of Paria to Brazil. Occurs in low-salinity brackish waters, but predominantly in freshwater.

Fisheries: Probably contributes to the landings of artisanal river fisheries.

*Anchoviella lepidentostole* (Fowler, 1911)

FAO names: En - Brownband anchovy; Fr - Anchois à bande brune; Sp - Anchovieta de mar.

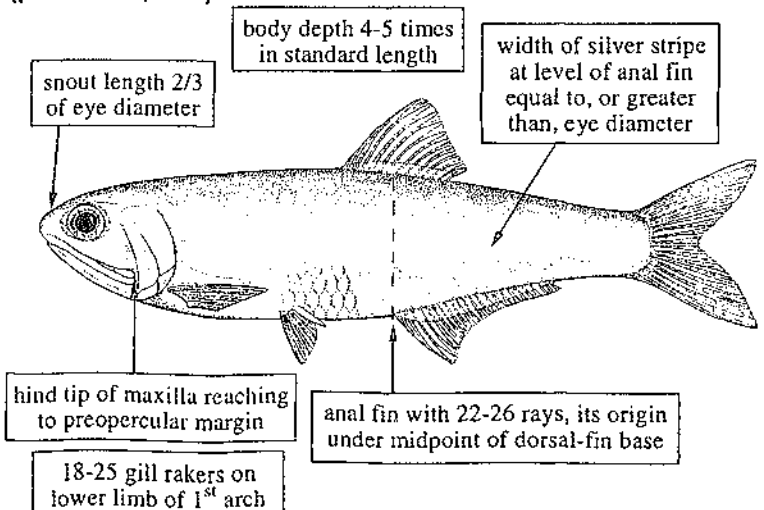
Common names:

Size: Maximum 11.2 cm; common to 9 cm.

Distribution and habitat: From the Gulf of Paria to Brazil. Coastal pelagic to a depth of about 50 m. Found predominantly in brackish waters, but also in the sea. A plankton-feeding species occurring in schools.

Fisheries: Taken as bycatch in industrial trawl fisheries, mainly those for shrimps. Also a component of anchovy catches taken by artisanal fisheries. In view of its relatively large size and rounded body, this is the anchovy species best suited for marketing purposes.

(plate XIII, 104)



***Anchoviella perfasciata* (Poey, 1860)**

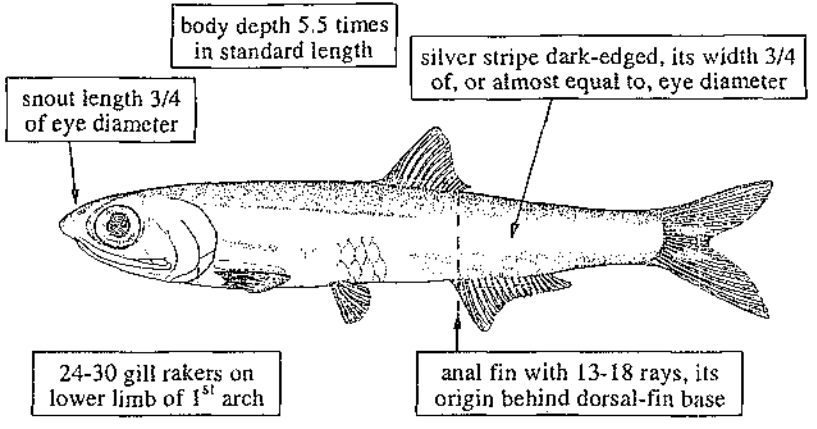
FAO names: En - Poey's anchovy; Fr - Anchois cubain; Sp - Anchovieta cubana.

Common names:

Size: Maximum 11 cm; common to 9 cm.

Distribution and habitat: Trinidad and Tobago, and probably the northern coast of Colombia. Coastal pelagic in marine waters; its presence in brackish waters is not confirmed.

Fisheries: Probably an occasional component of artisanal fisheries landings. Apparently not very abundant.



Genus *Cetengraulis* - a single species in the area.

***Cetengraulis edentulus* (Cuvier, 1829)**

Synonyms: *Hildebrandichthys setiger* Schultz, 1949

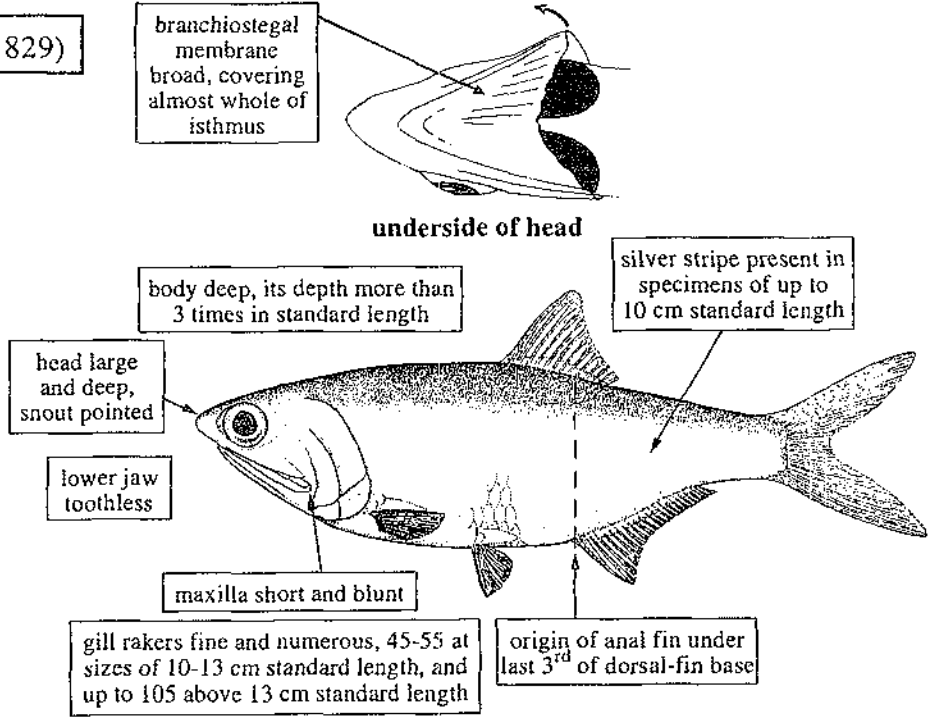
FAO names: En - Atlantic anchoveta; Fr - Anchois queue jaune; Sp - Anchoveta rabo amarillo.

Common names:

Size: Maximum 16.6 cm; common to 15 cm.

Distribution and habitat: Throughout the area. In coastal marine waters over muddy bottoms, often occurring in schools near the surface. Also found in brackish waters.

Fisheries: Caught mainly with beach seines. Most of the catch is processed as fishmeal for animal feed concentrates.



Genus *Engraulis* - a single species in the area.

***Engraulis eurystole* (Swain and Meek, 1884)**

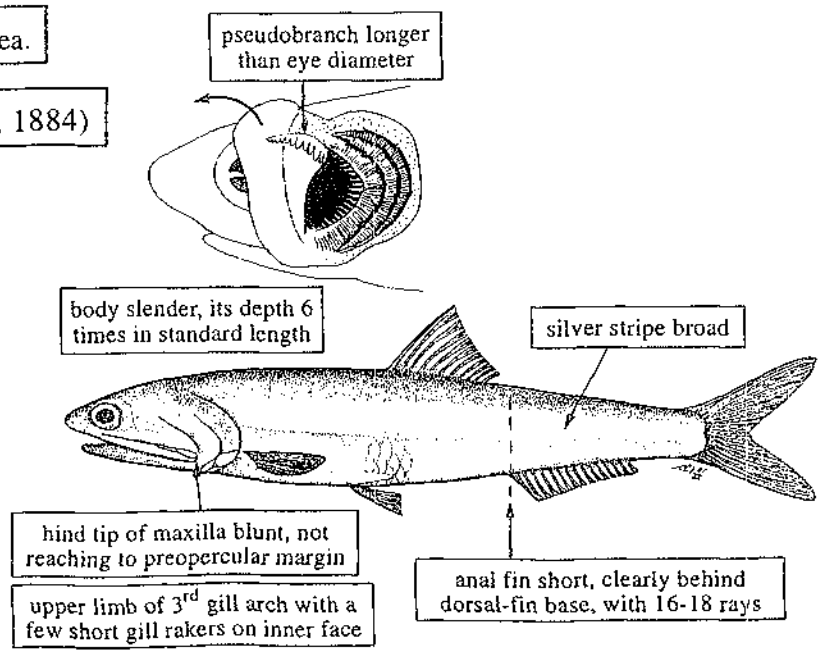
FAO names: En - Silver anchovy; Fr - Anchois gris; Sp - Anchoita negra.

Common names:

Size: Maximum 12.5 cm; common to 8 cm.

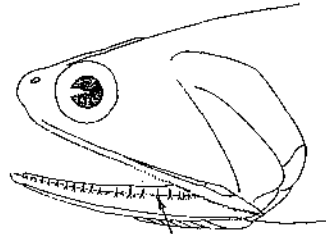
Distribution and habitat: Throughout the area. Coastal pelagic, mainly in marine inshore areas where it is more abundant, but also in clear waters around islands. A plankton-feeding species often occurring in dense schools.

Fisheries: Artisanal. Caught with fine-meshed beach seines. Marketed fresh in small quantities.



ENGRAULIDAE

Genus *Lycengraulis* - 3 species in the area.



teeth in lower jaw enlarged, canine-like, unequal in size

12-27 gill rakers on lower limb of 1st arch, the anterior ones becoming reduced with age

Lycengraulis batesii (Günther, 1868)

FAO names: En - Bates' sabretooth anchovy; Fr - Anchois-tigre; Sp - Anchoa tigre.

Common names:

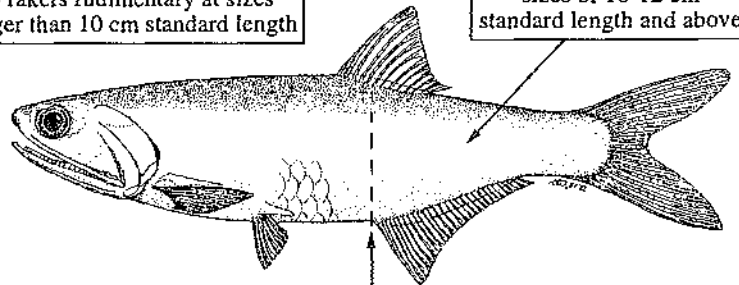
Size: Maximum 30 cm; common to 20 cm.

Distribution and habitat: From the Gulf of Paria to Brazil. Found in brackish estuarine waters of low salinity and in freshwater. A carnivorous predator not occurring in large schools.

Fisheries: Artisanal. Caught with beach seines. Marketed locally in small quantities.

12-15 short, blunt, gill rakers on lower limb of 1st arch, the 1st 3 rakers rudimentary at sizes larger than 10 cm standard length

silver stripe disappears at sizes of 10-12 cm standard length and above



anal fin with 29-33 rays, its origin under 1st to 4th dorsal fin rays

Lycengraulis grossidens (Agassiz, 1829)

FAO names: En - Atlantic sabretooth anchovy; Fr - Anchois goulard; Sp - Anchoa dientona.

Common names:

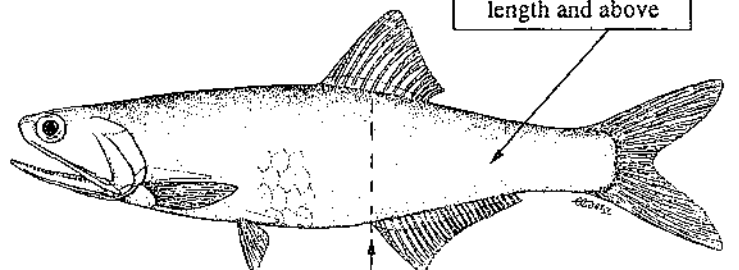
Size: Maximum 26 cm; common to 20 cm.

Distribution and habitat: Throughout the area. Found in estuaries and neighbouring marine areas to a depth of about 40 m, over soft, usually muddy substrate. Also enters freshwater. A carnivorous predator.

Fisheries: Artisanal. Caught with beach nets. Also taken as bycatch in industrial trawl fisheries for shrimps. Of little commercial importance.

(plate XIV, 105)

silver stripe very broad, disappearing at about 10 cm standard length and above



16-27 gill rakers on lower limb of 1st arch

anal fin with 24-29 rays, its origin under 6th to 10th dorsal fin rays

Other species:

L. limnichthys Schultz, 1949, is a valid species occurring in the western region of Venezuela and in Colombia. It is easily distinguished from *L. grossidens* by its higher number of gill rakers (37-42 against 30-36).

Genus *Pterengraulis* - a single species in the area.

Pterengraulis atherinoides (Linnaeus, 1766)

FAO names: En - Wingfin anchovy; Fr - Anchois grande aîle; Sp - Anchoa aletona.

Common names:

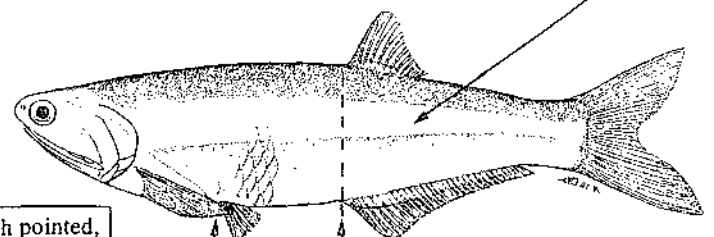
Size: Maximum 30 cm (not documented); common to 20 cm.

Distribution and habitat: From the Gulf of Paria to Brazil. Found in brackish estuarine waters of low salinity and in freshwater. A carnivorous predator.

Fisheries: Predominantly artisanal. Caught with beach seines. Marketed locally.

body depth 3.5-4.5 times in standard length

silver stripe broadest anteriorly and disappearing in large individuals



teeth pointed, canine-like, equal in size

pectoral fins large, reaching beyond origin of pelvic fins and pointing downwards

anal fin long-based, with 31-35 rays, its origin before that of dorsal fin

EPHIPPIDAE

En: Spadefishes. **Fr:** Disques. **Sp:** Paguaras.

A single genus with one species in the area.

Genus *Chaetodipterus* - a single species in the area.

Chaetodipterus faber (Broussonet, 1782) (plate XIV, 106)

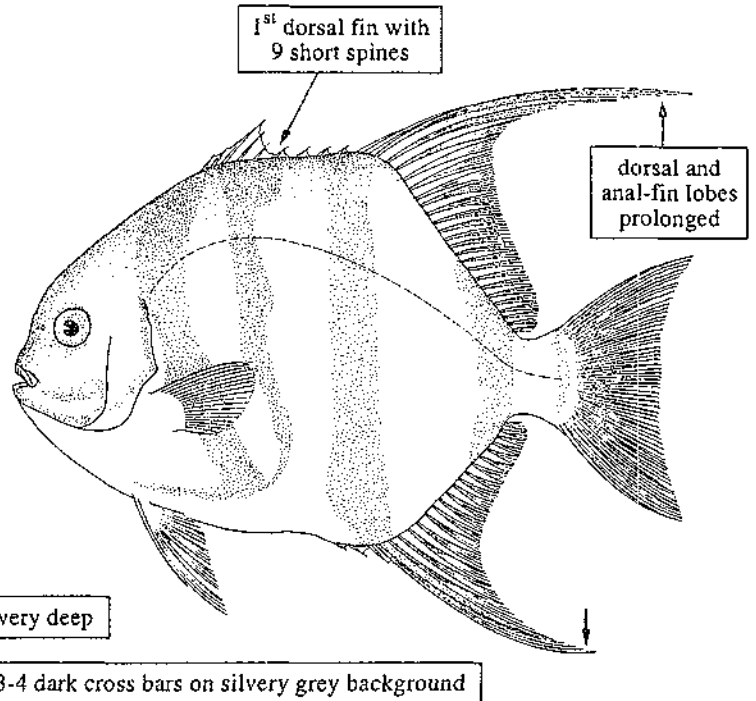
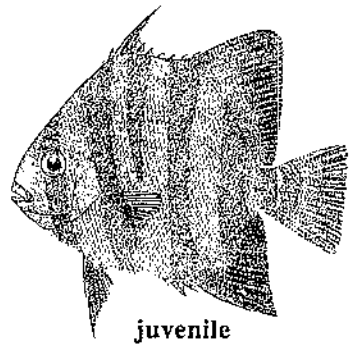
FAO names: **En** - Atlantic spadefish; **Fr** - Disque portuguais; **Sp** -Paguara.

Common names:

Size: Maximum 90 cm; common to 40 cm.

Distribution and habitat: Throughout the area. Small juveniles are found close to the shore in only a few centimetre of water, over soft, usually muddy bottoms in marine areas, but they are also common in brackish and even hypersaline waters. The adults are pelagic and occur in a wide range of marine habitats, both in coastal shelf areas and in clear waters around oceanic islands.

Fisheries: Caught mainly with beach nets but also on hook-and-line. Marketed fresh. Not of great interest to marine fisheries, but an important species in mariculture.



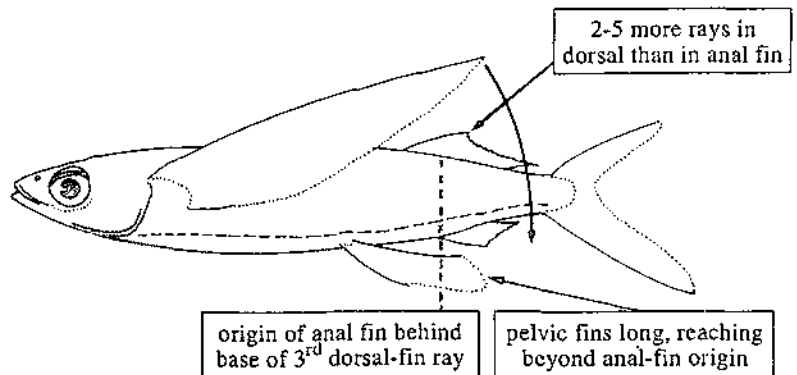
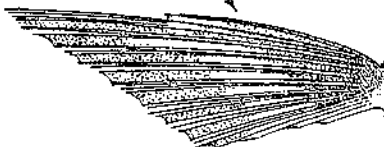
EXOCOETIDAE

En: Flyingfishes. **Fr:** Exocets. **Sp:** Voladores.

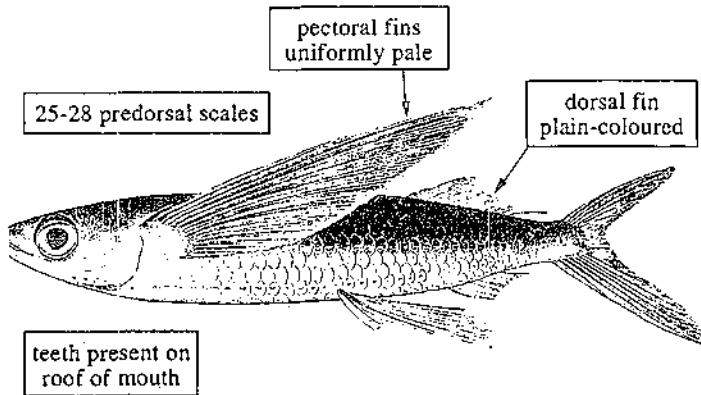
Small to medium-sized, elongate fishes, circular or more or less rectangular in cross section. They are characterized by their unusually large pectoral fins, which they use for gliding for considerable distances above the water. They live at the water surface, mostly in oceanic offshore waters, but some species are also found in coastal areas and even inside bays. Flyingfishes are edible and constitute an important potential resource. However, so far only few countries have succeeded in developing the technology for fishing them on commercial scale. Five genera with 13 in species in the area. The occurrence of *Fodiator acutus* is doubtful.

Genus *Cypselurus* - 5 or 6 species in the area.

only the 1st pectoral fin ray unbranched



EXOCOETIDAE

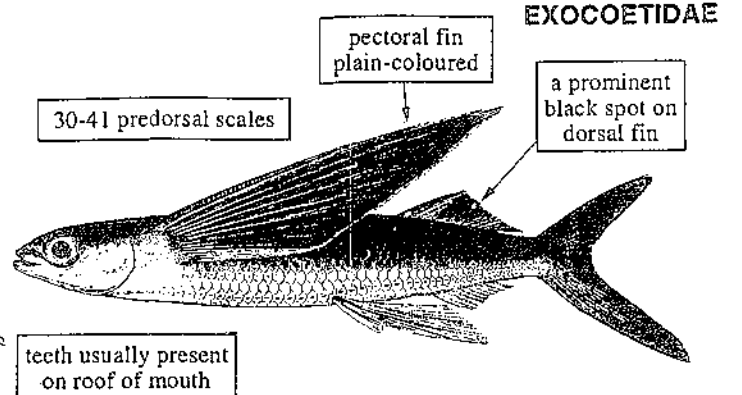
*Cypselurus comatus* (Mitchill, 1815)

FAO names: En - Clearwing flyingfish; Fr - Exocet hollandais; Sp - Volador holandés.

Common names:

Size: Maximum 20 cm; common to 15 cm.

Distribution and habitat: Known from Trinidad and adjacent areas; presence in the Caribbean sea unconfirmed. Occasionally close to the shore. Not fished at present.

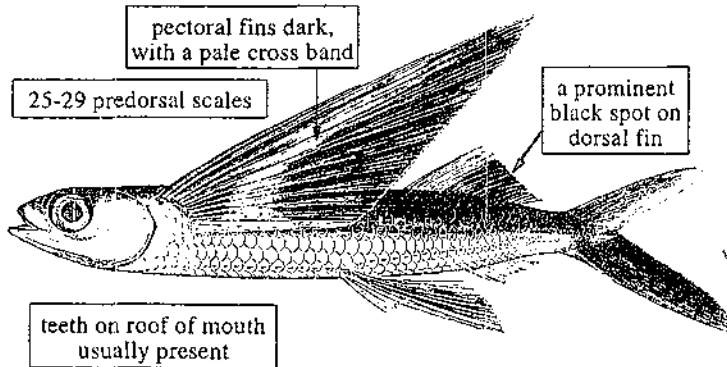
*Cypselurus cyanopterus* (Val. in Cuv. and Val., 1846)

FAO names: En - Margined flyingfish; Fr - Exocet codène; Sp - Volador bordiblanco.

Common names:

Size: Maximum 40 cm; common to 25 cm.

Distribution and habitat: Throughout the area. In inshore and offshore waters. Not regularly fished.

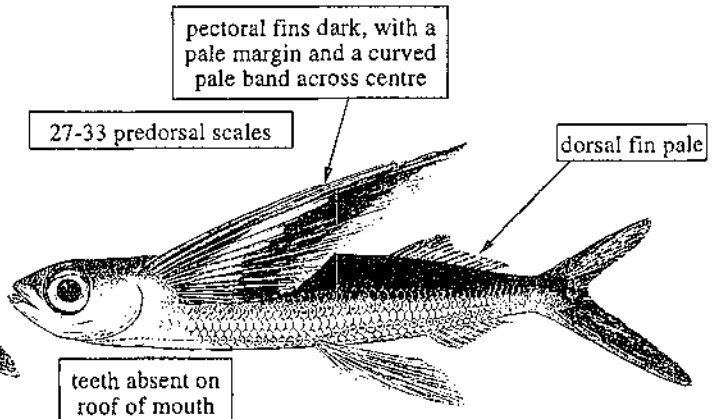
*Cypselurus exsiliens* (Linnaeus, 1771)

FAO names: En - Bandwing flyingfish; Fr - Exocet rayé; Sp - Volador bandiblanco.

Common names:

Size: Maximum 24 cm; common to 18 cm.

Distribution and habitat: Trinidad and areas adjacent to the Atlantic coast; presence in the Caribbean sea not documented. Pelagic oceanic, occasionally close to the shore.

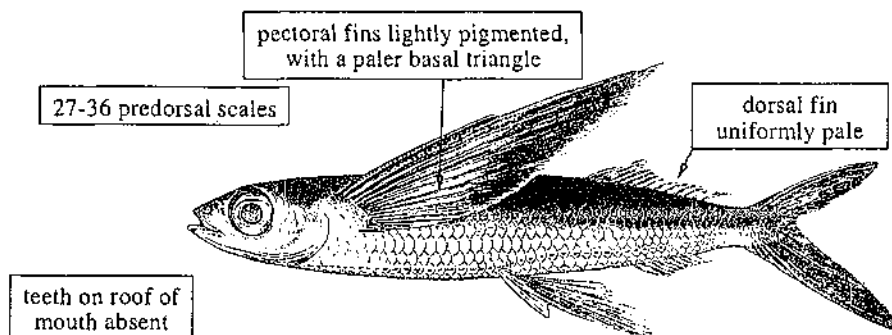
*Cypselurus furcatus* (Mitchill, 1815)

FAO names: En - Spottfin flyingfish; Fr - Exocet tacheté; Sp - Volador manchado.

Common names:

Size: Maximum 35 cm; common to 25 cm.

Distribution and habitat: Throughout the area. In oceanic waters. Only caught incidentally.

*Cypselurus melanurus* (Val. in Cuv. and Val., 1846)

FAO names: In. - Atlantic flyingfish; Fr - Exocet atlantique; Sp - Volador atlántico.

Common names:

Size: Maximum 32 cm; common to 25 cm.

Distribution and habitat: Caribbean sea and northern half of Atlantic subarea. Usually in coastal waters. Caught only occasionally.

Note: The species *Cypselurus heterurus* (Rafinesque, 1810), also reported from the area, is considered by many authors as conspecific with *C. melanurus*.

EXOCOETIDAE

Genus *Exocoetus* - 2 species in the area.

pectoral fins reaching beyond anal-fin base almost to about caudal-fin base

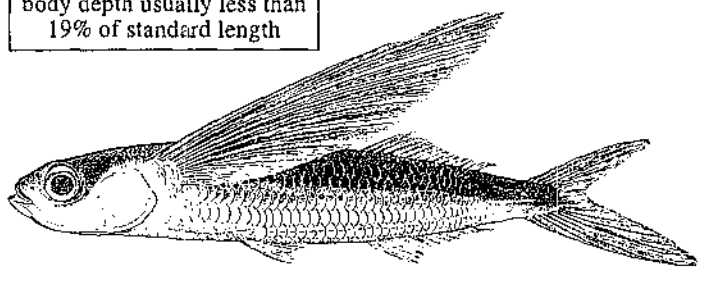
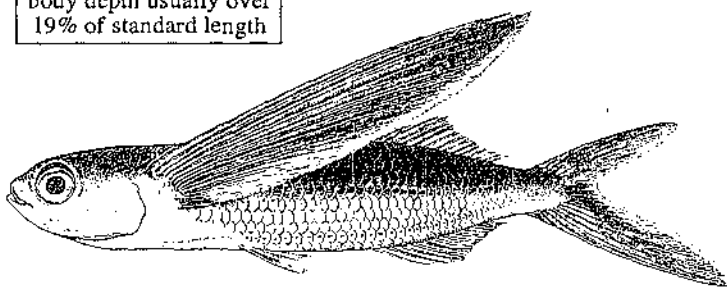
dorsal fin low, pale

pelvic-fin insertions nearer to pectoral-fin insertions than to origin of anal fin

pelvic fins relatively short, barely reaching origin of anal fin

body depth usually over 19% of standard length

body depth usually less than 19% of standard length



24-29 gill rakers on 1st arch

29-37 gill rakers on 1st arch

Exocoetus obtusirostris Günther, 1866

Exocoetus volitans (Linnaeus, 1758)

FAO names: En - Oceanic two-wing flyingfish; Fr - Exocet bouledogue; Sp - Volador fiato.

Common names:

Size: Maximum 24 cm; common to 20 cm.

Distribution and habitat: Caribbean sea and northern part of Atlantic subarea. In inshore and offshore waters. Caught incidentally.

FAO names: En - Tropical two-wing flyingfish; Fr - Exocet volant; Sp - Volador.

Common names:

Size: Maximum 24 cm; common to 20 cm.

Distribution and habitat: Throughout the area. In inshore and offshore waters. Caught incidentally.

Genus *Hirundichthys* - 2 species in the area.

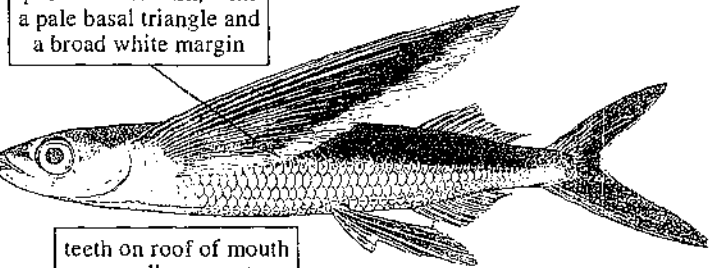
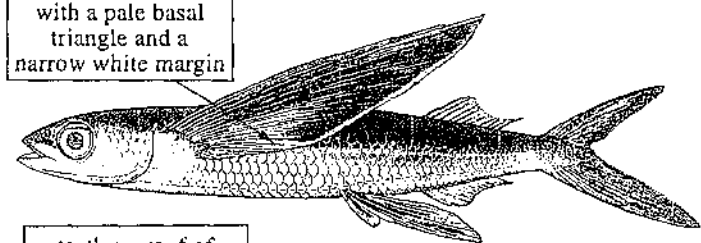
number of rays equal in dorsal and anal fins, or differing by not more than 2 rays

origin of anal fin slightly before, under, or not more than 3 rays behind that of dorsal fin

pelvic fins long, reaching well beyond origin of anal fin

pectoral fins dark, with a pale basal triangle and a narrow white margin

pectoral fins dark, with a pale basal triangle and a broad white margin



teeth on roof of mouth usually absent

teeth on roof of mouth usually present

Hirundichthys affinis (Günther, 1866)

Hirundichthys speculiger (Val. in Cuv. and Val., 1846)

FAO names: En - Fourwing flyingfish; Fr - Exocet hirondelle; Sp - Volador golondrina.

Common names:

Size: Maximum 29 cm; common to.

Distribution and habitat: Throughout the area. In inshore and offshore waters. Caught incidentally.

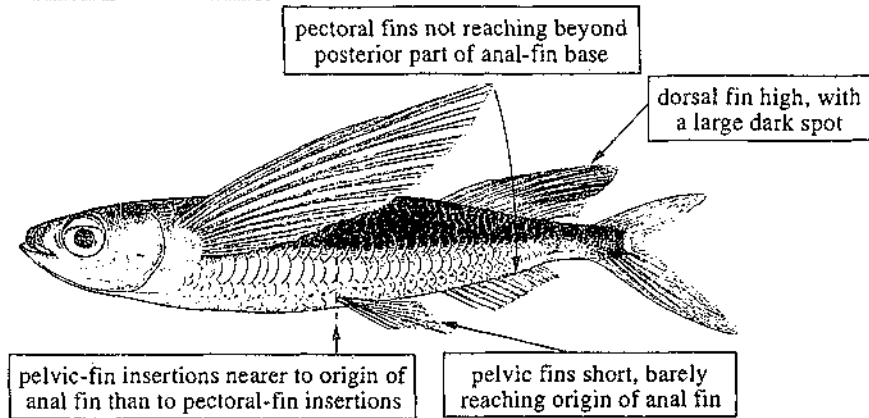
FAO names: En - Mirrorwing flyingfish; Fr - Exocet miroir; Sp - Volador espejo.

Common names:

Size: Maximum 30 cm; common to 25 cm.

Distribution and habitat: Throughout the area. Usually in oceanic waters. Caught incidentally.

Genus *Parexocoetus* - a single species in the area.



Parexocoetus brachypterus (Richardson, 1846)

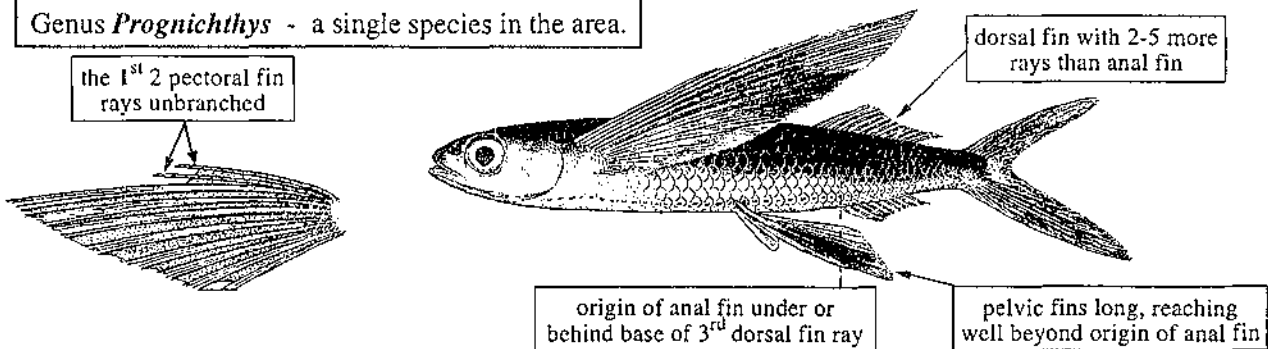
FAO names: En - Sailfin flyingfish; Fr - Exocet voilier; Sp - Volador aletón.

Common names:

Size: Maximum 20 cm; common to 16 cm.

Distribution and habitat: Caught throughout the area. In inshore, as well as offshore waters.

Genus *Prognichthys* - a single species in the area.



Prognichthys gibbifrons (Val. in Cuv. and Val., 1846)

FAO names: En - Bluntnose flyingfish; Fr - Exocet jibeux; Sp - Volador jorobado.

Common names:

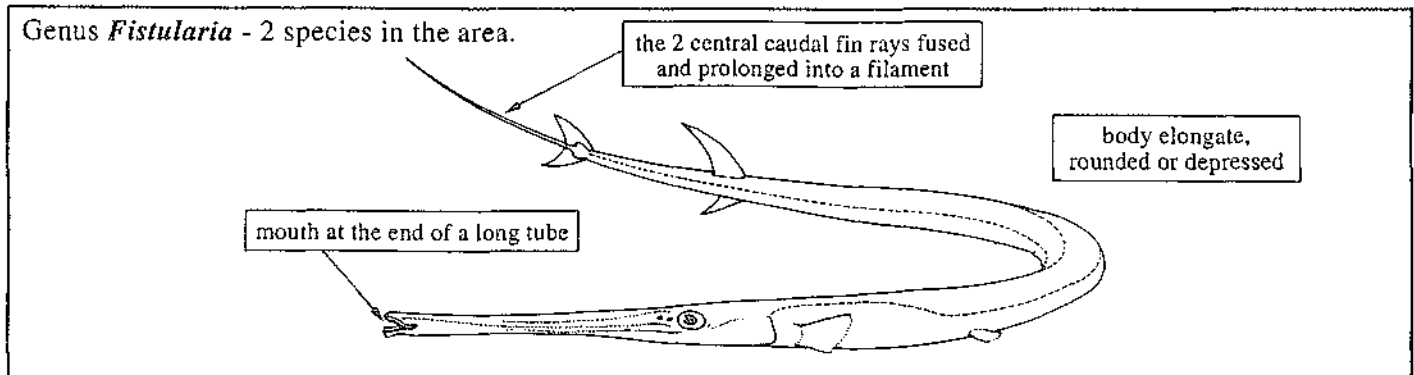
Size: Maximum 25 cm; common to 20 cm.

Distribution and habitat: Throughout the area. In coastal as well as oceanic waters. Caught only incidentally with surface nets.

FISTULARIIDAE

En: Cornetfishes. Fr: Cornettes. Sp: Cornetas.

Rather large, greatly elongate fishes, circular in cross section or dorsoventrally flattened, characterized by the position of the mouth at the end of a very long tube. They inhabit soft bottoms of the continental shelf. A single genus with 2 species in the area.



FISTULARIIDAE

***Fistularia petimba* Lacepède, 1803**

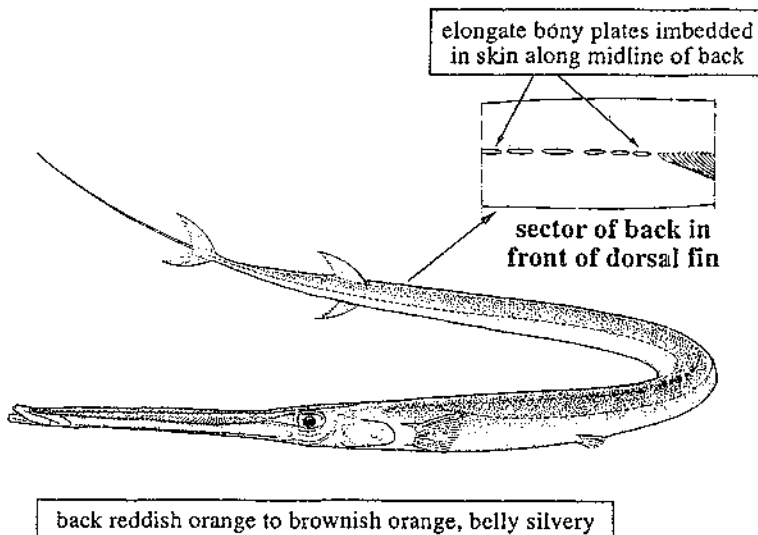
FAO names: En - Red cornetfish; Fr - Cornette rouge; Sp - Corneta colorada.

Common names:

Size: Maximum 200 cm; common to 100 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela. On soft bottoms of the continental shelf, usually below a depth of 10 m.

Fisheries: Artisanal. Caught with beach nets, and taken as bycatch in industrial trawl fisheries for shrimps or finfishes.



***Fistularia tabacaria* Linnaeus, 1758**

(plate XIV,107)

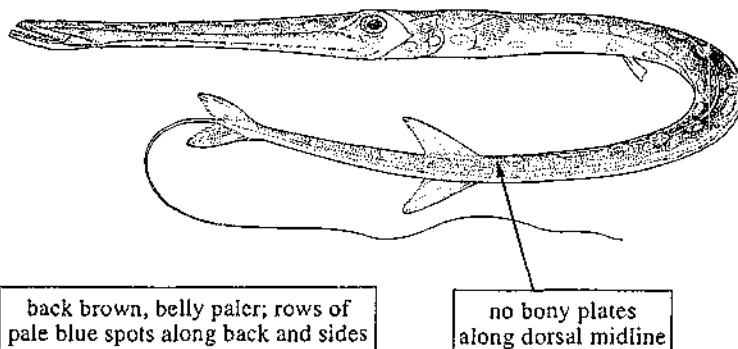
FAO names: En - Bluespotted cornetfish; Fr - Cornette tachetée; Sp - Corneta.

Common names:

Size: Maximum 180 cm; common to 120 cm.

Distribution and habitat: Throughout the area. On soft bottoms of the continental shelf to about a depth of 200 m.

Fisheries: Caught with beach nets and as bycatch in the industrial trawl fisheries for shrimps and finfishes. Usually not used for human consumption.



GADIDAE

En: Cods, codlings. **Fr:** Phycis, merlans, morrues, tacauds. **Sp:** Lochas, capellanes, plegoneros, etc.

Elongate, small to large fishes. Most species are demersal or benthopelagic. They are typical of temperate and cold-temperate waters. A single genus with one species in the area.

Genus *Urophycis* - a single species in the area.

***Urophycis cirrata* (Goode and Bean, 1896)**

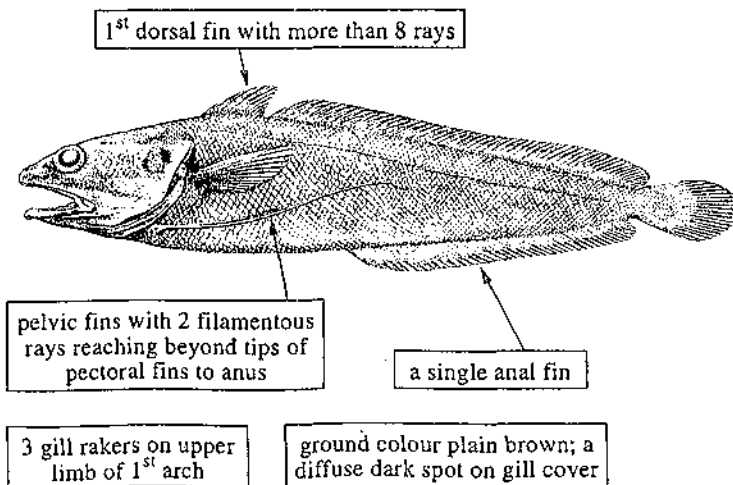
FAO names: En - Gulf codling (AFS: Gulf hake); Fr - Phycis du Golfe; Sp - Locha de fondo.

Common names:

Size: Maximum 57 cm; common to 40 cm.

Distribution and habitat: Probably throughout the area. Recorded from off the coast of Venezuela. Usually between depths of 300 and 600 m.

Fisheries: Only rarely taken as bycatch in industrial trawl fisheries for finfishes, probably because it commonly occurs below the present operational depth range of these fisheries.



GEMPYLIDAE

En: Escolars, oilfishes, snake mackerels. **Fr:** Escoliers, rouvets. **Sp:** Escolares, peces aceitosos.

Elongate, medium to large-sized fishes. They are mesopelagic, benthopelagic or demersal in oceanic waters, usually below a depth of 150 m, but commonly migrate to the surface at night. All species are carnivorous predators and very fast-moving, strong swimmers. Their coloration is predominantly brownish, but some species have dark green backs and white bellies. There appears to be no special fishery for any of the species occurring in our area, but they are often taken as bycatch in the tuna longline fishery and sold in markets throughout the area, mainly frozen. The flesh is edible, but extremely oily in some species. Seven genera, each with one species in the area.

Genus *Gempylus* - a single species.

Gempylus serpens Cuvier, 1831

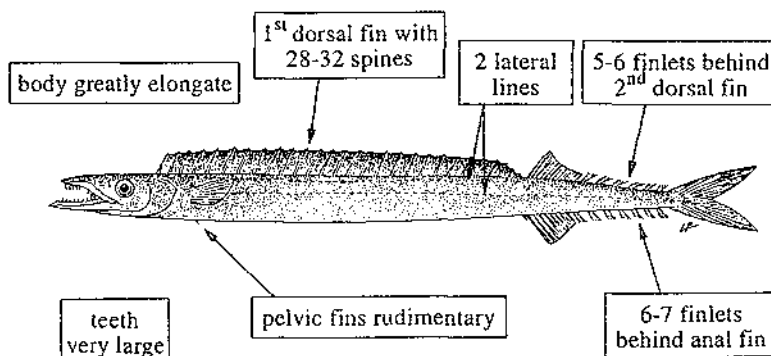
FAO names: **En** - Snake mackerel; **Fr** - Escolier serpent; **Sp** - Escolar de canal.

Common names:

Size: Maximum 110 cm; common to 70 cm.

Distribution and habitat: Throughout the area. Pelagic or benthopelagic in oceanic waters to a depth of about 200 m, but may be found near the surface at night. A voracious predator, attracted by artificial light, sometimes leaping on ship decks.

Fisheries: Taken occasionally on floating tuna longlines. Marketed frozen, but its acceptance as a foodfish is rather limited.



Genus *Lepidocybium* - a single species.

Lepidocybium flavobrunneum (Smith, 1849)

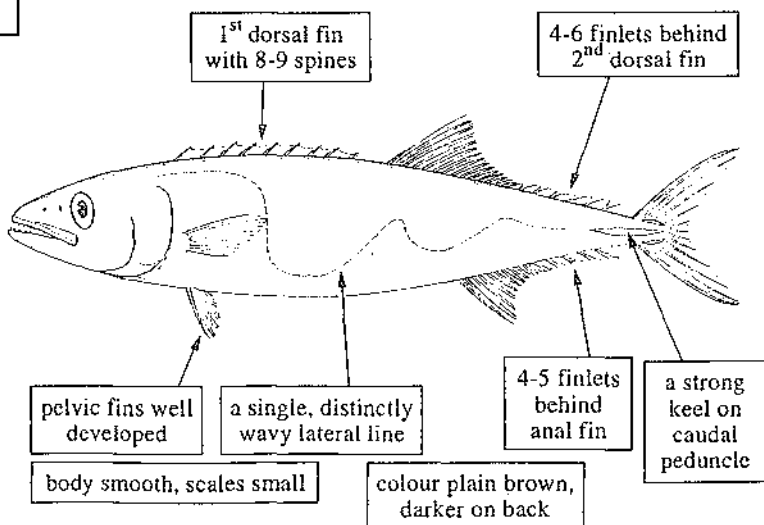
FAO names: **En** - Escolar; **Fr** - Escolier noir; **Sp** - Escolar negro.

Common names:

Size: Maximum 200 cm and about 45 kg; common to 150 cm.

Distribution and habitat: Probably throughout the area, even though it is mainly caught in the southern part of the Caribbean sea. Epi- and mesopelagic in oceanic waters, usually below a depth of 100 m and at least to 600 m, but migrates to the surface at night.

Fisheries: Taken mainly on floating tuna longlines. Average sizes in landings range between 60 and 130 cm total length. Marketed mostly frozen.



Genus *Neopinnula* - a single species.

Neopinnula orientalis (Gilchrist and von Bonde, 1924)

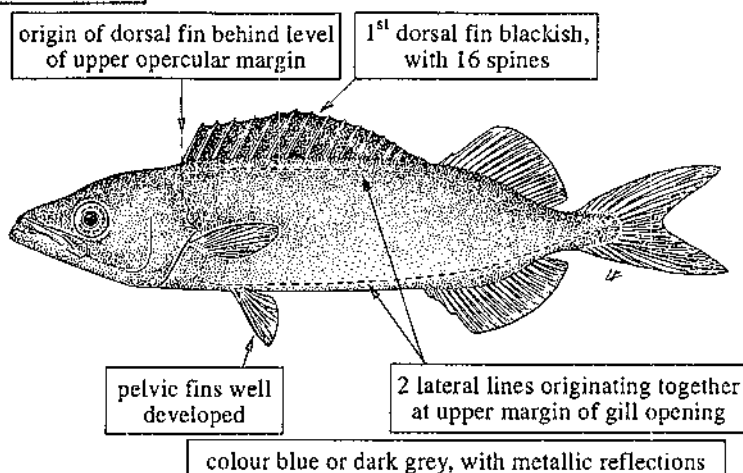
FAO names: En - Sackfish; Fr - Escolier oriental; Sp - Escolar oriental.

Common names:

Size: At least 30 cm; common to 25 cm.

Distribution and habitat: Probably throughout the area. Benthopelagic to pelagic between depths of 70 and 600 m, but more common between 200 and 300 m. Also occurring in surface waters at night.

Fisheries: Taken occasionally as bycatch in the industrial trawl fishery for shrimps; also on longlines or on hook-and-line in surface waters. Marketed fresh. The landings of this species are not abundant, and its commercial importance is limited.



Genus *Prometichthys* - a single species.

Prometichthys prometeus (Cuvier, 1832)

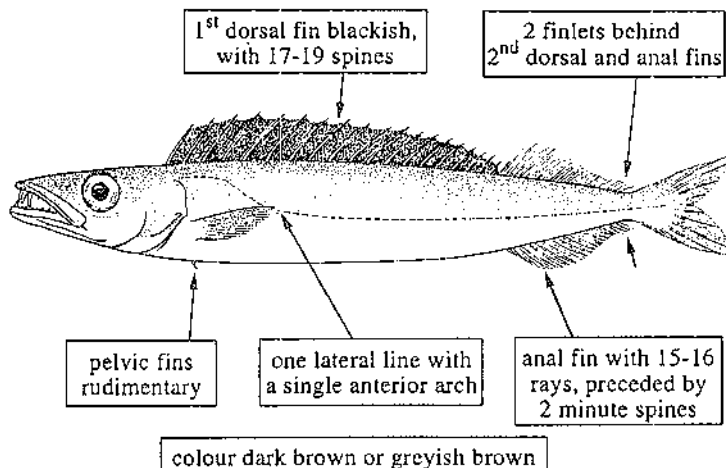
FAO names: En - Promethean escolar; Fr - Escolier clair; Sp - Escolar prometeo.

Common names:

Size: Maximum 60 cm; common to 40 cm.

Distribution and habitat: Probably throughout the area. Benthopelagic from depths of 80 to 800 m, but usually between 300 and 400 m. Feeds on fishes, crustaceans and cephalopods.

Fisheries: Caught mainly on bottom longlines, in industrial as well as artisanal fisheries. Also taken with bottom trawls. Although not a rare species, it is landed only in small quantities and is of minor interest to fisheries at present.



Genus *Ruvettus* - a single species.

Ruvettus pretiosus Cocco, 1829

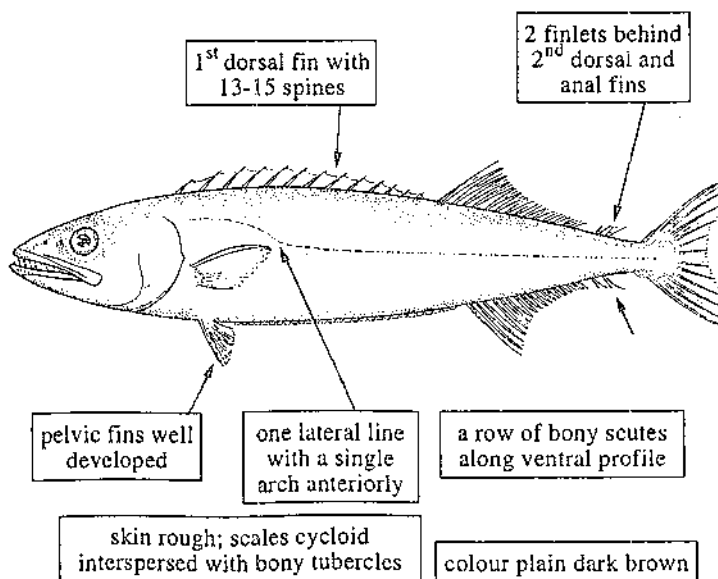
FAO names: En - Oilfish; Fr - Rouvet; Sp - Escolar clavo.

Common names:

Size: Maximum 300 cm (at least 180 cm and 45 kg in the area); common to 150 cm.

Distribution and habitat: Probably throughout the area. Benthopelagic or pelagic, usually below a depth of 100 m and perhaps to about 800 m. Feeds on fishes, crustaceans, and cephalopods.

Fisheries: Taken mainly on floating tuna longlines or on bottom longlines; also in bottom trawls. The flesh is edible but very oily and has purgative properties; it deteriorates quickly. Rarely marketed in the area. In other parts of the world it is commercialized frozen for human consumption and also reduced to fishmeal.

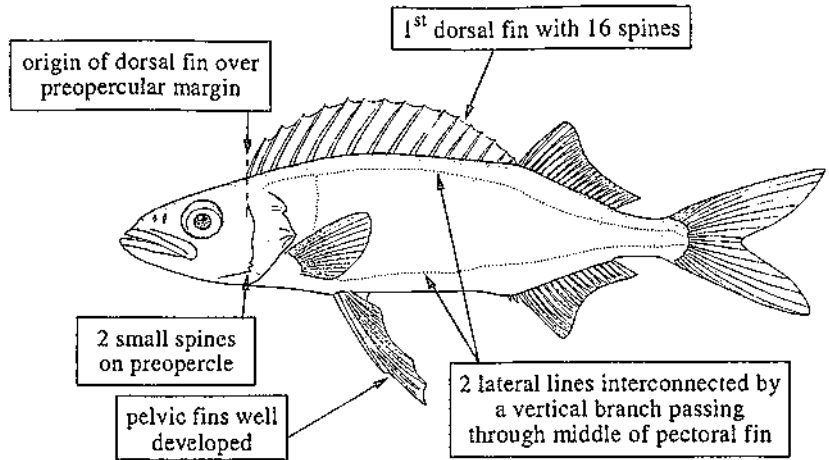


GEMPYLIDAE

Other genera:

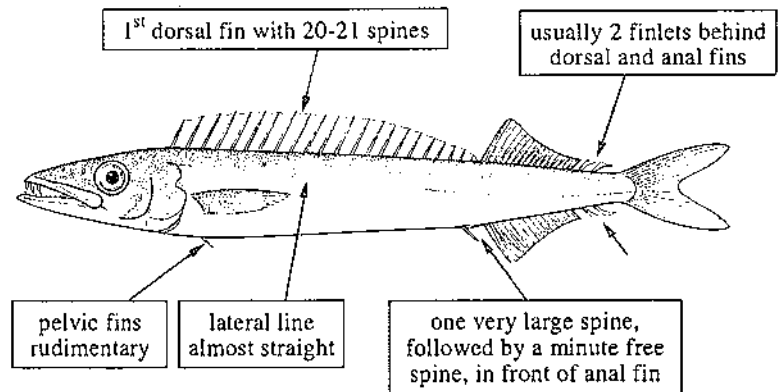
Genus *Epinnula*

A single species, *E. magistralis* Poey, 1854, its presence in the area doubtful.



Genus *Nealotus*

A single species, *N. tripes* Johnson, 1865, of no interest to fisheries because of its small average size.

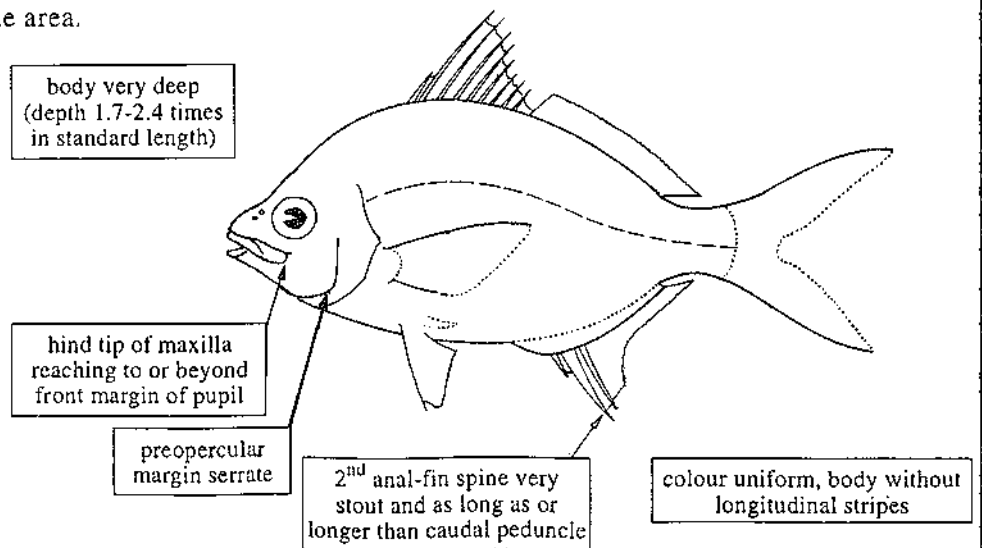


GERREIDAE

En: Mojarras. Fr: Blanchés. Sp: Mojarras, españolas, muñamas.

Small to medium-sized, strongly compressed fishes characterized by their greatly protrusible mouths. They occur in shallow coastal areas and in clear waters around islands, over muddy and sandy bottoms, but also in estuaries, hypersaline lagoons and in freshwater. These fishes are particularly abundant and have some commercial importance. Four genera with at least 11 species in the area.

Genus *Diapterus* - 2 species in the area.



***Diapterus auratus* Ranzani, 1840**

(plate XIV, 108)

Synonyms: *Diapterus olisthostomus* (Goode and Bean, 1882)

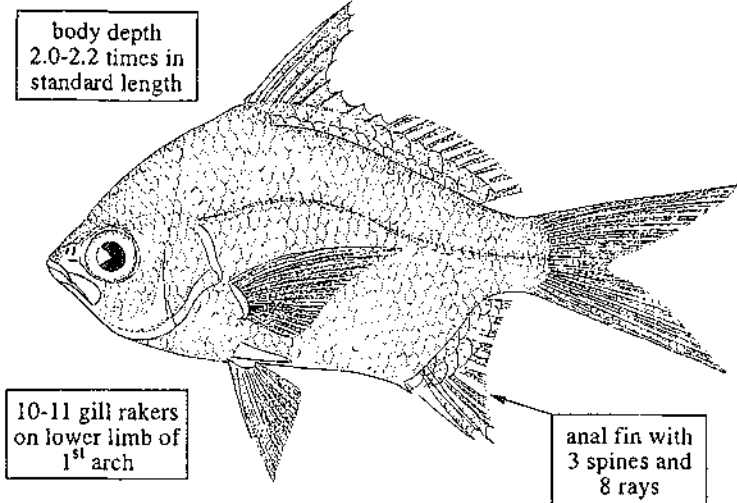
FAO names: En - Irish mojarra; Fr - Blanche cabuche; Sp - Mojarra cagüicha.

Common names:

Size: Maximum about 34 cm; common to 20 cm.

Distribution and habitat: Throughout the area. In shallow marine waters over soft substrates, especially mud. Often found in hypersaline lagoons with mangrove vegetation.

Fisheries: Predominantly artisanal. Caught with cast nets, beach nets, and gillnets. Marketed fresh; not commercially important because of its small average size.



***Diapterus rhombeus* (Cuvier, 1829)**

(plate XIV, 109)

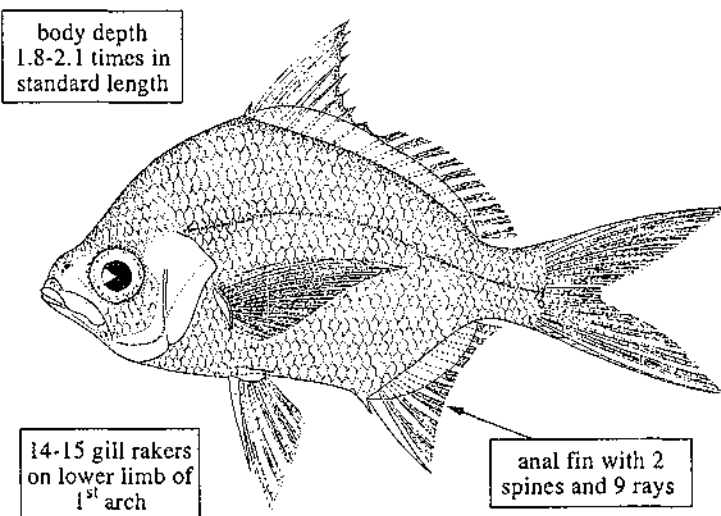
FAO names: En - Caitipa mojarra; Fr - Blanche gros yaya; Sp - Mojarra caitipa.

Common names:

Size: Maximum 30 cm; common to 20 cm.

Distribution and habitat: Throughout the area. Over soft, muddy bottoms of the continental shelf to a depth of about 70 m. The juveniles are common in hypersaline lagoons; also occurs in brackish waters.

Fisheries: Artisanal and industrial. Caught with cast nets, beach nets, gillnets, and as bycatch in trawl fisheries for shrimps. A species of some commercial importance. Marketed fresh.



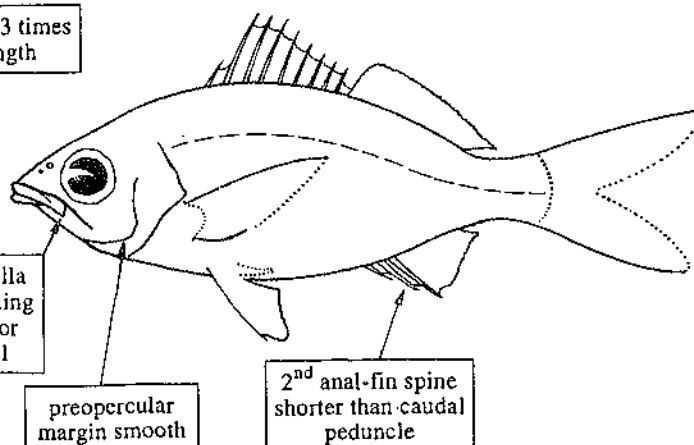
Genus *Eucinostomus* - 6 species in the area.

body depth 2.3-3.3 times in standard length

hind tip of maxilla usually not reaching to below anterior margin of pupil

preopercular margin smooth

2nd anal-fin spine shorter than caudal peduncle



Eucinostomus argenteus Baird and Girard, 1854

FAO names: En - Spotfin mojarra; Fr - Blanche argentée; Sp - Mojarrita plateada.

Common names:

Size: Maximum 20 cm; common to 15 cm.

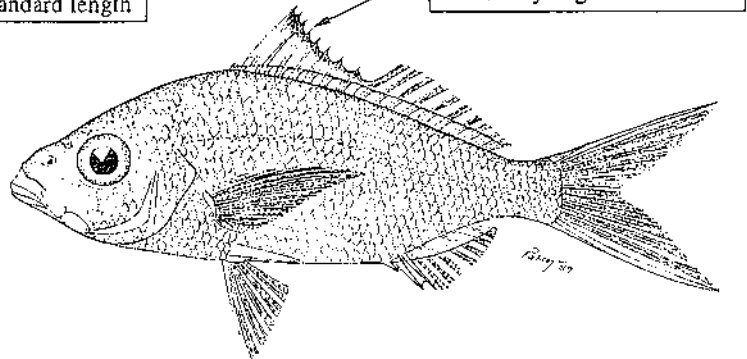
Distribution and habitat: Throughout the area. Over shallow muddy and sandy bottoms, in protected areas; very common and abundant in lagoons and bays.

Fisheries: Artisanal. Caught with cast nets and beach nets. Of little commercial importance because of its small average size.

body depth
2.6-3.1 times in
standard length

longitudinal groove on snout narrow, not interrupted by a transverse row of scales

spinous portion of dorsal fin narrowly edged with black

*Eucinostomus gula* (Cuvier in Cuv. and Val., 1830) (plate XIV, 110)

FAO names: En - Jenny mojarra; Fr - Blanche espagnole; Sp - Mojarrita española.

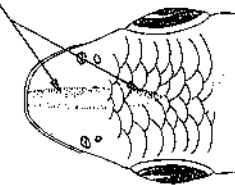
Common names:

Size: Maximum 23 cm; common to 15 cm.

Distribution and habitat: Throughout the area. In shallow waters over sandy and muddy bottoms; very common and abundant in lagoons and bays.

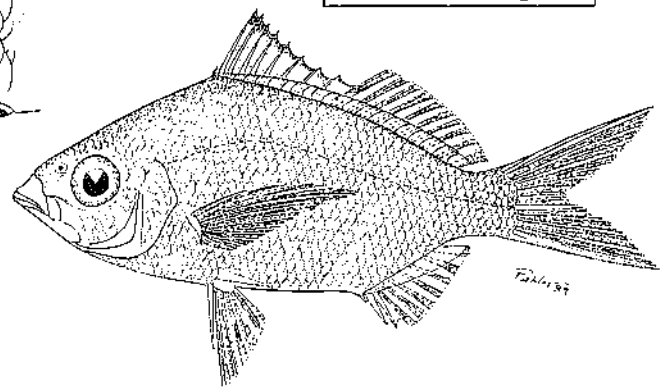
Fisheries: Artisanal. Caught with cast nets and beach nets. Of little commercial importance because of its small average size.

longitudinal groove on snout interrupted by a transverse row of scales



top of head

body depth 2.3-2.6 times in standard length

*Eucinostomus havana* (Nichols, 1912)

FAO names: En - Bigeye mojarra; Fr - Blanche gros yeux; Sp - Mojarrita cubana.

Common names:

Size: Maximum 18 cm; common to 14 cm.

Distribution and habitat: Possibly throughout the area, but records from the coasts of Colombia and Venezuela are very scarce. Occurs over muddy bottoms in shallow waters, from depths less than 10 to 45 m.

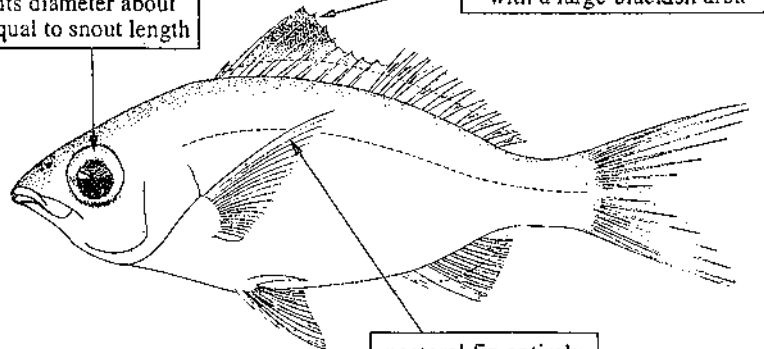
Fisheries: Artisanal. Caught with cast nets and beach nets. Of little commercial importance because of its small average size.

longitudinal groove on snout not interrupted by a transverse row of scales

body depth 2.7-3.3 times in standard length

eye relatively large, its diameter about equal to snout length

spinous portion of dorsal fin with a large blackish area



pectoral fin entirely scaled in adults

GERREIDAE

Eucinostomus melanopterus (Bleeker, 1863)

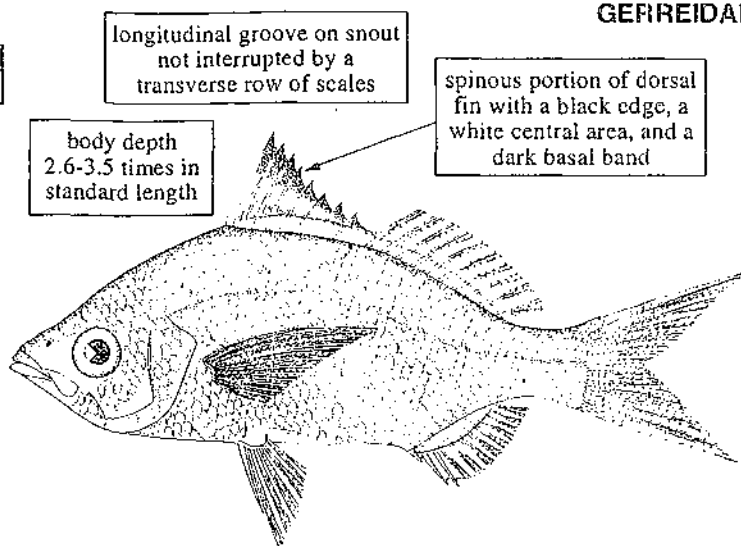
FAO names: En - Flagfin mojarra; Fr - Blanche drapeau; Sp. - Mojarrita de ley.

Common names:

Size: Maximum 20 cm; common to 15 cm.

Distribution and habitat: Throughout the area over muddy and sandy bottoms in shallow waters. Usually found in clearer waters than the preceding species, in the vicinity of exposed beaches.

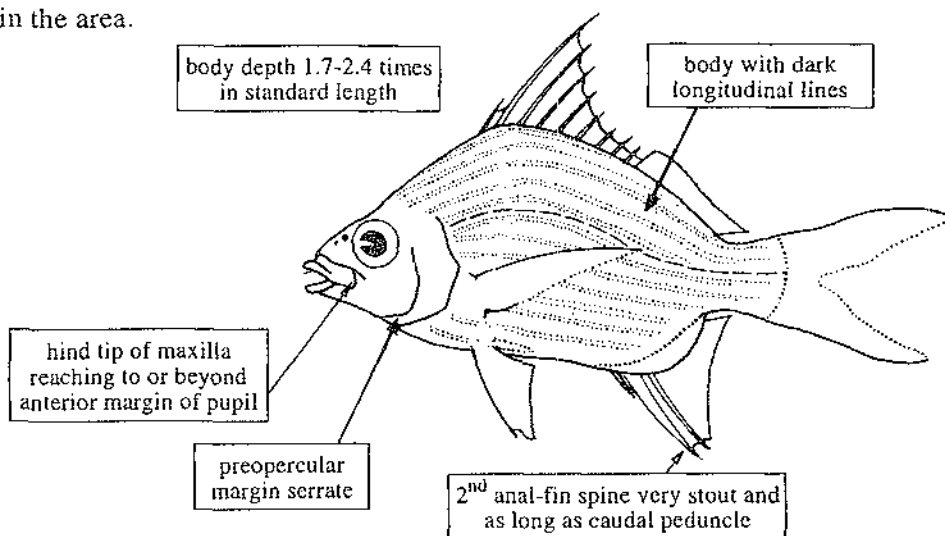
Fisheries: Artisanal. Caught with cast nets and beach nets. Of little commercial importance because of its small average size.



Other species:

Eucinostomus jonesii Günther, 1879, very similar to *E. argenteus*, and *E. lefroyi* (Goode, 1874) although not reported from the area so far, may also occur there. Some authors continue using the genus *Ulaema* for *E. lefroyi*, which is distinguished from *Eucinostomus* (sensus stricto) by the presence of only 2, rather than 3, anal-fin spines.

Genus *Eugerres* - 2 species in the area.



Eugerres brasilianus (Cuvier in Cuv. and Val., 1830)

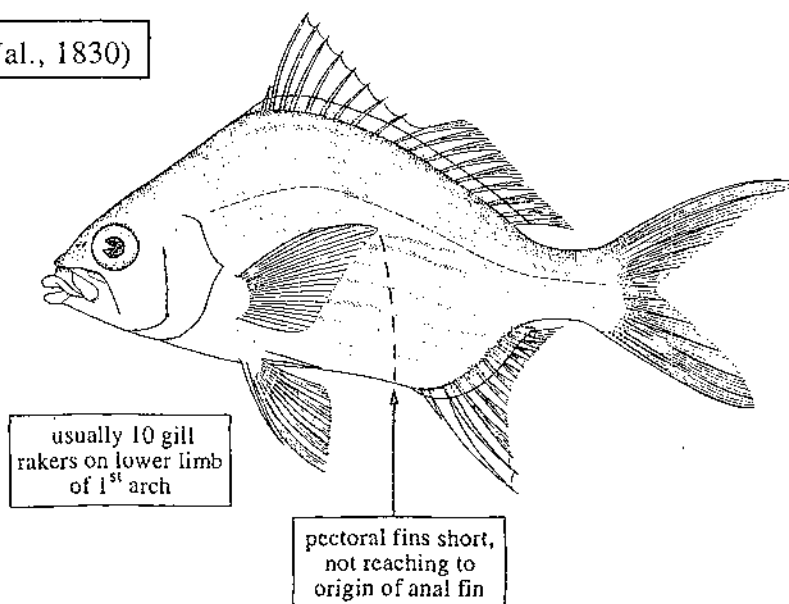
FAO names: En - Brazilian mojarra; Fr - Blanche brésilienne; Sp - Mojarra del Brasil.

Common names:

Size: Maximum about 30 cm; common to 20 cm.

Distribution and habitat: Probably occurs in Trinidad and Tobago, since it has been reported from other Antillean islands. Lives in shallow waters, over soft bottoms.

Fisheries: No data available.



***Eugerres plumieri* (Cuvier in Cuv. and Val., 1830)**

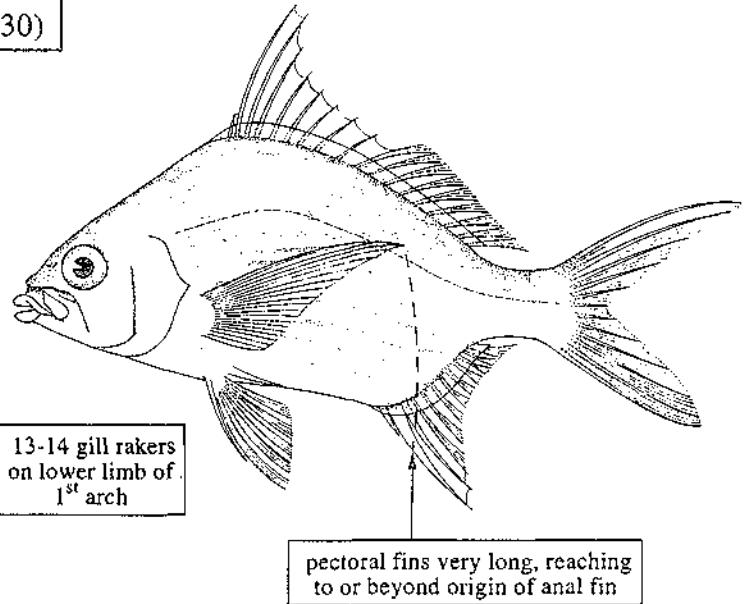
FAO names: En - Striped mojarra; Fr - Blanche rayé; Sp - Mojarra rayada.

Common names:

Size: Maximum 40 cm and 600 g; common to 25 cm.

Distribution and habitat: Throughout the area. In shallow waters over soft, usually muddy substrates; common in brackish and hypersaline littoral lagoons and may also occur in freshwater. Never found in clear waters of insular coral-reef habitats.

Fisheries: Artisanal. Caught with cast nets, beach nets, and gillnets. Marketed fresh; flesh highly esteemed.



Genus *Gerres* - a single species in the area.

***Gerres cinereus* (Walbaum, 1792)**

(plate XIV, 111)

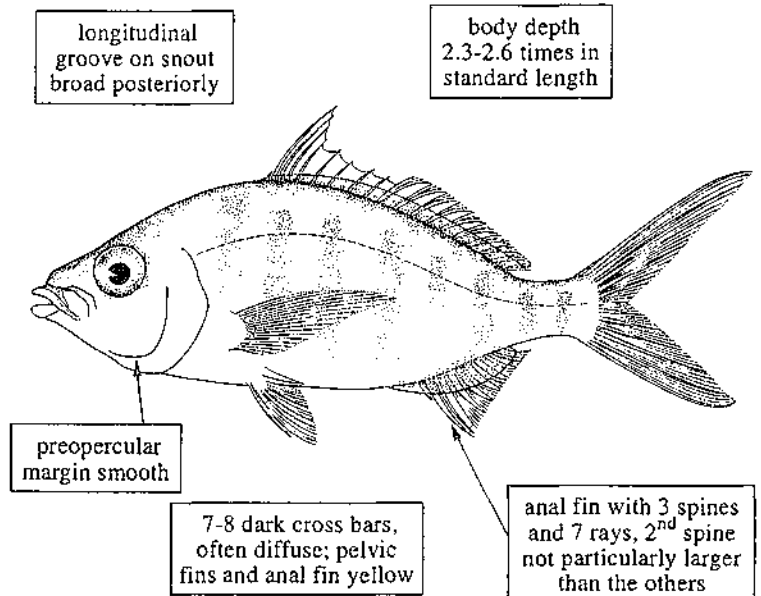
FAO names: En - Yellowfin mojarra; Fr - Blanche cendré; Sp - Mojarra blanca.

Common names:

Size: Maximum 39 cm; common to 28 cm.

Distribution and habitat: Throughout the area. In shallow waters over muddy and sandy substrates, mostly over clean sand bottoms in clear waters of coral-reef habitats; even large individuals are found close to the shore.

Fisheries: Predominantly artisanal. Caught with beach nets, gillnets, cast nets, and traps. Of little commercial importance.

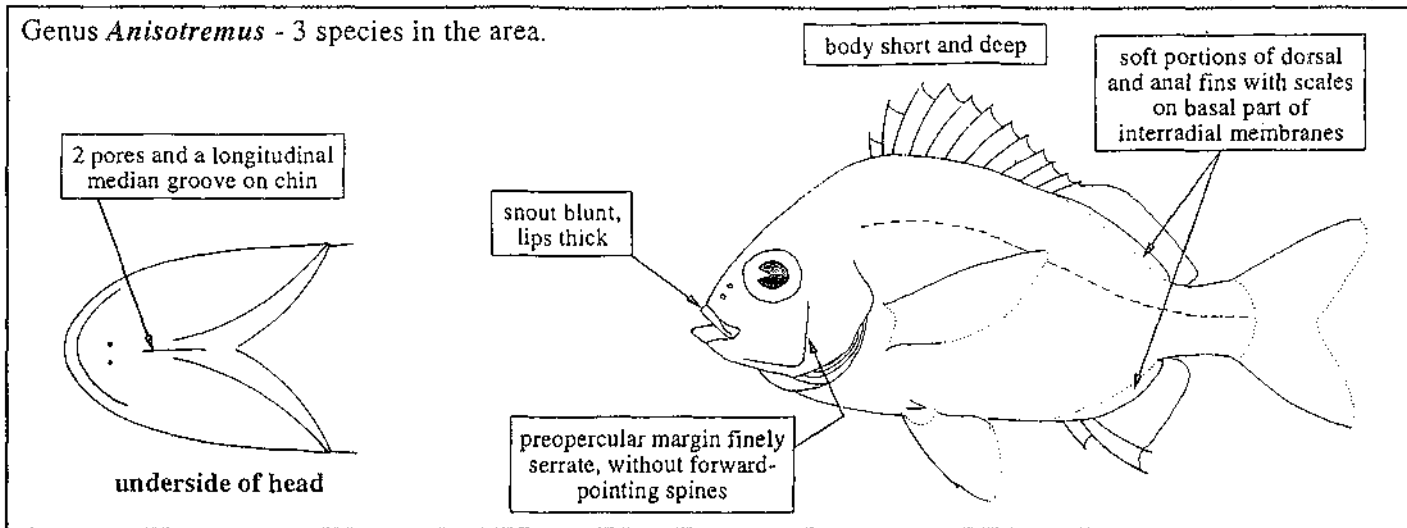
**HAEMULIDAE**

En: Grunts. **Fr:** Grondeurs, lippus, gorettes, goretts. **Sp:** Roncos, burros, corocoros.

A group of small to medium-sized fishes, with only 2 species exceeding 50 cm in length, many of them brightly coloured or with conspicuously contrasting colour patterns. A typical tropical marine fish family; most of its species are carnivorous predators occurring predominantly over rocky or coralline substrates, but a few are also common in brackish-water estuarine habitats. Almost all species are good food fishes of some commercial importance. Six genera with 22 species in the area.

HAEMULIDAE

Genus *Anisotremus* - 3 species in the area.



Anisotremus surinamensis (Bloch, 1791)

(plate XIV, 112)

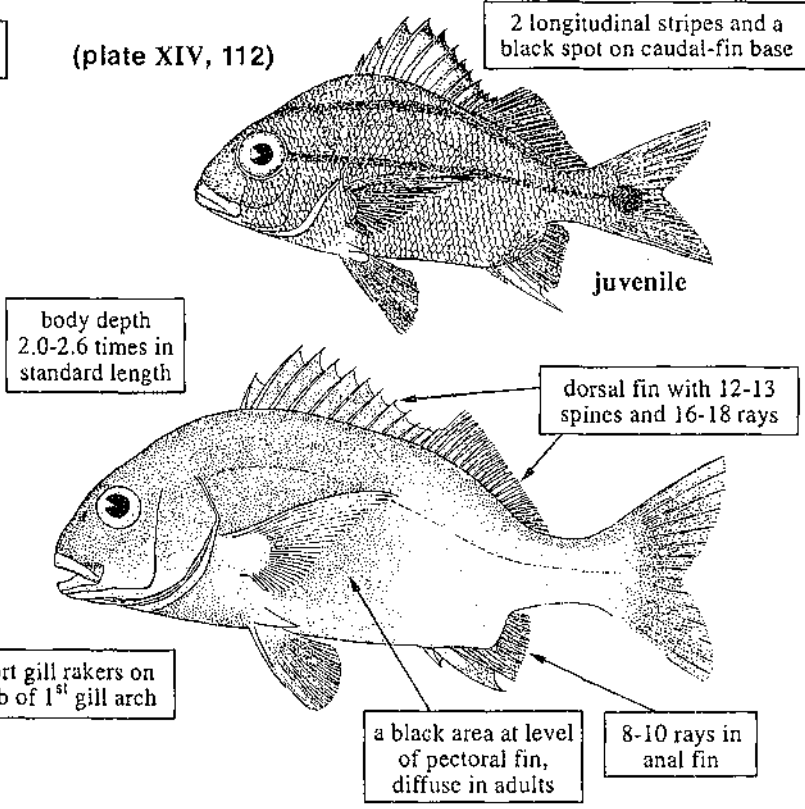
2 longitudinal stripes and a black spot on caudal-fin base

FAO names: En - Black margate; Fr - Lippu croupia; Sp - Burro negro (=Burro pompón).
Common names:

Size: Maximum 64 cm and 5.5 kg; common to 40 cm.

Distribution and habitat: Throughout the area. Demersal in shallow coastal waters and in oceanic insular areas with coral reef habitats. Small individuals are common on soft bottoms.

Fisheries: Predominantly artisanal. Caught with traps and trammel nets. Marketed mostly fresh.



Anisotremus virginicus (Linnaeus, 1758)

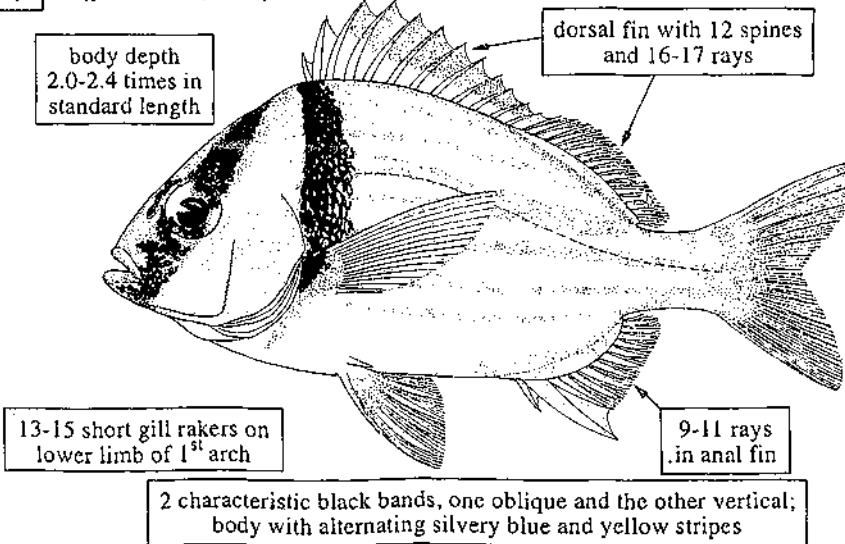
(plate XV, 113)

FAO names: En - Porkfish; Fr - Lippu rondeau; Sp - Burro catalina.
Common names:

Size: Maximum 38 cm; common to 25 cm.

Distribution and habitat: Throughout the area. Demersal, mainly in clear, shallow water of coral reef habitats.

Fisheries: Artisanal. Caught mainly with traps, but also with beach nets, on hook-and-line, and with bottom trawls.



HAEMULIDAE

Other species:

Anisotremus moricandi (Ranzani, 1840), a species of small size (maximum 18 cm length) reported within the area only from the northern coast of Colombia, Aruba, and La Orchila island (off Venezuela). Occurs in shallow coastal waters, but is of no interest to fisheries.

Genus *Conodon* - a single species in the area.

Conodon nobilis (Linnaeus, 1758)

FAO names: En - Barred grunt; Fr - Cagna rayée; Sp - Ronco canario.

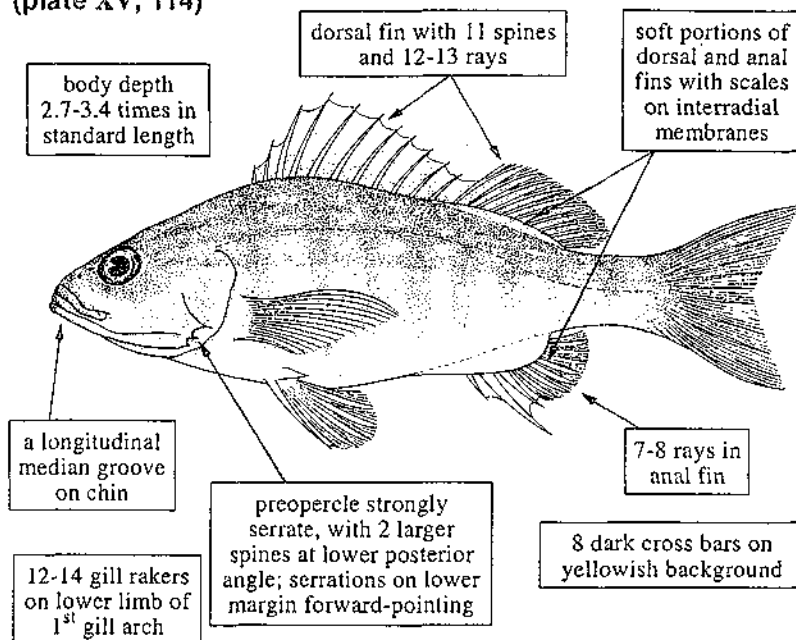
Common names:

Size: Maximum 33.6 cm and 588 g; common to 25 cm.

Distribution and habitat: Throughout the area. Over soft bottoms on the continental shelf to a depth of about 100 m (usually less).

Fisheries: Artisanal and industrial. Caught with beach nets, on hook-and-line, and as by-catch in trawl fisheries, especially those for shrimps. Rather common, but of little commercial importance.

(plate XV, 114)



Genus *Genyatremus* - a single species in the area.

Genyatremus luteus (Bloch, 1795)

FAO names: En - Toroto grunt; Fr - Lippu tricroupia; Sp - Ronco toroto.

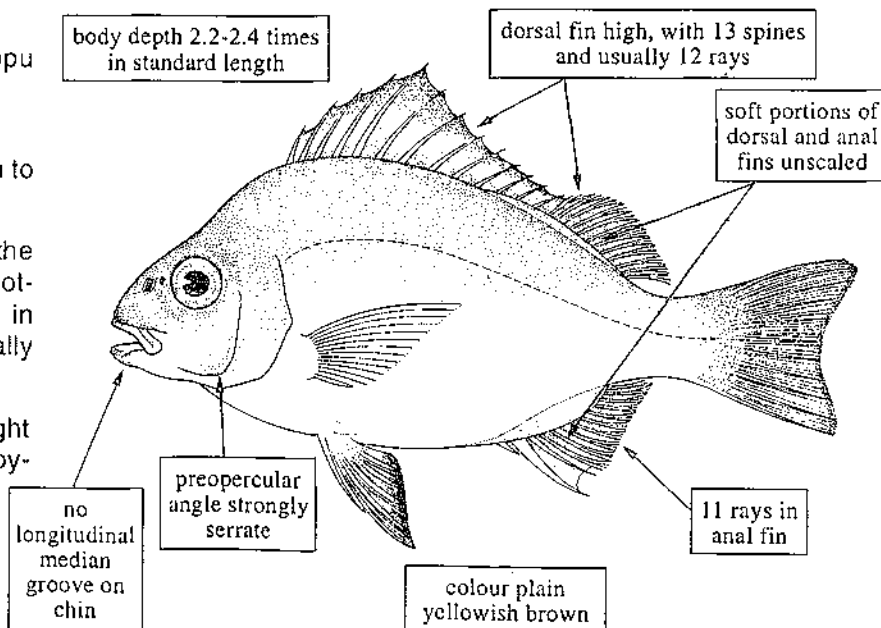
Common names:

Size: Maximum 37 cm and 800 g; common to 25 cm.

Distribution and habitat: Throughout the area. Over shallow, muddy, and sandy bottoms to a depth of about 40 m, mainly in brackish estuarine areas and occasionally also in adjacent marine waters.

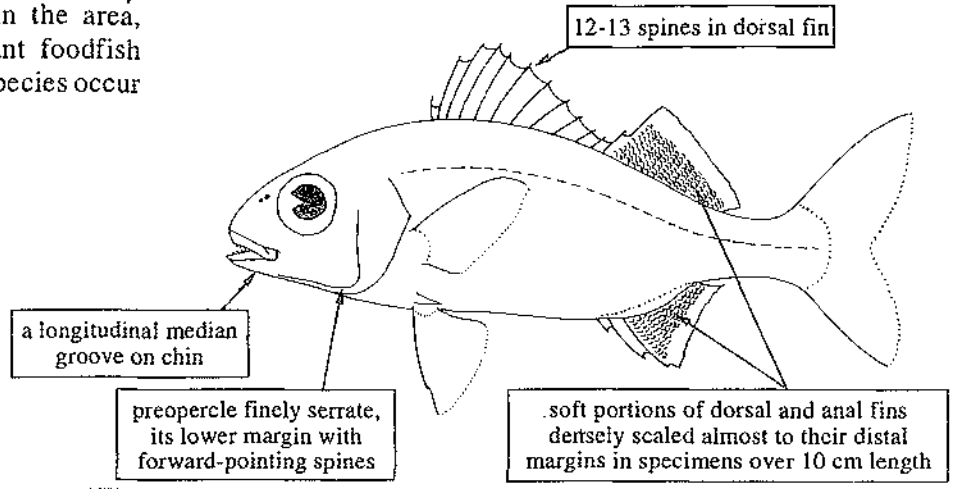
Fisheries: Artisanal and industrial. Caught with beach nets, trammel nets, and as by-catch in the trawl fishery for shrimps.

(plate XV, 115)



HAEMULIDAE

Genus *Haemulon* - 14 species in the area, representing together an important foodfish resource. Hybrids between these species occur frequently in nature.



Haemulon album Cuvier, 1829

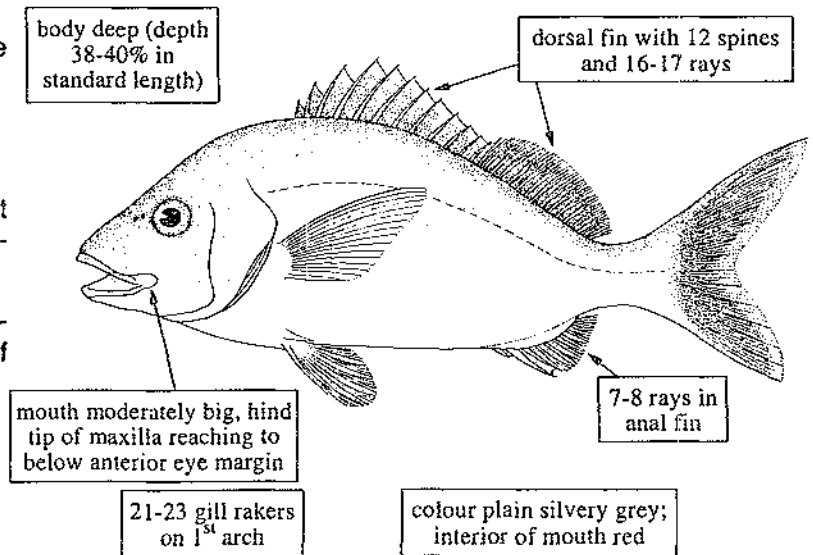
(plate XV, 116)

FAO names: En - White margate; Fr - Gorette margate; Sp - Ronco blanco.
Common names:

Size: Maximum 71 cm; common to 50 cm.

Distribution and habitat: Probably throughout the area. In clear waters of insular coral-reef habitats, from a depth of 20 to at least 60 m.

Fisheries: Artisanal. Caught mainly on hook-and-line and with traps; also with gillnets. Landings of this species are rather rare.



Haemulon aurolineatum Cuvier, 1829

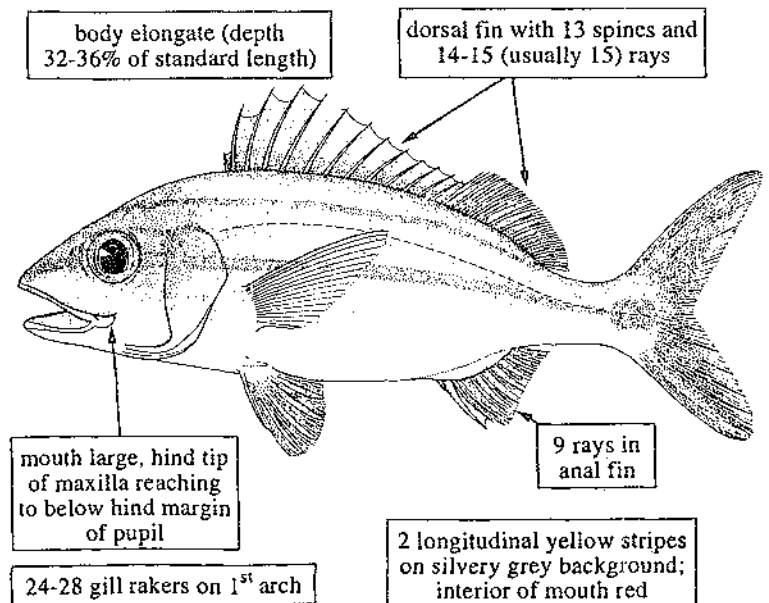
(plate XV, 117)

FAO names: En - Tomtate grunt; Fr - Gorette tomtate; Sp - Ronco jeniguano.
Common names:

Size: Maximum 24.5 cm; common to 18 cm.

Distribution and habitat: Throughout the area. On soft, mainly sandy bottoms to a depth of about 20 m, in coastal areas as well as in clear waters around oceanic islands. Very common in habitats of soft corals.

Fisheries: Predominantly artisanal. Caught with beach nets and traps. Occasionally taken as by-catch in the industrial trawl fishery for shrimps. A species of some commercial importance due to its great abundance in certain regions (Venezuela). Marketed mostly fresh.



***Haemulon bonariense* Cuvier, 1829**

(plate XV, 118)

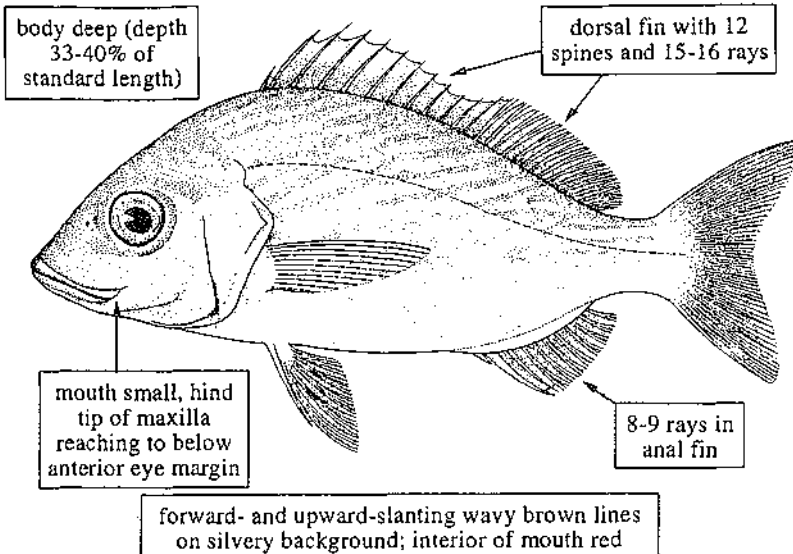
FAO names: En - Black grunt; Fr - Gorette grise; Sp - Ronco rayado.

Common names:

Size: Maximum about 40 cm; common to 30 cm.

Distribution and habitat: Throughout the area. On soft bottoms (mud or muddy sand) in shallow coastal waters, less common in clear waters and coral-reef habitats.

Fisheries: Predominantly artisanal. Caught with beach nets and traps. Rather abundant, but one of the grunts of lesser quality. Marketed fresh.

***Haemulon boschmae* (Metzelaar, 1919)**

(plate XV, 119)

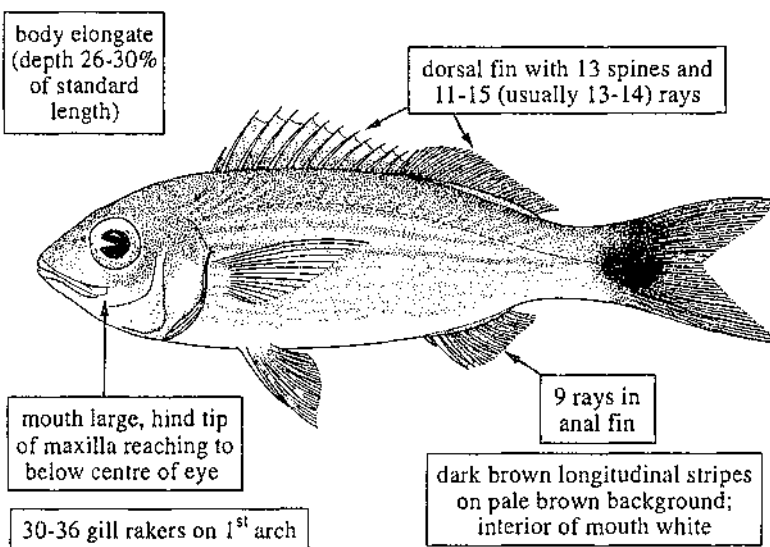
FAO names: En - Bronzestripe grunt; Fr - Gorette rui; Sp - Ronco ruyi.

Common names:

Size: Maximum about 19 cm; common to 13 cm.

Distribution and habitat: Probably throughout the area. Pelagic, occupying the entire water column to a depth of about 20 m, usually in protected areas, sometimes occurring in large schools. Rare in clear waters of oceanic insular areas with coral-reef habitats.

Fisheries: Caught only occasionally with beach nets; of negligible importance to fisheries because of its small average size.

***Haemulon carbonarium* Poey, 1860**

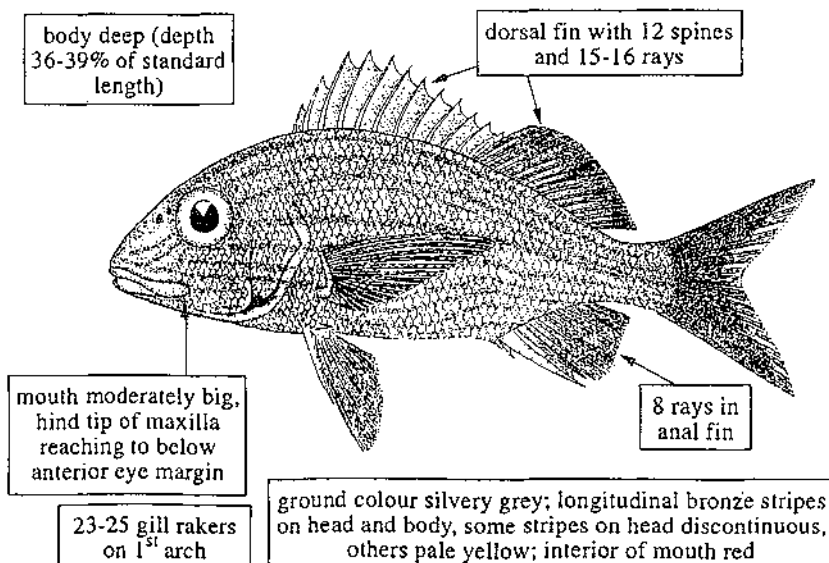
FAO names: En - Caesar grunt; Fr - Gorette charbonnier; Sp - Ronco carbonero.

Common names:

Size: Maximum about 35 cm; common to 20 cm.

Distribution and habitat: Throughout the area. In clear waters of rocky and coral-reef habitats to about a depth of 25 m.

Fisheries: Predominantly artisanal. Caught with traps. One of the least abundant grunt species in the area. Marketed fresh.



HAEMULIDAE

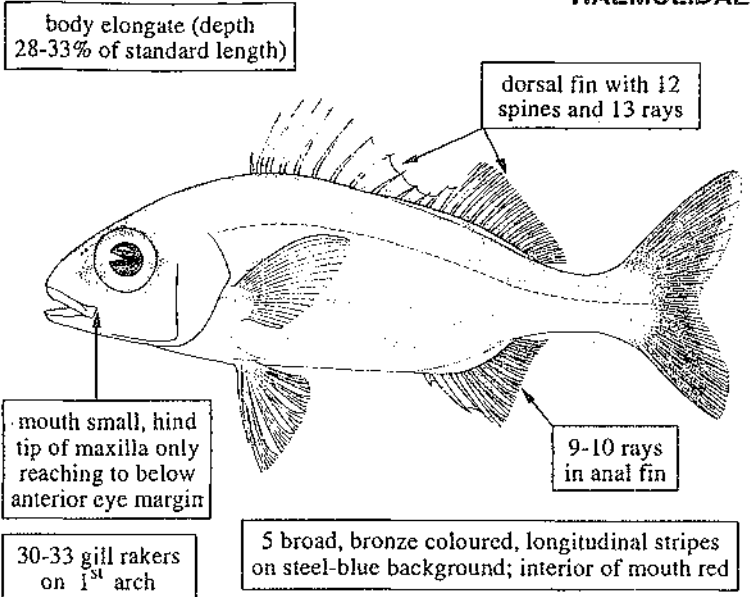
***Haemulon chrysargyreum* Günther, 1859**

FAO names: En - Smallmouth grunt; Fr - Gorette tibouche; Sp - Ronco bocachica (=Ronco boquilla).
Common names:

Size: Maximum about 21 cm; common to 17 cm.

Distribution and habitat: Throughout the area. In clear shallow waters over rocky bottoms and in coral-reef areas, to a depth of about 25 m. At night, often found on seagrass beds of *Thalassia testudinum*.

Fisheries: Artisanal. Caught mainly with traps, but also with beach nets. A species of relatively little commercial importance because of its small average size and the second-rate quality of its flesh.



***Haemulon flavolineatum* (Desmarest, 1823)**

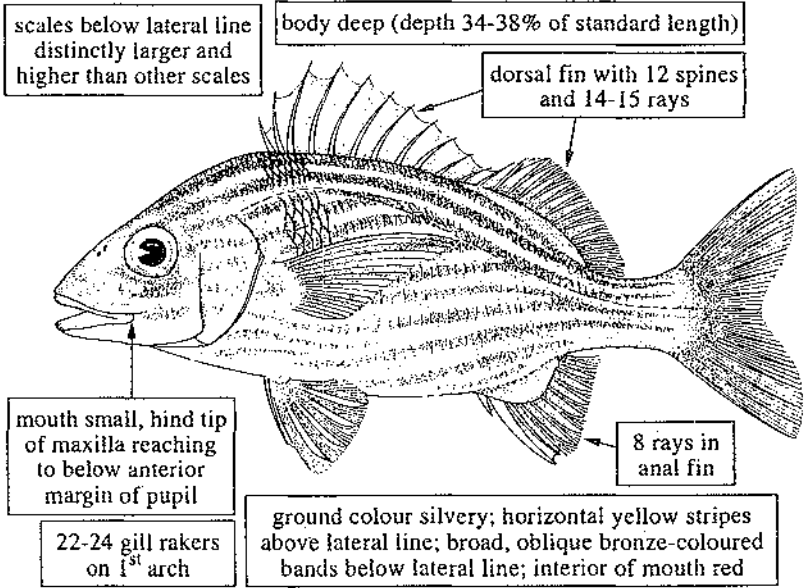
(plate XV, 120)

FAO names: En - French grunt; Fr - Gorette jaune; Sp - Ronco amarillo.
Common names:

Size: Maximum about 24 cm; common to 17 cm.

Distribution and habitat: Throughout the area. In clear waters of coral-reef areas, to a depth of about 25 m, often occurring in large schools.

Fisheries: Artisanal. Caught mainly with traps, also with beach nets. A species of some commercial importance because of its considerable abundance, but not in great demand due to its relatively small average size and the second-rate quality of its flesh.



***Haemulon macrostomum* Günther, 1859**

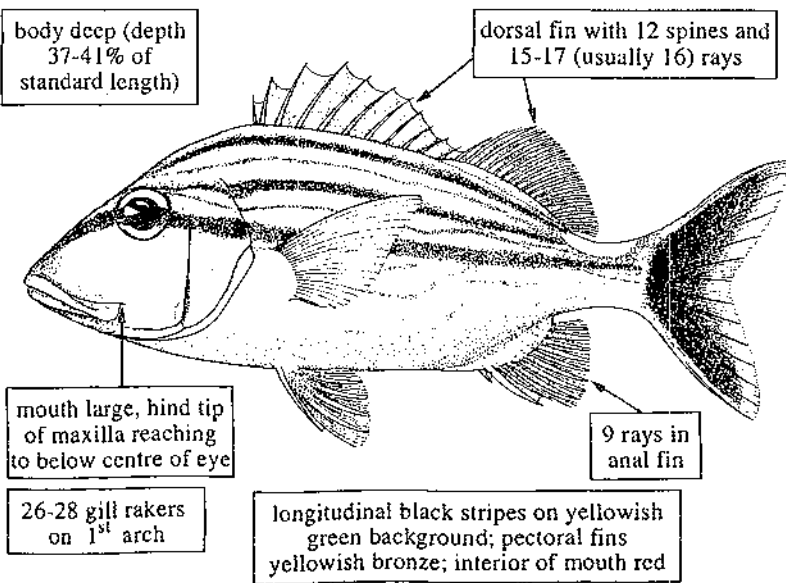
(plate XV, 121)

FAO names: En - Spanish grunt; Fr - Gorette caco; Sp - Ronco bocón (=Ronco caco).
Common names:

Size: Maximum 38.5 cm and 850 g; common to 25 cm.

Distribution and habitat: Throughout the area. In clear, shallow waters over rocky and coralline bottoms, mainly around islands; rare in continental coastal waters.

Fisheries: Predominantly artisanal. Caught with traps. Not abundant in the area. Marketed fresh.



Haemulon melanurum (Linnaeus, 1758)

(plate XVI, 122)

FAO names: En - Cottonwick grunt; Fr - Gorette mèche; Sp - Ronco mapurite.

Common names:

Size: Maximum about 33 cm and 550 g; common to 25 cm.

Distribution and habitat: Throughout the area. In clear, shallow waters to a depth of at least 50 m. Very abundant in some insular areas.

Fisheries: Predominantly artisanal. Caught with traps and occasionally with beach nets. Marketed fresh.

body moderately deep (depth 34-35% of standard length)

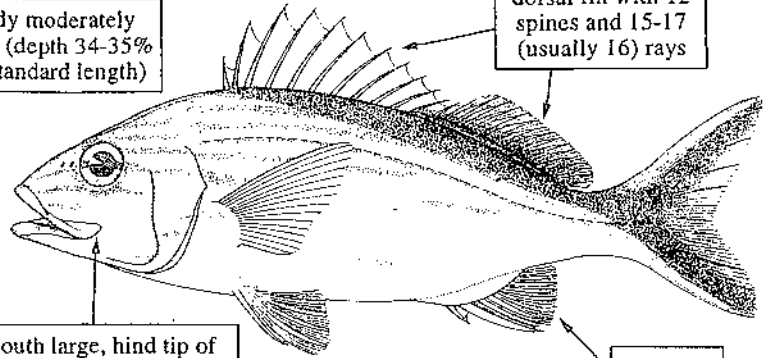
dorsal fin with 12 spines and 15-17 (usually 16) rays

mouth large, hind tip of maxilla reaching to below posterior margin of pupil

8 rays in anal fin

21-23 gill rakers on 1st arch

area below dorsal-fin base, upper half of caudal peduncle, and most of caudal fin, black (sometimes rather diffuse); narrow, longitudinal yellow stripes on silvery grey or silvery white background; interior of mouth pale red

*Haemulon parrai* (Desmarest, 1823)

(plate XVI, 123)

FAO names: En - Sailor's grunt; Fr - Gorette marchand; Sp - Ronco plateado.

Common names:

Size: Maximum about 41 cm; common to 30 cm.

Distribution and habitat: Throughout the area. On very shallow bottoms in continental shelf areas, as well as in clear waters of insular coral-reef areas.

Fisheries: Predominantly artisanal. Caught with traps and beach nets. Marketed fresh.

body deep (depth 36-39% of standard length)

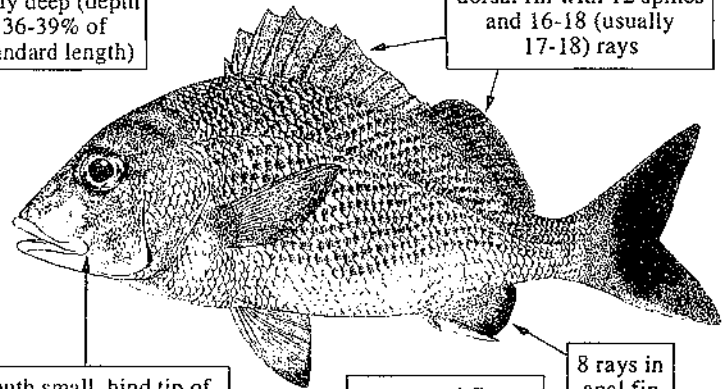
dorsal fin with 12 spines and 16-18 (usually 17-18) rays

mouth small, hind tip of maxilla only reaching to below anterior eye margin

8 rays in anal fin

21-24 gill rakers on 1st arch

a brown spot at centre of each scale, but these spots not forming continuous lines as in *H. bonaeriensis*; interior of mouth red

*Haemulon plumieri* (Lacepède, 1802)

(plate XVI, 124)

FAO names: En - White grunt; Fr - Gorette blanche; Sp - Ronco margariteño.

Common names:

Size: Maximum 38 cm and 850 g; common to 30 cm.

Distribution and habitat: Throughout the area. Over shallow, semi-hard to hard, rocky or coralline bottoms, in coastal shelf areas as well as in clear waters around oceanic islands, to a depth of about 40 m (usually less). The juveniles are common on seagrass beds of *Thalassia testudinum*.

Fisheries: Predominantly artisanal. Caught with traps; also with beach nets and trammel nets. Highly appreciated in some localities for the good quality of its flesh. Marketed fresh.

scales above lateral line larger than other scales

body deep (depth 37-39% of standard length)

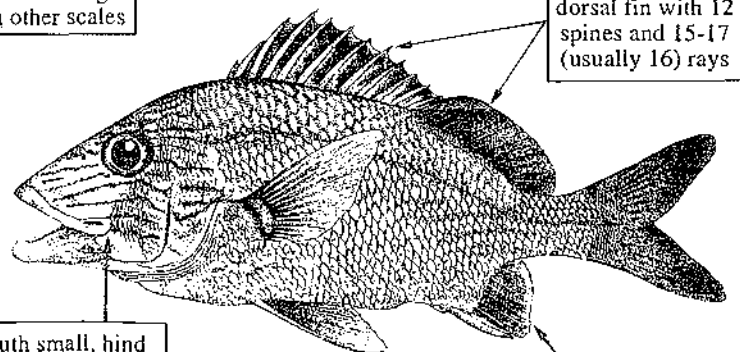
dorsal fin with 12 spines and 15-17 (usually 16) rays

mouth small, hind tip of maxilla only reaching to below anterior eye margin

8-9 rays in anal fin

21-27 gill rakers on 1st arch

ground colour silvery white; dark blue lines with yellow-bronze edges on head and front part of body; interior of mouth red



HAEMULIDAE

Haemulon sciurus (Shaw, 1803)

(plate XVI, 125)

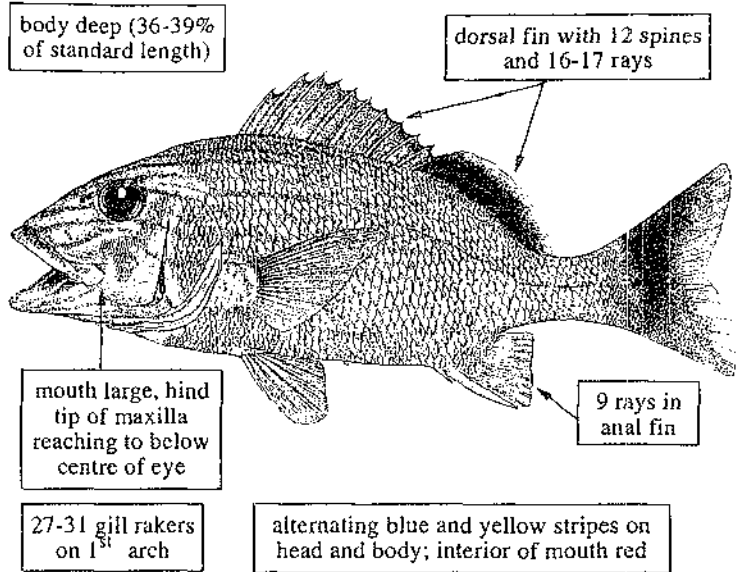
FAO names: En - Bluestriped grunt; Fr - Gorette catire; Sp - Ronco catire.

Common names:

Size: Maximum at least 37 cm and 750 g; common to 25 cm.

Distribution and habitat: Throughout the area. Common and abundant in clear waters around coral reefs, to a depth of about 30 m, often occurring in large, dense schools. The juveniles are abundant on seagrass beds of *Thalassia* and other marine phanerogams.

Fisheries: Predominantly artisanal. Caught with traps and occasionally also with beach seines. Marketed fresh. A species of some commercial importance because of its great abundance in some regions.



Haemulon steindachneri (Jordan and Gilbert, 1882)

(plate XVI, 126)

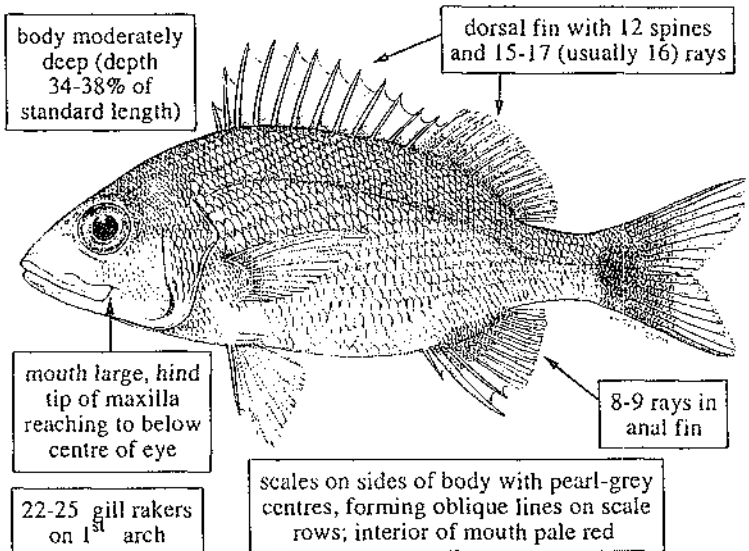
FAO names: En - Chere-chere grunt; Fr - Gorette chercher; Sp - Ronco chere-chere.

Common names:

Size: Maximum 26.3 cm and 300 g; common to 20 cm.

Distribution and habitat: Throughout the area. Over soft or semi-hard bottoms in coastal continental waters to a depth of about 25 m. It may occur in large schools. Rarely found in clear waters around oceanic islands.

Fisheries: Predominantly artisanal. Caught with beach nets and traps. Of low quality as a food fish, but nevertheless commercially important, especially in northeastern Venezuela, because of its great abundance in some localities.



Haemulon striatum (Linnaeus, 1758)

(plate XVI, 127)

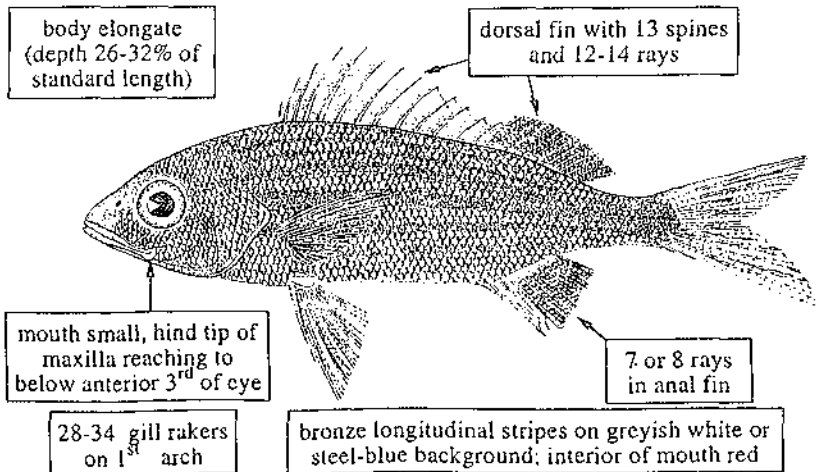
FAO names: En - Striped grunt; Fr - Gorette rayée; Sp - Ronco listado.

Common names:

Size: Maximum at least 22 cm; common to 15 cm.

Distribution and habitat: Throughout the area. Over semi-hard bottoms to a depth over 100 m.

Fisheries: Predominantly artisanal. Caught with traps and occasionally, beach nets; also taken as bycatch in the industrial trawl fishery for shrimps.



Genus *Orthopristis* - a single species in the area.

Orthopristis ruber (Cuvier, 1830)

FAO names: En - Corocoro grunt; Fr - Gorette corocoro; Sp - Corocoro congo.

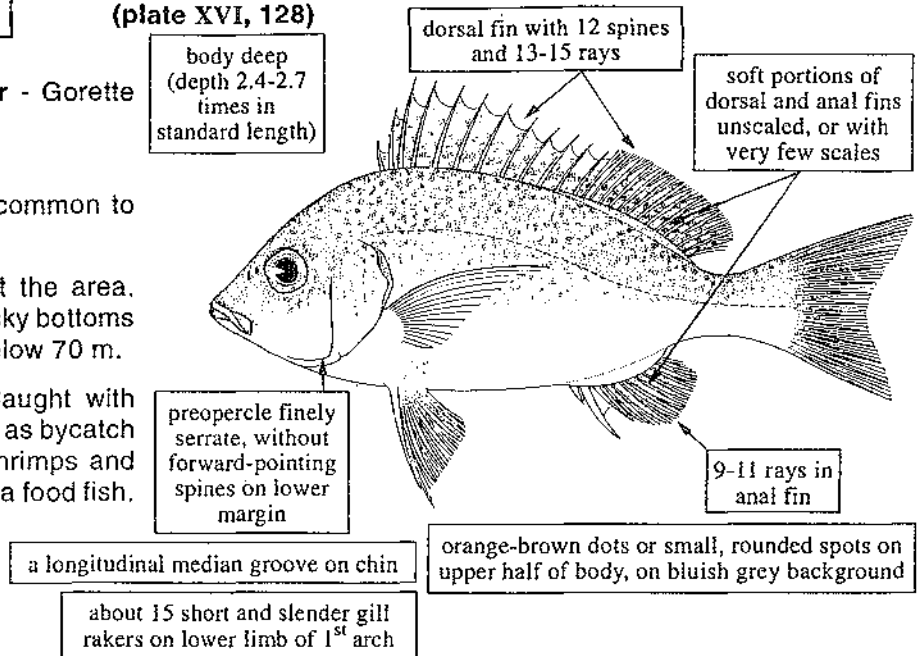
Common names:

Size: Maximum 40 cm (exceptional); common to 25 cm.

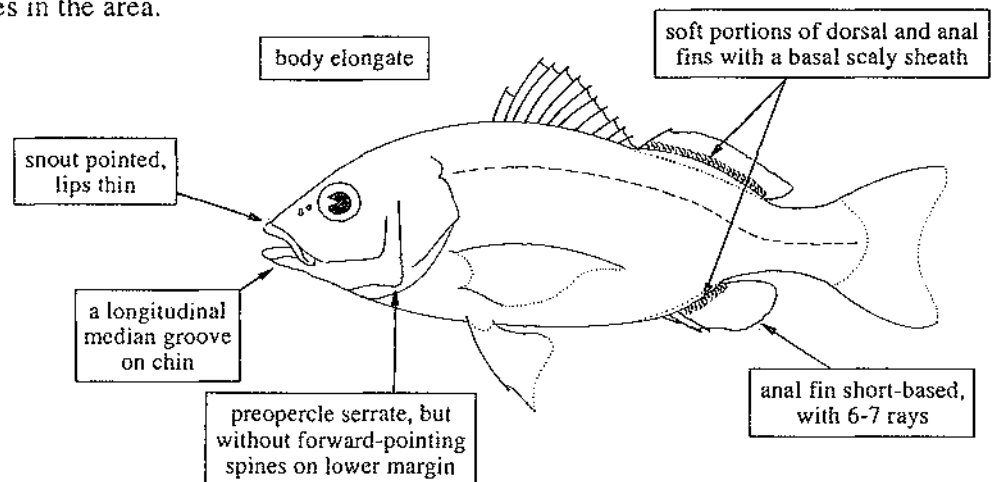
Distribution and habitat: Throughout the area. Over soft, semi-hard and sometimes rocky bottoms in continental shelf waters to depths below 70 m.

Fisheries: Artisanal and industrial. Caught with beach nets, traps, on hook-and-line and as bycatch in the commercial trawl fisheries for shrimps and finfishes. Of commercial importance as a food fish.

(plate XVI, 128)



Genus *Pomadasys* - 2 species in the area.



Pomadasys corvinaeformis (Steindachner, 1868)

(plate XVII, 129)

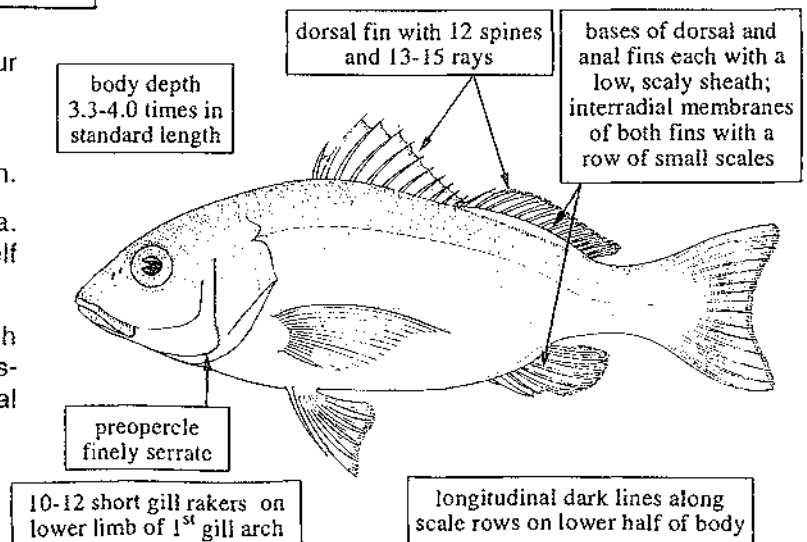
FAO names: En - Roughneck grunt; Fr - Grondeur gris; Sp - Corocoro gris.

Common names:

Size: Maximum at least 25 cm; common to 20 cm.

Distribution and habitat: Throughout the area. On soft, mainly sandy bottoms of continental shelf waters, to a depth of about 50 m.

Fisheries: Artisanal. Caught mainly with beach nets. Occasionally taken as bycatch in the industrial trawl fishery for shrimps. Of little commercial importance.



HAEMULIDAE

Pomadasys crocro (Cuvier, 1830)

FAO names: En - Burro grunt; Fr - Grondeur crocro; Sp - Corocoro crocro.

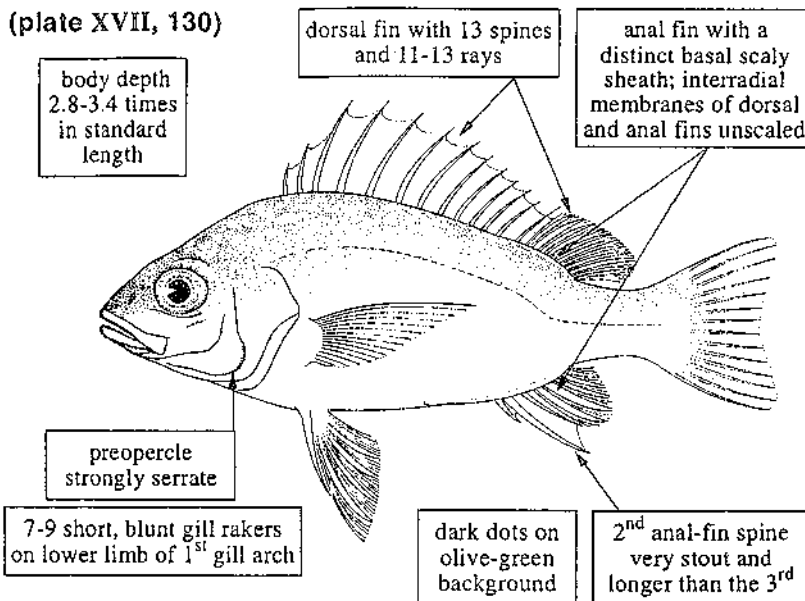
Common names:

Size: Maximum 33 cm; common to 25 cm.

Distribution and habitat: Throughout the area. Over soft, sandy and muddy bottoms, usually in brackish estuarine waters; also ascending rivers into freshwater.

Fisheries: Predominantly artisanal. Caught with beach nets.

(plate XVII, 130)



HEMIRAMPHIDAE

En: Halfbeaks. **Fr:** Démi-becs. **Sp:** Agujetas.

Elongate, small to medium-sized fishes, circular to rectangular in cross section, characterized by the prolongation of the lower jaw into a long beak, except in two species not yet recorded from the area (*Chriodorus atherinoides* and *Oxyporhamphus micropterus*). All halfbeaks are epipelagic in coastal continental waters as well as around islands, and one species is typically oceanic. They are capable of leaping out of the water and skittering above the surface over some distances. In the area, they are fished mainly with beach nets, and occasionally, with purse seines. Not used for human consumption, but rather important as baitfish in sports fisheries. Three genera with 5 species in the area.

Note: Many authors consider this group a part of the family Exocoetidae (flyingfishes).

Genus *Euleptorhamphus* - a single species in the area.

Euleptorhamphus velox Poey, 1868

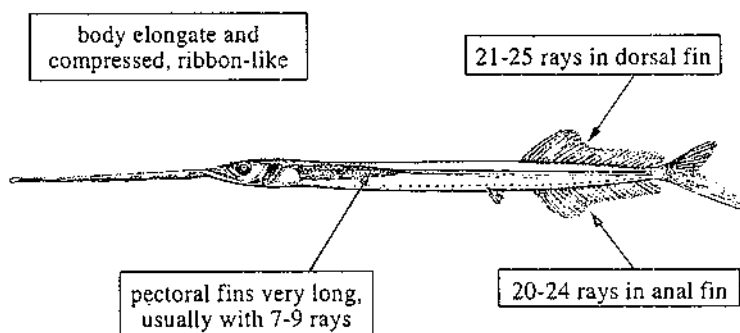
FAO names: En - Flying halfbeak; Fr - Démi-bec volant; Sp - Agujeta voladora.

Common names:

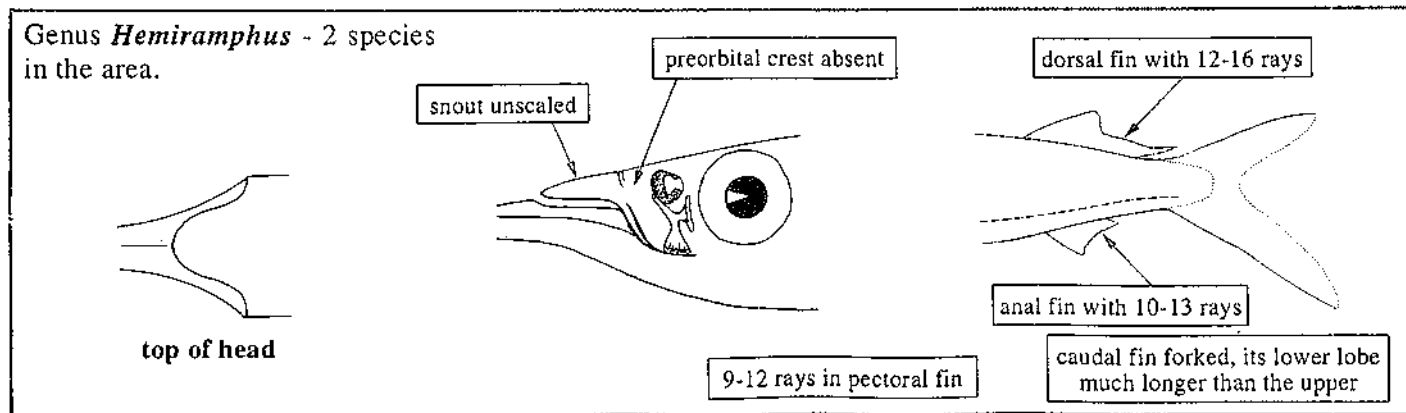
Size: Maximum 50 cm; common to 35 cm.

Distribution and habitat: Throughout the area. Pelagic oceanic, rarely close to the shore.

Fisheries: Taken incidentally with purse seines.



Genus *Hemiramphus* - 2 species in the area.



HEMIRAMPHIDAE

Hemiramphus balao LeSueur, 1823

FAO names: En - Balao; Fr - Démi-bec balaou; Sp - Agujeta balajú.

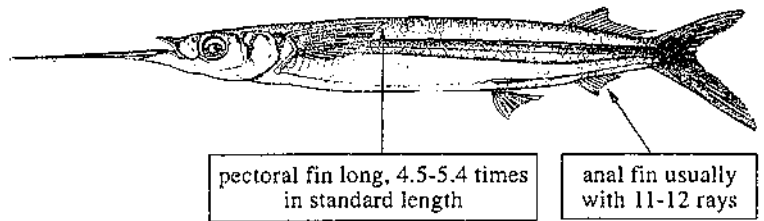
Common names:

Size: Maximum about 40 cm; common to 30 cm.

Distribution and habitat: Throughout the area. Coastal pelagic in surface waters, more abundant along continental shores than around islands.

Fisheries: Taken with beach nets and seines. A species of great importance as bait in sports fisheries for billfishes and in longline fisheries for sharks.

upper lobe of caudal fin
violet-blue, lower lobe bluish

*Hemiramphus brasiliensis* (Linnaeus, 1758)

(plate XVII, 131)

FAO names: En - Ballyhoo; Fr - Démi-bec brésilien; Sp - Agujeta del Brasil.

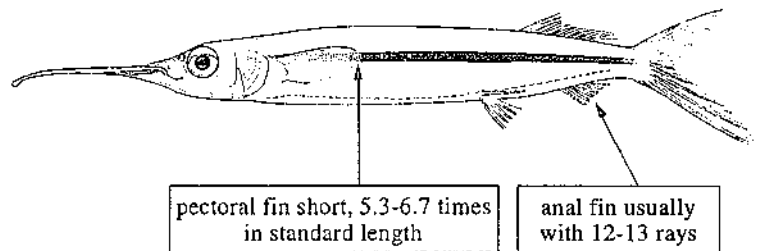
Common names:

Size: Maximum about 44 cm and 200 g; common to 35 cm.

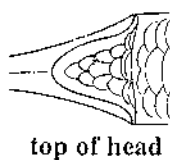
Distribution and habitat: Throughout the area. Coastal pelagic in surface waters, more common along continental coasts.

Fisheries: Taken with beach nets and seines. A species of great importance as bait in sports fisheries for billfishes and in longline fisheries for sharks.

upper caudal fin lobe
reddish orange



Genus *Hyporhamphus* - 2 species in the area.



snout scaled

preorbital crest
distinct

dorsal fin with 13-16 rays

anal fin with 14-17 rays

pectoral fin with 9-12 rays

caudal fin slightly forked, lower
lobe a little longer than the upper

Hyporhamphus roberti (Valenciennes, 1846)

FAO names: En - Slender halfbeak; Fr - Démi-bec allongé; Sp - Agujeta larga.

Common names:

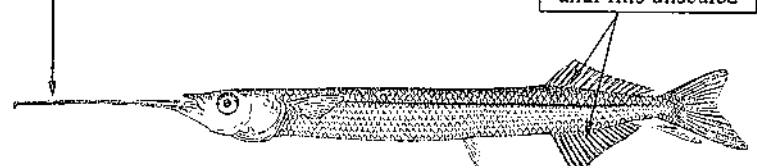
Size: Maximum about 32 cm; common to 20 cm.

Distribution and habitat: Throughout the area. Coastal pelagic at the surface in brackish estuarine areas and in adjacent coastal marine areas.

Fisheries: Taken with beach nets and seines. Utilized mainly as bait in sports fisheries for billfishes and in longline fisheries for sharks.

body very slender, beak extremely long

bases of dorsal and
anal fins unscaled



34 or more gill rakers on 1st arch

HEMIRAMPHIDAE

***Hyporhamphus unifasciatus* (Ranzani, 1842)**

(plate XVII, 132)

FAO names: En - Common halfbeak; Fr - Démi-bec blanc; Sp - Agujeta blanca.

Common names:

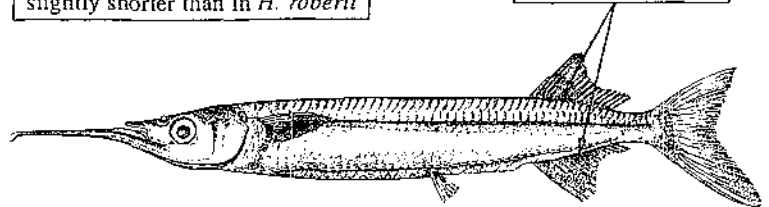
Size: Maximum about 30 cm; common to 20 cm.

Distribution and habitat: Throughout the area. Coastal pelagic in surface waters, usually in protected areas; common in coves and bays.

Fisheries: Taken with beach nets and seines. Used mainly as bait in sports fisheries for bill-fishes and in longline fisheries for sharks.

body more robust, and beak slightly shorter than in *H. roberti*

dorsal and anal fins covered with scales



25-35 gill rakers on 1st arch

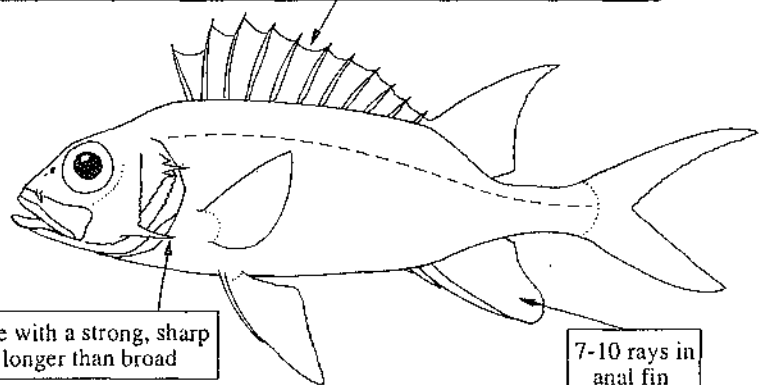
HOLOCENTRIDAE

En: Squirrelfishes, soldierfishes. **Fr:** Marignons. **Sp:** Candiles.

Small to medium-sized, reddish fishes, with strongly ctenoid scales and very large eyes. Most species are found in clear waters of the shelf and around islands, among rocks or corals. They are carnivorous predators, active at night, and hiding by day in crevices, caves, or holes. Squirrelfishes are of little commercial importance in our area, but they are found in markets and consumed by the local population. Five genera with 11 species in the area (3 of the genera in shallow coastal waters and 2 usually below a depth of 100 m).

Genus *Holocentrus* - 6 species in the area.

11 spines in anterior portion of dorsal fin, none in posterior portion, except in *H. marianus* which has 10 spines in anterior, and 1 in posterior portion



angle of preopercle with a strong, sharp spine, which is longer than broad

7-10 rays in anal fin

***Holocentrus adscensionis* (Osbeck, 1765)**

(plate XVII, 133)

FAO names: En - Squirrelfish; Fr - Marignon coq; Sp - Candil gallito.

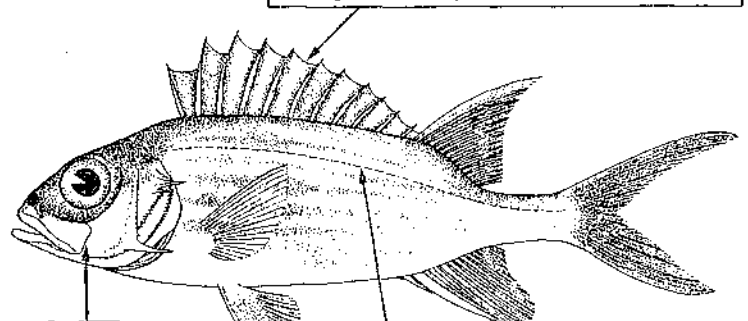
Common names:

Size: Maximum about 35 cm; common to 25 cm.

Distribution and habitat: Throughout the area. Ranging from shallow coral-reef areas to off-shore waters, to a depth of about 90 m.

Fisheries: Taken generally in traps and marketed fresh.

membranes of spinous portion of dorsal fin with greenish or greenish brown colour tints



upper jaw 13.6-15.8% of standard length, its hind tip reaching to or beyond hind margin of pupil

46-50 pored scales in lateral line (to caudal fin base)

HOLOCENTRIDAE

Holocentrus rufus (Walbaum, 1792)

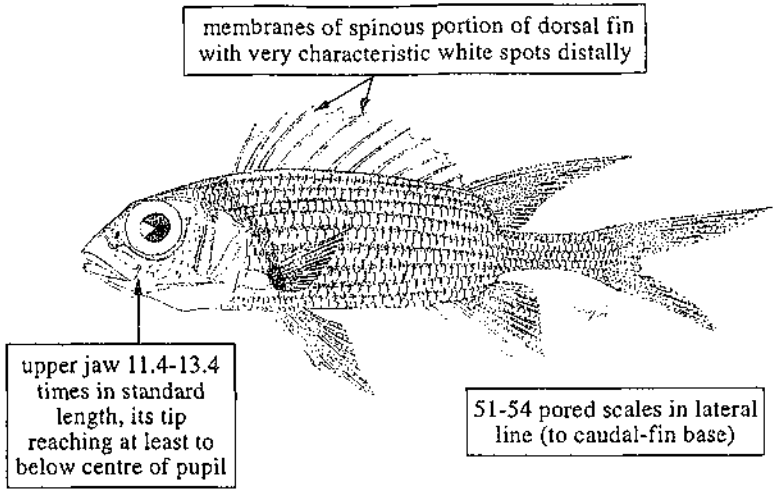
(plate XVII, 135)

FAO names: En - Longspine squirrelfish; Fr - Marignon soldat; Sp - Candil soldado.
Common names:

Size: Maximum about 35 cm; common to 25 cm.

Distribution and habitat: Throughout the area. In clear, shallow waters of coral-reef areas.

Fisheries: Artisanal. Taken mainly in traps. Marketed fresh, but not in great demand.



Other species:
Holocentrus bullisi Woods, 1955 (plate XVII, 134), *H. coruscus* (Poey, 1860), *H. marianus* (Cuvier, 1829), and *H. vexillarius* (Poey, 1860), of no interest to fisheries because of their small average size and their rather sporadic presence in artisanal fisheries landings.

Genus *Myripristis* - a single species in the area.

Myripristis jacobus Cuvier, 1829

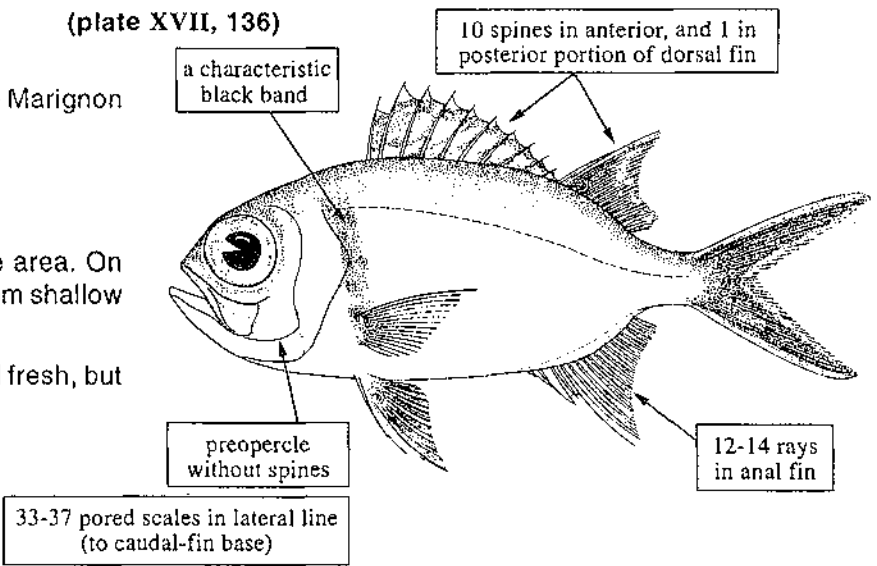
(plate XVII, 136)

FAO names: En - Blackbar soldierfish; Fr - Marignon mombin; Sp - Candil de piedra.
Common names:

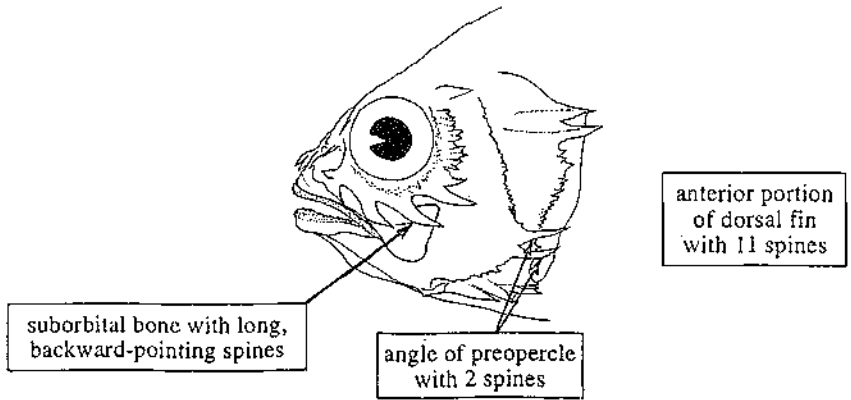
Size: Maximum 25 cm; common to 20 cm.

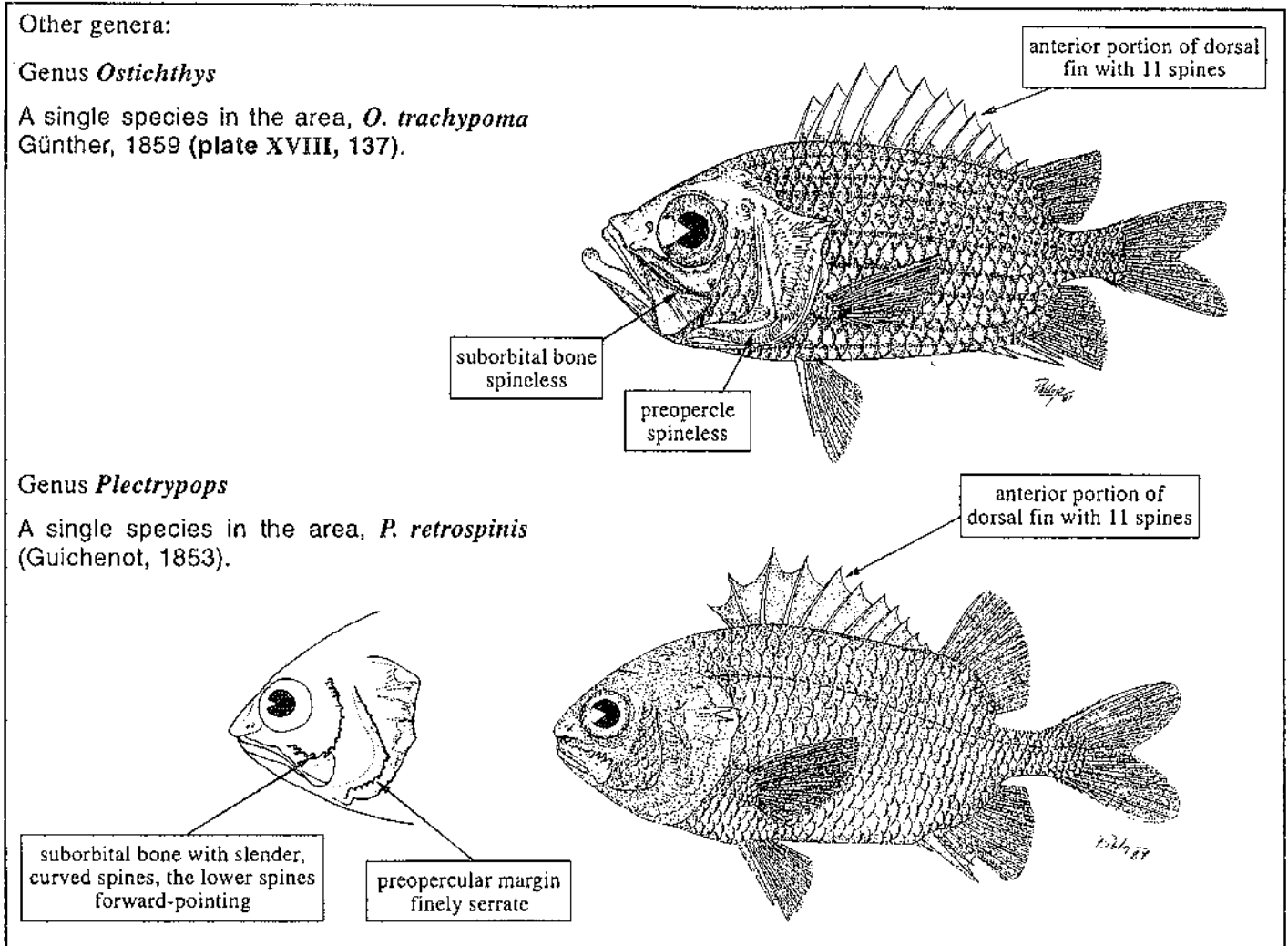
Distribution and habitat: Throughout the area. On rocky substrates and among coral reefs, from shallow coastal waters to a depth of about 90 m.

Fisheries: Taken chiefly in traps. Marketed fresh, but not in great demand.



Other genera:
Corniger with a single species in the area, *C. espinosus* Agassiz, 1829.





HYPOPHthalmidae

En: Lookdown catfishes. **Fr:** Bagres à yeux bas. **Sp:** Bagres ojicaídos.

Medium-sized catfishes inhabiting rivers and estuaries along the northern coast of South America. Only one genus, with a single species in brackish waters of the area.

Genus *Hypophthalmus* - a single species in the area.

Hypophthalmus edentatus Spix, 1829

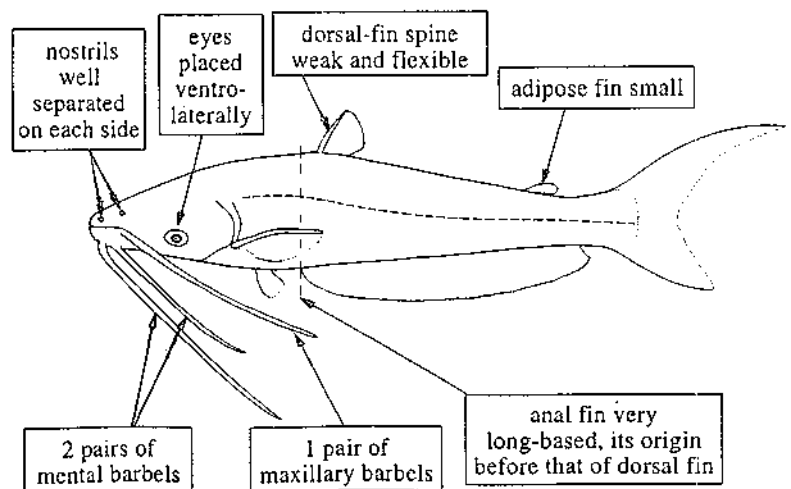
FAO names: En - Highwaterman catfish; Fr - Bagre paysan; Sp - Bagre paisano.

Common names:

Size: Maximum: 57.5 cm and 1.3 kg; common to 45 cm.

Distribution and habitat: From the Gulf of Paria to the mouth of the Amazon river. On muddy bottoms to a depth of 37 m.

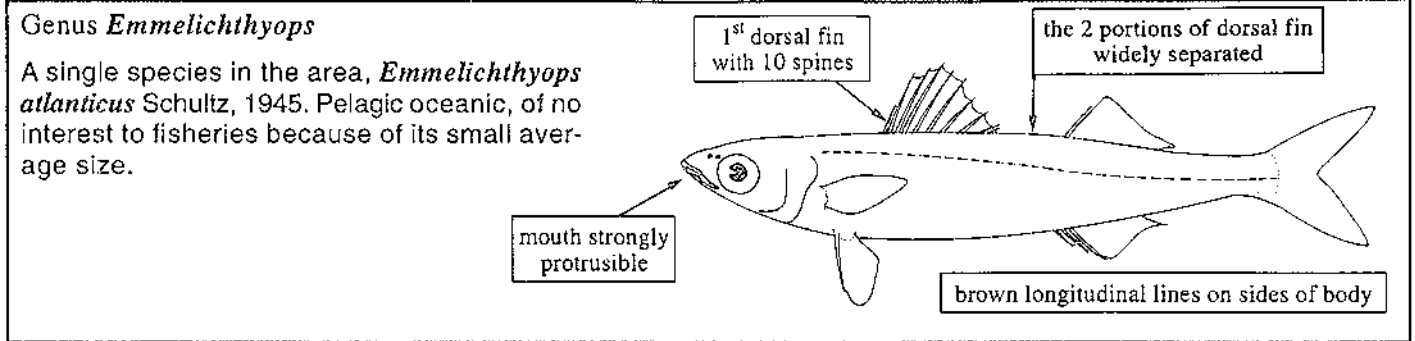
Fisheries: Artisanal. Caught with beach nets and trammel nets; also on hook-and-line. Marketed fresh and salted.



INERMIDAE

En: Bonnetmouths. **Fr:** Bogas. **Sp:** Bogas.

Small, elongate fishes, almost circular in cross section. They are pelagic in marine waters and feed on plankton. Two genera, each with one species in the area.



Genus *Inermia* - a single species in the area.

Inermia vittata Poey, 1860

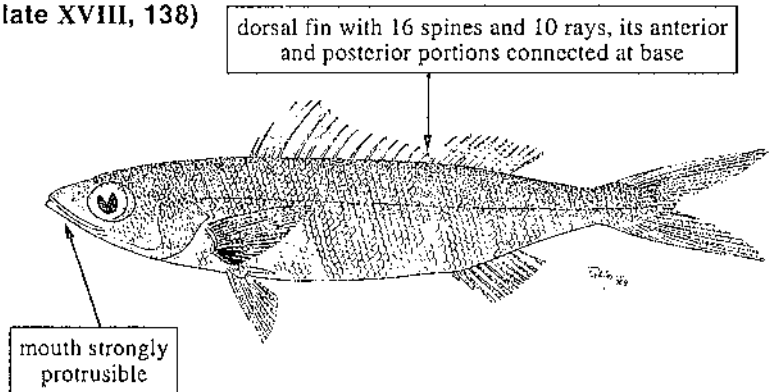
FAO names: **En** - Boga; **Fr** - Boga; **Sp** - Boga.
Common names:

Size: Maximum 22.5 cm, common to 18 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela and probably, off Trinidad. Pelagic, mainly around islands, sometimes very close to the shore.

Fisheries: Artisanal. Caught with beach nets and seines. Marketed fresh.

(plate XVIII, 138)



ISTIOPHORIDAE

En: Sailfishes, marlins, spearfishes. **Fr:** Volliers, makaires. **Sp:** Peces vela, agujas.

Large fishes characterized by having the upper jaw extended into a long beak. They are pelagic and occur usually in surface waters, above the thermocline. Being among the largest and swiftest fishes of the oceans, they perform considerable, sometimes transoceanic, migrations. Although they are normally found in oceanic waters, they may approach the coast under certain circumstances. Billfishes are important food fishes, and they are perhaps the most highly appreciated targets of marine sports fisheries. Three genera with 4 species in the area.

Genus *Istiophorus* - a single species in the area.

Istiophorus albicans (Latreille, 1804)

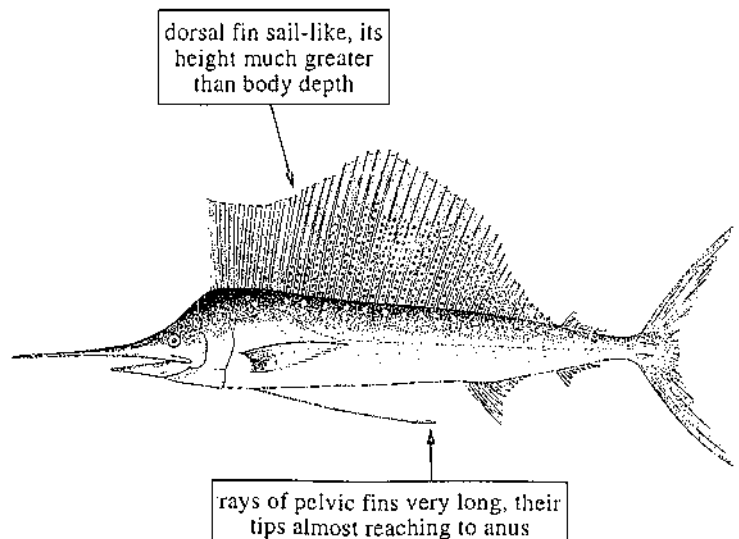
FAO names: **En** - Atlantic sailfish (AFS: Sailfish); **Fr** - Voilier de l'Atlantique; **Sp** - Pez vela del Atlántico.

Common names:

Size: Maximum 315 cm and 58 kg; common to 240 cm.

Distribution and habitat: Throughout the area, but the population concentrates mainly in the Caribbean sea. Pelagic oceanic in surface waters above the thermocline, at temperatures between 21° and 28° C.

Fisheries: Industrial. Mainly taken on floating tuna longlines, but also with trammel nets and in sports fisheries by trolling. Marketed fresh and salted.



ISTIOPHORIDAE

Genus *Makaira* - a single species in the area.

Makaira nigricans Lacepède, 1802

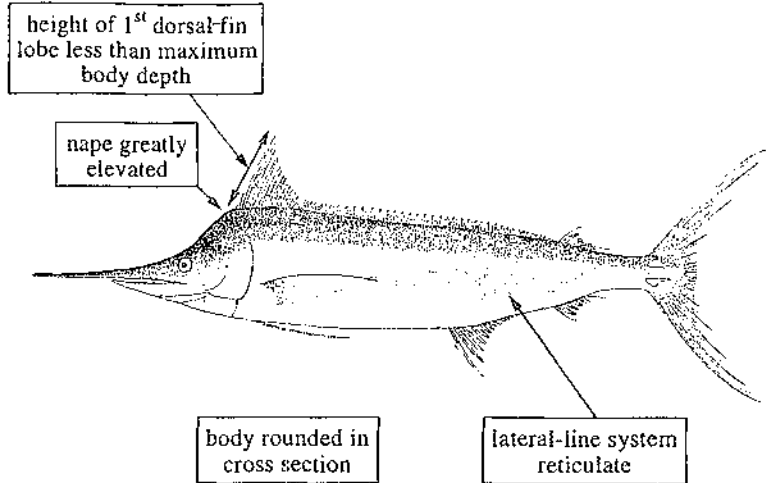
FAO names: En - Blue marlin; Fr - Makaïre bleu; Sp - Aguja azul.

Common names:

Size: Maximum about 400 cm and 580 kg; common to 345 cm.

Distribution and habitat: Throughout the area. Pelagic oceanic, usually above the thermocline, at water temperatures between 22° and 33° C.

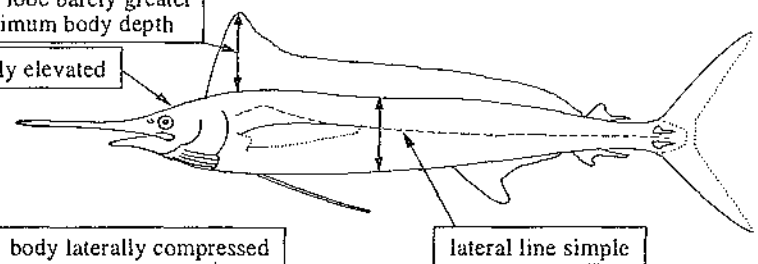
Fisheries: Industrial. Mainly taken on floating tuna longlines, but also with trammel nets and in sports fisheries by trolling. Marketed fresh and canned.



Genus *Tetrapturus* - 2 species in the area.

height of 1st dorsal-fin lobe barely greater than or equal to maximum body depth

nape slightly elevated



Tetrapturus albidus Poey, 1860

FAO names: En - White marlin; Fr - Makaïre blanc; Sp - Aguja blanca.

Common names:

Size: Maximum about 300 cm and 82 kg; common to 210 cm.

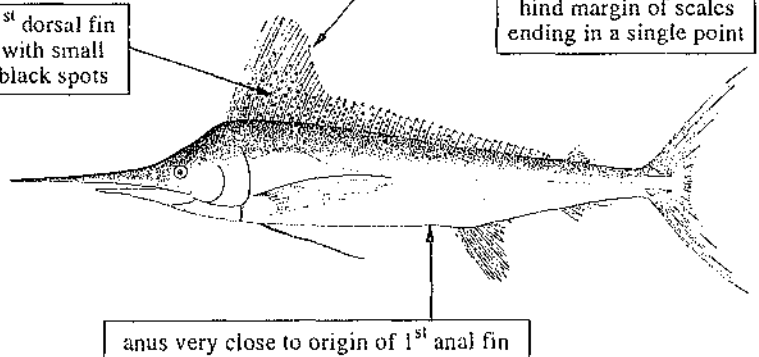
Distribution and habitat: Throughout the area. Pelagic oceanic, usually above the thermocline.

Fisheries: Industrial. Taken mainly on floating tuna longlines, but also with trammel nets and in sports fisheries by trolling. Marketed fresh.

1st dorsal-fin lobe considerably higher than remaining part of fin, which gradually diminishes in height towards its posterior end

1st dorsal fin with small black spots

hind margin of scales ending in a single point



Tetrapturus pfluegeri Robins and de Sylva, 1963

FAO names: En - Longbill spearfish; Fr - Makaïre bécune; Sp - Aguja picuda.

Common names:

Size: Maximum about 200 cm body length (from tip of lower jaw to tips of central caudal-fin rays) and 45 kg; common to 160 cm.

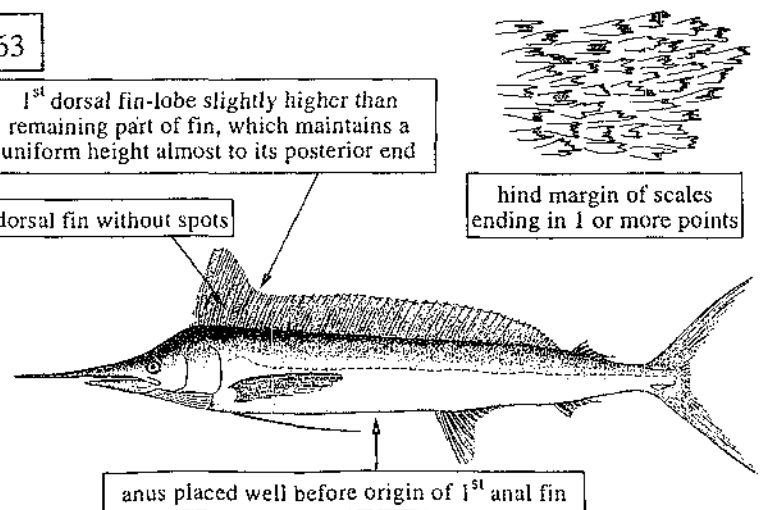
Distribution and habitat: Throughout the area. Pelagic oceanic, usually above the thermocline.

Fisheries: Industrial. Taken mainly on floating tuna longlines; also with trammel nets and in sports fisheries by trolling. This is the least abundant of the billfish species occurring in the area.

1st dorsal fin-lobe slightly higher than remaining part of fin, which maintains a uniform height almost to its posterior end

1st dorsal fin without spots

hind margin of scales ending in 1 or more points



KYPHOSIDAE

En: Sea chubs. **Fr:** Calicagères. **Sp:** Chopas.

Comparatively deep-bodied, medium-sized fishes with short heads and small mouths. They are herbivorous, shallow-water schooling fishes usually found in clear waters of rocky or coral reef areas. A single genus with 2 species in the area.

Kyphosus incisor (Cuvier, 1831)

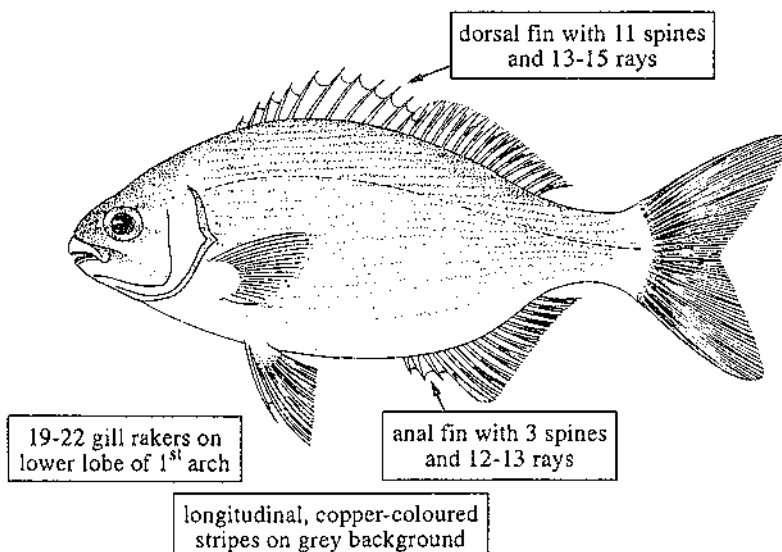
FAO names: **En** - Yellow sea chub; **Fr** - Calicagère jaune; **Sp** - Chopa amarilla.

Common names:

Size: Maximum 67 cm; common to 45 cm.

Distribution and habitat: Throughout the area. In shallow rocky or coral-reef habitats.

Fisheries: Artisanal. Caught mainly with trammel nets, but also on hook-and-line. Marketed fresh.



Kyphosus sectatrix (Linnaeus, 1758)

(plate XVIII, 139)

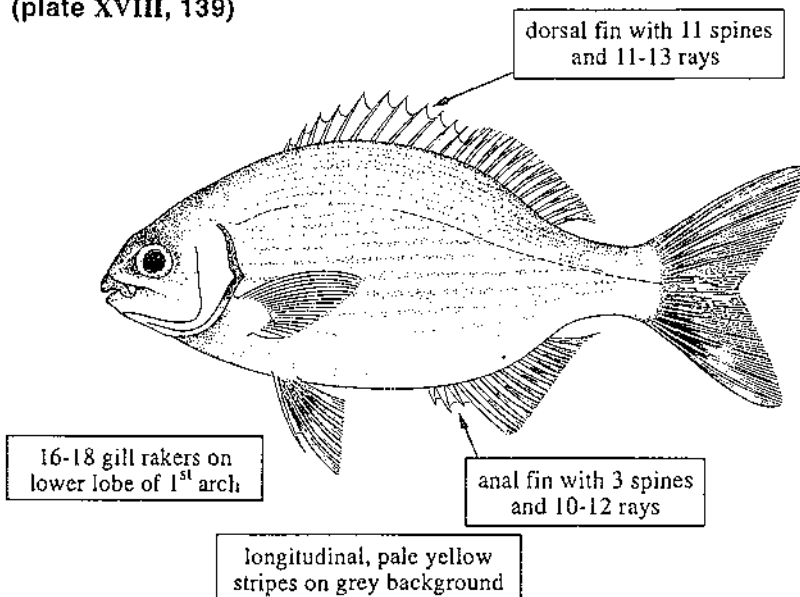
FAO names: **En** - Bermuda sea chub; **Fr** - Calicagère blanche; **Sp** - Chopa blanca.

Common names:

Size: Maximum 76 cm; common to 50 cm.

Distribution and habitat: Throughout the area. In shallow waters over seagrass beds, sandy or rocky bottoms, and on coral reefs.

Fisheries: Artisanal. Caught with gillnets, and also on hook-and-line. Marketed fresh.

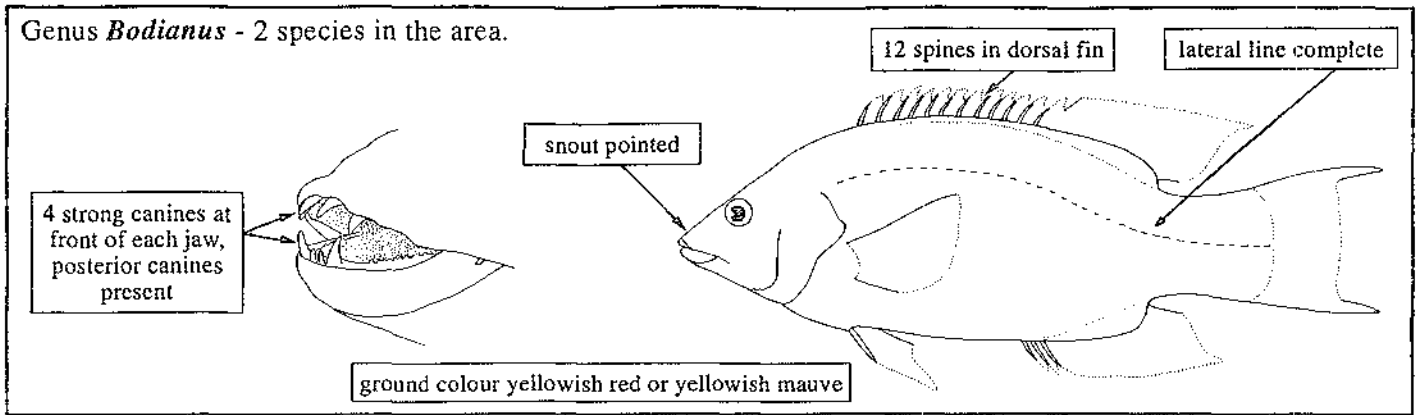


LABRIDAE

En: Wrasses, hogfishes, razorfishes. **Fr:** Donzelles, labres, pourceaux. **Sp:** Viejas, doncellas.

Wrasses are small to medium-sized fishes (usually less than 40 cm length) occurring in a variety of shapes, from short and deep-bodied to long and slender. They are carnivores, often with a marked sexual dimorphism, inhabiting shallow, clear waters on sandy or rocky substrates, most frequently in coral-reef areas. Most of the species of this family are not utilized as food, either because of their small size, or the low quality of their flesh. They are caught mostly in traps and sometimes with beach nets or on hook-and-line. Eight genera with 19 species in the area.

LABRIDAE



Bodianus pulchellus (Poey, 1860)

(plate XVIII, 140)

FAO names: En - Spotfin hogfish; Fr - Pourceau dos noir; Sp - Vieja lomonegro.

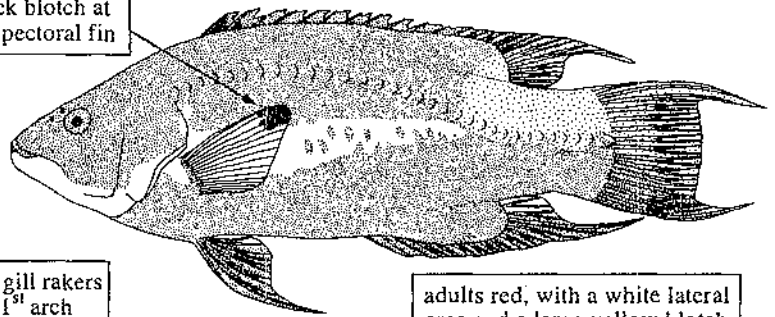
Common names:

Size: Maximum to 24 cm; common to 18 cm.

Distribution and habitat: Throughout the area. In rocky or coral-reef areas, between depths of 15 and 120 m.

Fisheries: Artisanal. Caught with traps and on hook-and-line. Of little importance as a fishery resource.

♂ black blotch at tip of pectoral fin



Bodianus rufus (Linnaeus, 1758)

(plate XVIII, 141)

FAO names: En - Spanish hogfish; Fr - Pourceau espagnol; Sp - Vieja colorada.

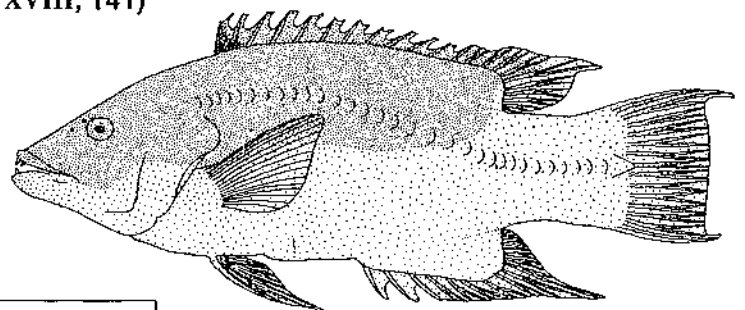
Common names:

Size: Maximum 40 cm; common to 28 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters over rocky bottoms and in coral-reef areas.

Fisheries: Artisanal. Caught mainly in traps and on hook and line. Of little importance as a fishery resource.

17-19 gill rakers on 1st arch



Genus *Clepticus* - a single species in the area.

Clepticus parrai (Bloch and Schneider, 1801)

(plate XVIII, 142)

FAO names: En - Creole wrasse; Fr - Donzelle créole; Sp - Doncella mulata.

Common names:

Size: Maximum 28 cm; common to 22 cm.

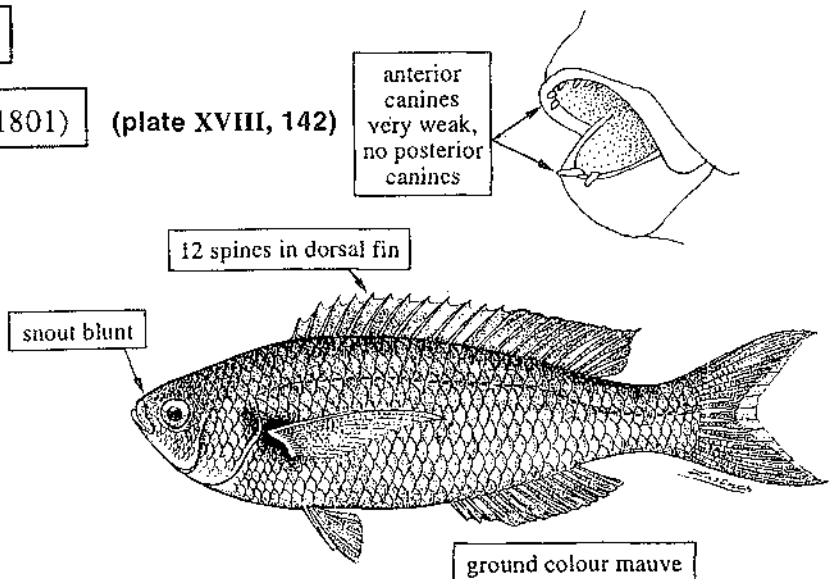
Distribution and habitat: Northern coasts of Colombia and Venezuela, and off Trinidad. In clear, shallow waters to a depth of about 30 m, forming aggregations over rocky bottoms or in coral-reef habitats.

Fisheries: Artisanal. Caught with traps and beach nets. Very abundant in some insular areas.

anterior canines very weak, no posterior canines

12 spines in dorsal fin

snout blunt



Genus *Decodon* - a single species in the area.

Decodon puellaris (Poey, 1860)

(plate XVIII, 143)

11 spines in dorsal fin

FAO names: En - Red hogfish; Fr - Labre rouge;
Sp - Doncella de canto.

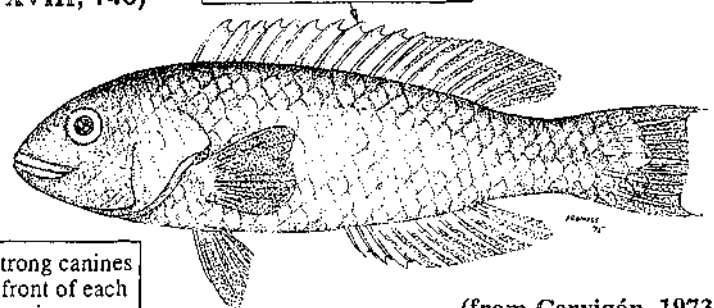
Common names:

Size: Maximum 30 cm; common to 22 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela and probably also present on Trinidad and Tobago. Mainly on the rocky slopes of insular areas between depths of 50 and 200 m.

Fisheries: Artisanal. Caught mainly with traps and on hook-and-line and occasionally with bottom trawls, but it is never abundant.

4 strong canines at front of each jaw



(from Cervigón, 1973)

colour pink to reddish, with 3 large red spots on body; head with several stripes and some yellow spots

Genus *Doratonotus*

A single species in the area, *D. megalepis* Günther, 1862 (plate XVIII, 144), of no interest to fisheries because of its small size (less than 12 cm length).

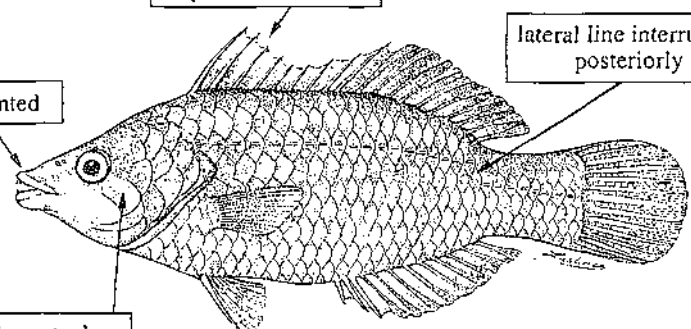
9 spines in dorsal fin

lateral line interrupted posteriorly

snout pointed

anterior canines of moderate size; 1 posterior canine

head with large scales behind and below eyes

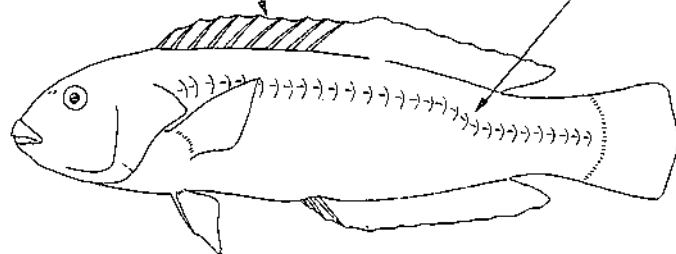


body and fins bright green, sometimes spotted

Genus *Halichoeres* - 9 species in the area, of which only one, *H. radiatus*, is of interest to fisheries.

9 spines in dorsal fin

lateral line continuous, but strongly curved under soft portion of dorsal fin



Halichoeres radiatus (Linnaeus, 1758)

(plate XIX, 148-149-150)

body depth greater than in other species of the genus, 2.7-3.6 times in standard length

FAO names: En - Puddingwife wrasse; Fr - Donzelle arc en ciel; Sp - Doncella arco iris.

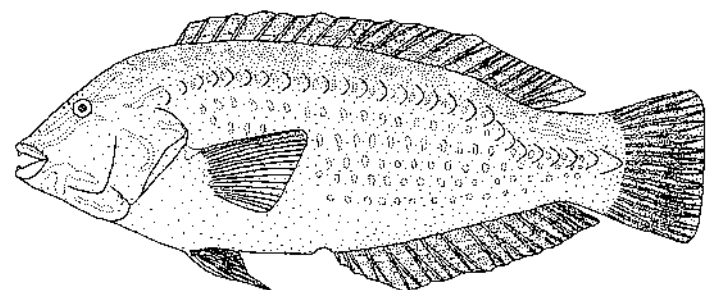
Common names:

Size: Maximum 49.5 cm; common to 40 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad and Tobago. Over rocky bottoms or in coral reefs, to below a depth of 50 m (usually less). Juveniles and subadults are commonly found between depths of 1 and 5 m. Colour patterns change substantially from juveniles to adults.

Fisheries: Artisanal. Caught with traps and also, on hook-and-line. Of little importance as a fishery resource.

21-23 gill rakers on 1st arch



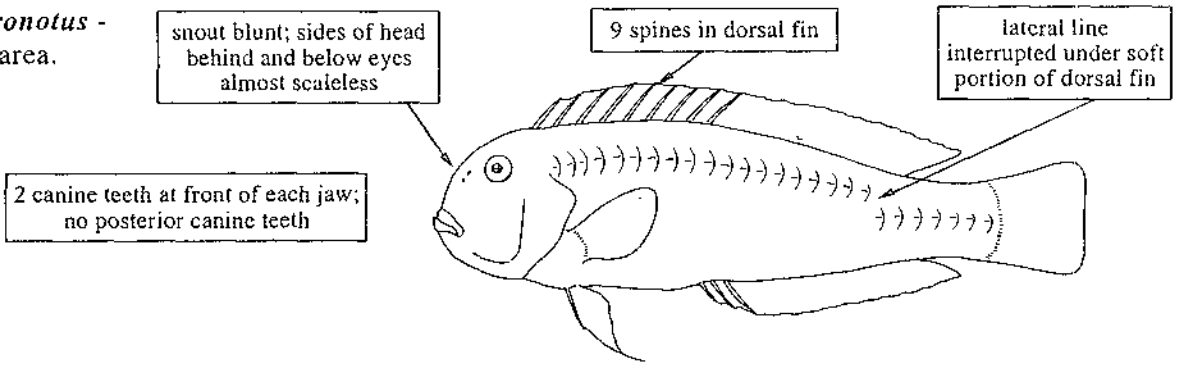
adults greenish brown dorsally, pale yellow on sides, and white on belly; scale margins bright bluish green; blue streaks and spots, varying with age

LABRIDAE

Other species:

Halichoeres bathyphilus (Beebe and Tee-Van, 1932), *H. bivittatus* (Bloch, 1791) (plate XIX, 145-146), *H. caudalis* (Poey, 1860) (plate XIX, 147), *H. cyanocephalus* (Bloch, 1781), *H. garnoti* (Valenciennes, 1833), *H. maculipinna* (Müller and Troschel, 1848), *H. pictus* (Poey, 1860), and *H. poeyi* (Steindachner, 1867). All these species are of no interest to fisheries because of their small average size. Most of them inhabit clear waters over seagrass beds or coral-reef areas. All are carnivores, except *H. caudalis* and *H. bathyphilus*.

Genus *Hemipteronotus* -
3 species in the area.



Hemipteronotus novacula (Linnaeus, 1758) (plate XX, 153)

Synonym: *Xirichthys novacula* (Linnaeus, 1758)

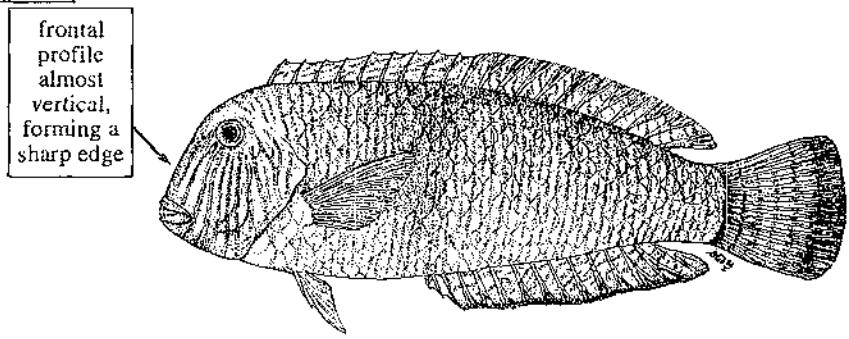
FAO names: En - Pearly razorfish; Fr - Donzelle lame; Sp - Doncella cuchilla.

Common names:

Size: Maximum 21.5 cm, common to 17 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela and on Trinidad and Tobago. On shallow sandy bottoms, often skittering sideways across the sand, thus avoiding the nets.

Fisheries: Taken with beach nets.



colour greenish brown; scale margins violet, forming discontinuous vertical lines; a red cross bar behind pectoral fin; alternating blue and orange vertical lines on head

Other species:

Hemipteronotus martinicensis (Valenciennes, 1839) and *H. splendens* (Castelnau, 1855) are found in clear, shallow waters over clean sand bottoms, partially burrowing in the substrate and skittering sideways along the bottom. Of no interest to fisheries because of their small average size.

Genus *Lachnolaimus* - a single species in the area.

Lachnolaimus maximus (Walbaum, 1792)

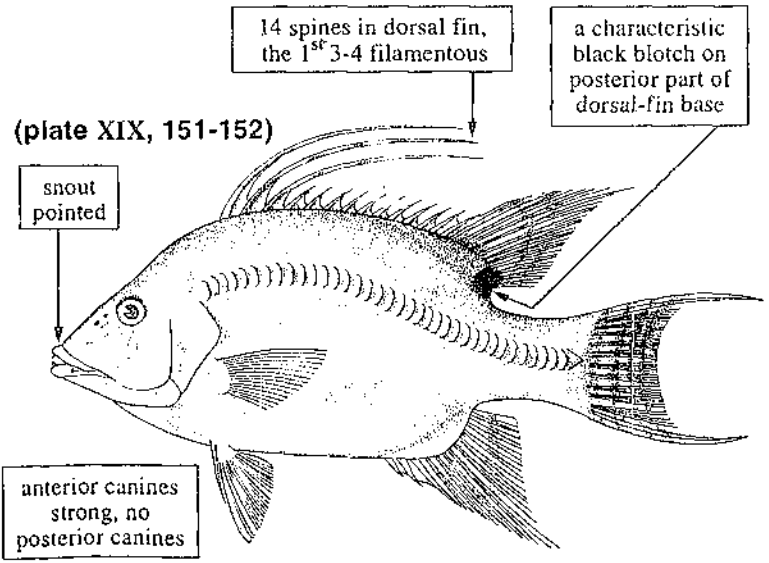
FAO names: En - Hogfish; Fr - Labre capitaine; Sp - Doncella de pluma.

Common names:

Size: Maximum 70 cm and up to 10 kg; common to 35 cm.

Distribution and habitat: Throughout the area. In clear, shallow waters among soft or hard corals or on flat bottoms.

Fisheries: Predominantly artisanal. Caught on hook-and-line, and with traps and beach nets; occasionally with bottom trawls. Marketed fresh.



LABRIDAE

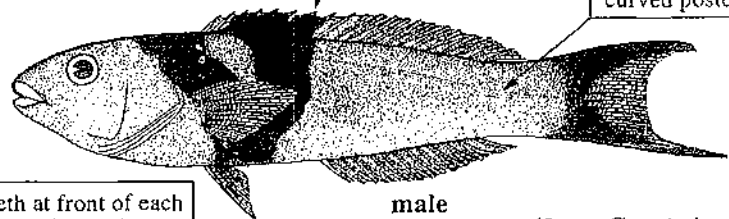
Genus *Thalassoma*

A single species in the area, *T. bifasciatum* (Bloch, 1791), of no interest to fisheries because of its small average size. It has a marked sexual dimorphism. Very abundant in shallow coral reef areas.

body elongate and oblong

8 spines in dorsal fin

lateral line complete, strongly curved posteriorly



2 canine teeth at front of each jaw, no posterior canines

male

(from Cervigón, 1966)

LAMPRIDAE

En: Opahs. Fr: Opas. Sp: Opas.

A single genus with one species in the area.

Lampris guttatus (Brunnich, 1788)

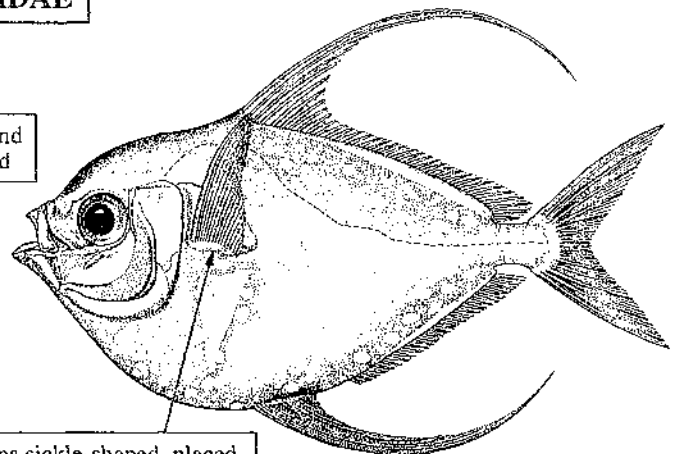
FAO names: En - Opah; Fr - Opa; Sp - Opa.
Common names:

Size: Maximum 185 cm; common to 120 cm.

Distribution and habitat: Throughout the area. Pelagic oceanic to about a depth of 200 m.

Fisheries: Taken on longlines.

body oval and compressed



pectoral fins sickle-shaped, placed high on body, their bases horizontal

back bluish green with golden and purplish reflections, sides and belly pink; small silvery spots scattered over entire body; lips and fins scarlet red

LOBOTIDAE

En: Tripletails. Fr: Croupias. Sp: Dormilonas.

A single genus with one species in the area.

Lobotes surinamensis (Bloch, 1790)

FAO names: En - Atlantic tripletail (AFS: Tripletail);
Fr - Croupia roche; Sp - Dormilona.

Common names:

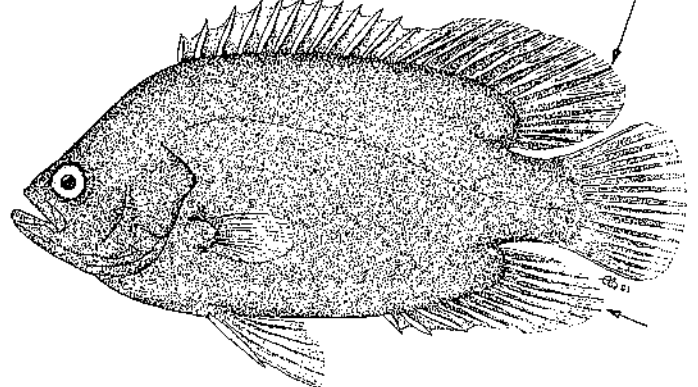
Size: Maximum 100 cm (exceptional); common to 50 cm.

Distribution and habitat: Throughout the area. A sluggish fish that often floats on its side near the surface, usually in continental shelf waters; also common in estuaries.

Fisheries: Artisanal. Caught with trammel nets and occasionally, beach nets. Marketed fresh and salted, but not abundant.

dorsal fin with 12 spines and 15-16 rays

dorsal and anal fins symmetrical and prolonged above and below caudal fin

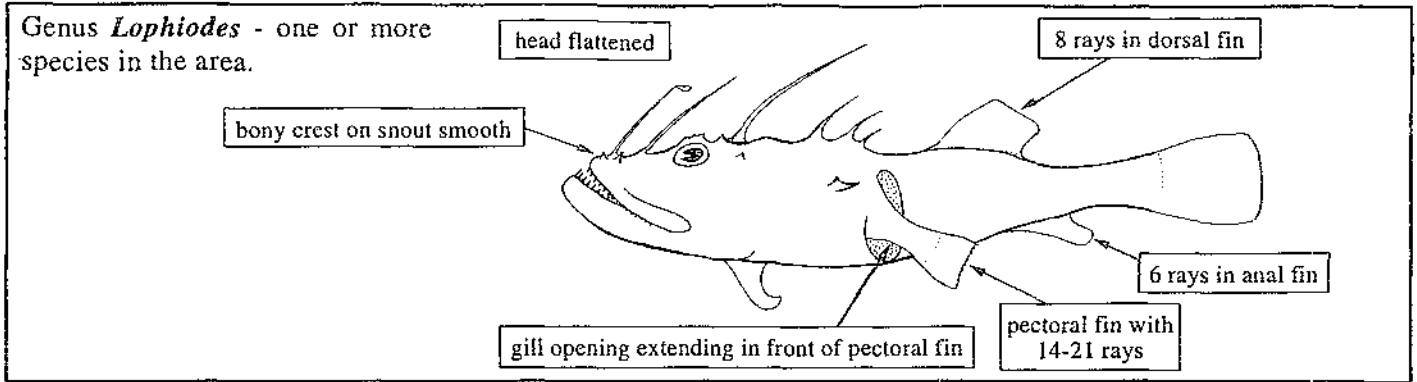


LOPHIIDAE

En: Goosefishes. Fr: Baudroies. Sp: Rapes.

Fishes of very characteristic shape, depressed anteriorly and tapering posteriorly, with an enormous, superior mouth which allows them to swallow large prey. They are demersal over muddy bottoms, usually between depths of 200 and 1 000 m. At present, they are of little commercial importance in our area, but the demand for these fishes is likely to increase in the future. Three genera and probably more than 3 species in the area.

LOPHIIDAE



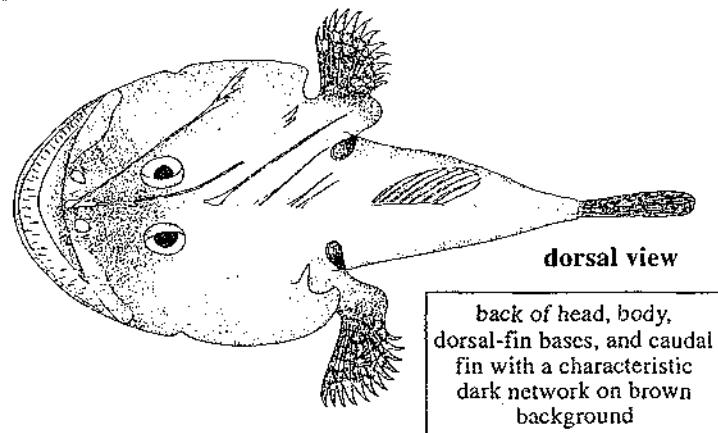
Lophiodes reticulatus Caruso and Suttkus, 1979

FAO names: En - Reticulated goosefish; Fr - Baudroie reticulée; Sp - Rape chato.
Common names:

Size: Maximum at least 25 cm; common to 15 cm.

Distribution and habitat: Gulf of Venezuela and northeastern part of the area. Over muddy bottoms.

Fisheries: Industrial. Caught as bycatch in trawl fisheries for shrimps and finfishes.



Other species:
Lophiodes beroe Caruso, 1981, and *L. monodi* Caruso, 1981, have been reported from the western North Atlantic, but their presence in our area has not been confirmed.

Genus *Lophius* - a single species in the area.

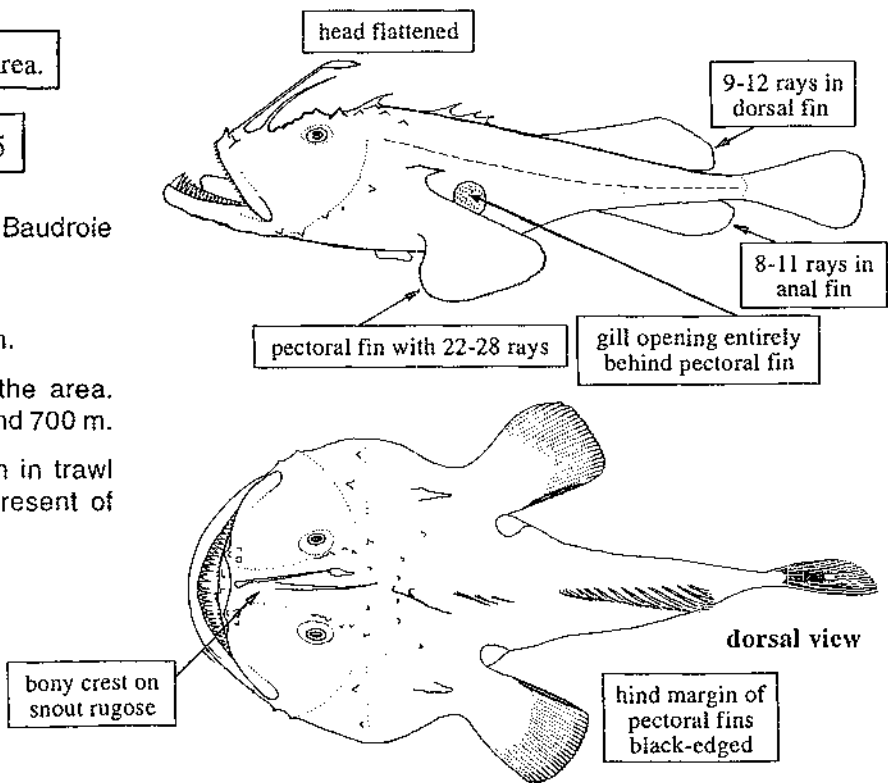
Lophius gastrophysus Ribeiro, 1915

FAO names: En - Blackfin goosefish; Fr - Baudroie pêcheuse; Sp - Rape pescador.
Common names:

Size: Maximum 60 cm; common to 45 cm.

Distribution and habitat: Throughout the area. On soft bottoms between depths of 200 and 700 m.

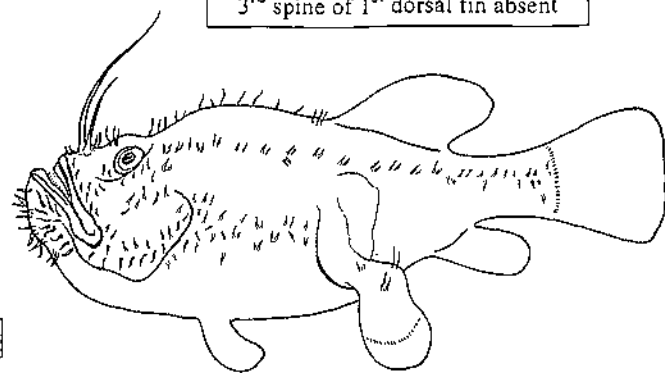
Fisheries: Industrial. Caught as bycatch in trawl fisheries for shrimps and finfishes. At present of minor importance as a fishery resource.



LOPHIIDAE

Genus *Sladenia*

A single species in the area, *S. shaefersi* Caruso and Bullis, 1986, a deep-water species less than 20 cm in length occurring below a depth of 700 m.



head rounded

LUTJANIDAE

En: Snappers. **Fr:** Vivaneaux. **Sp:** Pargos, rabirubias, panchitos.

Medium-sized, generally robust fishes occurring mostly in marine waters, from shallow coastal areas to a depth below 200 m; a few species may enter brackish or hypersaline waters, especially in their juvenile stages. Snappers are found over soft substrates and in rocky and coral-reef habitats. All are carnivorous predators, usually active at night. They are of great importance as food fishes because their flesh is generally of delicate flavour and excellent quality. Eight genera with 20 species in the area.

Genus *Apsilus* - a single species in the area.

Apsilus dentatus Guichenot, 1853

FAO names: **En** - Black snapper; **Fr** - Vivaneau noir; **Sp** - Pargo mulato.
Common names:

Size: Maximum about 65 cm; common to 40 cm.

Distribution and habitat: Insular areas off Colombia and Venezuela, and on Trinidad and Tobago. Over rocky bottoms, between depths of about 100 and 200 m. Reports of this species from the area are scarce.

Fisheries: Artisanal and industrial. Caught on hook-and-line.

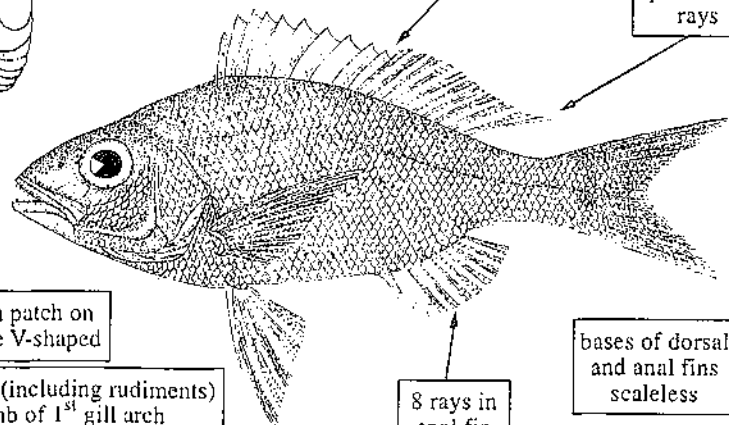


interorbital space convex

body deep (depth 2.6-2.8 times in standard length)

dorsal fin continuous, slightly notched, with 10 spines and 8-10 rays

last ray of dorsal and anal fins as long as preceding rays



tooth patch on palate V-shaped

14-15 gill rakers (including rudiments) on lower limb of 1st gill arch

8 rays in anal fin

bases of dorsal and anal fins scaleless

colour plain dark brown or mauve

LUTJANIDAE

Genus *Etelis* - a single species in the area.

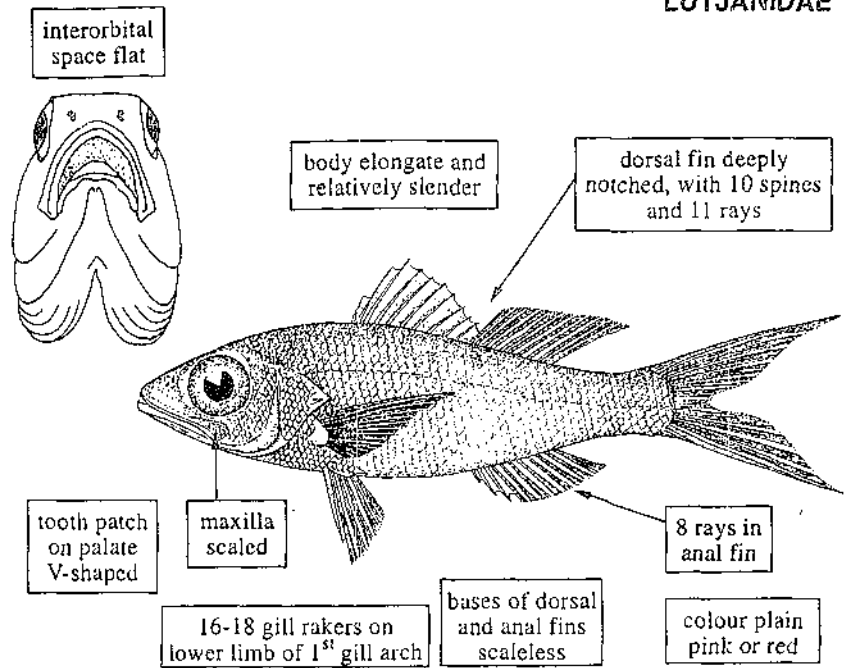
Etelis oculatus (Valenciennes, 1828)

FAO names: En - Queen snapper; Fr - Vivaneau royal; Sp - Pargo cachucho.
Common names:

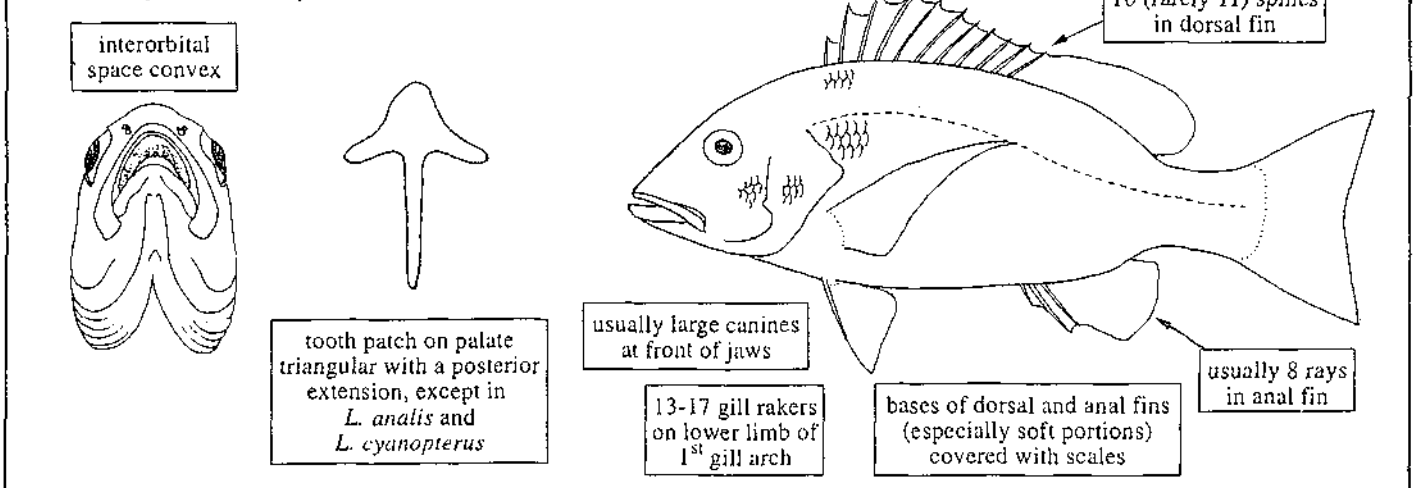
Size: Maximum 60 cm; common to 52 cm.

Distribution and habitat: Throughout the area. Over rocky bottoms, between depths of 100 and 450 m, usually around oceanic islands.

Fisheries: Artisanal and industrial. Caught on hook-and-line. Small specimens are also taken as bycatch in trawl fisheries.



Genus *Lutjanus* - 11 species in the area.



Lutjanus analis (Cuvier, 1828)

(plate XX, 154)

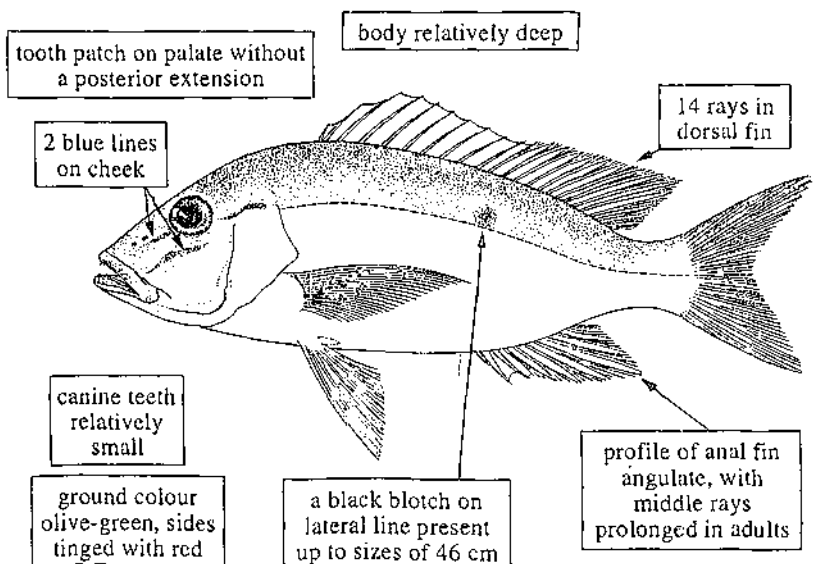
FAO names: En - Mutton snapper; Fr - Vivaneau sorbe; Sp - Pargo criollo.

Common names:

Size: Maximum 85 cm and about 15 kg; common to 50 cm.

Distribution and habitat: Throughout the area. In continental shelf areas as well as in clear waters around islands. Juveniles are common over sandy, vegetated bottoms (mainly of *Thalassia*), while large adults usually occur on hard substrates, among rocks and corals, to a depth of 75 m and exceptionally 100 m. Feeds mainly on crustaceans and molluscs. Fecundity rather high (over 10 million eggs per female); age limit about 17 years.

Fisheries: Artisanal and industrial. Caught with beach nets and trammel nets; also on hook-and-line and with traps. A very important commercial species in the area. Marketed fresh.



Lutjanus apodus (Walbaum, 1792)

(plate XX, 155-156)

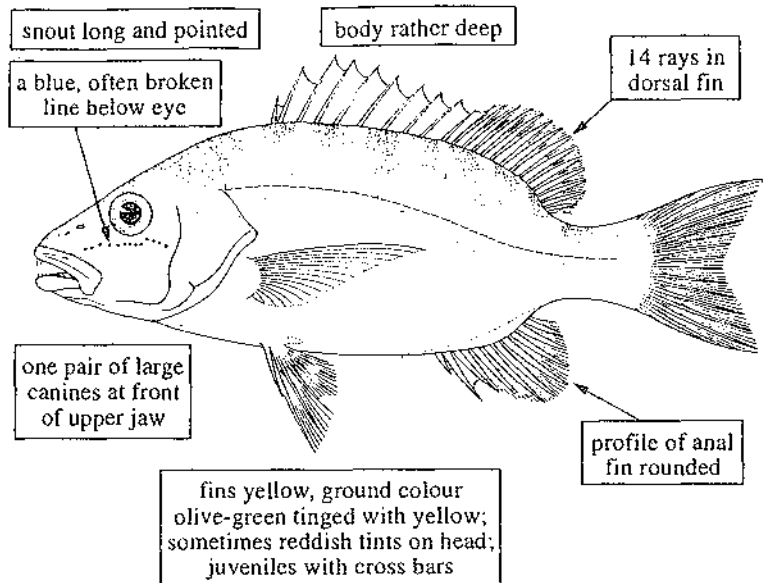
FAO names: En - Schoolmaster; Fr - Vivaneau dentchien; Sp - Pargo amarillo.

Common names:

Size: Maximum 67 cm and 10 kg; common to 40 cm.

Distribution and habitat: Throughout the area. In shallow waters to a depth of about 60 m (usually less). Most commonly found in clear waters over hard, mainly rocky, substrates, and on coral reefs. Juveniles are common on *Thalassia* seagrass beds.

Fisheries: Artisanal and industrial. Caught mainly with traps, gillnets, and on hook-and-line. Marketed fresh.

*Lutjanus buccanella* (Cuvier, 1828)

(plate XX, 157)

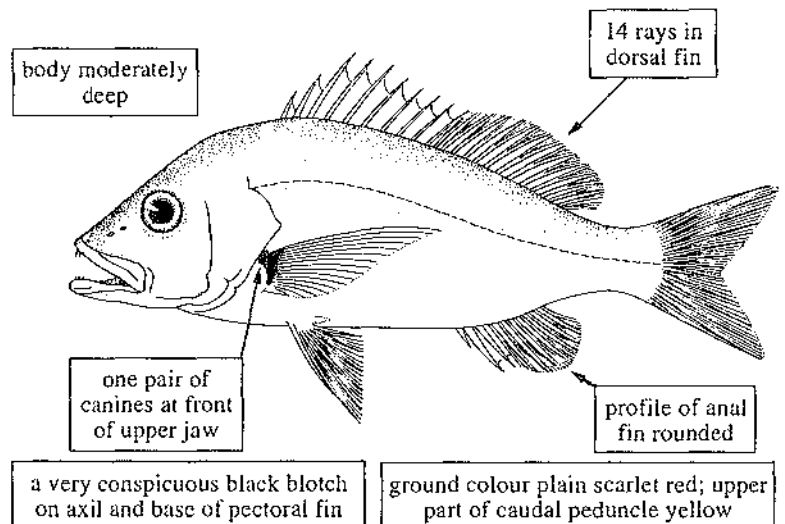
FAO names: En - Blackfin snapper; Fr - Vivaneau oreille noire; Sp - Pargo sesí.

Common names:

Size: Maximum 65 cm; common to 50 cm.

Distribution and habitat: Throughout the area. Often around oceanic islands, over rocky bottoms, usually between depths of 50 and 150 m. Juveniles have been caught in depths up to 20 m, and adults to below 200 m.

Fisheries: Artisanal and industrial. Caught with traps and on hook-and-line. Marketed fresh; occasionally causes ciguatera poisoning.

*Lutjanus cyanopterus* (Cuvier, 1828)

(plate XX, 158)

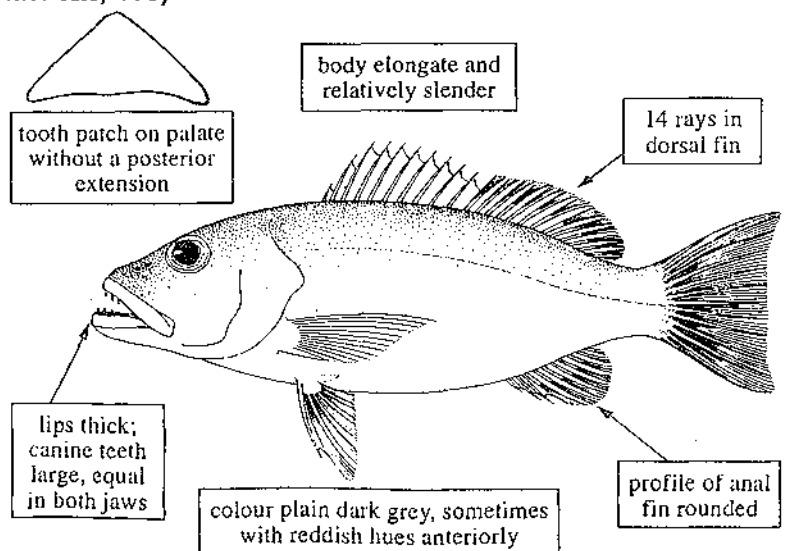
FAO names: En - Cubera snapper; Fr - Vivaneau cubéra; Sp - Pargo cubera.

Common names:

Size: Maximum 160 cm and over 50 kg; common to 90 cm.

Distribution and habitat: Throughout the area. Over rocky bottoms and in coral-reef areas to a depth of about 40 m. Juveniles occur close to the shore.

Fisheries: Artisanal and industrial. Caught mainly with gillnets and on hook-and-line. Large specimens may occasionally cause ciguatera poisoning.



LUTJANIDAE

Lutjanus griseus (Linnaeus, 1758)

(plate XX, 159)

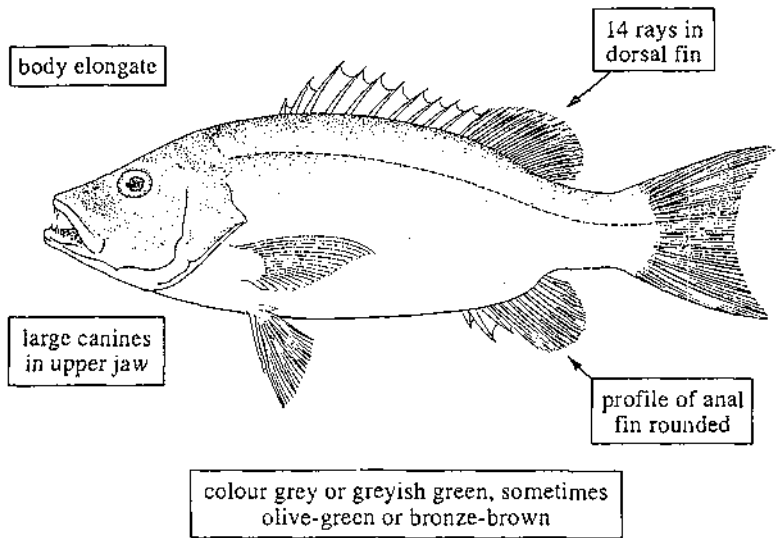
FAO names: En - Grey snapper; Fr - Vivaneau sarde gris; Sp - Pargo prieto.

Common names:

Size: Maximum 65 cm; common to 40 cm.

Distribution and habitat: Throughout the area. In continental shelf waters as well as around oceanic islands, over rocky bottoms and in coral reef-areas to a depth of about 50 m. Also occurs in brackish and hypersaline waters, and occasionally in freshwater (especially the juveniles).

Fisheries: Artisanal and industrial. Caught with beach nets, gillnets, on hook-and-line, and occasionally also with traps. Marketed fresh.



Lutjanus jocu (Bloch and Schneider, 1801)

(plate XX, 160)

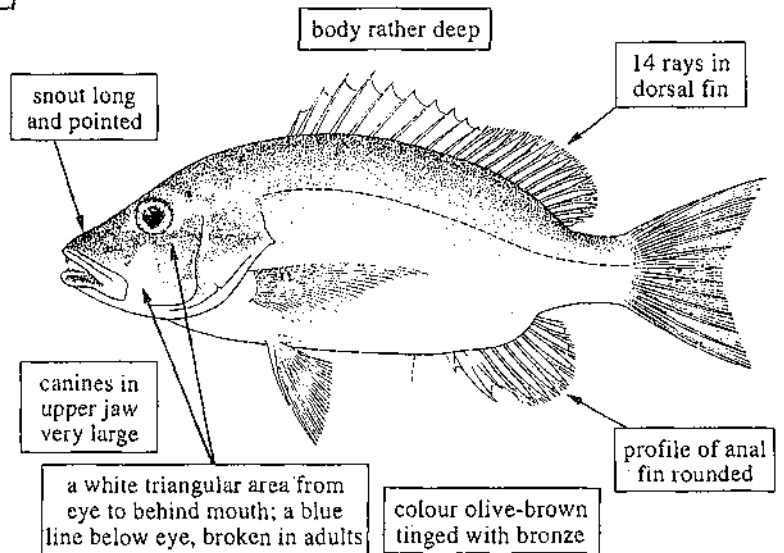
FAO names: En - Dog snapper; Fr - Vivaneau chien; Sp - Pargo jocú.

Common names:

Size: Maximum 74 cm; common to 60 cm.

Distribution and habitat: Throughout the area. Usually in clear waters, over rocky bottoms and in coral-reef areas

Fisheries: Artisanal and industrial. Caught with trammel nets, traps, and on hook-and-line.



Lutjanus mahogoni (Cuvier, 1828)

(plate XXI, 161-162)

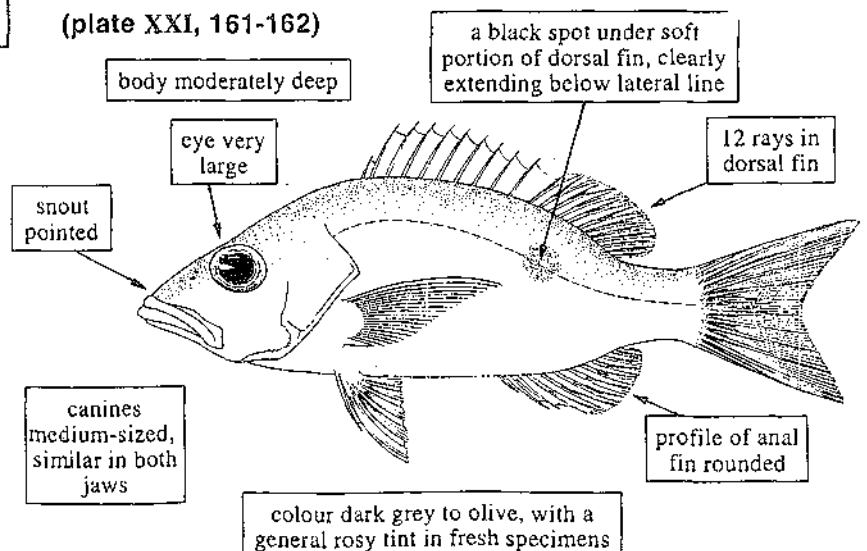
FAO names: En - Mahogany snapper; Fr - Vivaneau voyeur; Sp - Pargo ojón.

Common names:

Size: Maximum 48 cm; common to 38 cm.

Distribution and habitat: Southern coasts of the Caribbean sea, including Trinidad. In shallow, clear waters, mainly of coral-reef areas.

Fisheries: Predominantly artisanal. Caught with traps, trammel nets, and on hook-and-line.



Lutjanus purpureus (Poey, 1875)

(plate XXI, 163)

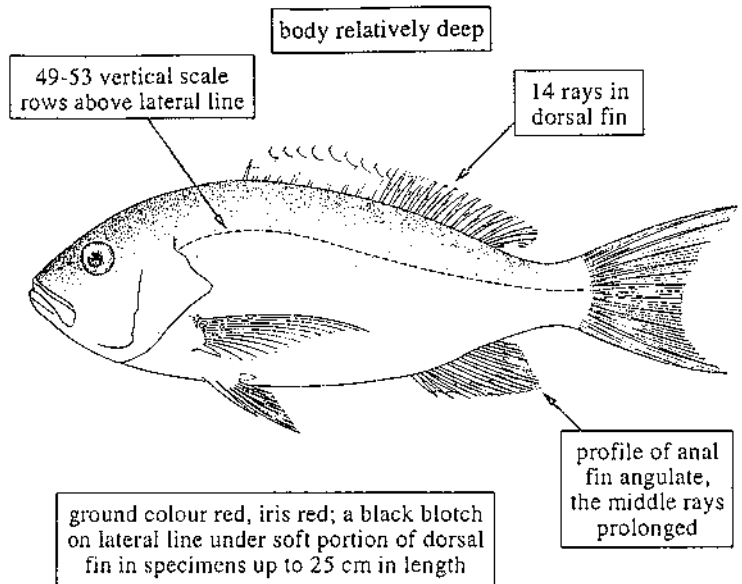
FAO names: En - Southern red snapper; Fr - Vivaneau rouge; Sp - Pargo colorado.

Common names:

Size: Maximum 88 cm and about 10 kg; common to 60 cm.

Distribution and habitat: Throughout the area. Predominantly on the continental slope, over rocky bottoms between depths of 30 and 160 m. Juveniles occur over soft bottoms close to the shore and even in brackish waters.

Fisheries: Predominantly on hook-and-line (hand-lines and longlines). This is the most important snapper in the area, because of its abundance and the excellent quality of its flesh. The Venezuelan snapper fleet is mainly oriented toward this species, and yearly landings from the area exceed 1 000 t. Marketed fresh.

*Lutjanus synagris* (Linnaeus, 1758)

(plate XXI, 164)

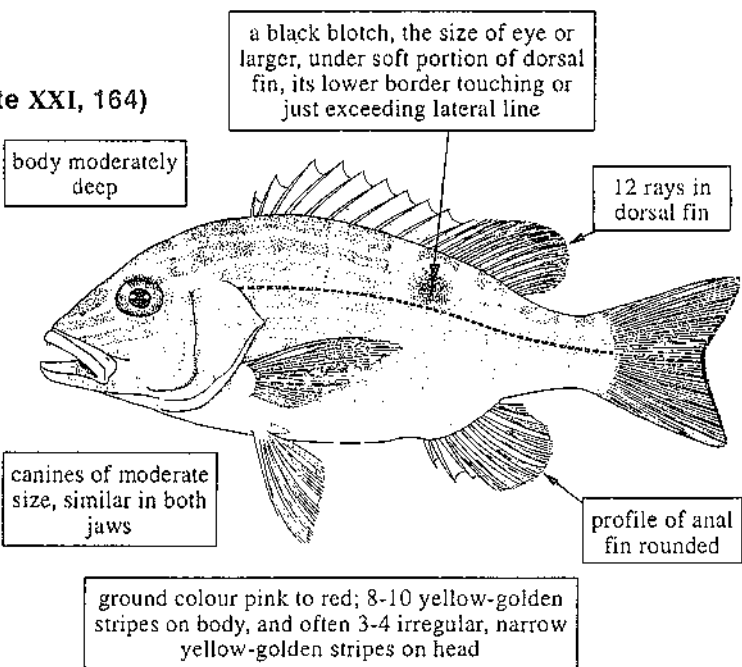
FAO names: En - Lane snapper; Fr - Vivaneau gazou; Sp - Pargo biajaiba.

Common names:

Size: Maximum 44.6 cm and slightly over 1 kg; common to 25 cm.

Distribution and habitat: Throughout the area. In continental shelf areas as well as in clear waters around islands, over clean, sandy bottoms.

Fisheries: Artisanal and industrial. Caught with beach nets, gillnets, and bottom trawls. One of the most important snappers in the area. Marketed fresh.

*Lutjanus vivanus* (Cuvier, 1828)

(plate XXI, 165)

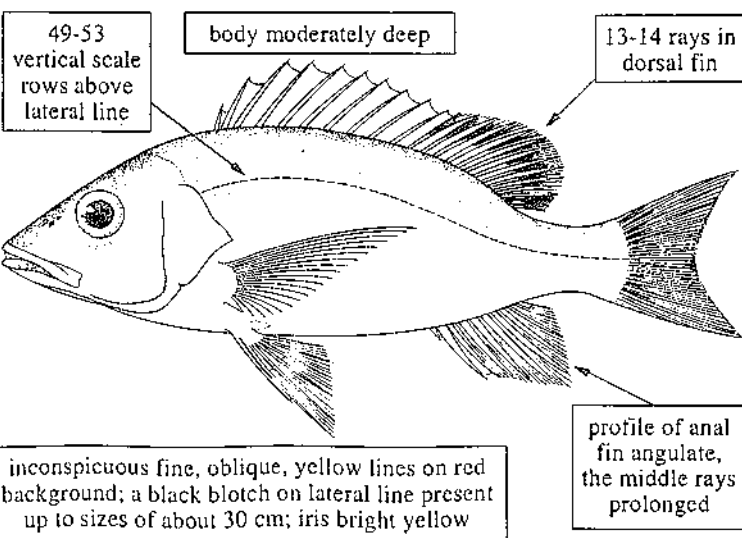
FAO names: En - Silk snapper; Fr - Vivaneau soie; Sp - Pargo de lo alto.

Common names:

Size: Maximum 80 cm (exceptional); common to 45 cm.

Distribution and habitat: Throughout the area. Occurs over the shelf and slope in continental waters as well as around islands, most common between depths of 90 and 140 m. Juveniles are found in coastal areas to a depth of 30 m, while adults may be taken in depths below 200 m.

Fisheries: Artisanal and industrial. Caught mainly on hook-and-line and with traps. Marketed fresh.



LUTJANIDAE

Other species:

Lutjanus ambiguus (Poey, 1860); this species, formerly recorded only from Cuba and southern Florida, was recently captured off the northern coast of Venezuela, where it is probably rare.

Genus *Ocyurus* - a single species in the area.

Ocyurus chrysurus (Bloch, 1791)

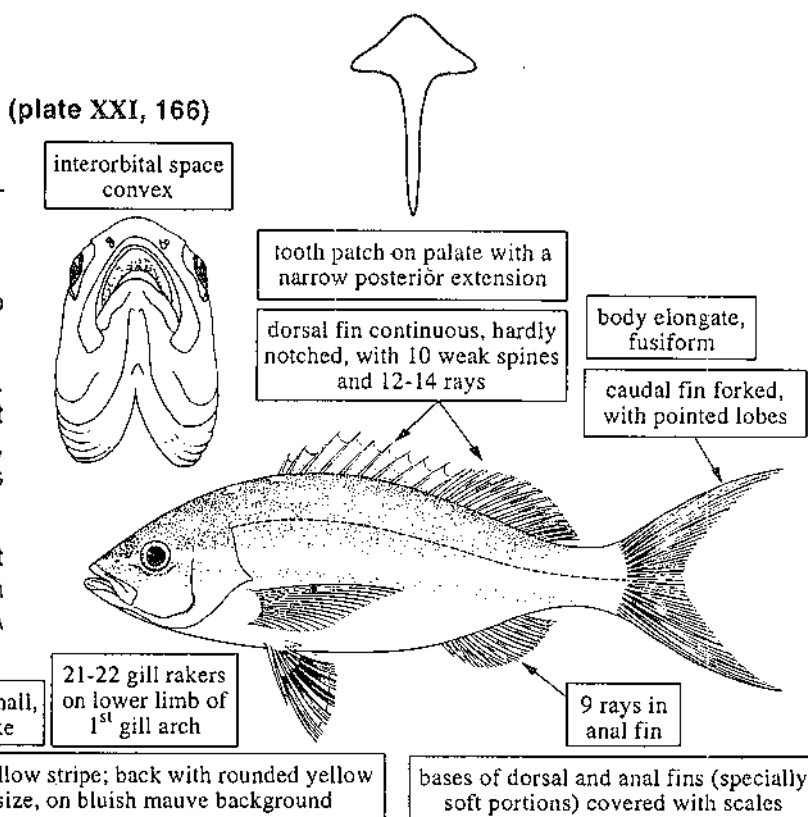
FAO names: **En** - Yellowtail snapper; **Fr** - Viva-neau queue jaune; **Sp** - Rabirubia.

Common names:

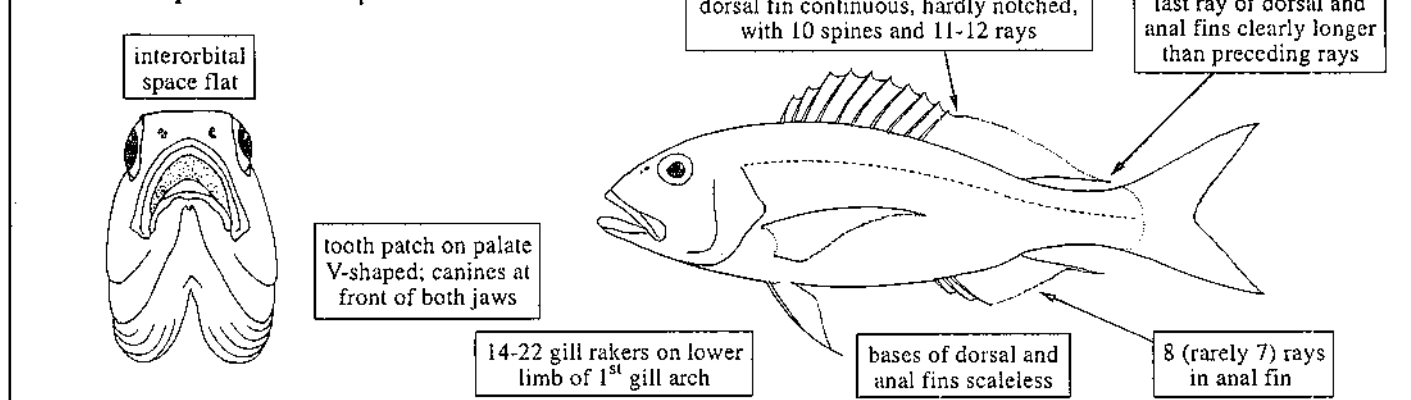
Size: Maximum 86 cm and 2.5 kg; common to 40 cm.

Distribution and habitat: Throughout the area. Pelagic or demersal in coastal shelf areas, but more common in clear waters around islands, between the surface and a depth of 70 m. Juveniles are often found on *Thalassia* seagrass beds.

Fisheries: Artisanal and industrial. Caught mainly with beach nets and seines, also with traps and on hook-and-line. Marketed fresh. A species of great importance in insular areas.



Genus *Pristipomoides* - 3 species in the area.



Pristipomoides aquilonaris (Goode and Bean, 1896)

(plate XXI, 167)

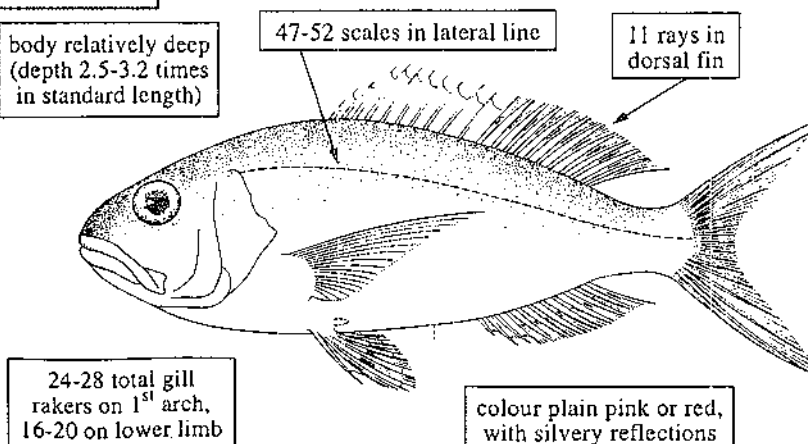
FAO names: **En** - Wenchman; **Fr** - Colas vorace; **Sp** - Panchito voraz.

Common names:

Size: Maximum 23 cm; common to 20 cm.

Distribution and habitat: Throughout the area. Over soft or semi-hard substrates between depths of 25 and about 370 m, most common between 50 and 250 m.

Fisheries: Taken in industrial trawl fisheries for shrimps or finfishes. A commercially important species; marketed fresh.



***Pristipomoides freemani* Anderson, 1966**

(plate XXI, 168)

FAO names: En - Slender wenchman; Fr - Colas élégant; Sp - Panchito alargado (=Panchito menudo).

Common names:

Size: Maximum about 21 cm, common to 17 cm.

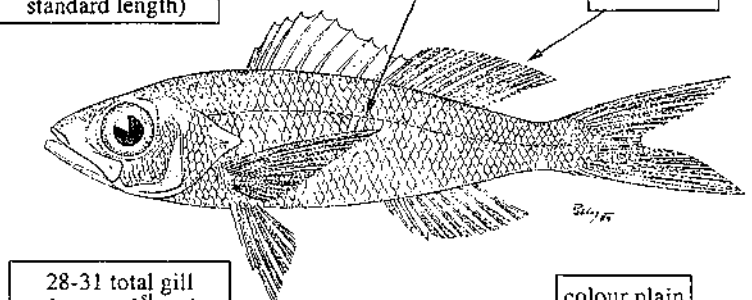
Distribution and habitat: Throughout the area. Over soft or semi-hard bottoms between depths of 50 and 150 m.

Fisheries: Taken in industrial trawl fisheries for finfishes. Apparently not abundant. Of little commercial importance because of its small average size.

body elongate (depth 3.5- 4.2 times in standard length)

50-51 scales in lateral line

12 rays in dorsal fin



28-31 total gill rakers on 1st arch, 19-22 on lower limb

colour plain reddish

***Pristipomoides macrophthalmus* (Müller and Troschel, 1848)**

FAO names: En - Cardinal snapper; Fr - Colas gros yeux; Sp - Panchito ojón.

Common names:

Size: Maximum 32 cm; common to 20 cm.

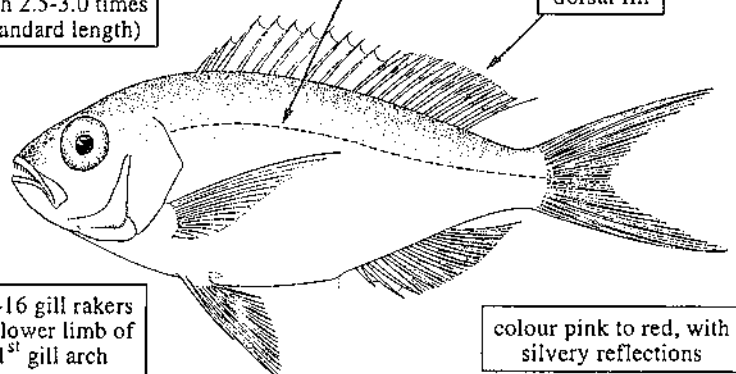
Distribution and habitat: Reported only from northwestern Colombia. Over soft and semi-hard bottoms, between depths of 110 and 550 m.

Fisheries: Taken predominantly in industrial trawl fisheries for finfishes and shrimps. Marketed fresh.

body relatively deep (depth 2.5-3.0 times in standard length)

54-57 scales in lateral line

11 rays in dorsal fin



14-16 gill rakers on lower limb of 1st gill arch

colour pink to red, with silvery reflections

Genus *Rhomboplites* - a single species in the area.

***Rhomboplites aurorubens* (Cuvier, 1829)**

(plate XXII, 169)

FAO names: En - Vermilion snapper; Fr - Vivaneau ti-yeux; Sp - Pargo cunaro.

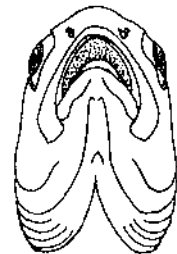
Common names:

Size: Maximum 60 cm; common to 30 cm.

Distribution and habitat: Throughout the area. In continental shelf areas as well as around oceanic islands, over semi-hard bottoms (usually sand or shell fragments) to a depth of about 300 m, most common between 40 and 100 m.

Fisheries: Artisanal and industrial. Caught with beach nets, traps, on hook-and-line, and with bottom trawls. Marketed fresh, usually under the name "pargo colorado."

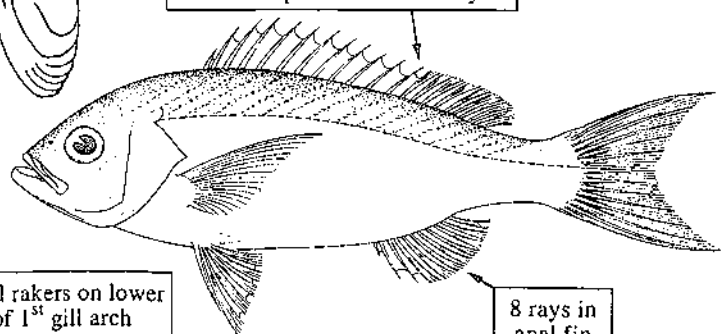
interorbital space convex



tooth plate on palate triangular with a posterior extension, or rhomboid-shaped

body relatively elongate

dorsal fin continuous, unnotched, with 12 spines and 10-11 rays



19-22 gill rakers on lower limb of 1st gill arch

8 rays in anal fin

ground colour red, with oblique yellow lines on back, and inconspicuous longitudinal yellow lines below lateral line

bases of dorsal and anal fins (especially soft portions) covered with scales

LUTJANIDAE

Genus *Symphysanodon* - a single species in the area.

Symphysanodon berryi Anderson, 1970

FAO names: En - Slope bass; Fr - Bar du large; Sp - Parguito.

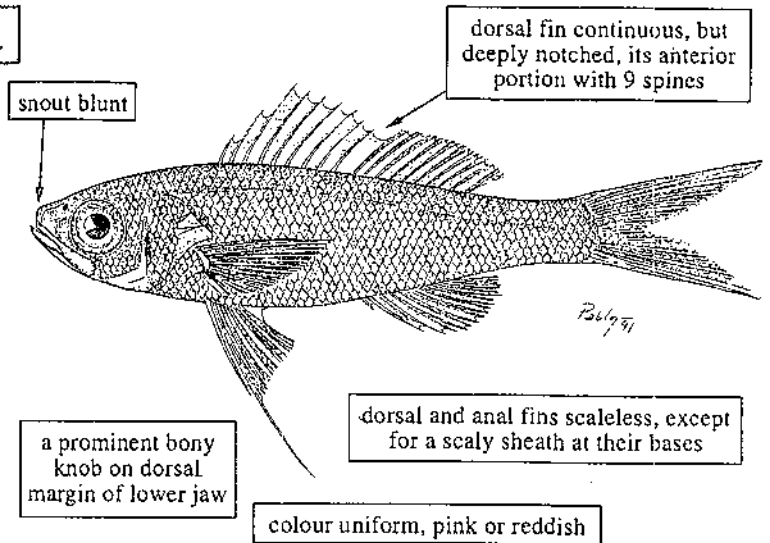
Common names:

Size: Maximum at least 13 cm; common to 10 cm.

Distribution and habitat: Caught in 1988 off Venezuela, at some stations of the research vessel DR F. NANSEN. Occurs near the bottom, between depths of 220 and 470 m.

Fisheries: Taken occasionally as bycatch in industrial trawl fisheries.

Note: See note below under *Verilus sordidus*.



Genus *Verilus* - a single species in the area.

Verilus sordidus Poey, 1860

FAO names: En - Black verilus; Fr - Maconde noir; Sp - Verilo negro.

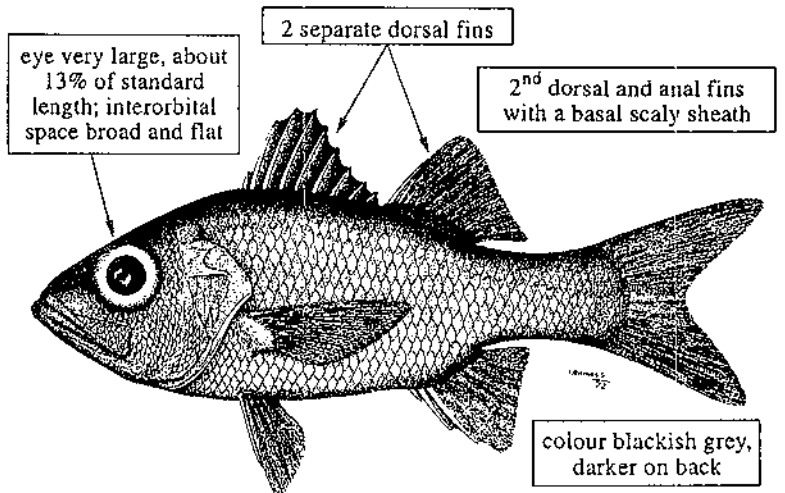
Common names:

Size: Maximum about 30 cm; common to 20 cm.

Distribution and habitat: Southern Caribbean sea. Mainly over rocky slope areas around islands, below a depth of 100 m.

Fisheries: Caught on hook-and-line and on longlines; catch records of this species from the area are scarce.

Note: The genera *Symphysanodon* and *Verilus*, which were originally included in the family Lutjanidae, are placed by some authors in other families; their final taxonomic position is still under discussion. The genus *Verilus* is sometimes assigned to the family Acropomatidae, while the genus *Symphysanodon* should be placed, according to recent studies, in a new family, the Symphysanodontidae. These are small demersal fishes that externally resemble the Lutjanidae (snappers) and some Serranidae (groupers).



MACRORHAMPHOSIDAE

En: Snipefishes. **Fr:** Bécasses de mer. **Sp:** Trompeteros.

A single genus with one species in the area.

Note: Some authors regard this group as part of the family Centriscidae.

Genus *Macrorhamphosus* - a single species in the area.

Macrorhamphosus scolopax (Linnaeus, 1758)

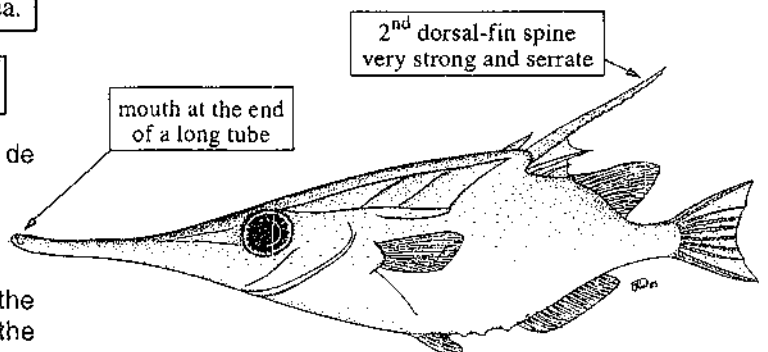
FAO names: En - Longspine snipefish; Fr - Bécasse de mer; Sp - Trompetero.

Common names:

Size: Maximum about 15 cm.

Distribution and habitat: Occurs over sand, near the bottom and in midwaters of the continental shelf and the slope, between depths of 25 and 600 m.

Fisheries: Taken as bycatch in industrial trawl fisheries.



MALACANTHIDAE

En: Sand tilefishes. **Fr:** Matajuels. **Sp:** Matajuelos, paletas.

A single genus with one species in the area.

Genus *Malacanthus* - a single species in the area.

Malacanthus plumieri (Bloch, 1786)

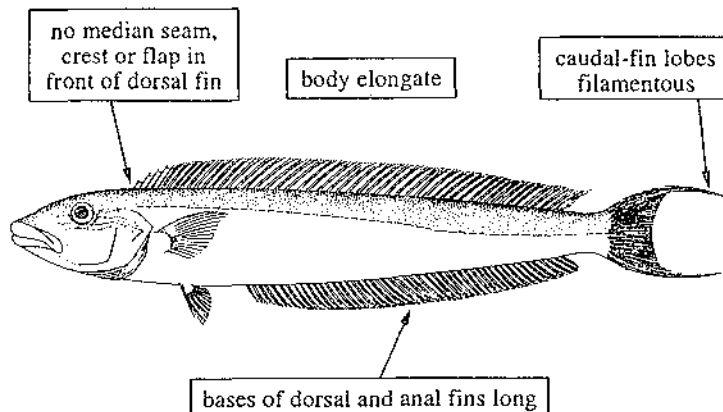
FAO names: **En** - Sand tilefish; **Fr** - Matajuel blanc; **Sp** - Matajuelo.

Common names:

Size: Maximum 60 cm; common to 50 cm.

Distribution and habitat: Primarily a shallow-water demersal fish. Found most commonly on sand and rubble bottoms in depths between 10 and 50 m. Builds mounds of rubble and shell fragments in clear waters of coral reef areas.

Fisheries: Caught on hook-and-line.



MEGALOPIDAE

En: Tarpons. **Fr:** Tarpons. **Sp:** Tarpones.

A single genus with one species in the area.

Genus *Tarpon* - a single species in the area.

Tarpon atlanticus (Valenciennes, 1846)

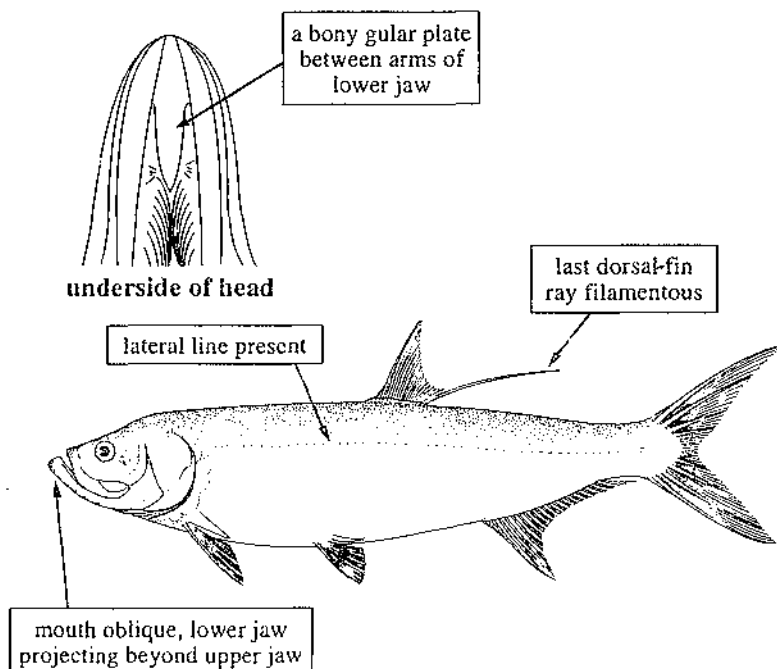
FAO names: **En** - Tarpon; **Fr** - Tarpon argenté; **Sp** - Tarpon.

Common names:

Size: Maximum 250 cm; common to 130 cm.

Distribution and habitat: Throughout the area. Pelagic near the surface in marine, brackish estuarine and hypersaline waters; also in fresh-water. Occurs in coastal continental areas as well as around islands. The "leptocephali" larvae are found on muddy bottoms very close to the shore, often in brackish water.

Fisheries: Artisanal and sports fisheries. Caught with trammel nets and on hook-and-line. Marketed fresh; highly appreciated in some localities of the Colombian coast, but not generally accepted as a food fish in other regions.



MERLUCCIIDAE

En: Hakes. **Fr:** Merlus. **Sp:** Merluzas.

Medium-sized to large demersal fishes, often occurring in large schools. They live close to the seabed over soft bottoms by day and perform feeding migrations toward the surface at night. They are typical cold-water fishes; in tropical latitudes they occur in rather deep water and are of relatively little commercial importance as compared to their cold-water relatives. Two genera in the area, each with one species.

MERLUCCIIDAE

Genus *Merluccius* - a single species in the area.

Merluccius albidus (Mitchill, 1818)

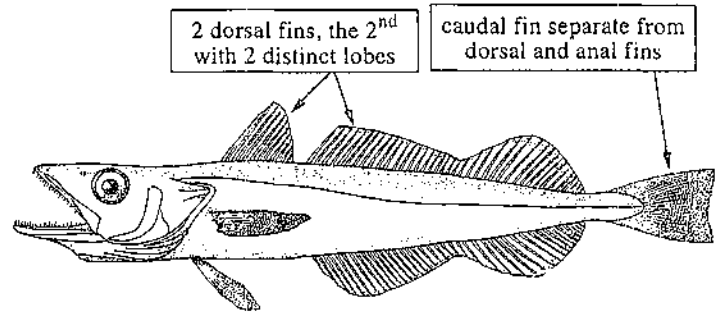
FAO names: En - Offshore silver hake; Fr - Merlu argenté du large; Sp - Merluza blanca de altura.

Common names:

Size: Maximum 70 cm; common to 35 cm.

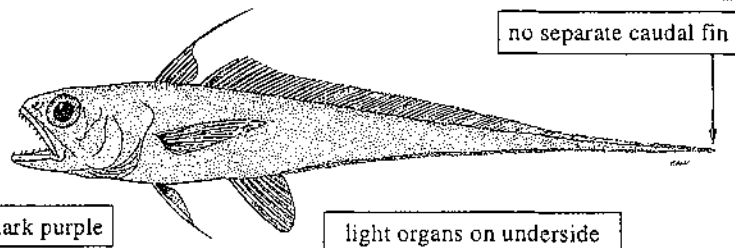
Distribution and habitat: Throughout the area. Over soft bottoms of the lower continental shelf and the slope, between depths of 80 and 1000 m, most common between 160 and 640 m.

Fisheries: Taken in industrial trawl fisheries for finfishes; at present little exploited in the area. Marketed fresh.



Genus *Steindachneria*

A single species, *S. argentea* Goode and Bean, 1896, which can be fished in depths between 400 and 500 m, but is of no commercial importance.



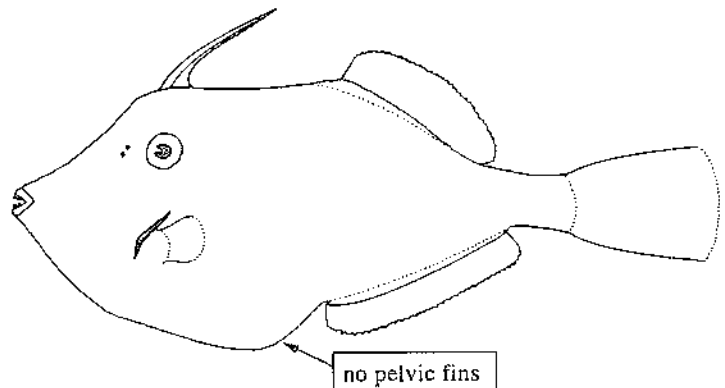
MONACANTHIDAE

En: Filefishes. **Fr:** Bourses. **Sp:** Cachúas, lijás.

Small to medium-sized fishes, usually less than 20 cm in length, but one species attaining nearly 100 cm, with strongly compressed bodies and very rough skin (with innumerable minute scales not discernible by the unaided eye). They occur in clear, usually shallow, marine waters, mostly in coral-reef areas. Normally not used as food fishes in the area, because of their low yield in flesh, their tough skins and the relatively small average size of most species. Four genera with 10 species in the area.

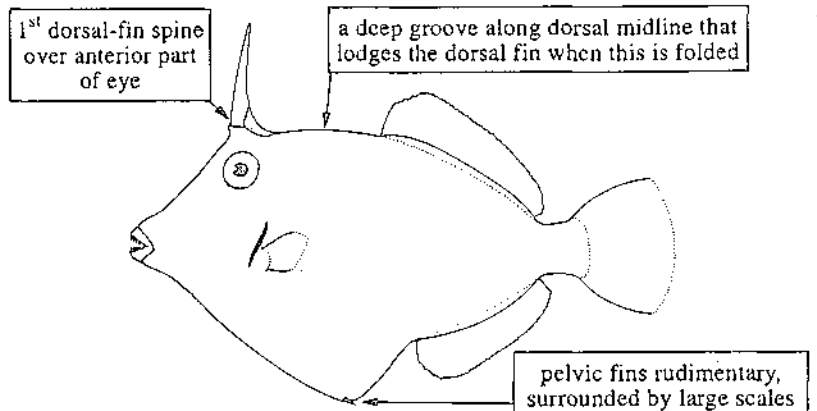
Genus *Aluterus*

4 species in the area, *A. heudelotii* Hollard, 1855 (plate XXII, 170), *A. monoceros* (Linnaeus, 1758) (plate XXII, 171), *A. schoepfi* (Walbaum, 1792) (plate XXII, 172) and *A. scriptus* (Osbeck, 1765), which occur throughout the area and are caught occasionally with beach nets. All of these species inhabit coastal waters to about a depth of 50 m (usually less), and range in size from 40 to 95 cm. The species of this genus are less associated with coral reef habitats than those of other genera.



Genus *Cantherhines*

2 species in the area, *C. macrocerus* (Hollard, 1854) (plate XXII, 173) and *C. pullus* (Ranzani, 1842) (plate XXII, 174), which are caught occasionally in shallow waters, over rocky bottoms or in coral-reef areas.



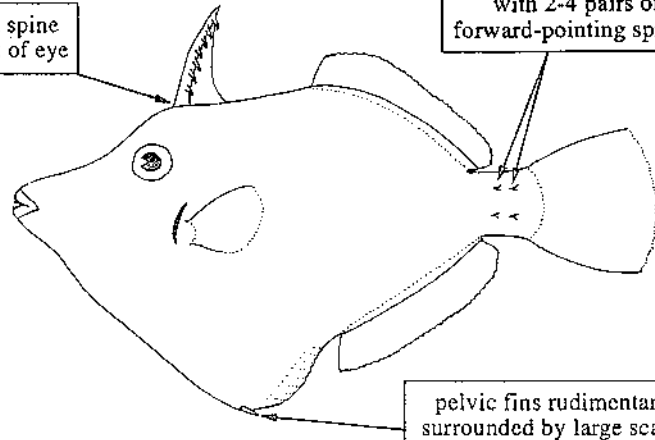
MONACANTHIDAE

Genus *Monacanthus*

2 species in the area, *M. ciliatus* (Mitchill, 1818) and *M. tuckeri* Bean, 1906, in shallow waters, over rocky and sandy substrates to a depth of 50 m.

1st dorsal-fin spine over hind part of eye

caudal peduncle in males with 2-4 pairs of forward-pointing spines



pelvic fins rudimentary, surrounded by large scales

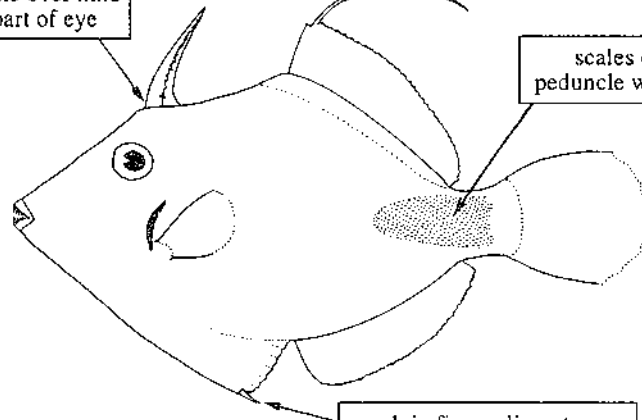
Genus *Stephanolepis*

2 species in the area *S. hispidus* (Linnaeus, 1758) and *S. setifer* (Bennett, 1830), over sandy or muddy bottoms and on seagrass beds, to depths of 80 m.

1st dorsal-fin spine over hind part of eye

2nd dorsal fin ray filamentous in males

scales on caudal peduncle without spines



pelvic fins rudimentary, surrounded by large scales

MORIDAE

En: Codlings, moras. **Fr:** Moros. **Sp:** Moras, mollaras, bacaladillas.

Small to medium-sized benthopelagic fishes, usually inhabiting rather deep waters, often over the continental slope. A single genus with one species in the area.

Genus *Gadella* - a single species in the area.

Gadella imberbis (Vaillant, 1888)

FAO names: **En** - Beardless codling; **Fr** - Moro imberbe; **Sp** - Bacaladilla imberbe.

Common names:

Size: Maximum 23 cm; common to 15 cm.

Distribution and habitat: Probably throughout the area. Benthopelagic over the upper continental slope.

Fisheries: Taken as bycatch in industrial trawl fisheries. Apparently not used as food at present.

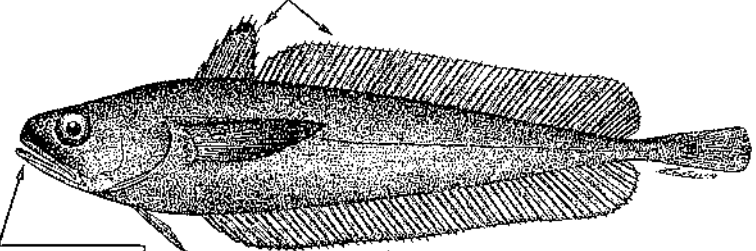
2 dorsal fins, the 2nd very long

no barbel on chin

pelvic fins with one filamentous ray

anal fin very long, its origin under 1st dorsal fin

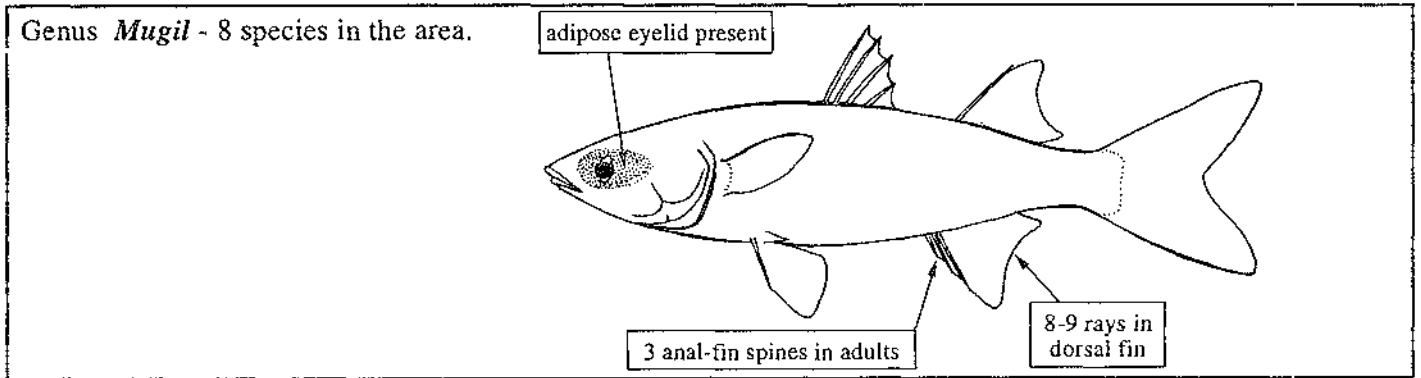
colour dark brown



MUGILIDAE

En: Mullet. **Fr:** Mulets. **Sp:** Lisas.

Small to medium-sized euryhaline fishes, with only one species attaining over 60 cm in length. They tolerate a wide range of salinities and inhabit mainly brackish estuaries and shallow coastal marine waters, but also hypersaline lagoons and freshwater. Fast-moving fishes, often occurring in schools and performing more or less extensive migrations. They feed largely on plant material obtained by grubbing through bottom detritus. All species spawn in the sea. Mulletts are generally of considerable commercial importance in artisanal fisheries and many species are highly esteemed food fishes. Several species are cultured on a commercial scale. A single genus with 8 species in marine and brackish waters of the area.



***Mugil cephalus* Linnaeus, 1758**

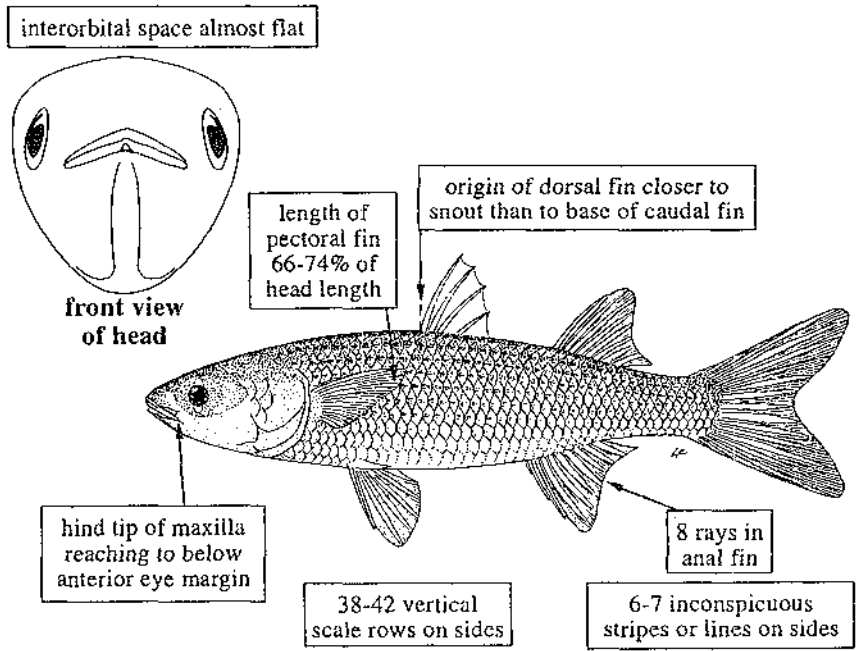
FAO names: **En** - Striped mullet; **Fr** - Mulet cabot; **Sp** - Lisa pardete.

Common names:

Size: Maximum 60 cm; common to 35 cm.

Distribution and habitat: Although many authors include the northern coast of South America in its distributional range, this species seems to be rather rare in our area; well documented reports from the Venezuelan coast are lacking altogether. Lives in coastal marine waters, estuaries, and hypersaline lagoons, frequently entering freshwater.

Fisheries: Caught with gillnets ("filetes liseros") and occasionally, beach nets. No commercial catches of this species are reported from the area.



***Mugil curema* Valenciennes, 1836**

(plate XXII, 175)

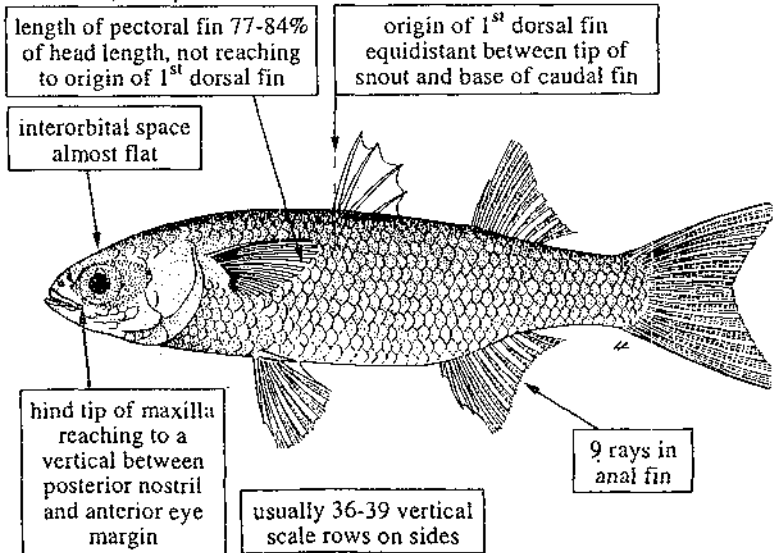
FAO names: **En** - White mullet; **Fr** - Mulet blanc; **Sp** - Lisa criolla.

Common names:

Size: Maximum about 45 cm; common to 30 cm.

Distribution and habitat: Throughout the area. In estuaries, hypersaline lagoons, coastal marine areas, and oceanic islands. Lives in turbid inshore waters and in clear water of coral-reef areas. Juveniles are commonly found inside lagoons or close to beaches. One of the most abundant mullet species in the area.

Fisheries: Caught with gillnets ("filetes liseros"), cast nets, and occasionally beach nets. Marketed fresh and salted. The roe is marketed salt-pickled and dried, and considered a delicacy. One of the most important commercial mullet species in the area.



MUGILIDAE

Mugil curvidens Valenciennes, 1836

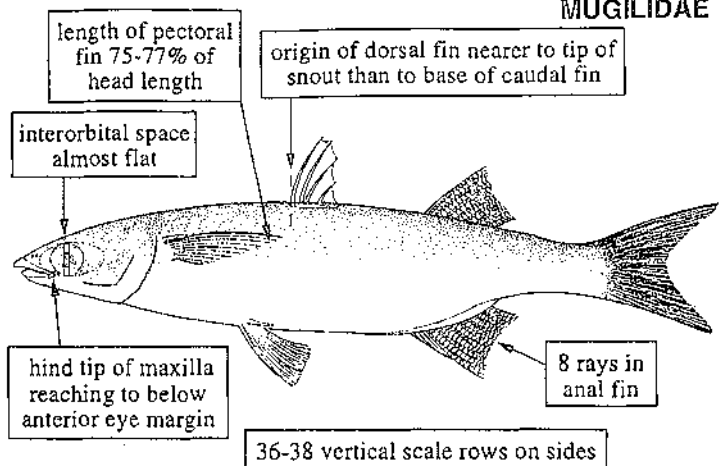
FAO names: En - Dwarf mullet; Fr - Mulet mignon; Sp - Lisa enana.

Common names:

Size: Maximum reported standard length 10 cm.

Distribution and habitat: Probably throughout the area, but not reported from Venezuela. Occurs in shallow coastal areas, but its habits are not well known.

Fisheries: Caught with gillnets and cast nets; of negligible commercial importance because of its small size.

*Mugil gaimardianus* Desmarest, 1831

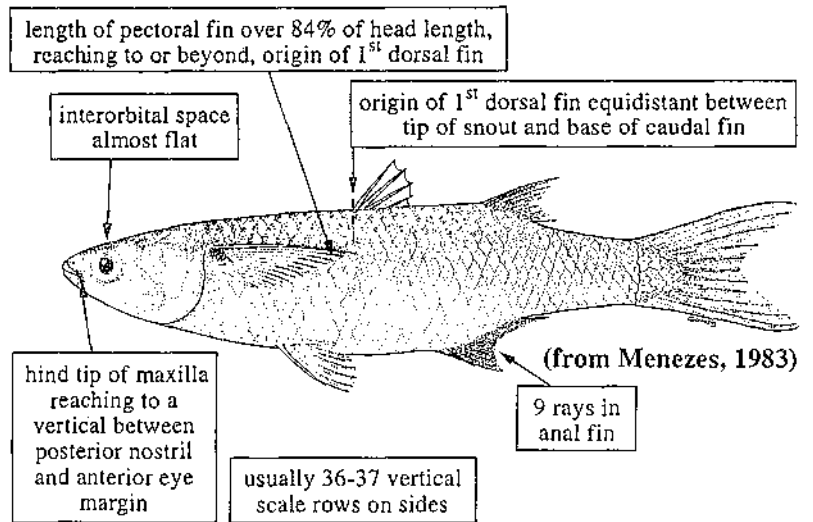
FAO names: En - Redeye mullet; Fr - Mulet oeil rouge; Sp - Lisa ojo amarillo.

Common names:

Size: Maximum about 50 cm; common to 30 cm.

Distribution and habitat: Probably throughout the area. In shallow coastal and estuarine areas. Performs relatively extensive spawning migrations. Usually confused with the very similar *M. curema*.

Fisheries: Caught with gillnets and cast nets. Due to the above-mentioned confusion with *M. curema*, its importance in landings cannot be properly assessed at present.

*Mugil hospes* Jordan and Culver, 1895

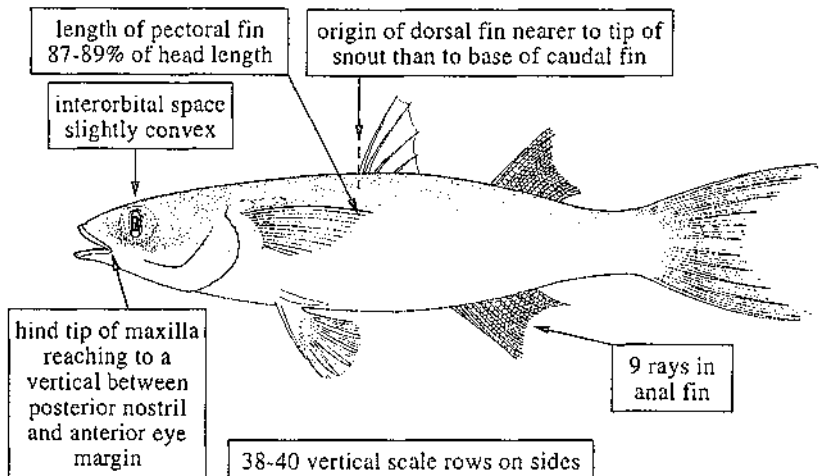
FAO names: En - Hospe mullet; Fr - Mulet hospe; Sp - Lisa hospe.

Common names:

Size: Maximum reported standard length 25 cm; common to 15 cm.

Distribution and habitat: Atlantic subarea, not recorded from Colombia or Venezuela. Occurs in coastal marine and estuarine areas.

Fisheries: Caught with gillnets and occasionally beach seines. Of minor commercial importance because of its small average size.

*Mugil incilis* Hancock, 1830

(plate XXII, 176)

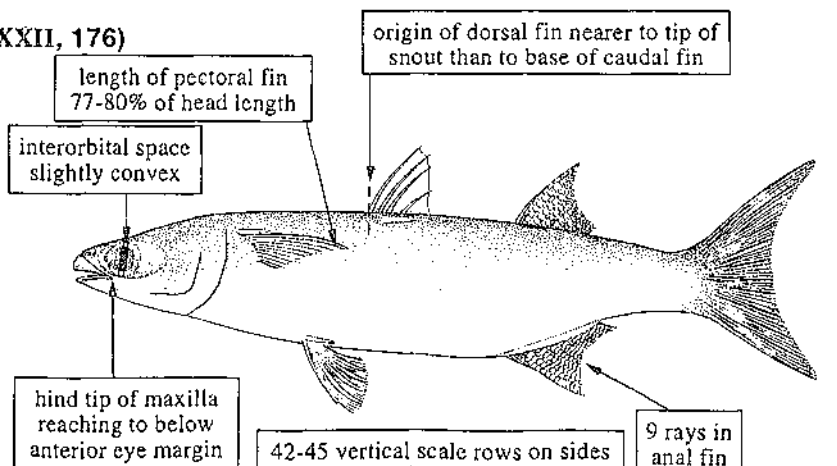
FAO names: En - Parassi mullet; Fr - Mulet parassi; Sp - Lisa rayada.

Common names:

Size: Maximum about 40 cm; common to 25 cm.

Distribution and habitat: Throughout the area. Mainly in estuaries; occasionally in marine and hypersaline waters, but never on oceanic islands.

Fisheries: Caught with gillnets ("filetes liseros"), cast nets, and occasionally beach nets. Marketed fresh and salted. The roe is marketed salt-pickled and dried and considered a delicacy.



MUGILIDAE

Mugil liza Valenciennes, 1836

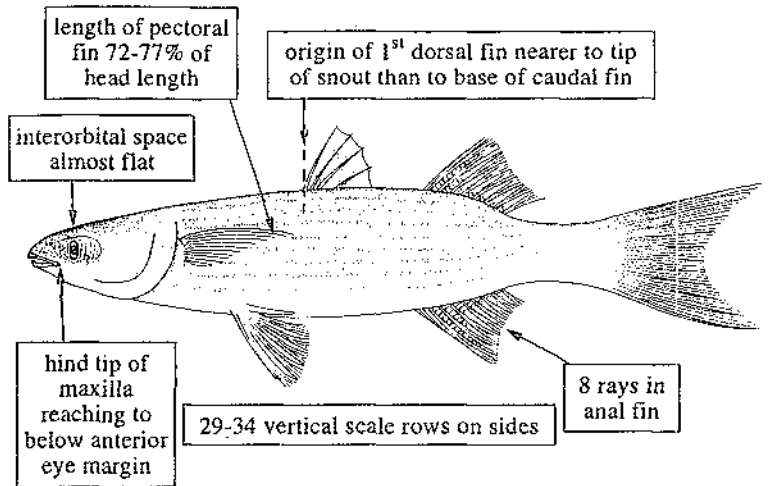
FAO names: En - Lebranche mullet (AFS: Liza); Fr - Mulet lébranche; Sp - Lebranche.

Common names:

Size: Maximum at least 80 cm and 9 kg; common to 40 cm.

Distribution and habitat: Throughout the area. In estuaries, coastal marine waters along continental shores, and hypersaline lagoons; also enters freshwater.

Fisheries: Artisanal or semi-industrial. Caught mainly with beach nets, gillnets, and cast nets. Marketed fresh and salted. The roe is marketed salt-pickled and dried and considered a delicacy.



Mugil trichodon Poey, 1876

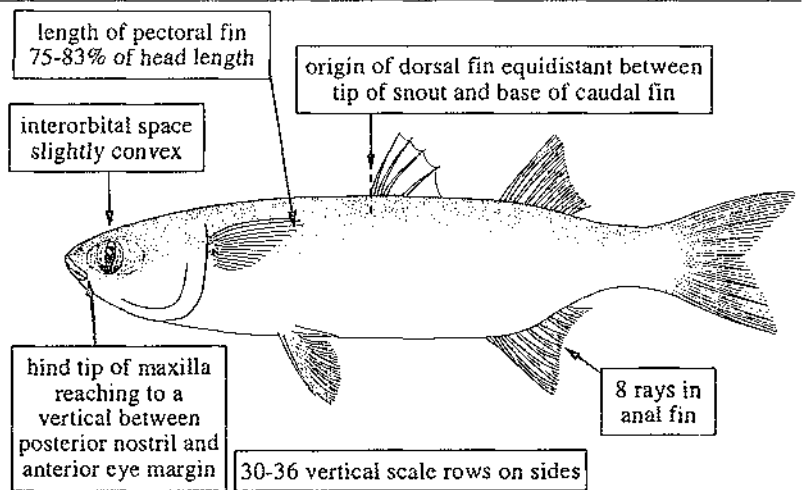
FAO names: En - Fantail mullet; Fr - Mulet éventail; Sp - Lisa amarilla.

Common names:

Size: Maximum about 25 cm; common to 15 cm.

Distribution and habitat: Probably throughout the area. Coastal marine and in estuaries; also in hypersaline lagoons.

Fisheries: Caught with gillnets and cast nets. Of minor interest to fisheries because of its small average size.



MULLIDAE

En: Goatfishes. **Fr:** Rouget-barbets. **Sp:** Salmonetes.

A group of small to medium-sized demersal fishes living in coastal marine areas, over soft, muddy and sandy substrates, along continental coasts, and in clear water over clean sand in coral reef areas. All species are edible and marketed locally. Four genera, each with one species in the area.

Genus *Mulloidichthys* - a single species in the area.

Mulloidichthys martinicus (Cuvier, 1892) (plate XXIII, 177)

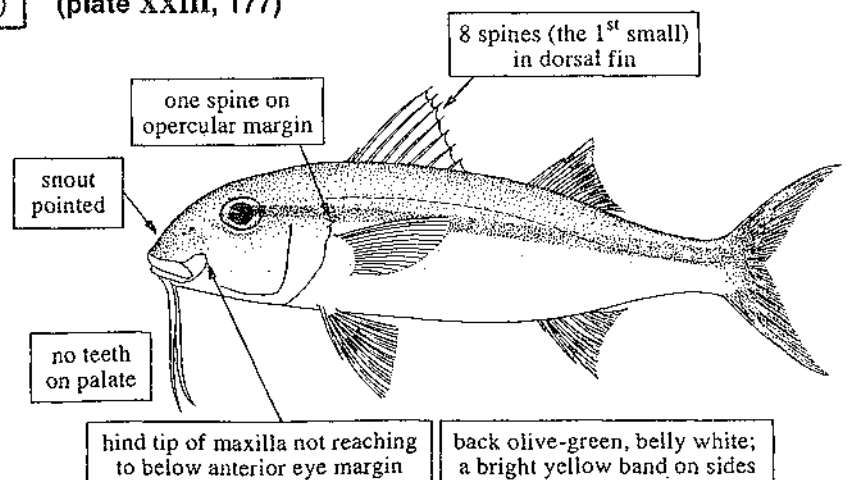
FAO names: En - Yellow goatfish; Fr - Capucin jaune; Sp - Salmonete amarillo.

Common names:

Size: Maximum 40 cm; common to 28 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad and Tobago; not recorded from the Atlantic coasts of the area. Occurs in shallow coastal waters, usually over clean sand in rocky and coral-reef areas.

Fisheries: Predominantly artisanal. Caught with traps. Marketed fresh.



Genus *Mullus* - a single species in the area.

Mullus auratus Jordan and Gilbert, 1882

(plate XXIII, 178)

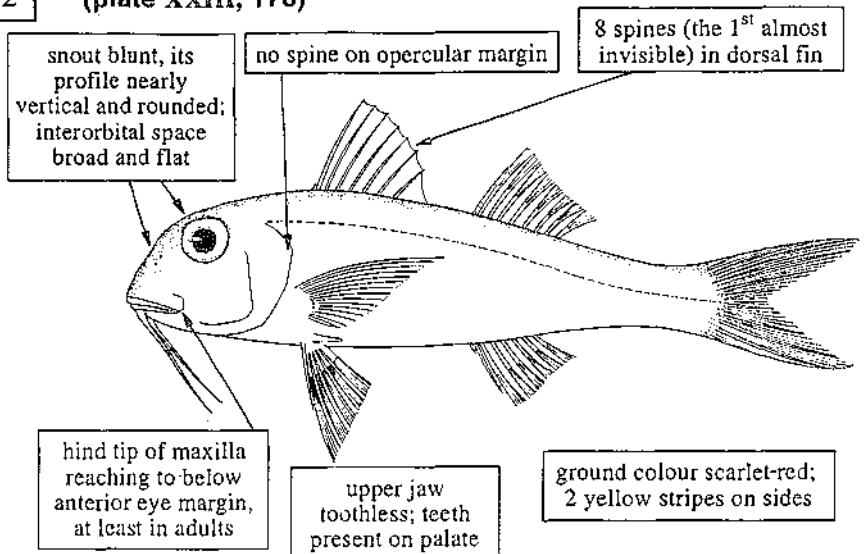
FAO names: En - Red goatfish; Fr - Rouget-barbet doré; Sp - Salmonete colorado.

Common names:

Size: Maximum 27 cm; common to 16 cm.

Distribution and habitat: Throughout the area. In shallow coastal waters along continental coasts, mainly over soft, muddy or sandy substrates to a depth of about 80 m; common between 10 and 60 m.

Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps. Marketed fresh, but of little commercial importance.



Genus *Pseudupeneus* - a single species in the area.

Pseudupeneus maculatus (Bloch, 1793)

(plate XXIII, 179)

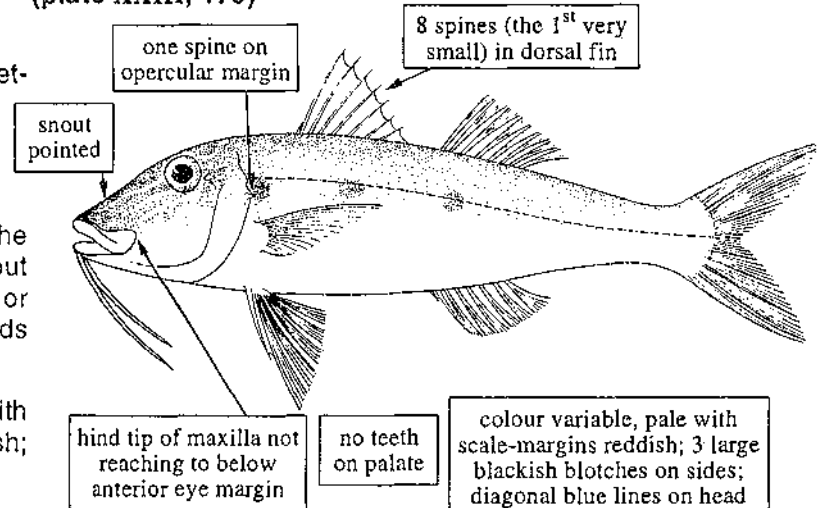
FAO names: En - Spotted goatfish; Fr - Rouget-barbet tacheté; Sp - Salmonete manchado.

Common names:

Size: Maximum 30 cm; common to 22 cm.

Distribution and habitat: Probably throughout the area. In shallow coastal waters to a depth of about 50 m (usually less), over clean sand in rocky or coral-reef areas. Juveniles occur in seagrass beds of *Thalassia*.

Fisheries: Predominantly artisanal. Caught with traps and occasionally beach nets. Marketed fresh; of little commercial importance.



Genus *Upeneus* - a single species in the area.

Upeneus parvus (Poey, 1853)

(plate XXIII, 180)

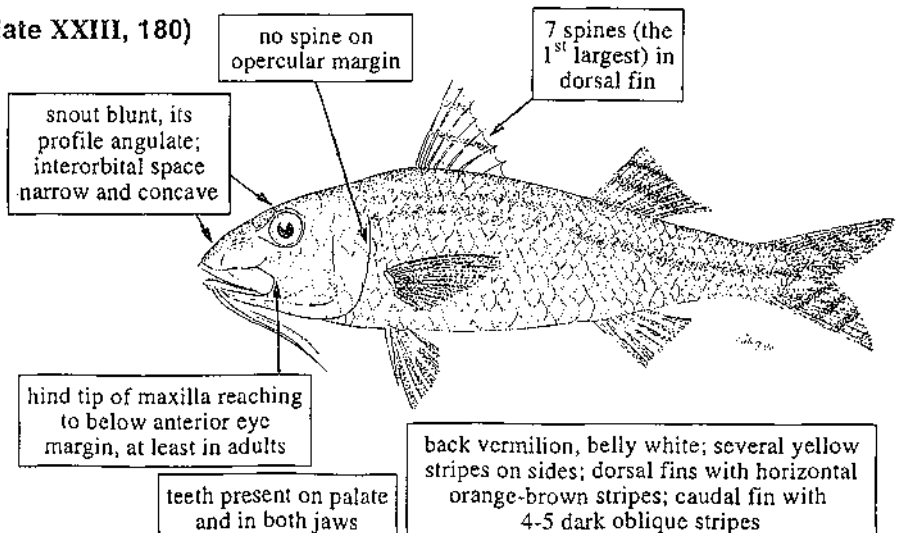
FAO names: En - Dwarf goatfish; Fr - Rouget-souris mignon; Sp - Salmonete rayuelo.

Common names:

Size: Maximum 25 cm; common to 20 cm.

Distribution and habitat: Probably throughout the area. In coastal waters, over muddy and sandy bottoms to depths of about 100 m; most common between 45 and 65 m.

Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps. Marketed fresh.



MURAENESOCIDAE

En: Pike congers. **Fr:** Morénésoces. **Sp:** Morenocios.

Medium-sized to large eel-like fishes inhabiting soft bottoms of the continental shelf to a depth of about 200 m. They are usually not consumed, but one species might be found in markets. Three genera and more than 3 species in the area.

Genus *Cynoponticus* - a single species in the area.

Cynoponticus savanna (Bancroft, 1831)

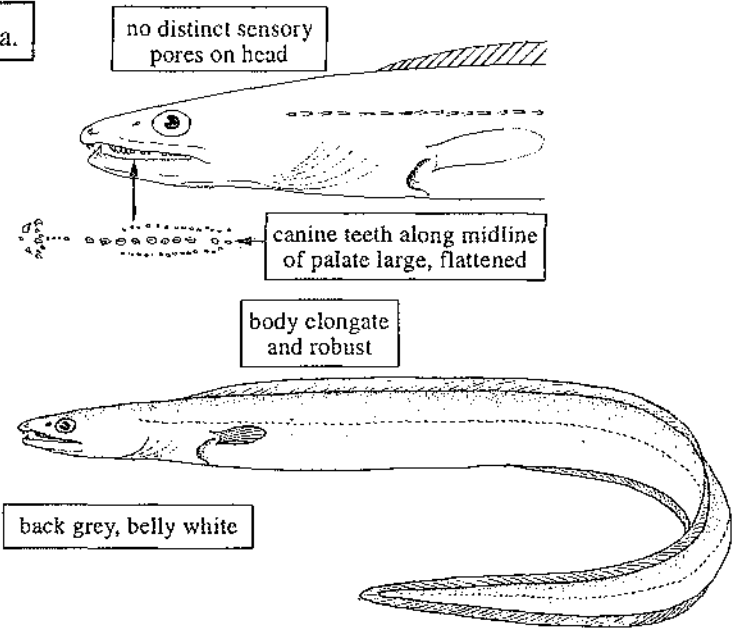
FAO names: **En** - Guiana pike-conger; **Fr** - Morénésoce congré; **Sp** - Morenocio guayanés.

Common names:

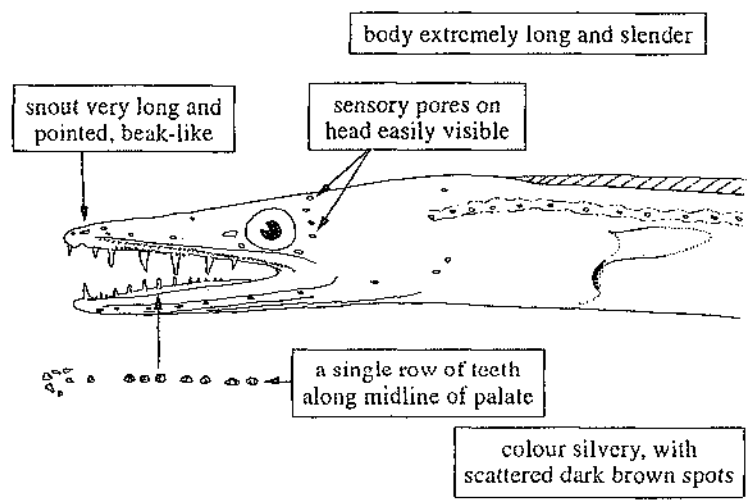
Size: Maximum 150 cm; common to 50 cm.

Distribution and habitat: Throughout the area. In coastal waters over soft, usually muddy bottoms to a depth of 100 m (usually less). Common in the vicinity of river mouths.

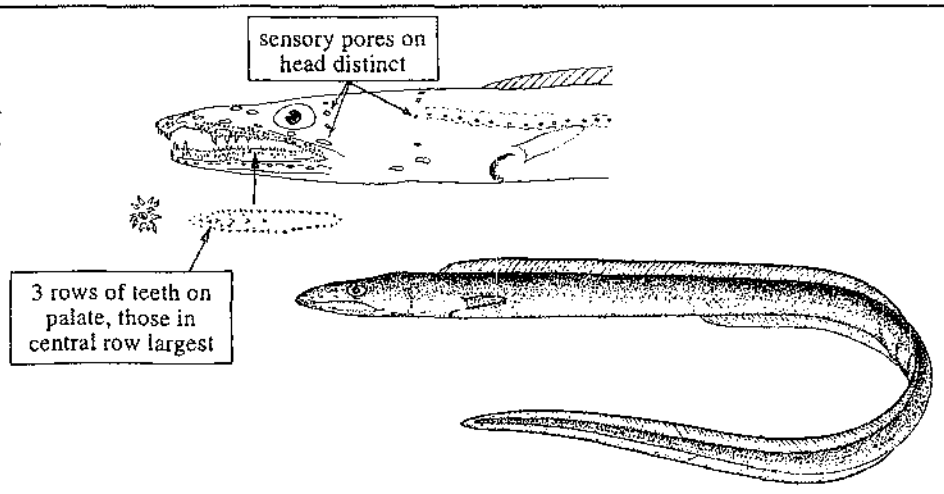
Fisheries: Caught on hook-and-line and taken as bycatch in industrial trawl fisheries. Of no commercial importance at present.



Genus *Hoplunnis* - several species, not well defined taxonomically, none of them of interest to fisheries, taken as bycatch in trawl fisheries.



Genus *Paraxenomystax*
A single species in the area, *P. bidentatus* Reid, 1940, of no interest to fisheries, taken occasionally in bottom trawls.



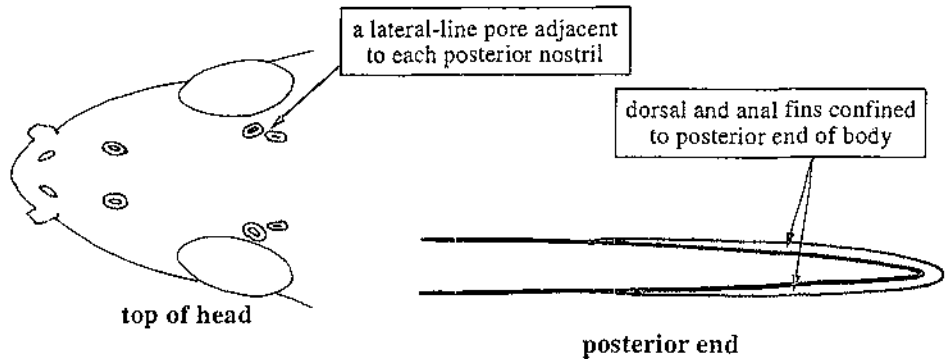
MURAENIDAE

En: Morays. **Fr:** Murènes. **Sp:** Morenas.

A group of small to large eel-like fishes (one species attains 2 m length). They occur essentially in coastal areas, over soft, mainly muddy, moderately deep bottoms of the continental shelf and upper slope, and in shallow, clear waters of coral-reef habitats. A few species may be found below a depth of 500 m. Although of little commercial importance at present, they are rather abundant and their acceptance in markets is likely to increase in the near future. Eight genera with more than 15 species in the area.

Genus *Anarchias*

A single species in the area, *A. yoshiae* Kanazawa, 1952, of no interest to fisheries because of its small average size.



Genus *Channomuraena* - a single species in the area.

***Channomuraena vittata* (Richardson, 1844)**

(plate XXIII, 181)

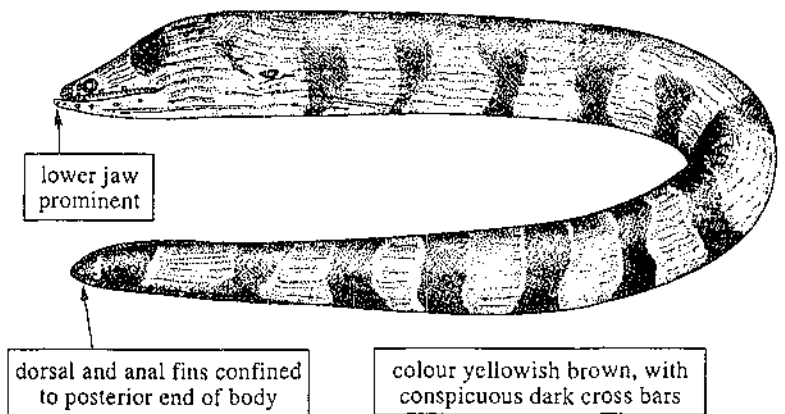
FAO names: **En** - Broadbanded moray; **Fr** - Murène anneau; **Sp** - Morena rayada (=Morena franjeada).

Common names:

Size: Maximum 120 cm; common to 80 cm.

Distribution and habitat: Oceanic insular areas of the southern part of the Caribbean sea to a depth of about 100 m; records of this species from the area are scarce.

Fisheries: Caught with traps and occasionally, on hook-and-line. At present of no commercial importance.



Genus *Echidna* - a single species in the area.

***Echidna catenata* (Bloch, 1795)**

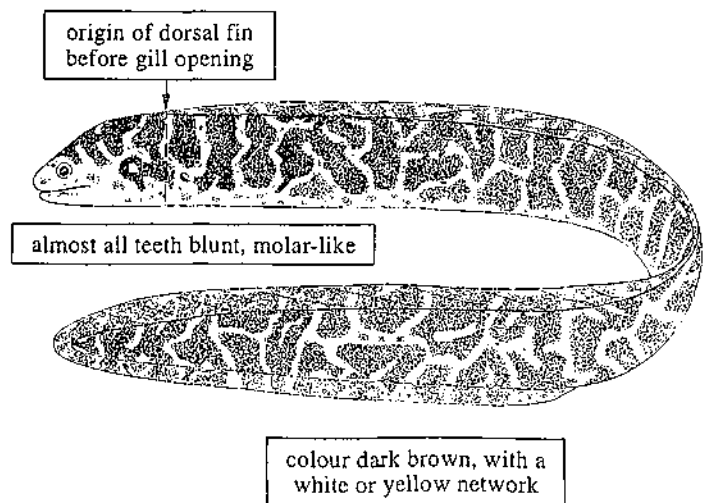
FAO names: **En** - Chain moray; **Fr** - Murène enchaînée; **Sp** - Morena cadeneta.

Common names:

Size: Maximum about 50 cm; common to 40 cm.

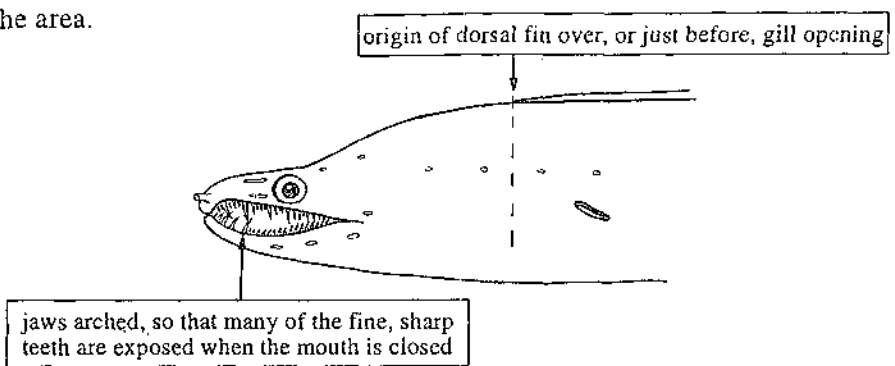
Distribution and habitat: Throughout the area. In very shallow water, usually among rocks, almost at the water surface.

Fisheries: Caught on hook-and-line and occasionally, with traps. Usually not marketed at present.



MURAENIDAE

Genus *Enchelycore* - 2 species in the area.



Enchelycore nigricans (Bonnaterre, 1788)

(plate XXIII, 182)

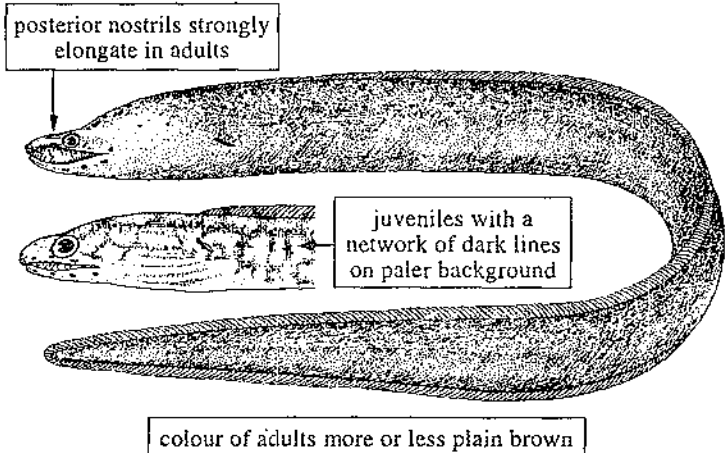
FAO names: En - Viper moray; Fr - Murène noire; Sp - Morena negra.

Common names:

Size: Maximum 100 cm; common to 60 cm.

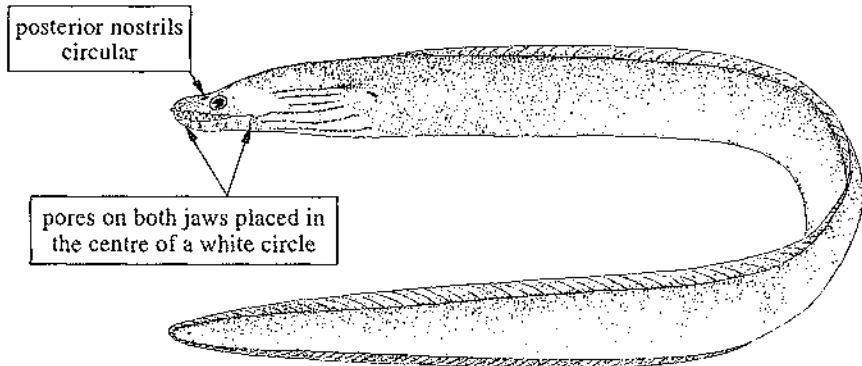
Distribution and habitat: Throughout the area; in shallow waters to a depth of about 15 m, on rocky substrates and in coral-reef areas. Its bite is very dangerous.

Fisheries: Artisanal. Caught mainly with traps; also caught on hook-and-line.



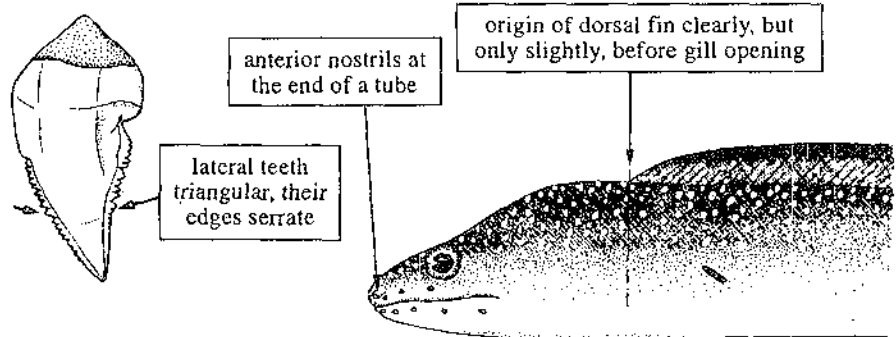
Other species:

Enchelycore carychroa Böhlke and Böhlke, 1976, a much smaller species (average size less than 40 cm) and hence of no interest to fisheries.



Genus *Gymnothorax*

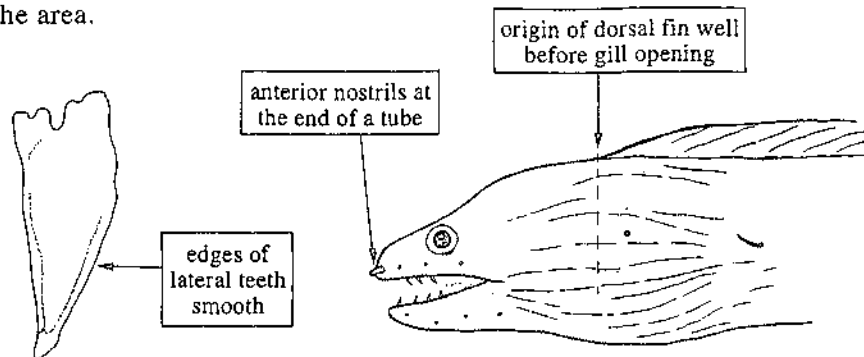
Several species in the area, very similar to each other and difficult to identify. Very abundant on soft substrates to a depth of about 200 m (usually less); taken as bycatch in the trawl fishery for shrimps and on longlines in shark fisheries. Not regularly marketed. The most common species in the area is *G. nigromarginatus* (Girard, 1859), which attains a maximum length of 60 cm. Another common species is *G. ocellatus* Agassiz, 1828 (plate XXIII, 183).



Gymnothorax nigromarginatus

MURAENIDAE

Genus *Lycodontis* - 4 species in the area.



Lycodontis funebris Ranzani, 1840

(plate XXIII, 184)

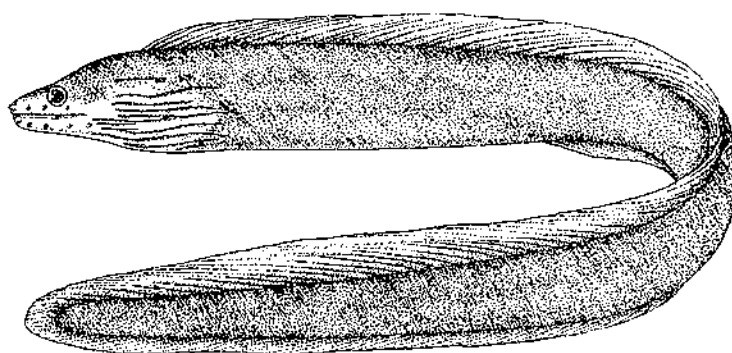
FAO names: En - Green moray; Fr - Murène verte;
Sp - Morena congrio.

Common names:

Size: Maximum 190 cm; common to 150 cm.

Distribution and habitat: Throughout the area. In shallow, clear water among rocks and corals, to a depth of about 5 m.

Fisheries: Artisanal. Caught mainly with traps, also on hook-and-line. Marketed usually salted; its acceptance as a food fish is increasing. A very agile and aggressive fish that may cause severe wounds if not handled carefully.



colour plain dark green

Lycodontis moringa (Cuvier, 1829)

(plate XXIV, 185)

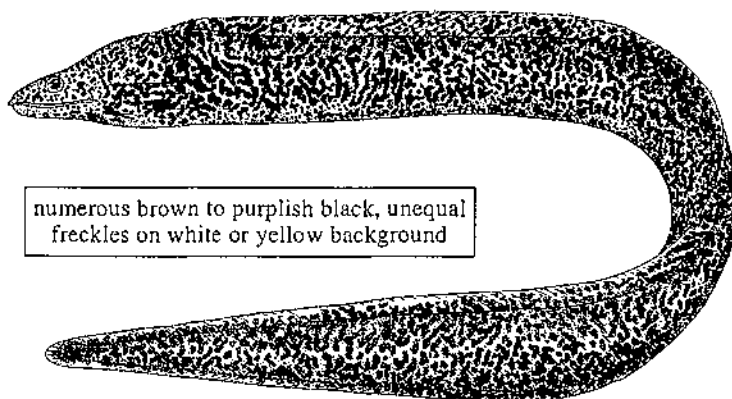
FAO names: En - Spotted moray; Fr - Murène tachetée;
Sp - Morena pintada.

Common names:

Size: Maximum 100 cm; common to 60 cm.

Distribution and habitat: Throughout the area. Very common in rocky and coral-reef areas, to a depth of about 50 m (usually less). This is the most abundant moray in coral-reef areas. Its bite is very dangerous.

Fisheries: Predominantly artisanal. Caught with traps, and also on hook-and-line. Marketed fresh or salted.



numerous brown to purplish black, unequal freckles on white or yellow background

Lycodontis vicinus (Castelnau, 1855)

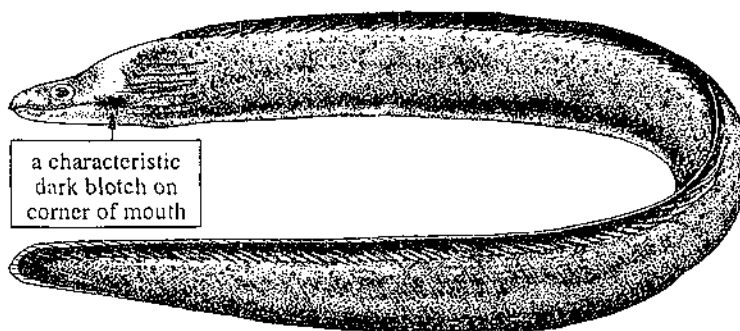
FAO names: En - Purplemouth moray; Fr - Murène jaune;
Sp - Morena amarilla.

Common names:

Size: Maximum 122 cm; common to 70 cm.

Distribution and habitat: Throughout the area. In shallow waters on rocky substrates and in coral-reef areas, to a depth of about 40 m (usually less). It may cause serious wounds.

Fisheries: Artisanal. Caught mainly with traps; also on hook-and-line. Marketed fresh.



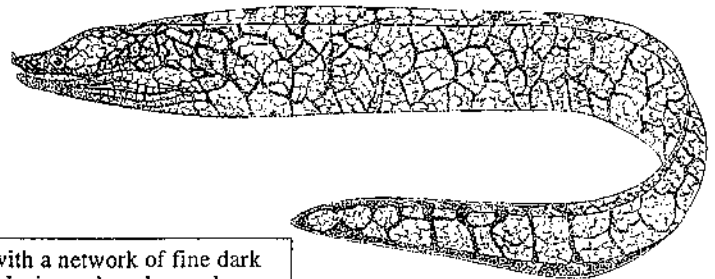
a characteristic dark blotch on corner of mouth

body either almost plain brownish, or mottled with brown and yellow

MURAENIDAE

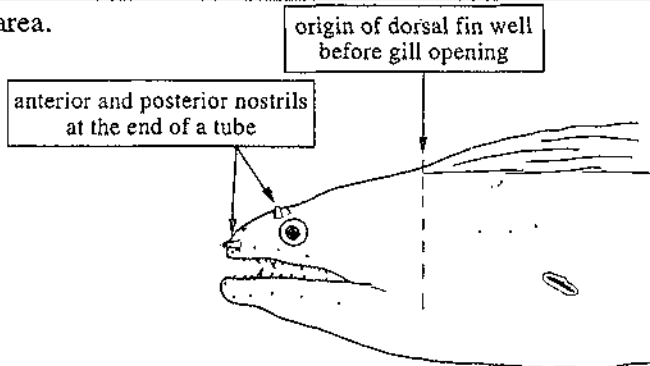
Other species:

Lycodontis polygonius Poey, 1870, rare and of small size, and hence of no interest to fisheries. So far only reported from oceanic insular areas (Los Roques).



body with a network of fine dark lines enclosing pale polygonal areas

Genus *Muraena* - 2 species in the area.



Muraena miliaris (Kaup, 1856)

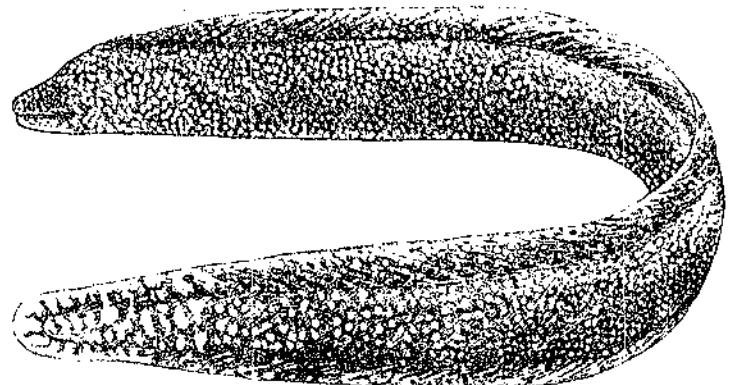
FAO names: En - Goldentail moray; Fr - Murène dorée; Sp - Morena dorada.

Common names:

Size: Maximum 60 cm; common to 40 cm.

Distribution and habitat: Throughout the area. In shallow waters to a depth of about 50 m, on rocky bottoms and in coral-reef areas.

Fisheries: Caught mainly with traps; also on hook-and-line. Of little commercial importance because of its small average size.



coloration rather variable; ground colour usually brown to purple, with small to medium-sized yellow-golden spots; posterior end predominantly golden yellow

Muraena robusta Osorio, 1909

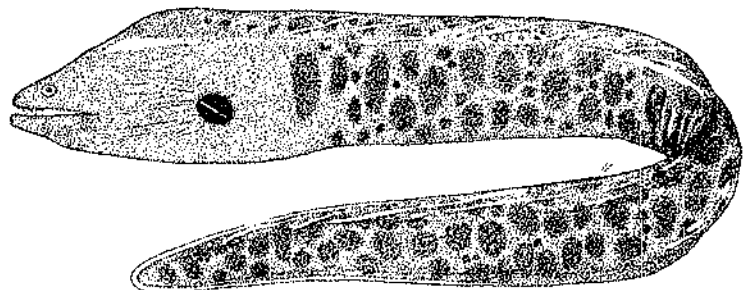
FAO names: En - Stout moray; Fr - Murène robuste; Sp - Morena robusta.

Common names:

Size: Maximum 140 cm; common to 100 cm.

Distribution and habitat: So far only reported from the northern coast of Colombia. In shallow waters, on hard substrates.

Fisheries: Probably caught in artisanal fisheries along the Colombian coast.



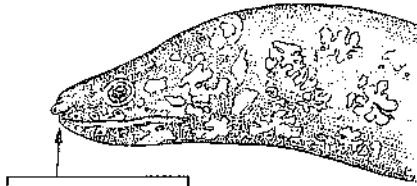
body behind gill opening with blackish spots on grey or brown background; a black blotch around gill opening. In very old specimens, the spots are confined to posterior end of body

MURAENIDAE

Genus *Uropterygius*

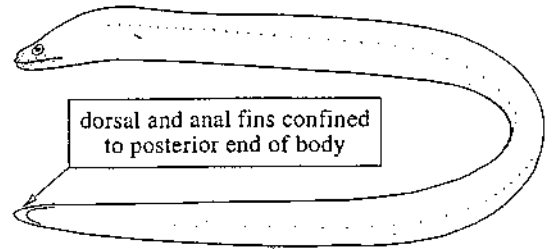
A single species in the area, *U. diopus* Böhlke, 1967, of no interest to fisheries because of its small size (less than 20 cm).

pale irregular spots on dark background



jaws about equal in length

(after Böhlke, 1968)



dorsal and anal fins confined to posterior end of body

OPHICHTHIDAE

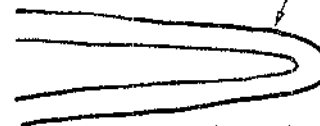
En: Snake eels. Fr: Serpentons. Sp Tiesos.

Small to large, eel-like fishes, circular in cross section. They inhabit clear waters in coral-reef areas and muddy bottoms, sometimes at great depths. Many species are benthic and burrow in the substrate by day, coming out at night in search of food. At present, their commercial importance in the area is rather limited, but they are marketed and consumed, and the demand for these fishes is likely to increase in the future. They have a "leptocephalus" type of larvae that is planktonic and lacks a caudal fin. Two subfamilies, with 10 genera and 19 species in the area.

SUBFAMILY MYROPHINAE

Three genera and 5 species in the area.

caudal fin present, but joined with dorsal and anal fins

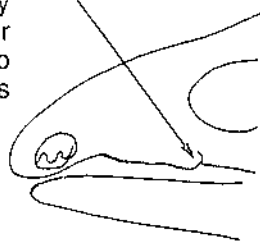


posterior end

Genus *Ahlia*

A single species in the area, *A. egmontis* (Jordan, 1884), very abundant in shallow, clear waters, borrowing in sand. Of no interest to fisheries because of its relatively small size.

posterior nostril placed on upper lip



origin of dorsal fin very close to a vertical line through anus



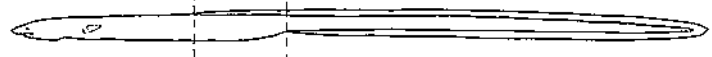
colour plain light yellowish

Genus *Myrophis*

Two species in the area, *M. platyrhynchus* Breder, and *M. punctatus* Lütken, 1851, both of small to medium size and of no interest to fisheries.

posterior nostril placed on upper lip

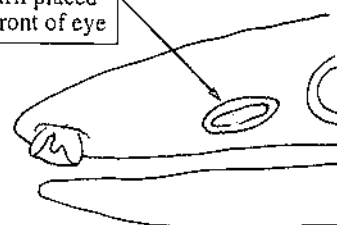
origin of dorsal fin at least one head length before a vertical line through anus



Genus *Pseudomyrophis*

Two species in the area, *P. nimius* Böhlke, 1960, and another, as yet undescribed species, both of no interest to fisheries.

posterior nostril placed above lip, in front of eye



OPHICHTHIDAE

SUBFAMILY OPHICHTHINAE

Seven genera with about 15 species, most of them without interest to fisheries.

no caudal fin, tail projecting like a stiff tip beyond dorsal and anal fins

posterior end

Genus *Aplatophis* - a single species in the area.

Aplatophis chauliodus Böhlke, 1956

FAO names: En - Fangtooth snake eel; Fr - Serpention dentu; Sp - Tieso de dientes.

Common names:

Size: Maximum about 84 cm.

Distribution and habitat: Northern coast of South America. In estuaries and coastal marine waters.

Fisheries: Taken occasionally as bycatch in industrial shrimp fisheries. At present of little or no commercial value.

anterior teeth in both jaws large, fang-like, visible when mouth is closed

dorsal and anal fins present

back mottled yellowish brown, belly yellowish white; lower jaw brown

(from Cervigón, 1966)

Genus *Aprognathodon*

A single species in the area, *A. platyventris* Böhlke, 1967, occurring in shallow, clear waters, on sandy bottoms, but of no interest to fisheries because of its relatively small size (maximum 43 cm).

dorsal and anal fins present, origin of dorsal fin on head, well before gill opening

a bluish green longitudinal stripe on sides

gill opening sloping forwards and downwards

no pectoral fins

Genus *Apterichtus*

A single species in the area, *A. kendalli* (Gilbert, 1891), of relatively small size and of no interest to fisheries.

anterior nostril tubular

posterior nostril external when mouth is closed

underside of head

fins not visible externally

Genus *Echiophis* - probably 3 taxonomically ill-defined species in the area, distinguished only by certain details of colour pattern. Large specimens have stout bodies and may be of potential interest as foodfishes.

eye before midpoint of maxilla

origin of dorsal fin behind gill opening

teeth on maxilla in 1 or 2 rows

dorsal and anal fins present

OPHICHTHIDAE

Echiophis intertinctus (Richardson, 1844)

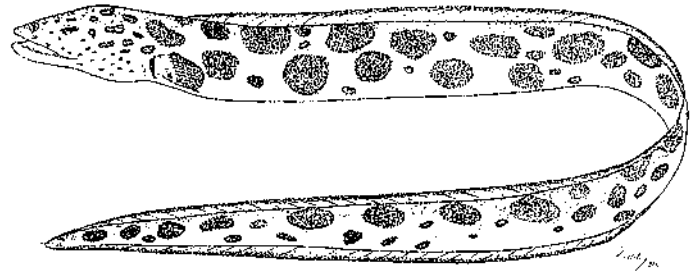
FAO names: En - Spotted spoon-nose eel; Fr - Serpention à grandes taches; Sp - Tieso manchado.

Common names:

Size: Maximum 180 cm, common to 150 cm.

Distribution and habitat: Throughout the area. On soft bottoms of the continental shelf, to a depth of about 100 m (usually less).

Fisheries: Caught mainly on bottom long-lines; occasionally, in traps.



dark, rounded spots arranged in about 3 irregular rows; diameter of largest spots about equal to snout length

Echiophis punctifer (Kaup, 1860)

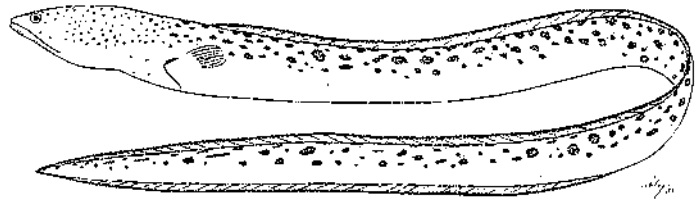
FAO names: En - Stippled spoon-nose eel; Fr - Serpention pointillé; Sp - Tieso moteado.

Common names:

Size: Maximum 180 cm; common to 100 cm.

Distribution and habitat: Throughout the area. On soft bottoms of the continental shelf to a depth of about 100 m (usually less).

Fisheries: Caught mainly on bottom long-lines; occasionally, in traps.



colour pattern as in preceding species, but largest spots much smaller than snout length

Other species:

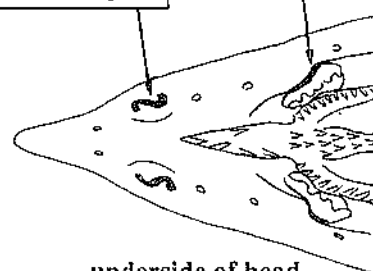
Echiophis mordax (Poey, 1860) very similar in colour to *E. intertinctus*, but the spots are larger, about equal to snout length; possibly a synonym of *E. intertinctus*.

Genus *Ichthyapus*

A single species in the area, *I. ophioneus* (Evermann and Marsh, 1900), of small size and of no commercial value.

anterior nostril on underside of snout, with a groove along inner margin

posterior nostril inside mouth

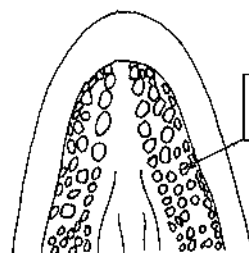


fins not visible externally

underside of head

Genus *Myrichthys* - 2 slender-bodied species in the area, common in shallow, clear water, borrowing in sand. Of no interest to fisheries at present.

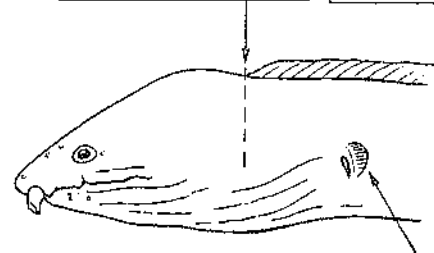
teeth blunt, molar-like



roof of mouth

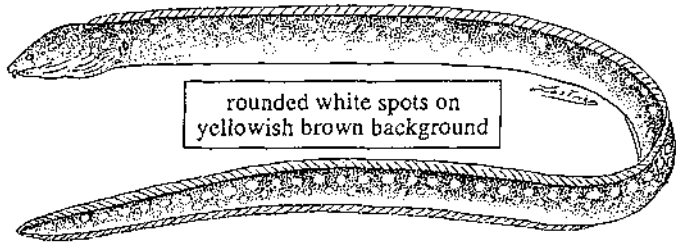
origin of dorsal fin well before gill opening

dorsal and anal fins present



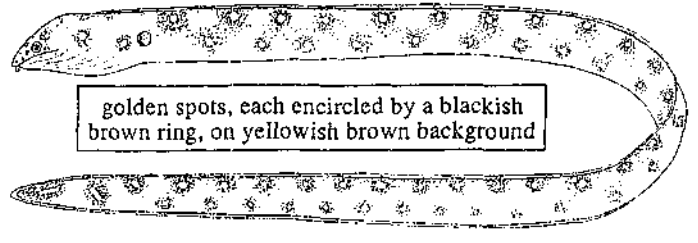
pectoral fins small and rounded

OPHICHTHIDAE



rounded white spots on yellowish brown background

Myrichthys acuminatus (Gronow, 1854)



golden spots, each encircled by a blackish brown ring, on yellowish brown background

Myrichthys oculatus (Kaup, 1865)

Genus *Ophichthus* - 5 species in the area, none of them actively fished, but some may have a potential as food fishes in view of their large size.

eye above or behind midpoint of upper jaw

origin of dorsal fin over or behind pectoral fin

dorsal and anal fins present

Ophichthus gomesi (Castelnau, 1855) (plate XXIV, 186)

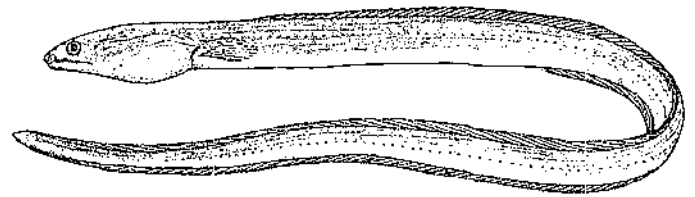
FAO names: En - Shrimp eel; Fr - Serponton chevrette; Sp - Tieso negro.

Common names:

Size: Maximum 76 cm; common to 50 cm.

Distribution and habitat: Throughout the area. In coastal waters, on soft bottoms of the continental shelf to a depth of about 40 m.

Fisheries: Taken as bycatch in the industrial trawl fishery for shrimps. Very similar to *O. parilus*, a species almost identical in morphology, coloration, and habitat.



coloration more or less uniform, darker on back

Ophichthus ocellatus (LeSueur, 1825)

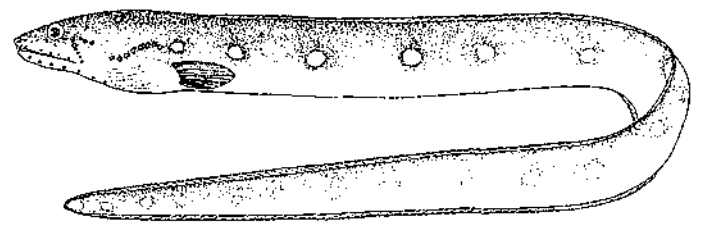
FAO names: En - Palespotted eel; Fr - Serponton blanc; Sp - Tieso blanco.

Common names:

Size: Maximum about 81 cm; common to 60 cm.

Distribution and habitat: In continental shelf waters. On muddy bottoms, possibly to a depth of 150 m, more common between 5 and 40 m.

Fisheries: Caught mainly on bottom longlines.



sides of body with a row of round, pale spots on yellowish brown background, their size about equal to eye diameter

Ophichthus ophis Linnaeus, 1758 (plate XXIV, 187)

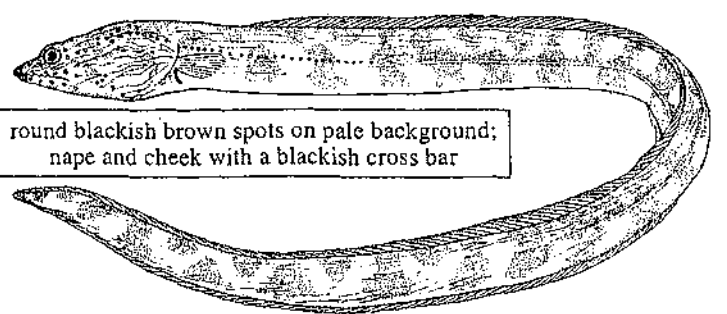
FAO names: En - Spotted snake eel; Fr - Serponton tachelé; Sp - Tieso pintado.

Common names:

Size: Maximum 140 cm; common to 100 cm.

Distribution and habitat: Throughout the area. In continental shelf waters, on soft bottoms to a depth of about 50 m.

Fisheries: Caught mainly with bottom longlines; occasionally taken as bycatch in the industrial trawl fishery for shrimps.



round blackish brown spots on pale background; nape and cheek with a blackish cross bar

OPHICHTHIDAE

***Ophichthus parilus* (Richardson, 1844)**

FAO names En - Dusky snake eel; Fr - Serpenteon sombre; Sp - Tieso lucio.

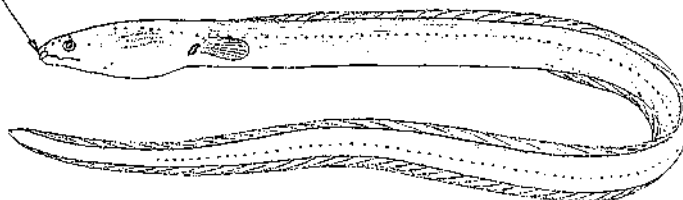
Common names:

Size: Maximum 76 cm; common to 50 cm.

Distribution and habitat: Throughout the area. In continental shelf waters, on soft bottoms to a depth of about 40 m.

Fisheries: Taken as bycatch in the industrial trawl fishery for shrimps.

anterior nostril with a tentacle longer than tube of nostril



colour pattern as in *O. gomesi*

***Ophichthus spinicauda* (Regan, 1922)**

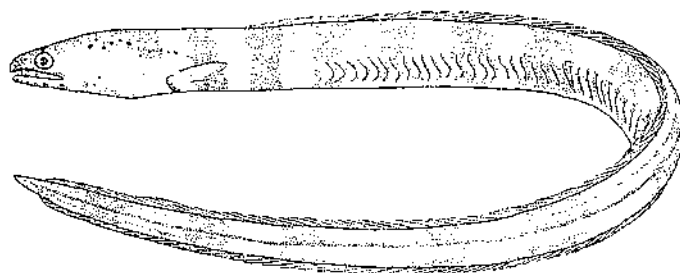
FAO names: En - Antillean snake eel; Fr - Serpenteon antillais; Sp - Tieso antillano.

Common names:

Size: Maximum 107 cm; common to 70 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad and Tobago. To a depth of about 300 m. Records of this species from the area are scarce.

Fisheries: Caught occasionally on bottom longlines.



body with 13-14 dark cross bars on light background

OPHIDIIDAE

En: Cusk-eels, brotulas. **Fr:** Brotules. **Sp:** Brótulas, perlas.

Mostly small, eel-like fishes inhabiting soft bottoms of the continental shelf and upper slope to below a depth of 650 m, but usually found in less than 100 m. They constitute an important component of the bycatch in industrial trawl fisheries for shrimps, and are highly esteemed as food fishes because of the excellent quality and delicate taste of their flesh. Of some commercial importance in certain regions, especially the northern coast of Venezuela. Five genera and about 9 species in the area.

Genus *Brotula* - a single species in the area.

***Brotula barbata* (Bloch, 1801)**

FAO names: En - Bearded brotula; Fr - Brotule barbée; Sp - Brótula de barbas.

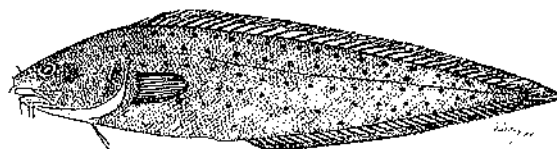
Common names:

Size: Maximum about 75 cm and 4 kg; common to 50 cm.

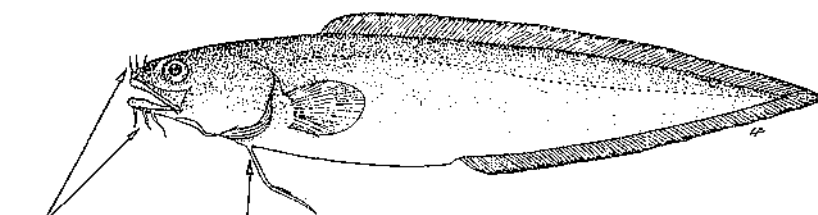
Distribution and habitat: On soft bottoms of the continental shelf and slope to a depth of about 650 m. The early development stages are pelagic and can be found in coral-reef areas.

Fisheries: Taken occasionally as bycatch in the industrial trawl fisheries for shrimps, especially young specimens. Marketed fresh.

dark brown dots



juvenile



6 pairs of barbels on snout and chin

pelvic-fin insertions under opercle

colour olive-brown or reddish

Genus *Lepophidium* - at least 4 species in the area.

» body scales in regular rows; back and sides of head scaled; insertion of pelvic fins before opercle.

***Lepophidium aporrhox* Robins, 1958**

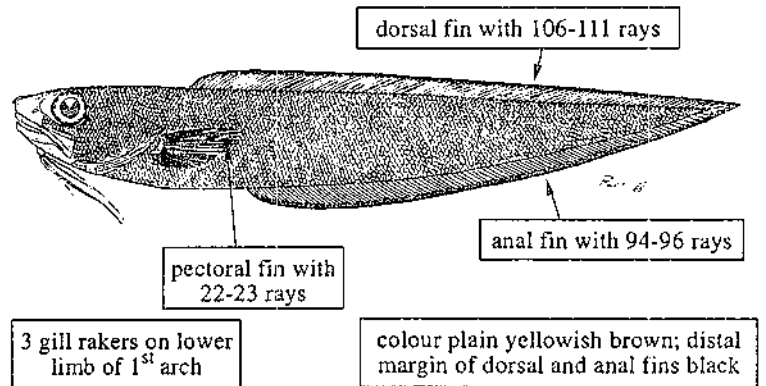
FAO names: En - Dusky cusk-eel; Fr - Brotule sombre; Sp - Perla lucia.

Common names:

Size: Maximum about 16 cm; common to 14 cm.

Distribution and habitat: On soft bottoms of the continental shelf. Between depths of about 40 and 85 m.

Fisheries: Taken as bycatch in the industrial trawl fishery for shrimps. Marketed fresh.



***Lepophidium brevibarbe* (Cuvier, 1829)**

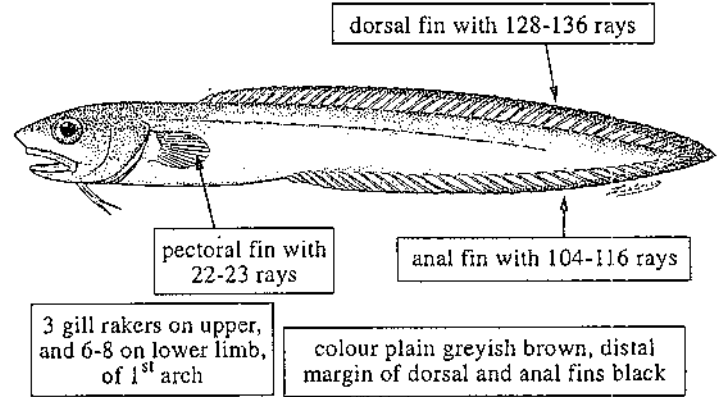
FAO names: En - Shortbeard cusk-eel; Fr - Brotule barbiche; Sp - Perla barbacorta.

Common names:

Size: Maximum 26 cm; common to 20 cm.

Distribution and habitat: Probably throughout the area. On soft bottoms of the continental shelf, between depths of 6 and 90 m.

Fisheries: Taken as bycatch in industrial trawl fisheries, especially those for shrimps.



***Lepophidium pheromystax* Robins, 1960**

(plate XXIV, 188)

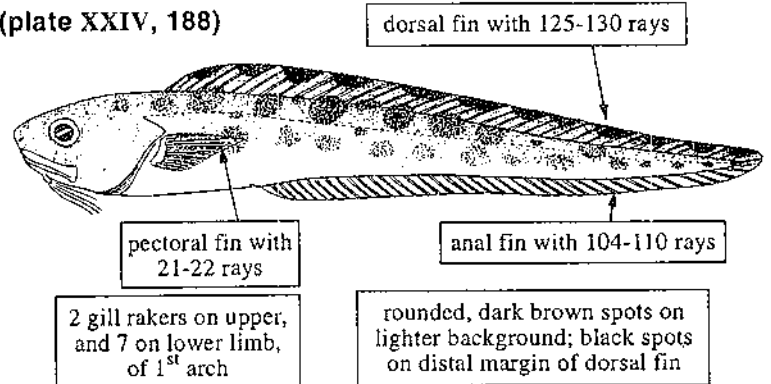
FAO names: En - Blackedge cusk-eel; Fr - Brotule tachetée; Sp - Perla pintada.

Common names:

Size: Maximum about 23 cm; common to 18 cm.

Distribution and habitat: On soft bottoms of the continental shelf. Mainly between depths of 50 and 100 m.

Fisheries: Taken as bycatch in industrial trawl fisheries.



***Lepophidium profundorum* (Gill, 1863)**

(plate XXIV, 189)

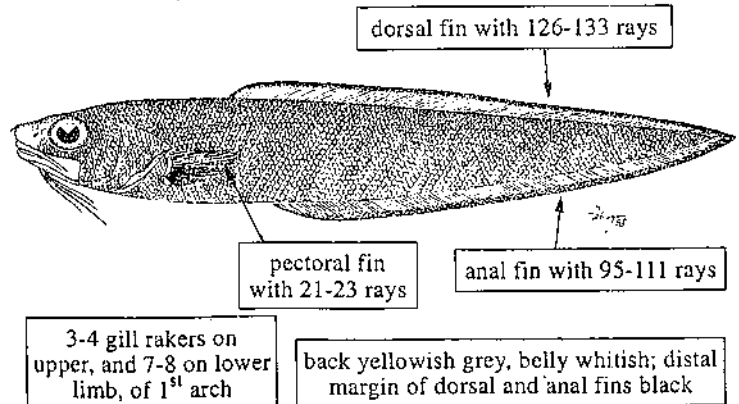
FAO names: En - Blackrim cusk-eel; Fr - Brotule lisérée; Sp - Perla aleta negra.

Common names:

Size: Maximum about 27 cm; common to 22 cm.

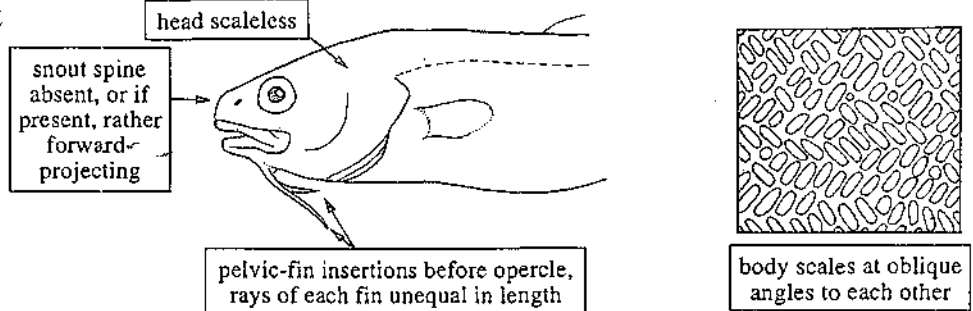
Distribution and habitat: Entire continental coast of Venezuela. On soft bottoms of the continental shelf, between depths of 25 and 70 m. In Venezuela it is the most abundant cusk-eel species.

Fisheries: Taken as bycatch in industrial trawl fisheries. Highly esteemed as a food fish in some localities.



OPHIDIIDAE

Genus *Ophidion* - at least 2 species in the area.



Ophidion holbrooki (Putnam, 1874)

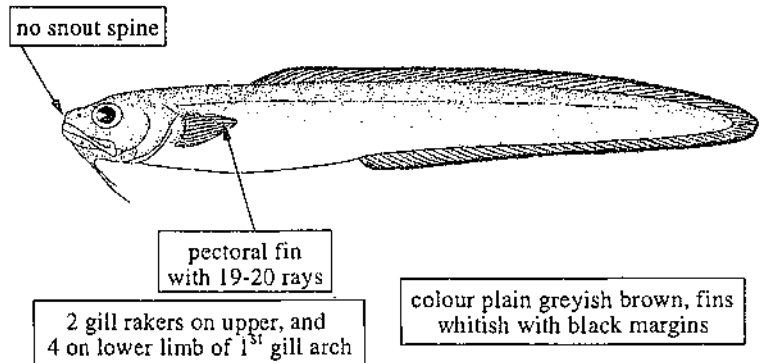
FAO names: **En** - Bank cusk-eel; **Fr** - Erotule de banc; **Sp** - Perla de banco.

Common names:

Size: Maximum about 30 cm; common to 23 cm.

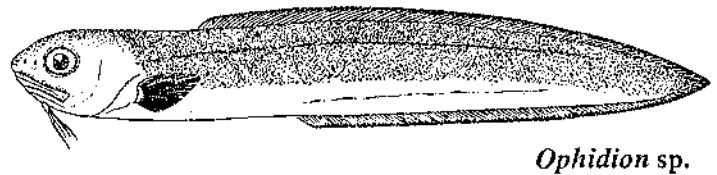
Distribution and habitat: Probably throughout the area. On soft bottoms of the continental shelf, from the shore to a depth of 75 m.

Fisheries: Taken as bycatch in the trawl fishery for shrimps. Not very abundant, but highly esteemed for the excellent quality of its flesh.



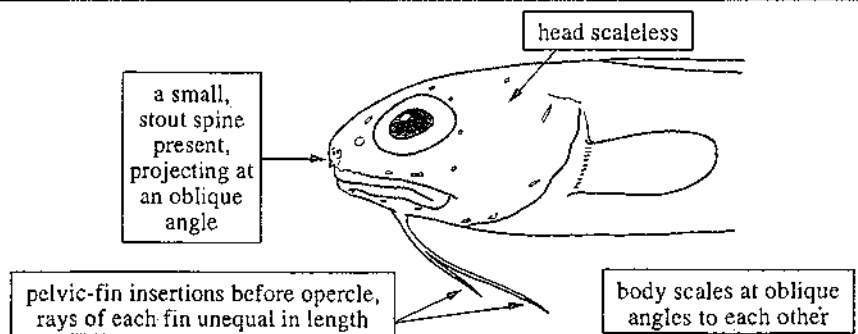
Other species:

Another, as yet undescribed species, occurs probably throughout the area; it is characterized by the presence of 4 distinct gill rakers on 1st gill arch, and attains up to 19 cm in length.



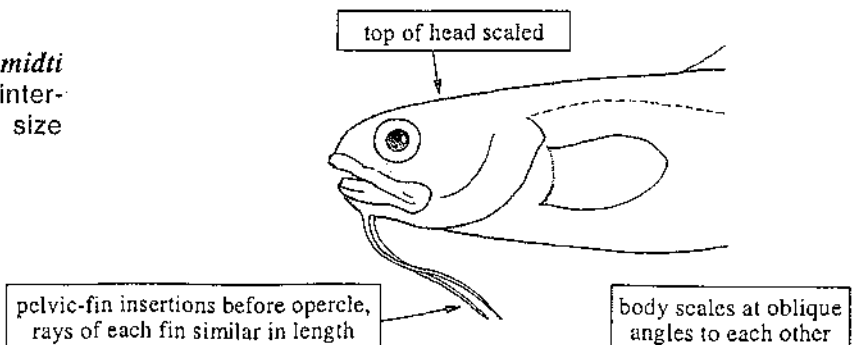
Genus *Otophidium*

At least one species in the area, *O. omostigmum* Jordan and Gilbert, 1882, of no interest to fisheries because of its small size (maximum 13 cm).



Genus *Parophidion*

A single species in the area, *P. schmidti* (Woods and Kanazawa, 1951), of no interest to fisheries because of its small size (maximum 10 cm).



OSTRACIIDAE

En: Boxfishes, trunkfishes. **Fr:** Coffres. **Sp:** Toritos, chapines, cofres.

Small to medium-sized fishes characterized by having the body completely encased in a rigid bony shell or cuirass, hence the name "trunkfishes". They are slow-swimming, bottom-dwelling fishes occurring on open sand in coral-reef areas and on seagrass beds, from the shore to a depth of about 90 m. Considered a delicacy in many localities, but not yet marketed on a large scale. A single genus with 5 species in the area.

Genus *Lactophrys* - 5 species in the area.

Lactophrys bicaudalis (Linnaeus, 1758)

(plate XXIV, 190)

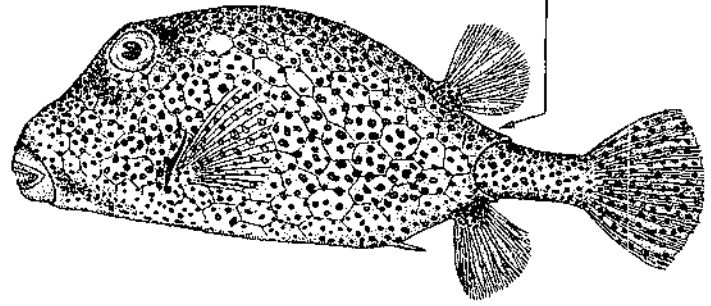
FAO names: **En** - Spotted trunkfish; **Fr** - Coffre zinga **Sp** - Chapín pintado.
Common names:

Size: Maximum 45 cm; common to 20 cm.

Distribution and habitat: Throughout the area. In shallow, clear water, usually among corals, to a depth of about 50 m.

Fisheries: Artisanal. Caught mainly with traps, and occasionally with beach nets.

carapace complete around base of dorsal fin, forming a solid, continuous bridge over caudal peduncle



colour usually grey, with numerous brown or blackish spots; lips white; large specimens with 3 large spots

Lactophrys polygonius Poey

(plate XXIV, 191)

FAO names: **En** - Honeycomb cowfish; **Fr** - Coffre polygone; **Sp** - Torito.
Common names:

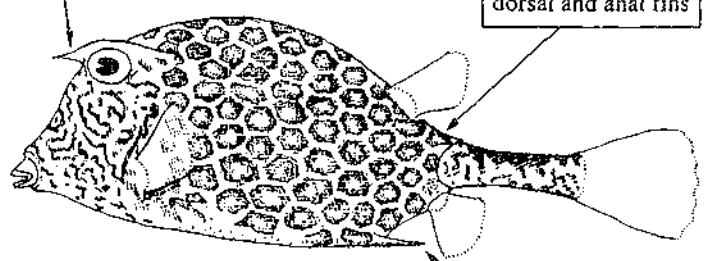
Size: Maximum about 33 cm; common to 25 cm.

Distribution and habitat: Throughout the area. In shallow, clear water, usually among corals.

Fisheries: Artisanal. Caught mainly with traps, and occasionally with beach nets. Marketed fresh and consumed fried.

1 pair of prominent spines on carapace in front of eyes

carapace complete around bases of dorsal and anal fins



colour pattern on body consisting of polygonal areas with greenish blue margins and pale centres; head with undulating greenish blue lines

1 pair of posteroventral spines

Lactophrys quadricornis (Linnaeus, 1758)

(plate XXIV, 192)

FAO names: **En** - Scrawled cowfish; **Fr** - Coffre taureau; **Sp** - Torito azul.
Common names:

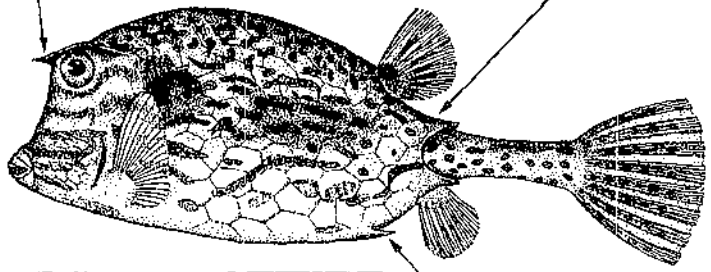
Size: Maximum 39 cm; common to 20 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters, mainly of coral-reef areas and on seagrass beds.

Fisheries: Artisanal. Caught mainly with traps, and occasionally with beach nets. Marketed fresh.

one pair of prominent spines on carapace in front of eyes

carapace complete around bases of dorsal and anal fins



colour bronze or yellow, with numerous bright blue to black stripes and spots; usually 3 or more blue horizontal stripes on cheeks

1 pair of posteroventral spines

OSTRACIIDAE

***Lactophrys trigonus* (Linnaeus, 1758)**

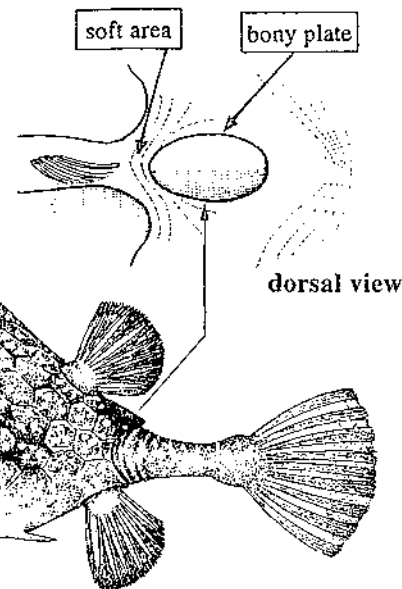
FAO names: **En** - Buffalo trunkfish (AFS: Trunkfish); **Fr** - Coffre à cornes; **Sp** - Chapín tresfilos (=Chapín búfalo).
Common names:

Size: Maximum 45 cm; common to 30 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters, mainly of coral-reef areas and on seagrass beds, to a depth of about 50 m.

Fisheries: Artisanal. Caught mainly with traps and occasionally with beach nets. Marketed fresh.

carapace incomplete behind dorsal fin, with a skin-covered soft area followed posteriorly by a large bony plate



colour usually greenish brown, with small, white spots and 2 blackish, diffuse, chain-like markings, one just above and behind pectoral-fin base and the other on about middle of side

***Lactophrys triqueter* (Linnaeus, 1758)**

(plate XXV, 193)

carapace complete around base of dorsal fin, forming a solid bony plate

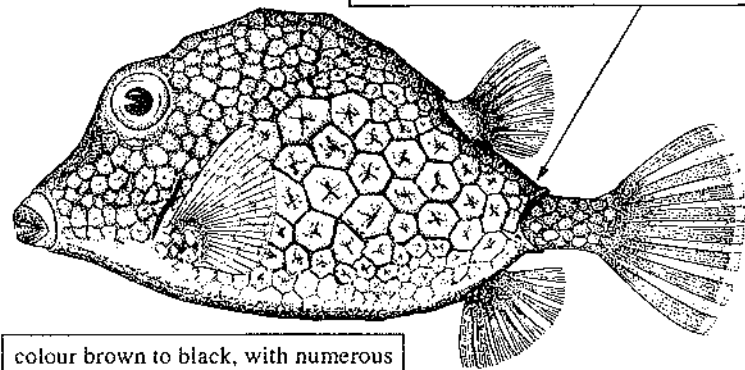
FAO names: **En** - Smooth trunkfish; **Fr** - Coffre baquette; **Sp** - Chapín común (=Chapín baqueta).
Common names:

Size: Maximum 30 cm; common to 15 cm.

Distribution and habitat: Throughout the area. In shallow clear waters of coral reef areas, to a depth of about 50 m (usually less).

Fisheries: Artisanal. Caught mainly with traps. Consumed fresh.

colour brown to black, with numerous pale spots; lips and fin bases black



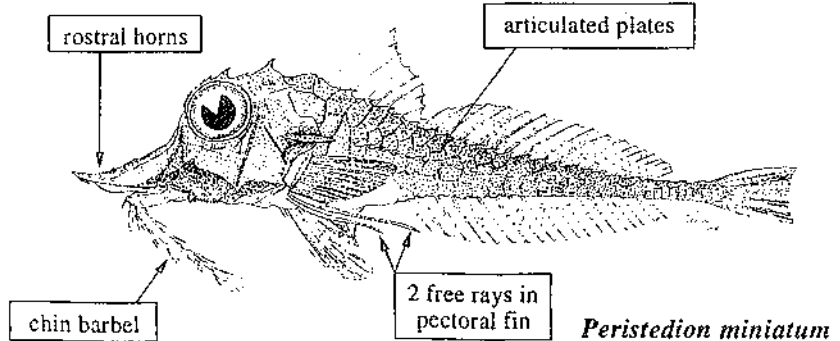
PERISTEDIIDAE

En: Armoured searobins. **Fr:** Malarmats. **Sp** Malarmados.

Small to medium-sized, bottom-living fishes, characterized by having the body covered with 4 rows of spiny scutes, the mouth in inferior position and the lacrimal bones prolonged anteriorly into two horns or blades. They occur on the outer edge of the continental shelf, and on the slope on soft substrates to a depth of about 400 m. Although hardly marketed in the area at present, they are edible and may constitute a sizeable potential resource. A single genus with many species in the area.

Genus *Peristedion*

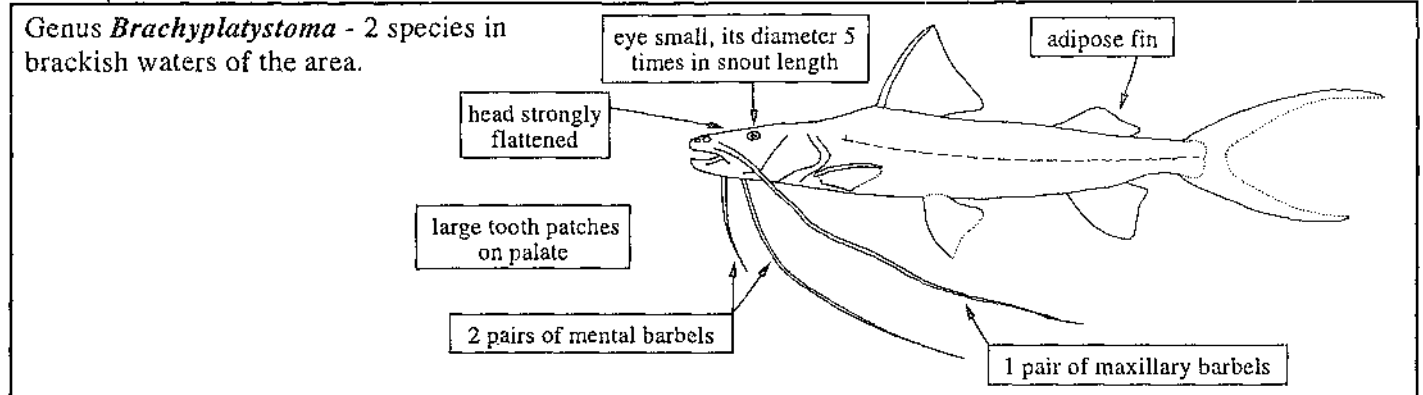
Many species in the area, but taxonomically ill-defined and difficult to separate. The most common is *P. miniatum* (Goode, 1880).



PIMELODIDAE

En: Pimelodid catfishes. **Fr:** Bagres pimélodes. **Sp:** Bagres laulau, bagres cogotúos, valentones.

Medium-sized to large catfishes, with some species attaining over 100 cm in length. Most species are restricted to freshwater, and only a few enter the brackish waters of river mouths, especially in their juvenile stages. Many pimelodid catfishes are of considerable commercial importance, and their flesh is of excellent quality. Two genera with 3 species in brackish waters of the area.



Brachyplatystoma filamentosum (Lichtenstein, 1819)

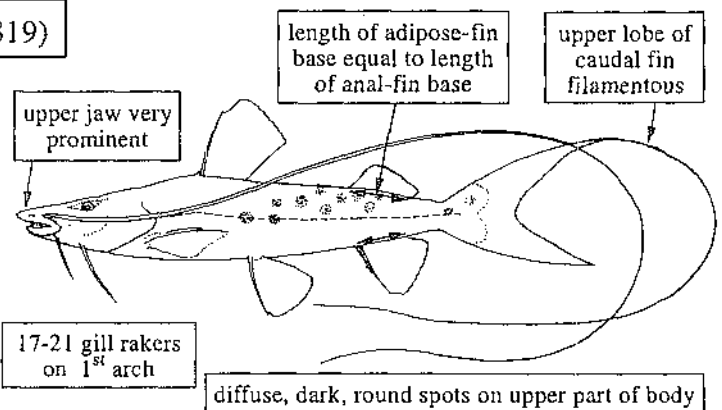
FAO names: En - Kumakuma; Fr - Bagre laulao; Sp - Bagre laulao.

Common names:

Size: Maximum over 200 cm; common to 120 cm.

Distribution and habitat: The Gulf of Paria to Brazil. Freshwater; juveniles and subadults may be found in brackish water of the river mouths. On soft bottoms.

Fisheries: Mostly artisanal. Caught with gillnets and on hook-and-line. In great demand, flesh of excellent quality.



Brachyplatystoma vaillantii (Valenciennes, 1840)

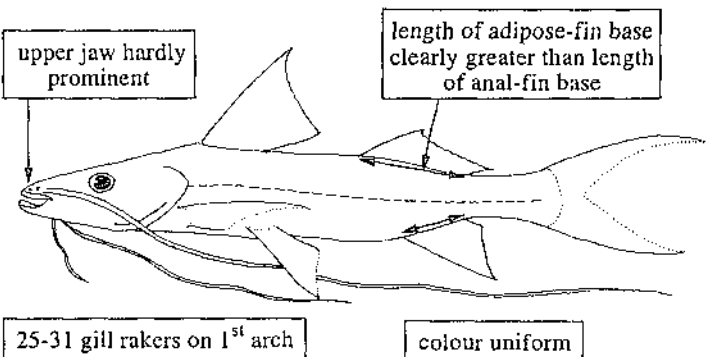
FAO names: En - Laulao catfish; Fr - Bagre vaillant; Sp - Valentón.

Common names:

Size: Maximum over 150 cm; common to 80 cm.

Distribution and habitat: The Gulf of Paria to Brazil. Freshwater; juveniles and subadults may be found in the brackish water of river mouths.

Fisheries: Predominantly artisanal. Caught on hook-and-line and with gillnets. Marketed fresh, highly appreciated for the excellent quality of its flesh.



Genus *Pimelodus* - a single species in brackish waters of the area.

Pimelodus blochii (Valenciennes, 1840)

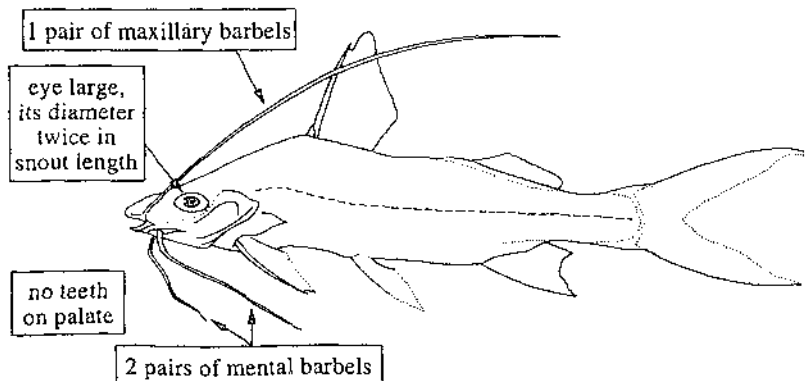
FAO names: En - Bloch's catfish; Fr - Bagre pimélode; Sp - Bagre cogotúo.

Common names:

Size: Maximum 35 cm; common to 20 cm.

Distribution and habitat: The Gulf of Paria to Brazil. Freshwater, occasionally in estuaries.

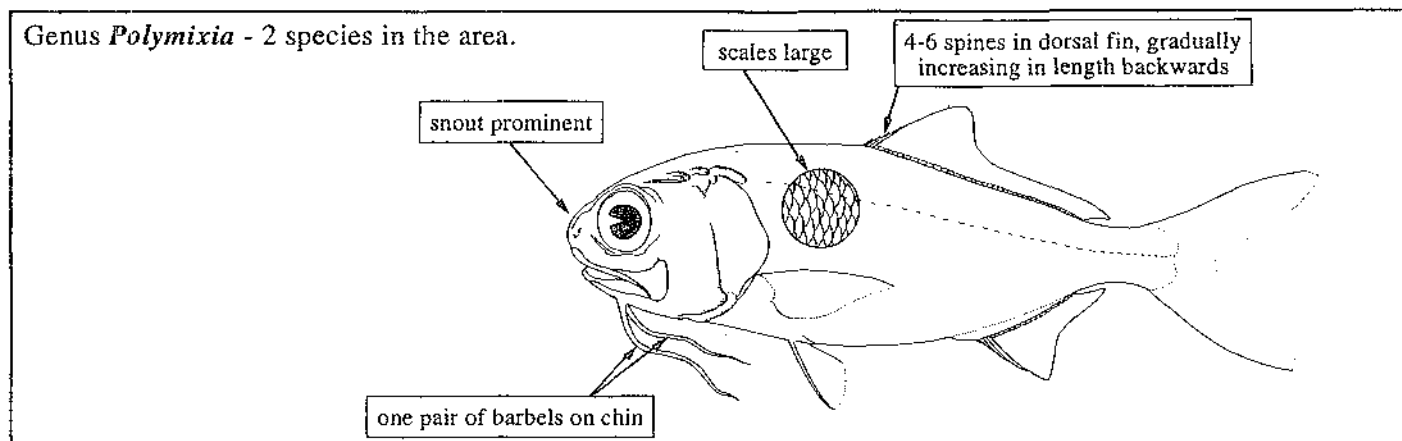
Fisheries: Predominantly artisanal. Caught with gillnets and on hook-and-line.



POLYMIXIIDAE

En: Beardfishes. **Fr:** Poissons à barbe. **Sp:** Salmones de lo alto.

Small to medium-sized demersal fishes with elongate and compressed bodies, occurring in moderately deep waters, usually between depths of 270 and 650 m, but occasionally taken in less than 100 m. Although generally not consumed at present, they are good food fishes and might become commercially important with the extension of regular fishery operations to deeper waters. A single genus with 2 species in the area.



Polymixia lowei Günther, 1859

(plate XXV, 194)

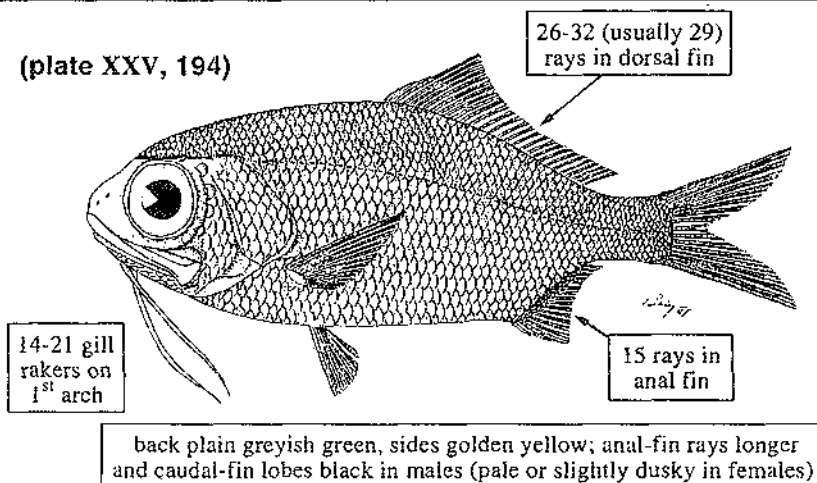
FAO names: **En** - Beardfish; **Fr** - Poisson chèvre; **Sp** - Chivato.

Common names:

Size: Maximum 20 cm; common to 15 cm.

Distribution and habitat: Throughout the area. On soft bottoms, between depths of 50 and 600 m, more common below 150 m.

Fisheries: Taken as bycatch in industrial trawl fisheries. Not commonly marketed at present because of its relatively small average size.



Polymixia nobilis Lowe, 1836

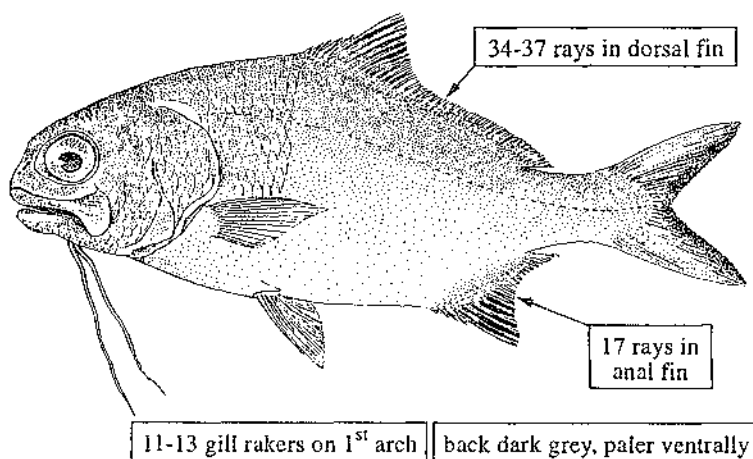
FAO names: **En** - Stout beardfish; **Fr** - Poisson chèvre robuste; **Sp** - Chivato de fondo.

Common names:

Size: Maximum 48 cm; common to 25 cm.

Distribution and habitat: Probably throughout the area. On soft or semi-hard bottoms, between depths of 200 and about 600 m, occasionally in about 100 m.

Fisheries: Taken as bycatch in industrial trawl fisheries, but never in great quantities. At present only of minor interest to fisheries.



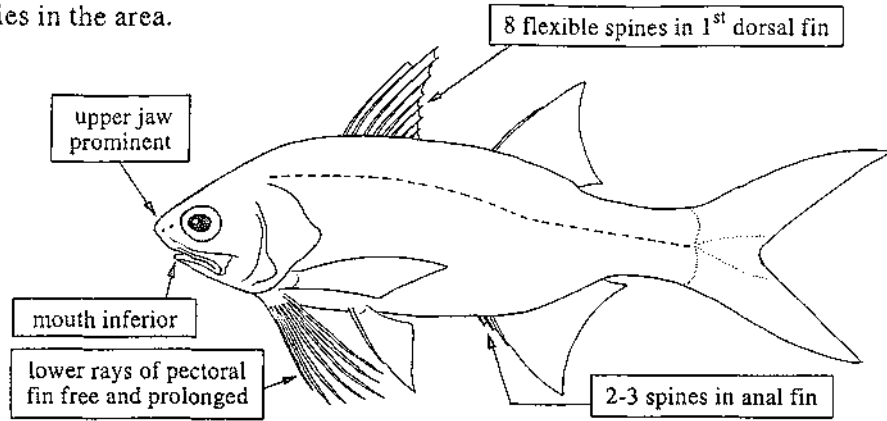
POLYNEMIDAE

En: Threadfins. **Fr:** Barbures. **Sp:** Barbudos.

Small, demersal fishes occurring in shallow coastal waters and in estuaries, on soft, usually muddy or sandy substrates. Although of little or no commercial importance at present, they are edible, and certain species may be very abundant in some localities. A single genus with 3 species in the area, very different in terms of abundance and potential interest to fisheries. One of them, *P. octonemus*, has not yet been reported from the coasts of Colombia or Venezuela, although these regions should be part of the distributional range of the species.

POLYNEMIDAE

Genus *Polydactylus* - 3 species in the area.



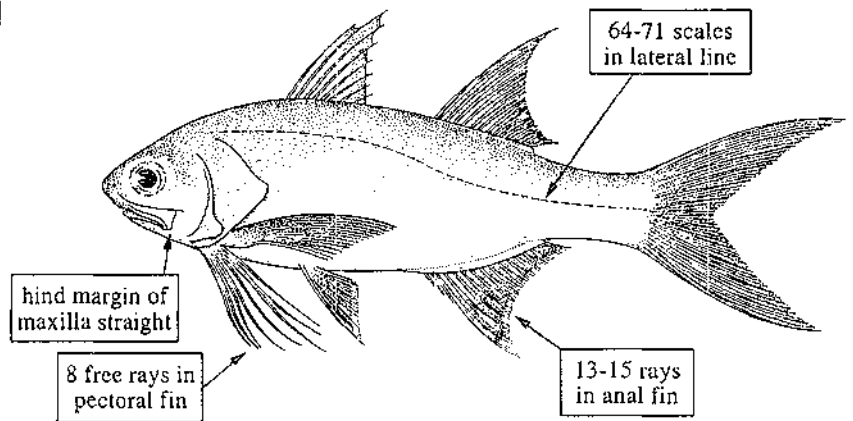
Polydactylus octonemus (Girard, 1858)

FAO names: En - Atlantic threadfin; Fr - Barbure à huit barbillons; Sp - Barbudo ochobarbas.
Common names:

Size: Maximum 33 cm; common to 25 cm.

Distribution and habitat: According to some authors, this species is present throughout the area, but apparently rare off the coasts of Colombia and Venezuela. Lives in shallow coastal waters, on sandy bottoms.

Fisheries: Caught with beach seines and gill-nets. Of negligible commercial importance.



Polydactylus oligodon (Günther, 1860)

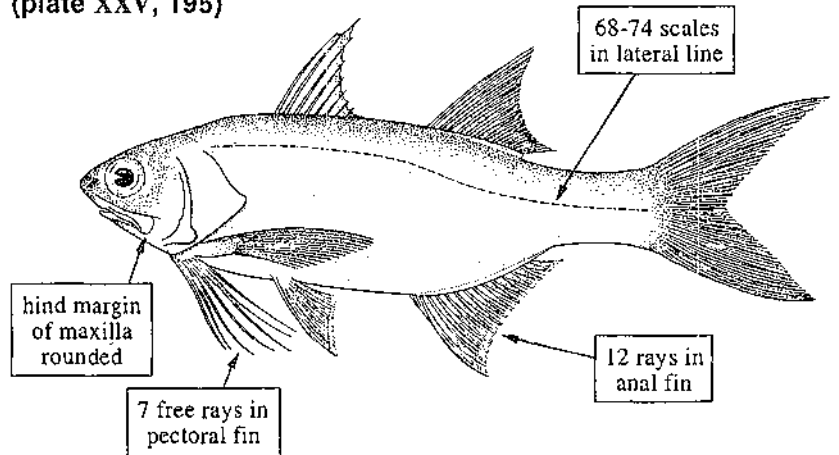
(plate XXV, 195)

FAO names: En - Littlescale threadfin; Fr - Barbure à sept barbillons; Sp - Barbudo sietebarras.
Common names:

Size: Maximum 43 cm; common to 25 cm.

Distribution and habitat: Known from the northern coast of Venezuela and from Trinidad; its presence in other parts of the area is doubtful. On soft bottoms, usually in shallow, clear waters.

Fisheries: Artisanal. Caught with beach nets. Of minor commercial importance.



Polydactylus virginicus (Linnaeus, 1758)

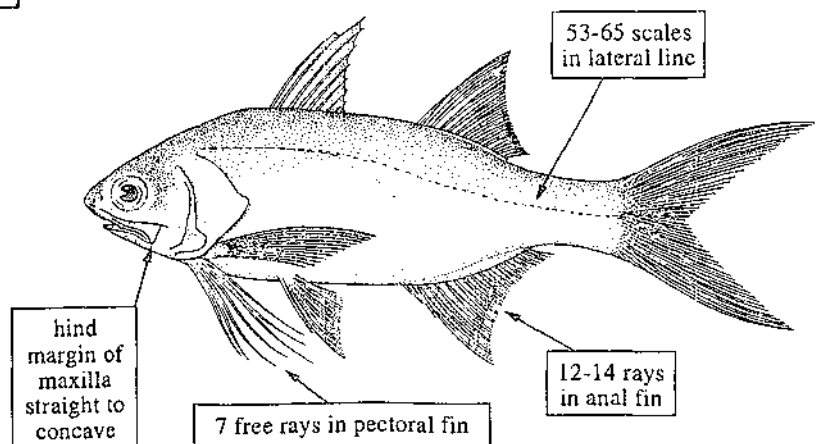
(plate XXV, 196)

FAO names: En - Barbu; Fr - Barbure argenté; Sp - Barbudo de charco (=Barbudo barbu).
Common names:

Size: Maximum 32 cm; common to 20 cm.

Distribution and habitat: Throughout the area. On soft, mainly muddy bottoms in shallow coastal waters; common in estuaries and in the vicinity of hypersaline lagoons.

Fisheries: Caught mainly with beach nets; also taken as bycatch in the industrial trawl fishery for shrimps. Edible, but usually not marketed.



POMACANTHIDAE

En: Angelfishes, rock beauties. **Fr:** Demoiselles. **Sp:** Cachamas, isabelitas.

Medium-sized fishes with deep, compressed bodies and colourful markings, occurring in shallow, clear waters of coral-reef areas. Nearly all species are edible, and some of them of excellent quality as food fishes. Three genera with about 6 species in the area.

Genus *Holacanthus* - 2 species in the area.

» 14-15 spines in dorsal fin; dorsal and anal fins filamentous in adults; scales moderate in size, regularly arranged.

Holacanthus ciliaris (Linnaeus, 1758) (plate XXV, 197)

FAO names: **En** - Queen angelfish; **Fr** - Demoiselle royale; **Sp** - Isabelita patale.
Common names:

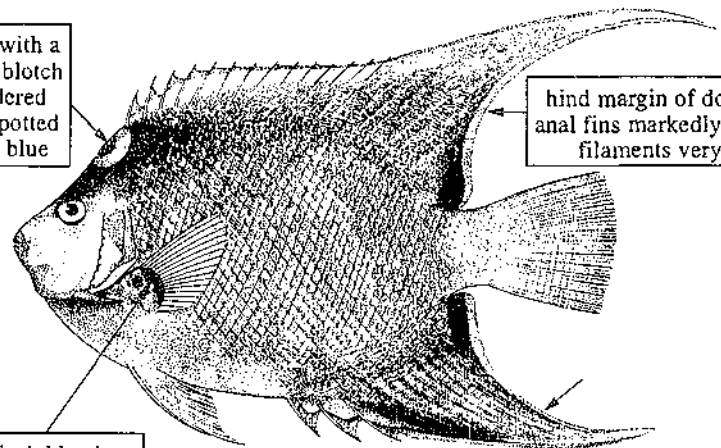
Size: Maximum at least 45 cm; common to 30 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters among coral reefs.

Fisheries: Predominantly artisanal. Caught with traps. Of little commercial importance because of low demand.

nape with a black blotch bordered and spotted with blue

hind margin of dorsal and anal fins markedly concave; filaments very long



a black blotch spotted with blue on pectoral-fin base

pectoral and pelvic fins, as well as caudal fin, yellow; juveniles with blue vertical cross bars

Holacanthus tricolor (Bloch, 1795) (plate XXV, 198)

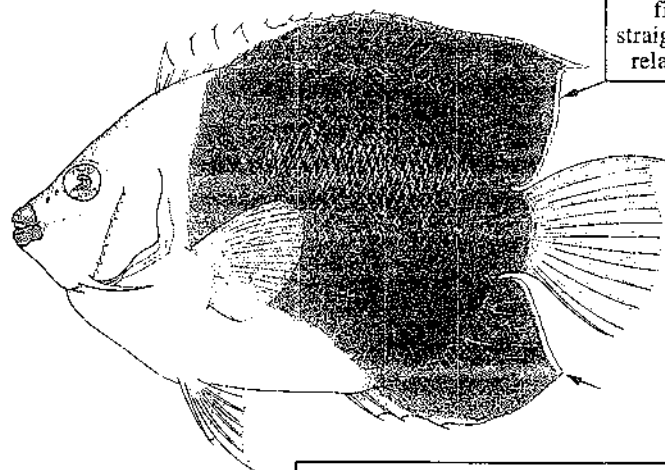
FAO names: **En** - Rock beauty; **Fr** - Demoiselle beauté; **Sp** - Isabelita medioluto.
Common names:

Size: Maximum 35 cm; common to 30 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters of coral-reef areas.

Fisheries: Predominantly artisanal. Caught with traps.

hind margin of dorsal and anal fins nearly straight, filaments relatively short



head and anteroventral part of body yellow, posterodorsal part of body black

Genus *Pomacanthus* - 2 species in the area.

» 9-10 spines in dorsal fin; dorsal and anal fins filamentous in adults, their posterior margin convex; scales of unequal size (small to moderate) and arranged irregularly.

Pomacanthus arcuatus (Linnaeus, 1758)

(plate XXVI, 201)

FAO names: En - Gray angelfish; Fr - Demoiselle blanche; Sp - Cachama blanca.

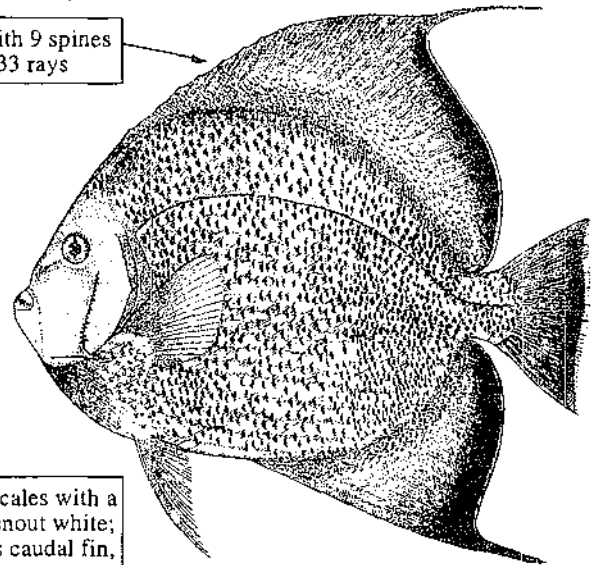
Common names:

Size: Maximum 60 cm; common to 45 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters among soft and calcareous corals.

Fisheries: Artisanal. Caught with traps. Marketed fresh and salted. Highly esteemed as a food fish because of its large size and the good quality of its flesh.

dorsal fin with 9 spines and 31-33 rays



colour brownish grey, many scales with a dark base and a pale margin; snout white; dorsal and anal fins, as well as caudal fin, with a pale blue distal margin

Pomacanthus paru (Bloch, 1787)

(plate XXV, 199-200)

FAO names: En - French angelfish; Fr - Demoiselle chiririte; Sp - Cachama negra.

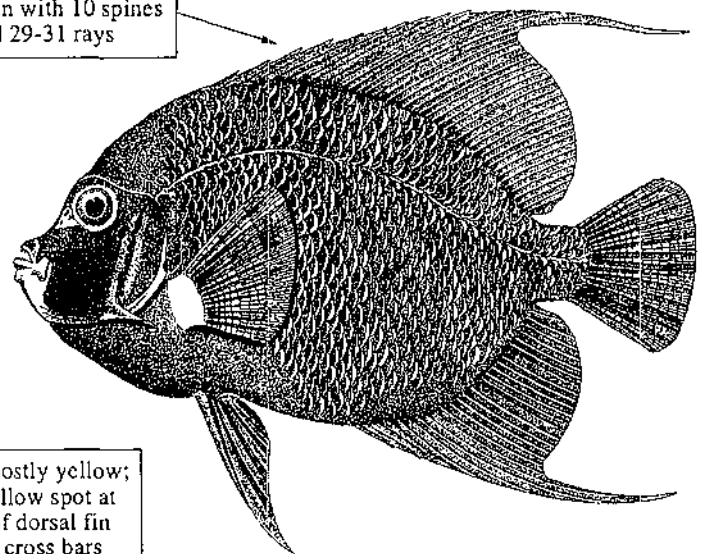
Common names:

Size: Maximum 37 cm; common to 28 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters among soft and calcareous corals.

Fisheries: Artisanal. Caught with traps. Regularly marketed, but its flesh is not as good as that of the gray angelfish.

dorsal fin with 10 spines and 29-31 rays



colour blackish, scale margins mostly yellow; a yellow ring around eyes; a yellow spot at base of pectoral fin; filament of dorsal fin yellow; juveniles with yellow cross bars

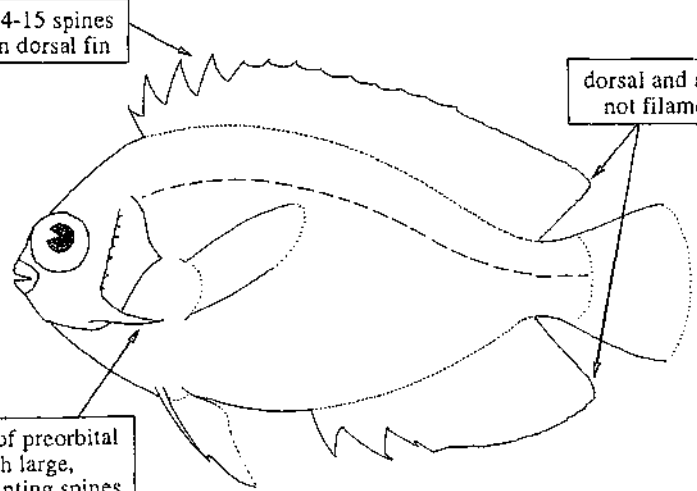
Other genera:

Centropyge with 2 species in the area, *C. argi* Woods and Kanazawa, 1951, and *C. aurantonotus* Burgess, 1974, of no interest to fisheries because of their small average size.

14-15 spines in dorsal fin

dorsal and anal fins not filamentous

hind margin of preorbital bone with large, backward-pointing spines



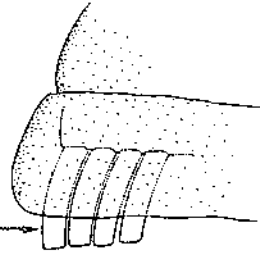
POMACENTRIDAE

En: Damselfishes, sergeant majors. **Fr:** Chauffets, sergeants. **Sp:** Petacas, jaquetas.

Small, generally brightly coloured fishes usually inhabiting shallow rocky areas, but mainly coral reefs. Many species are herbivorous, and some, plankton-feeders. Of minor interest to fisheries in view of their small average size. Four genera with about 19 species in the area.

Genus *Abudefduf* - 2 species in the area.

incisor teeth in a single row in both jaws



13 spines in dorsal fin; preopercular margin smooth; upper and lower margins of caudal-fin base without spines

Abudefduf saxatilis (Linnaeus, 1758) (plate XXVI, 202)

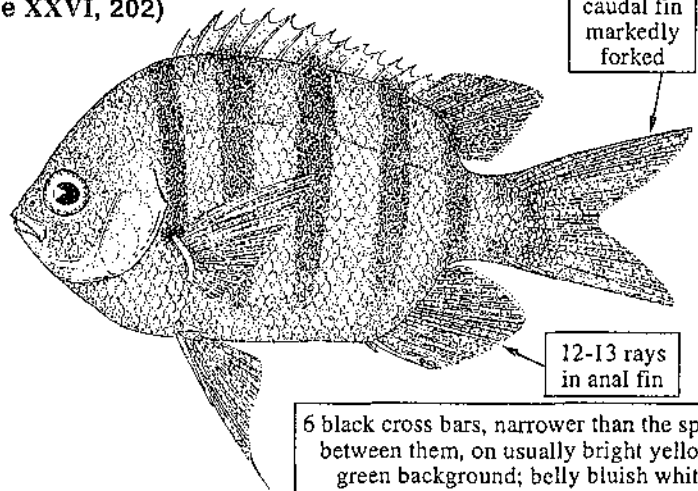
FAO names: En - Sergeant major; Fr - Chauffet soleil; Sp - Petaca rayada.

Common names:

Size: Maximum 20 cm; common to 15 cm.

Distribution and habitat: Throughout the area. In a wide range of shallow coastal habitats, including hard as well as soft substrates, but always in clear waters, to a depth of about 15 m. Juveniles are common in littoral tide pools and around docks.

Fisheries: Artisanal. Caught mainly with traps and occasionally beach nets. Very abundant.



caudal fin markedly forked

12-13 rays in anal fin

6 black cross bars, narrower than the spaces between them, on usually bright yellow-green background; belly bluish white

Abudefduf taurus (Müller and Troschel, 1848) (plate XXVI, 203)

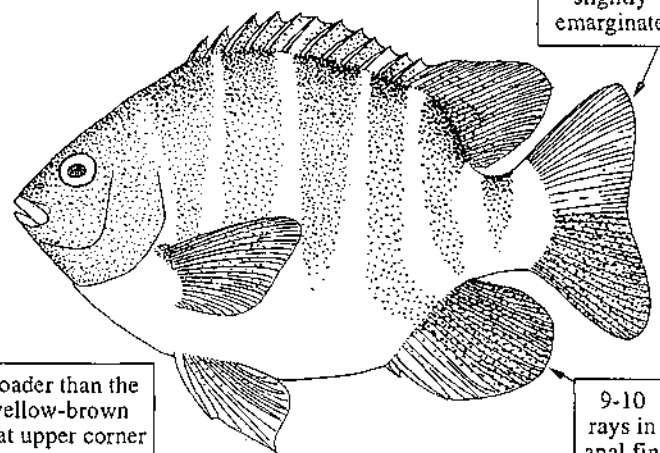
FAO names: En - Night sergeant; Fr - Chauffet de nuit; Sp - Petaca rezobada.

Common names:

Size: Maximum 20 cm; common to 15 cm.

Distribution and habitat: Throughout the area. In very shallow water, usually less than 5 m deep, among rocks, corals or other substrates that may offer shelter.

Fisheries: Artisanal. Caught mainly with traps, occasionally, beach nets.



caudal fin slightly emarginate

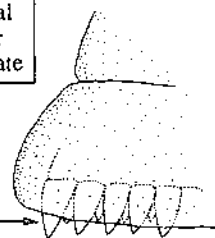
9-10 rays in anal fin

6 dark brown cross bars, broader than the spaces between them, on yellow-brown background; a black blotch at upper corner of pectoral-fin base

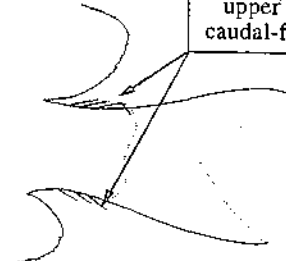
Genus *Chromis* about 5 species in the area, of which only one may be considered of interest to fisheries.

13 spines in dorsal fin; preopercular margin finely serrate

teeth in both jaws conical, in 2-4 rows



upper and lower margins of caudal-fin base with 2-3 spines



POMACENTRIDAE

Chromis multilineata (Guichenot, 1853)

(plate XXVI, 204)

a bright yellow spot often present behind last dorsal fin ray

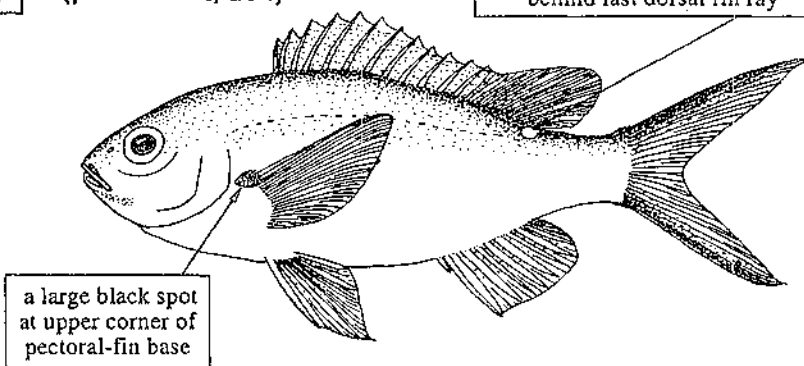
FAO names: En - Brown chromis; Fr - Sergeant cromis; Sp - Jaqueta parda.

Common names:

Size: Maximum to 20 cm (exceptional); common to 12 cm.

Distribution and habitat: Throughout the area. In shallow waters, usually swimming over or among coral reefs.

Fisheries: Taken incidentally on hook-and-line and with hand nets.



a large black spot at upper corner of pectoral-fin base

back and sides greenish grey to olive-brown, becoming paler ventrally, belly white; distal margins of dorsal and anal fins dark; centre as well as upper and lower margins of caudal fin dark

Other species:

Chromis cyanea (Poey, 1860), *C. enchrysurus* Jordan and Gilbert, 1882, *C. insolata* (Cuvier, 1830) and *C. scotti* Emery, 1968, of no interest to fisheries because of their small average size.

Genus *Microspathodon* - a single species in the area.

Microspathodon chrysurus (Cuvier, 1830)

(plate XXVI, 205)

FAO names: En - Yellowtail damselfish; Fr - Chaffet queue jaune; Sp - Jaqueta rabo amarillo.

Common names:

Size: Maximum 20 cm; common to 15 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela and on Trinidad and Tobago. In shallow waters of coral-reef areas.

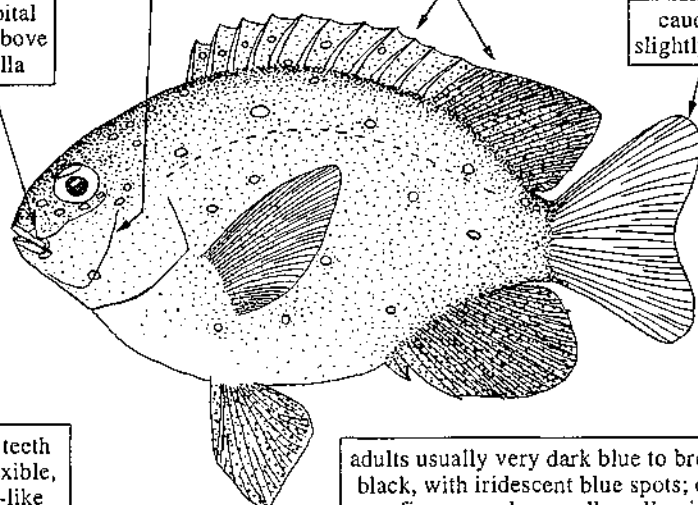
Fisheries: Artisanal. Caught mainly with traps. Rarely marketed.

a strong notch on preorbital bone, above maxilla

preopercular margin smooth

dorsal fin with 12 spines and 14-15 rays

caudal fin slightly forked



incisor teeth very flexible, bristle-like

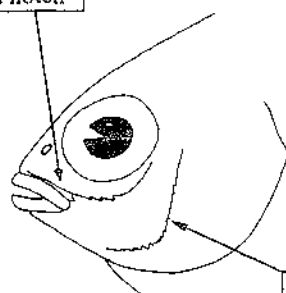
adults usually very dark blue to brownish black, with iridescent blue spots; caudal fin very pale, usually yellowish

Genus *Pomacentrus*

About 11 species in the area, difficult to identify in the field: *P. diencaeus* (Jordan and Rutter, 1897), *P. dorsopunicans* (Poey), *P. fuscus* Cuvier, 1830, *P. leucostictus* Müller and Troschel, 1848, *P. mellis* Emery and Burgess, *P. otophorus* (Poey), *P. partitus* Poey, 1868, *P. pictus* Castelnau, 1855, *P. planifrons* Cuvier, 1830, *P. rocasensis* Emery and *P. variabilis* Castelnau, 1855. All of these species occur in shallow, clear waters among rocks or coral reefs and have a strictly territorial behaviour. Of no interest to fisheries because of their small average size, but taken incidentally in traps and small-meshed beach nets.

preorbital bone without a notch

12 spines in dorsal fin



preopercular margin serrate

POMATOMIDAE

En: Bluefishes. **Fr:** Tassergals. **Sp:** Anchovas de banco.

A single genus with one species in the area.

Pomatomus saltatrix (Linnaeus, 1766)

FAO names: **En** - Bluefish; **Fr** - Tassergal;
Sp - Anchova de banco.

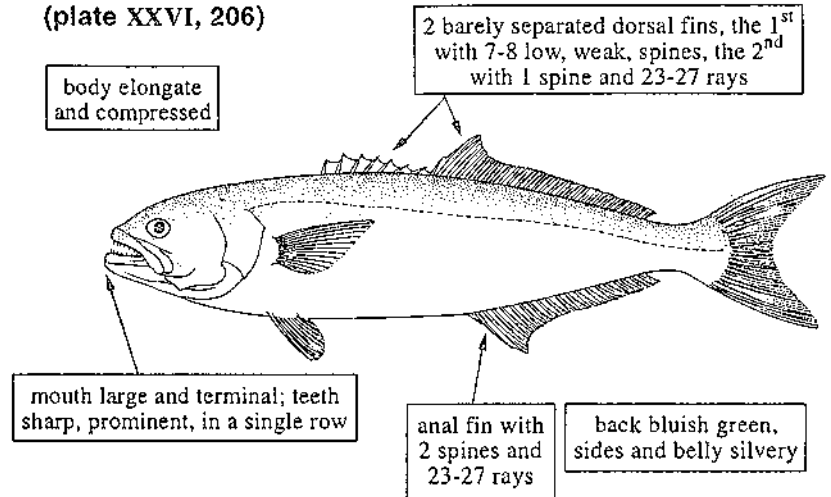
Common names:

Size: Maximum 110 cm and about 12 kg;
common to 60 cm.

Distribution and habitat: Throughout the area. Pelagic in coastal continental waters, sometimes close to the shore. Juveniles are found in very shallow water, on soft substrates along beaches. A voracious predator.

Fisheries: Predominantly artisanal. Caught with gill nets, occasionally, beach nets and on hook-and-line. A commercially important species, flesh of excellent quality. Marketed fresh.

(plate XXVI, 206)



PRIACANTHIDAE

En: Bigeyes, bulleeyes. **Fr:** Beauclaires. **Sp:** Catalufas, catalanas, catalucias.

Medium-sized demersal fishes, the adults occurring over rocky or sandy bottoms to a depth of about 220 m, or in shallow coral-reef areas; juveniles are pelagic. Some species are commercially important and highly esteemed as food fishes because of their relatively large size and abundance, and the excellent quality of their flesh. Three genera with 4 species in the area.

Genus *Cookeolus* - a single species in the area.

Cookeolus boops (Schneider, 1801)

FAO names: **En** - Bulleye; **Fr** - Beauclaire
voyeur; **Sp** - Catalucia de fondo.

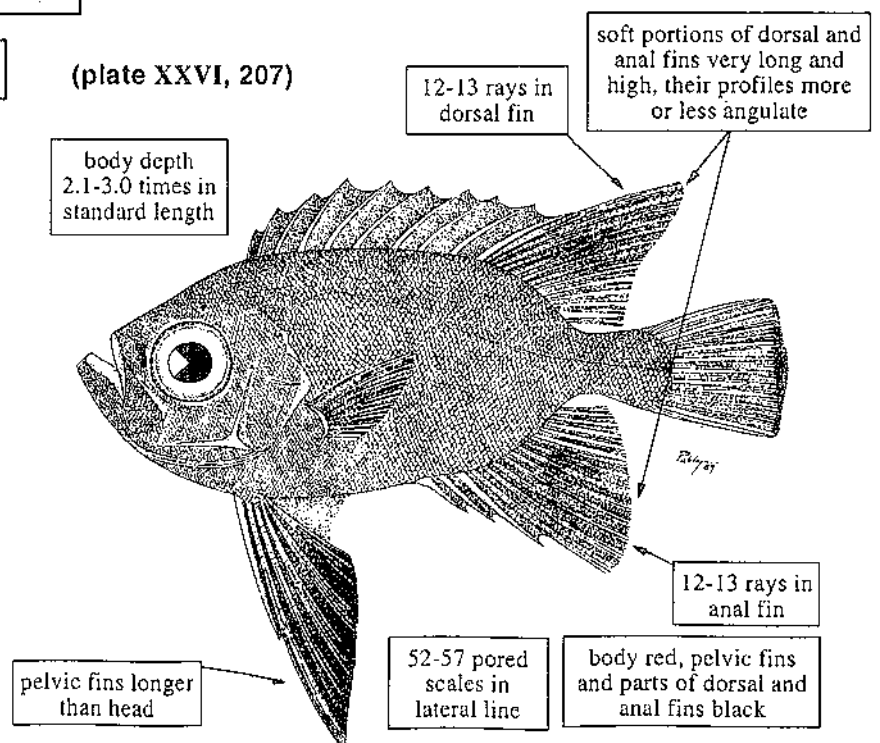
Common names:

Size: Maximum 50 cm, common to 30 cm.

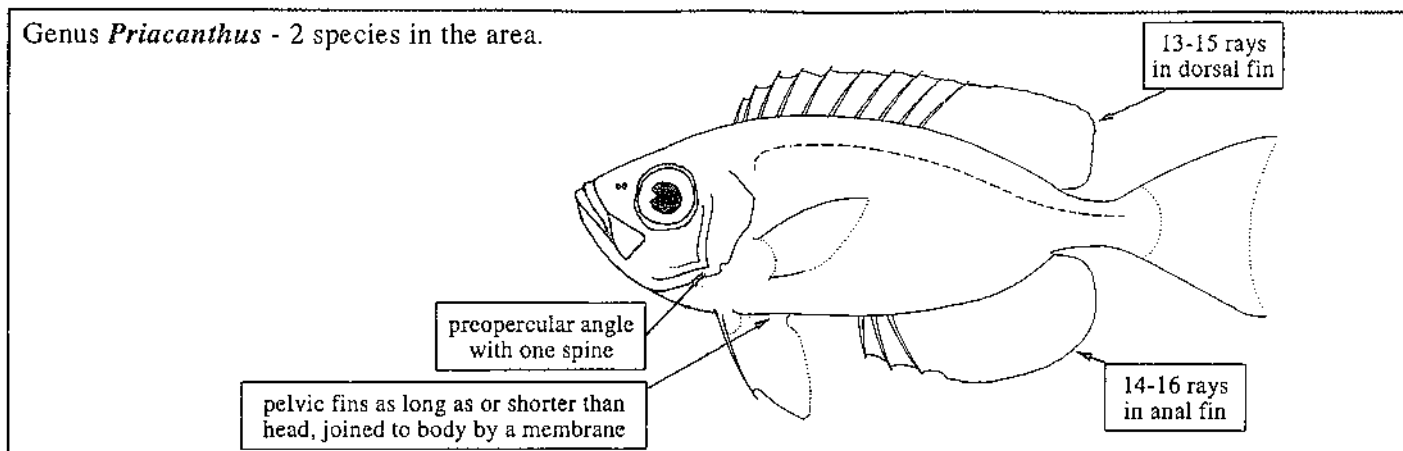
Distribution and habitat: Throughout the area. On hard bottoms between depths of 100 and 200 m.

Fisheries: Taken incidentally in bottom trawls. A rare species.

(plate XXVI, 207)



PRIACANTHIDAE



Priacanthus arenatus Cuvier in Cuv. and Val., 1829 (plate XXVI, 208)

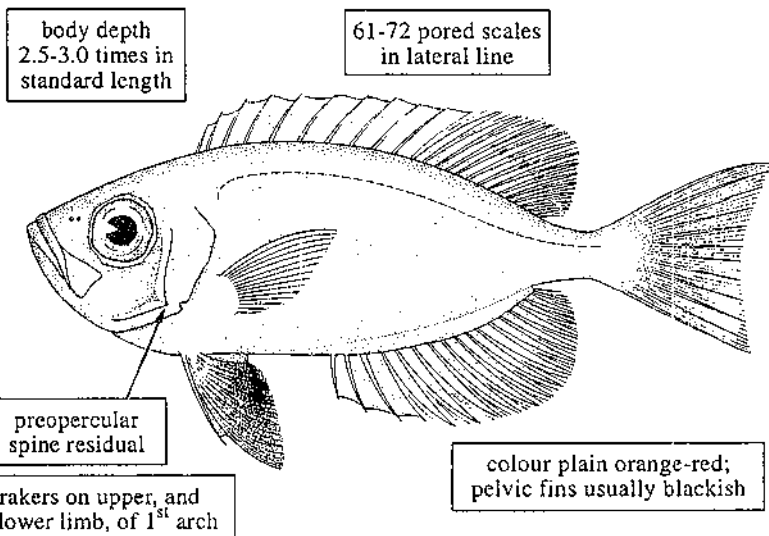
FAO names: En - Atlantic bigeye; Fr - Beauclaire soleil; Sp - Catalufa toro.

Common names:

Size: Maximum 40 cm; common to 35 cm.

Distribution and habitat: Throughout the area. Usually found swimming in mid-water over soft bottoms to a depth of about 75 m; more common between 10 and 50 m.

Fisheries: Artisanal. Caught mainly on hook-and-line. Of local commercial importance. Marketed fresh, flesh of excellent quality.



Priacanthus cruentatus (Lacepède, 1802)

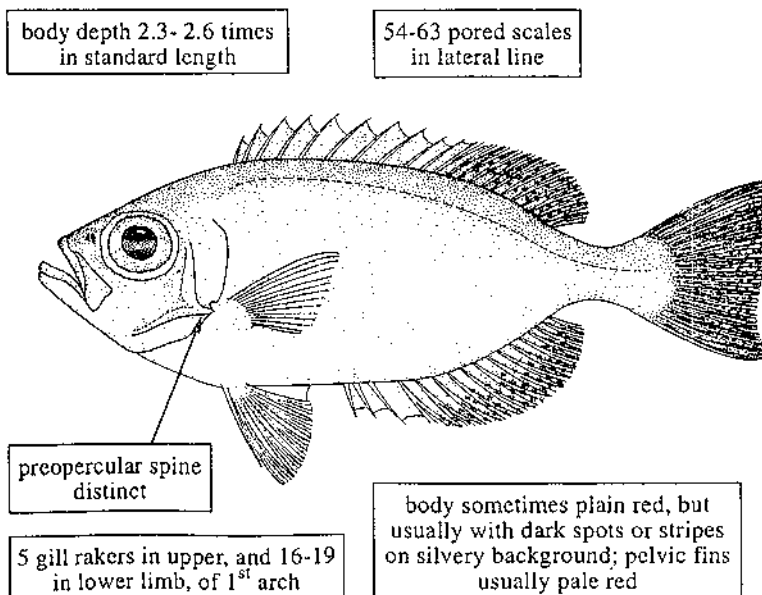
FAO names: En - Glasseye; Fr - Beauclaire de roche; Sp - Catalufa de roca.

Common names:

Size: Maximum 30 cm; common to 20 cm.

Distribution and habitat: Throughout the area. In shallow coastal waters over rocky bottoms and in coral-reef areas.

Fisheries: Artisanal. Caught mainly on hook-and-line, occasionally with traps. Less abundant and of lower quality than *P. arenatus*. Of little commercial importance.



PRIACANTHIDAE

Genus *Pristigenys* - a single species in the area.

Pristigenys alta (Gill, 1862)

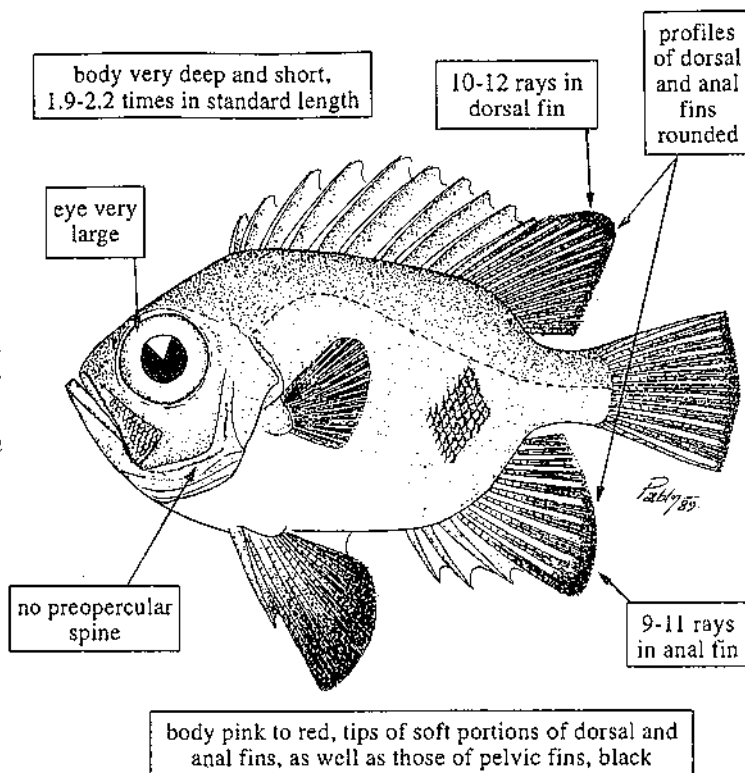
FAO names: En - Short bigeye; Fr - Beauclaire du large; Sp - Catalana de canto.

Common names:

Size: Maximum about 30 cm; common to 20 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela and on Trinidad and Tobago. Over rocky bottoms between depths of 100 and 200 m. Juveniles are abundant among floating *Sargassum* weeds.

Fisheries: Caught occasionally on hook-and-line. Records of this species from the area are scarce.



PRISTIGASTERIDAE

Sp: Pellonas, dogtooth herrings, longfin herrings. **Fr:** Aloses-caille, poissons-papier. **Sp:** Arenquillos, sardinatas. Small fishes, except for one species that attains 70 cm length, formerly grouped in a subfamily of the family Clupeidae. They occur in coastal waters over muddy bottoms to a depth of about 40 m; also in brackish waters and in freshwater. Because of their usual small average size and the soft consistency of their flesh, they have little value as food fishes. They are however, extraordinarily abundant in some regions, and can hence be used in the manufacture of fisheries byproducts. Three genera with 5 species in the area.

Genus *Chirocentrodon* - a single species in the area.

Chirocentrodon bleekermanus (Poey, 1867)

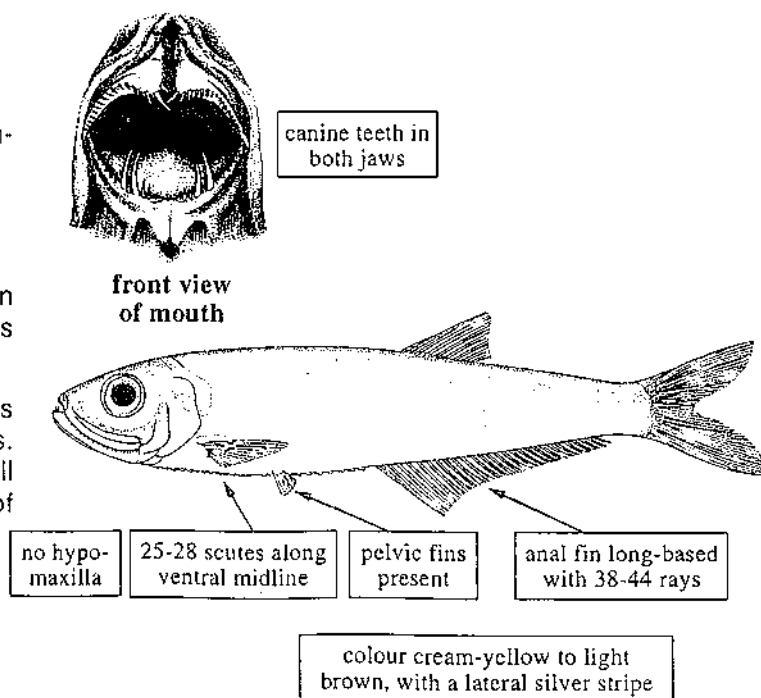
FAO names: En - Dogtooth herring; Fr - Poisson-papier dentu; Sp - Arenquillo dentón.

Common names:

Size: Maximum 11 cm; common to 9 cm.

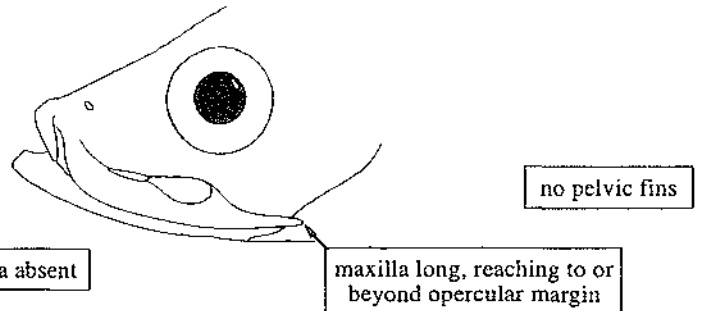
Distribution and habitat: Throughout the area. In coastal waters over soft, usually muddy, substrates to a depth of about 40 m (usually less).

Fisheries: Caught mainly with beach nets and as bycatch in the industrial trawl fishery for shrimps. Although very abundant, this species is not well accepted in markets due to the soft consistency of its flesh.



PRISTIGASTERIDAE

Genus *Odontognathus* - 2 species in the area.



Odontognathus compressus Meek and Hildebrand, 1923

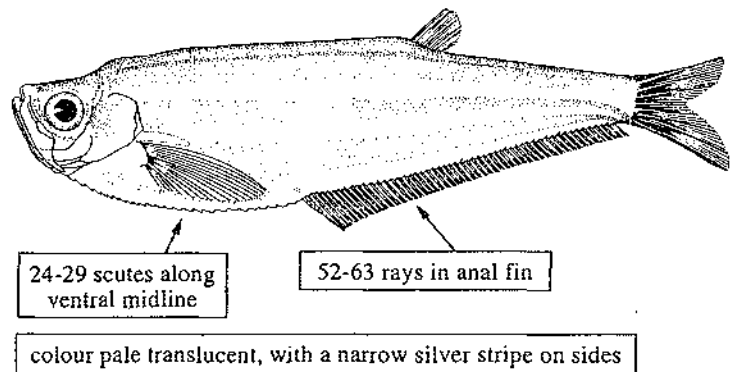
FAO names: En - Caribbean longfin herring; Fr - Poisson-papier vénézuélien; Sp - Arenquillo machete.

Common names:

Size: Maximum 15 cm, common to 12 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad. In coastal waters, over soft, mainly muddy bottoms.

Fisheries: Caught with beach nets and as by-catch in the industrial trawl fishery for shrimps. Its market value as a food fish is limited by the soft consistency of its flesh.



Odontognathus mucronatus Lacepède, 1800

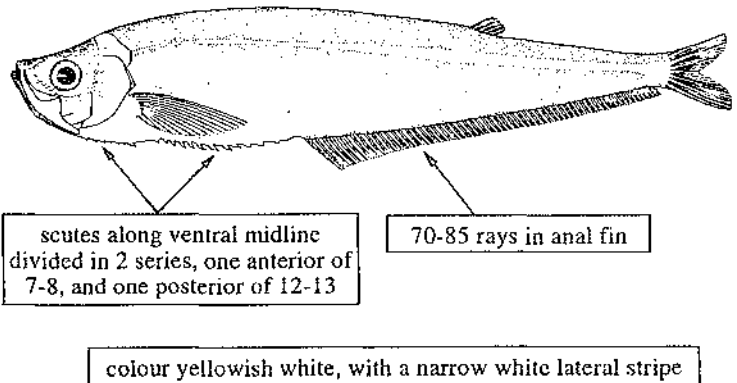
FAO names: En - Guiana longfin herring; Fr - Poisson-papier guyanais; Sp - Arenquillo cuchilla.

Common names:

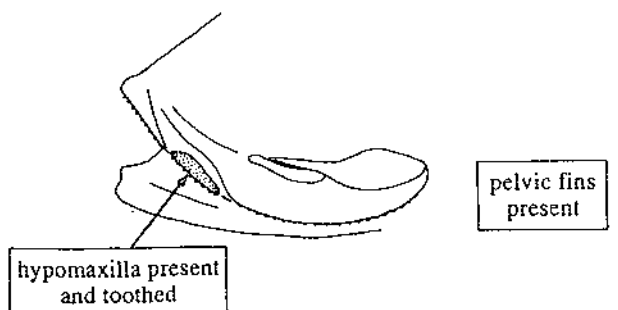
Size: Maximum 16 cm; common to 12 cm.

Distribution and habitat: From the Gulf of Paria to Brazil. Over muddy bottoms to a depth of about 30 m (usually less). Abundant in estuaries.

Fisheries: Caught with beach nets and as bycatch in the industrial trawl fishery for shrimps. A food fish in some localities, but the soft consistency of its flesh strongly reduces its market value.



Genus *Pellona* - 2 species in marine and brackish waters of the area.



PRISTIGASTERIDAE

***Pellona flavipinnis* (Valenciennes, 1847)**

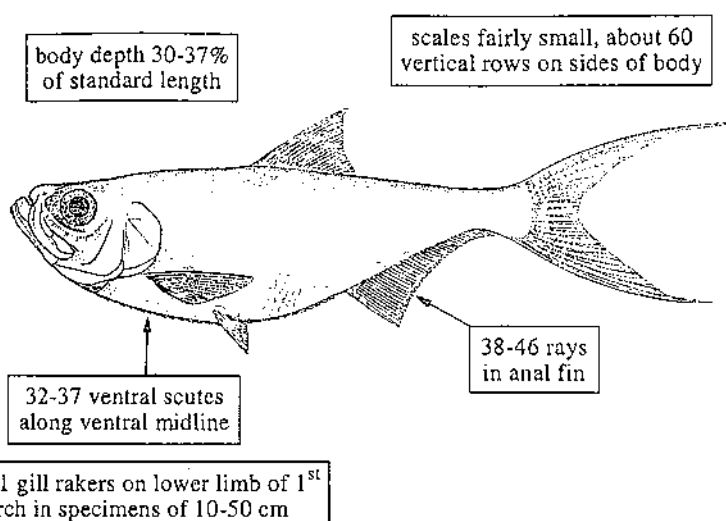
FAO names: En - Yellowfin river pellona; Fr - Alose-caille fluviale; Sp - Sardinata de río.

Common names:

Size: Maximum 73 cm; common to 45 cm.

Distribution and habitat: From the Gulf of Paria to Brazil. Mainly in freshwater, but occasionally entering brackish waters.

Fisheries: Artisanal. Caught with trammel nets and gillnets. Flesh of low quality.

***Pellona harroweri* (Fowler, 1917)**

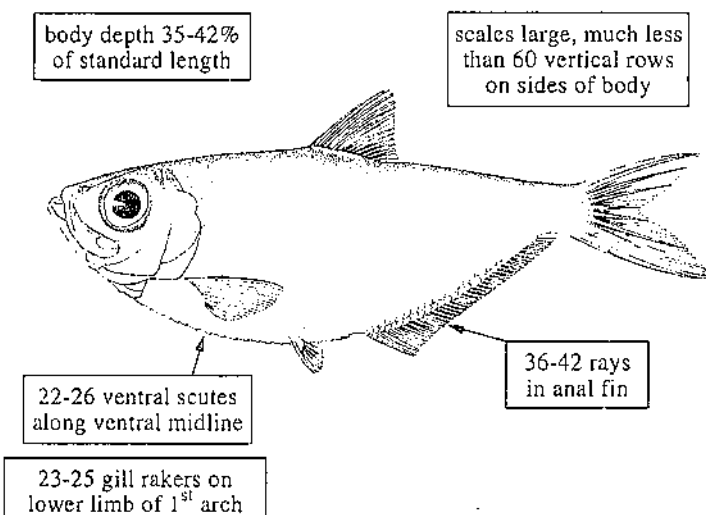
FAO names: En - American coastal pellona; Fr - Alose-caille brésilienne; Sp - Sardinata marina.

Common names:

Size: Maximum 18 cm; common to 12 cm.

Distribution and habitat: Throughout the area. In estuaries and surrounding areas, over muddy bottoms to a depth of about 35 m (usually less).

Fisheries: Usually taken as bycatch in the industrial trawl fishery for shrimps. Consumed locally, of little commercial importance.

**RACHYCENTRIDAE**

En: Cobias. **Fr:** Mafous. **Sp:** Cobias.

A single species.

***Rachycentron canadum* (Linnaeus, 1766)**

(plate XXVII, 209)

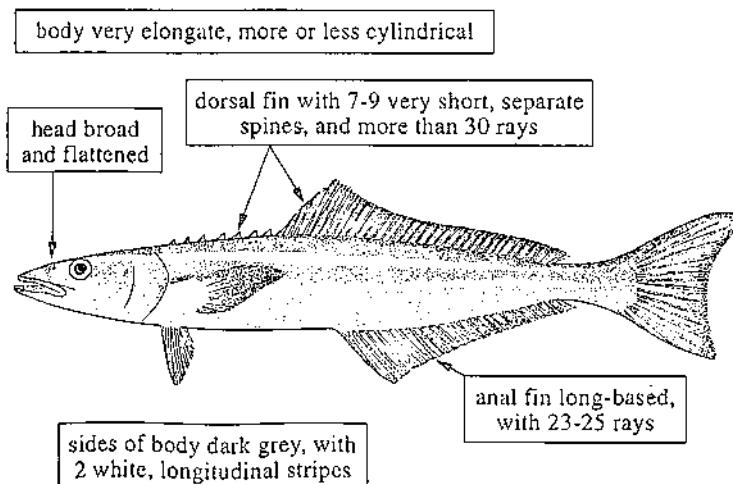
FAO names: En - Cobia; Fr - Mafou; Sp - Cobia.

Common names:

Size: Maximum 200 cm and slightly over 60 kg; common to 110 cm.

Distribution and habitat: Throughout the area. A solitary, typically pelagic species, but often occurring in coastal waters, over shallow coral reefs, and along rocky shores. Juveniles are common close to the shore, often in bays and brackish-water estuaries.

Fisheries: Caught mainly with handlines and by trolling, and also occasionally with beach nets. The flesh is of good quality, but catches are not abundant.



SCARIDAE

En: Parrotfishes. **Fr:** Perroquets. **Sp:** Loros.

Small to large herbivorous fishes, most distinctive in having the teeth fused at their bases or throughout their length, thus forming a pair of beak-like plates in each jaw. They are typical residents of shallow, clear waters in coral-reef areas, where they constitute one of the most important and heterogenous groups of fishes and play a very important role in this highly specialized ecosystem. They graze algae from rock, dead coral, or compacted sand surfaces. While grazing they pulverize coral rock fragments and coarse sand creating substantial quantities of finer sediment. Some species live on seagrass beds of *Thalassia*. All parrotfishes are edible, but their acceptance in markets varies from one locality to another and they cannot, at present, be considered a group of great commercial importance in the area. Most species are very colourful and many exhibit striking sexual dichromatism. Primary-phase fish (only females in some species but either sex for others) are generally more drab-brown, reddish or grey, sometimes with stripes. Terminal fish are males, a probable result of sex reversal, and are more gaudily coloured, often with green the dominant hue. Four genera with 15 species in the area.

Genus *Cryptotomus* - a single species in the area.

Cryptotomus roseus Cope, 1869

(plate XXVII, 210)

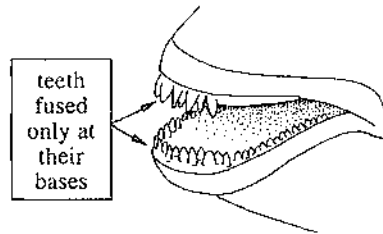
FAO names: **En** - Bluelip parrotfish; **Fr** - Perroquet à lèvres bleue; **Sp** - Loro dientón.

Common names:

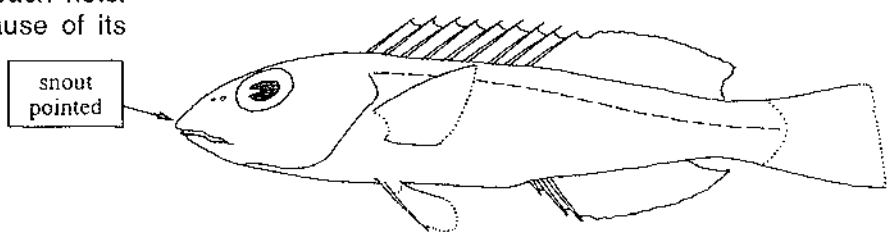
Size: Maximum 13 cm (males); common to 10 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters over seagrass beds of *Thalassia*, to a depth of about 10 m.

Fisheries: Caught with fine-meshed beach nets. Commercial importance negligible because of its small average size.



body elongate (depth 4.0-4.6 times in standard length)



colour variable, sometimes plain pink with iridescent blue reflections anteriorly, or with alternating salmon and turquoise longitudinal stripes

Genus *Nicholsina* - a single species in the area.

Nicholsina usta (Valenciennes in Cuv. and Val., 1839)

(plate XXVII, 211)

FAO names: **En** - Emerald parrotfish; **Fr** - Perroquet émeraude; **Sp** - Loro jabonero.

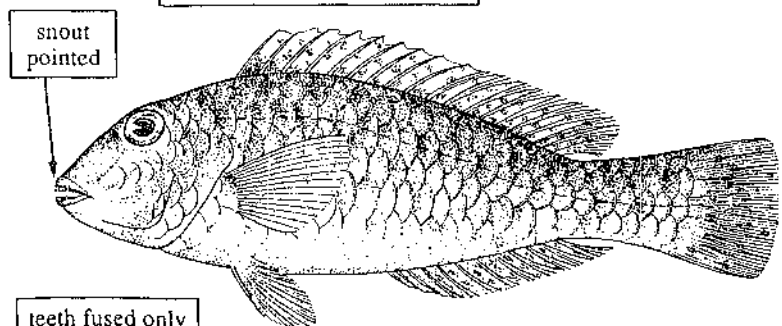
Common names:

Size: Maximum 29 cm; common to 18 cm.

Distribution and habitat: Throughout the area. In shallow water over seagrass beds of *Thalassia*, along continental coasts as well as on oceanic islands.

Fisheries: Caught with beach nets and in traps. Not a target species. Only large specimens are marketed.

body elongate (depth 3.0-3.2 times in standard length)



teeth fused only at their bases

back mottled olive-green, scales on sides with blue centres and reddish edges; lower region of head yellow; cheek with 2 narrow, diagonal, orange-red stripes; a black blotch on anterior part of dorsal fin

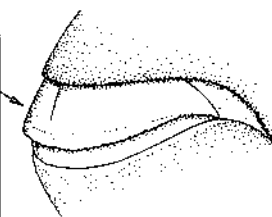
SCARIDAE

Genus *Scarus* - 6 species in the area, all edible.

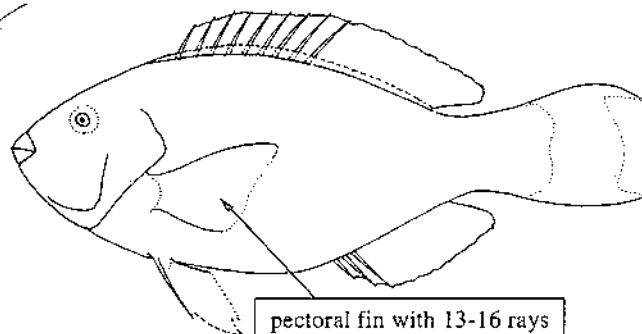
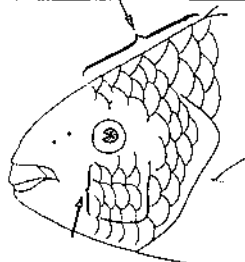
6-7 median predorsal scales

body relatively deep (depth 2.5-3.0 times in standard length)

teeth completely fused into smooth-edged plates; upper tooth plates overlapping the lower when mouth is closed



3-4 horizontal scale rows on cheek



pectoral fin with 13-16 rays

Scarus coelestinus Valenciennes in Cuv. and Val., 1839

(plate XXVII, 212)

FAO names: En - Midnight parrotfish; Fr - Perroquet noir; Sp - Loro negro.
Common names:

Size: Maximum 76 cm and 7 kg; common to 50 cm.

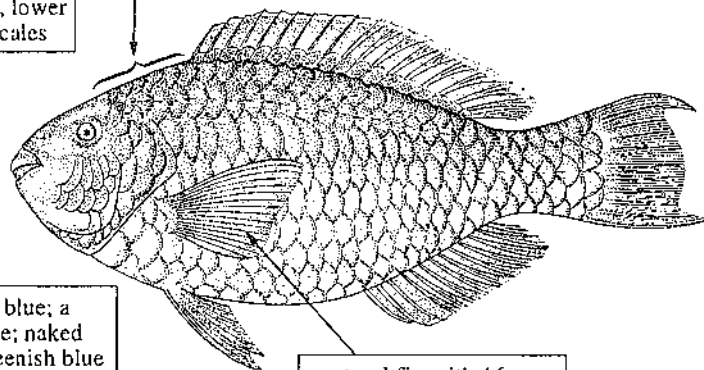
Distribution and habitat: Throughout the area. In shallow, clear waters of coral-reef areas.

Fisheries: Taken incidentally in large-mouthed traps. Marketed fresh and salted, but its catches are not abundant.



3 horizontal scale rows on cheek, lower row with 2 scales

6 median predorsal scales



pectoral fin with 16 rays

colour blackish, centres of scales bright blue; a transverse blue stripe on interorbital space; naked regions of head bright blue; tooth plates greenish blue

Scarus coeruleus (Bloch, 1786)

(plate XXVII, 213)

FAO names: En - Blue parrotfish; Fr - Perroquet bleu Sp - Loro azul.
Common names:

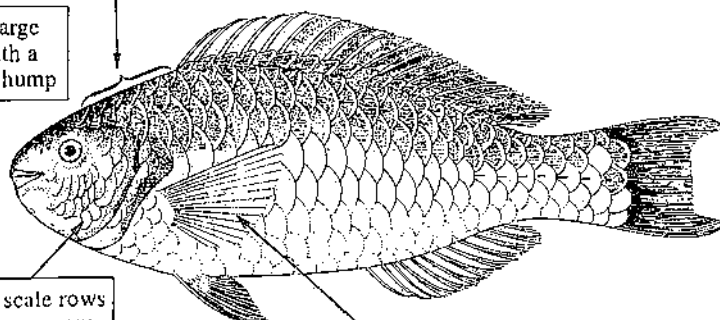
Size: Maximum recorded 90 cm, but very rarely over 60 cm; common to 40 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters of coral-reef areas.

Fisheries: Incidentally taken in large-mouthed traps. Marketed fresh and salted.

6 median predorsal scales

head of large males with a prominent hump



pectoral fin with 14-15 rays

3 horizontal scale rows on cheek, lower row with 2 scales

small to medium-sized specimens pale blue, bases of scales pale salmon; upper part of head yellow; a transverse, salmon stripe on chin; large adults intensely blue; tooth plates white

Scarus croicensis Bloch, 1790

(plate XXVII, 215)

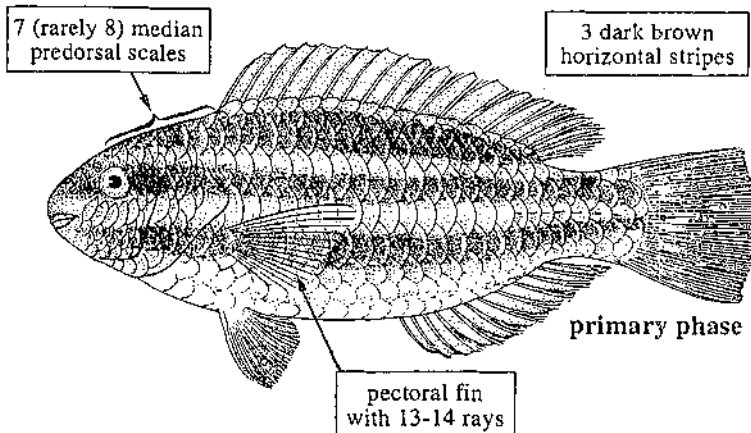
FAO names: En - Striped parrotfish; Fr - Perroquet rayé; Sp - Loro rayado.

Common names:

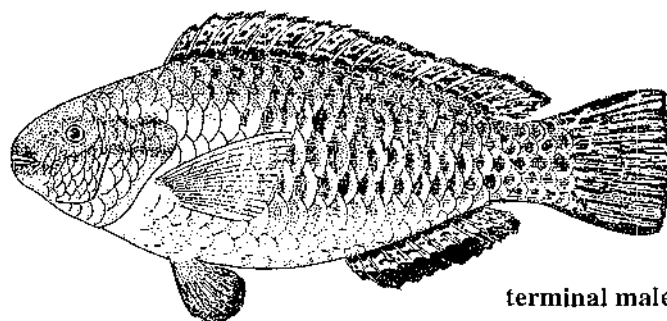
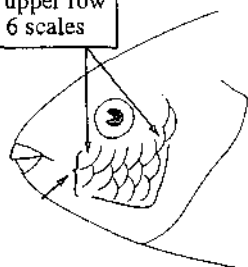
Size: Maximum 27 cm; common to 18 cm.

Distribution and habitat: Northern coast of South America. In shallow, clear waters of coral-reef areas. Small specimens, females, and primary males are very abundant on sea-grass beds of *Thalassia*.

Fisheries: Caught in large-mouthed traps and with beach nets. Of little commercial importance, but regularly marketed in some localities.



3 scale rows on cheek, upper row with 6 scales

*Scarus guacamaia* Cuvier, 1829

(plate XXVII, 214)

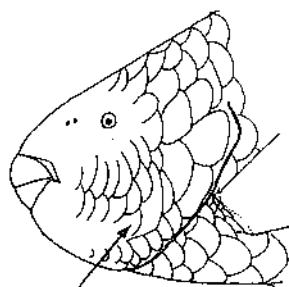
FAO names: En- Rainbow parrotfish; Fr - Perroquet arc-en-ciel; Sp - Loro guacamayo.

Common names:

Size: Maximum 120 cm; common to 70 cm.

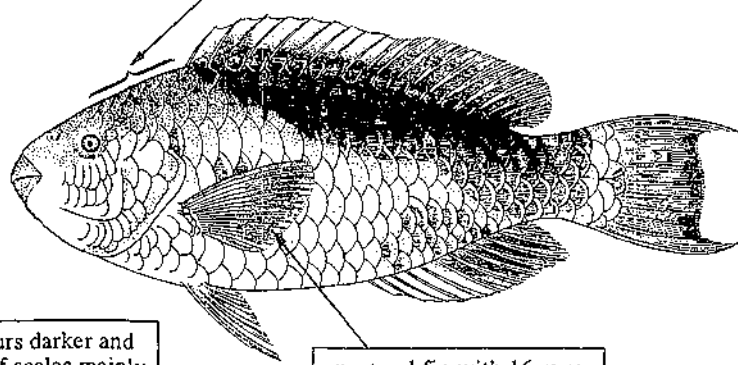
Distribution and habitat: Throughout the area. In shallow, clear waters of coral-reef areas and sometimes on rocky substrate very close to the shore in very shallow water.

Fisheries: Taken in large-mouthed traps and occasionally, with trammel nets. Often used in the preparation of local dishes ("empanadas").



3 scale rows on cheek, lower row with a single scale

6 median predorsal scales



small and medium-sized specimens: body scales with pale green centres and narrow orange edges; short, green lines around eyes; scaleless regions of head and chest orange

large specimens: colours darker and brighter, green colour of scales mainly confined to back and posterior body region; tooth plates green

SCARIDAE

***Scarus taeniopterus* Desmarest, 1831**

(plate XXVIII, 217-218)

FAO names: En - Princess parrotfish; Fr - Perroquet princesse; Sp - Loro listado.

Common names:

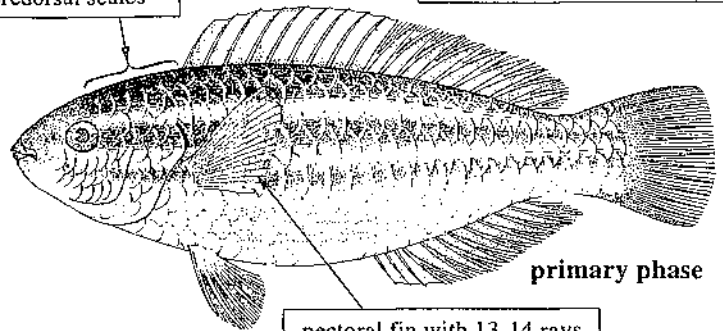
Size: Maximum 33 cm; common to 22 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters of coral reef areas. Juveniles occur on seagrass beds of *Thalassia*.

Fisheries: Artisanal. Caught with traps and beach nets.

3 dark brown horizontal stripes on whitish background

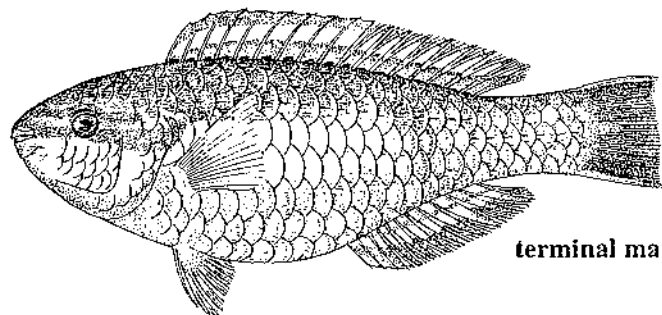
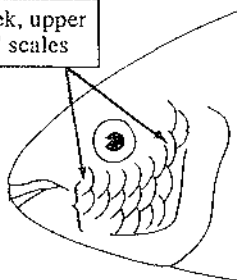
7 (rarely 6) median predorsal scales



primary phase

pectoral fin with 13-14 rays

3 scale rows on cheek, upper row usually with 7 scales



terminal male

colour predominantly greenish blue and orange, with a pale, broad band below and behind pectoral fin; caudal fin blue, its upper and lower margins bright orange

***Scarus vetula* Bloch and Schneider, 1801**

(plate XXVII, 216; plate XXVIII, 219)

FAO names: En - Queen parrotfish; Fr - Perroquet périco; Sp - Loro perico.

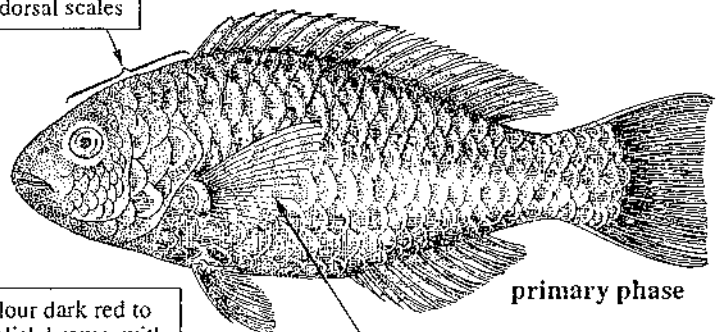
Common names:

Size: Maximum 60 cm; common to 30 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela and on Trinidad and Tobago; in shallow, clear waters of coral-reef areas.

Fisheries: Artisanal. Caught mainly with traps.

7 median predorsal scales

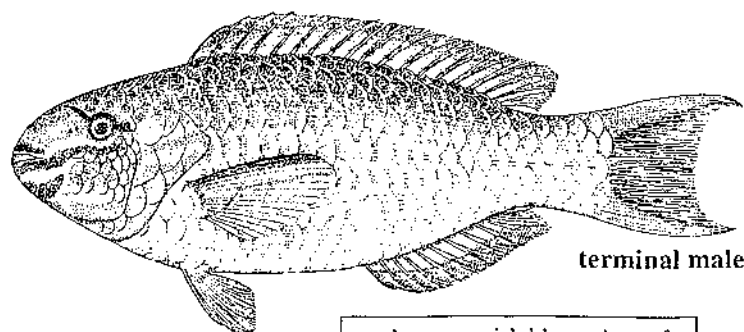
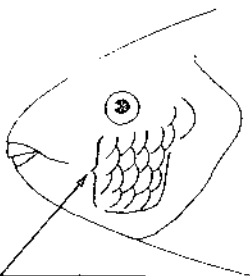


primary phase

colour dark red to purplish brown, with a broad whitish band on lower sides

pectoral fin with 14 (rarely 15) rays

4 horizontal scale rows on cheek

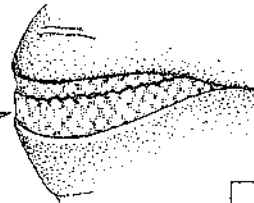


terminal male

colour greenish blue, edges of scales orange; caudal-fin blue, with 2 horizontal orange stripes

SCARIDAE

Genus *Sparisoma* - 7 species in the area.



teeth completely fused into plates with wavy edges; lower plates overlapping the upper when mouth is closed

4 median predorsal scales

body relatively deep, (depth 2.3-3.0 times in standard length)

a single row of scales on cheek

pectoral fin with 12 rays

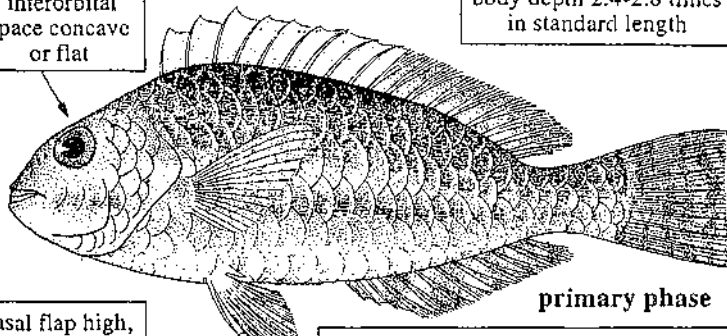
Sparisoma aurofrenatum Valenciennes in Cuv. and Val., 1839 (plate XXVIII, 220)

FAO names: En - Redband parrotfish; Fr - Perroquet tacheté; Sp - Loro manchado.
Common names: .

Size: Maximum 28 cm; common to 20 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters of coral-reef areas.

Fisheries: Artisanal. Caught mainly with traps. One of the least important species of the genus because of its small average size.



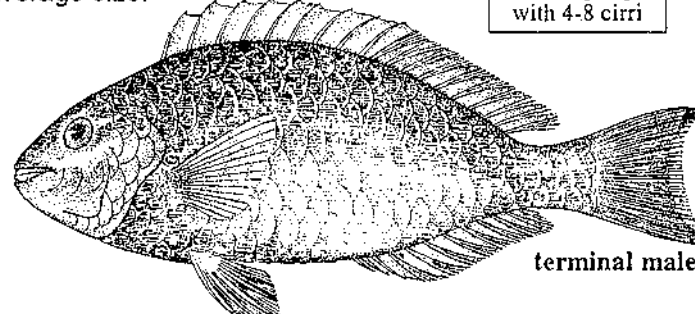
interorbital space concave or flat

body depth 2.4-2.8 times in standard length

nasal flap high, with 4-8 cirri

primary phase

back mottled brown to greenish brown, with bluish reflections, becoming light, mottled reddish, ventrally; a small white spot behind dorsal fin



terminal male

no bluish reflections; an oblique orange stripe on cheek; an orange spot above pectoral fin, and a white spot behind dorsal fin

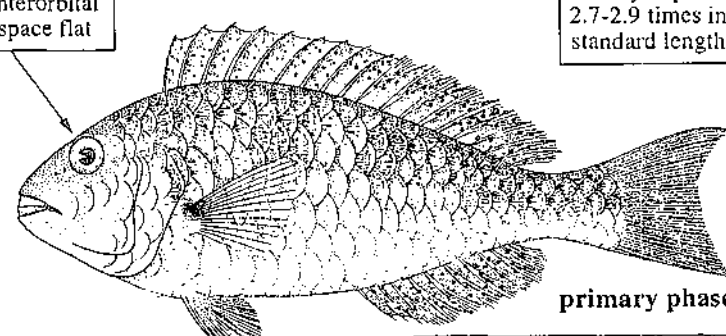
Sparisoma chrysopterum (Bloch and Schneider, 1801) (plate XXVIII, 221-222)

FAO names: En - Redtail parrotfish; Fr - Perroquet vert; Sp - Loro verde.
Common names: .

Size: Maximum 45 cm; common to 25 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters of coral-reef areas.

Fisheries: Artisanal. Caught mainly with traps.



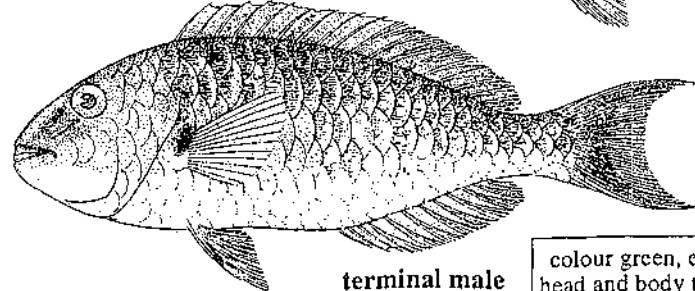
interorbital space flat

body depth 2.7-2.9 times in standard length

nasal flap with 6 or less cirri

primary phase

back olivaceous, sides and belly mottled light reddish; a black spot at base of pectoral fin



terminal male

colour green, edges of scales brownish, lower regions of head and body turquoise; a dark green area below pectoral fin; a purplish spot at upper corner of pectoral-fin base, a large, crescentic region of red on caudal fin

SCARIDAE

Sparisoma radians (Valenciennes in Cuv. and Val., 1839) (plate XXIX, 227)

FAO names: En - Bucktooth parrotfish; Fr - Perroquet aîle-noire; Sp - Loro ale-tanegra.

Common names:

Size: Maximum 20 cm; common to 15 cm.

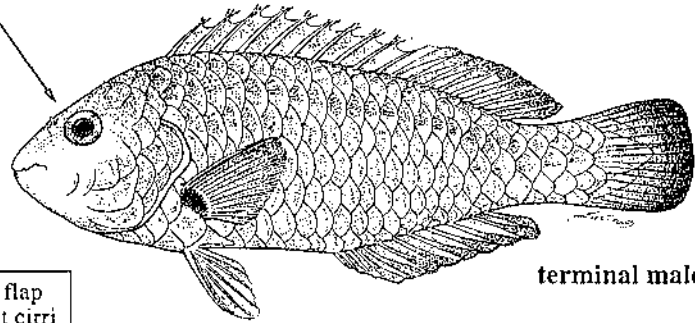
Distribution and habitat: Northern coasts of Colombia and Venezuela and on Trinidad and Tobago. In clear, very shallow waters, on seagrass beds of *Thalassia*.

Fisheries: Caught with beach nets, but not actively fished. Of minor commercial importance because of its small average size.

interorbital space flat or slightly convex

body depth 2.4-3.0 times in standard length

nasal flap without cirri



terminal male

primary phase: body olivaceous to yellowish brown, covered with fine pale spots; base and axil of pectoral fin greenish blue; opercular margin blue

terminal male: colour greenish brown, with pale spots or reticulate lines; some scales with a red edge; base of pectoral fin and hind margin of caudal fin with a black stripe; anal fin blackish

Sparisoma rubripinne Valenciennes in Cuv. and Val., 1839 (plate XXVIII, 223-224)

FAO names: En - Redfin parrotfish; Fr - Perroquet basto; Sp - Loro pardo (=Loro basto).

Common names:

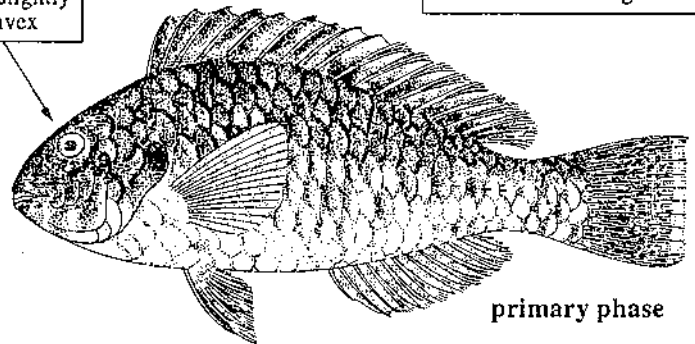
Size: Maximum 45 cm; common to 30 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters of coral-reef areas. Common on seagrass beds of *Thalassia*. A very common and ubiquitous species, found in a wide range of habitats.

Fisheries: Artisanal. Caught mainly with beach nets but also with traps. One of the most important commercial parrotfish species of the area, because of its relatively large size and abundance.

interorbital space slightly convex

body depth 2.5-2.7 times in standard length

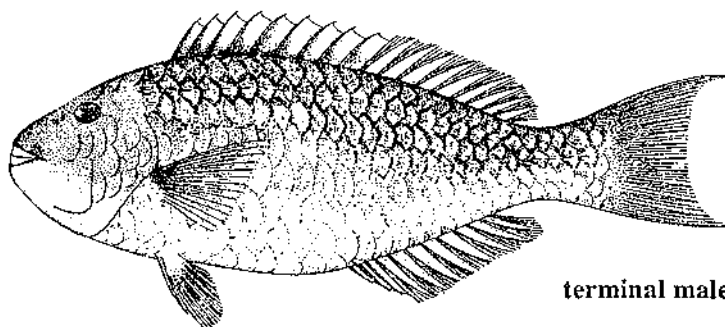


primary phase

body mottled greyish brown; edges of scales lighter than centres; caudal peduncle and caudal fin yellow; pelvic fins and anal fin red



nasal flap palmate, with 12-20 cirri



terminal male

colour predominantly green, with a black spot on upper part of pectoral-fin base

SCARIDAE

Sparisoma viride (Bonnaterre, 1788)

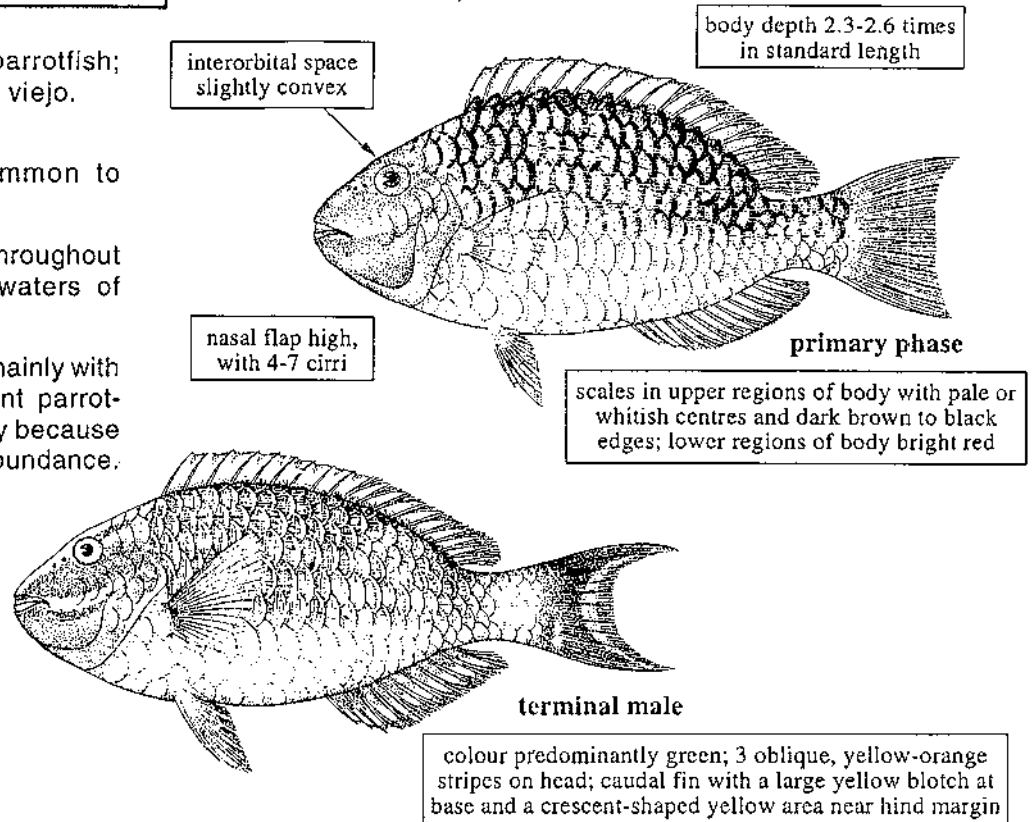
(plate XXIX, 225-226)

FAO names: En - Stoplight parrotfish;
Fr - Perroquet feu; Sp - Loro viejo.
Common names:

Size: Maximum 64 cm; common to 38 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters of coral-reef areas.

Fisheries: Artisanal. Caught mainly with traps. One of the most important parrotfishes in the area commercially because of its large size and relative abundance.



Other species:

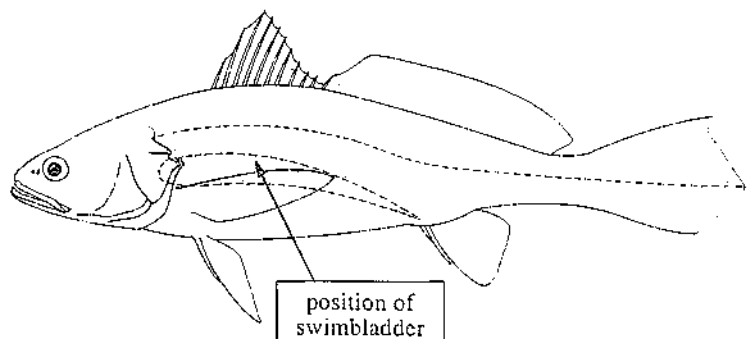
Sparisoma atomarium (Poey, 1861) and *S. griseorubra* Cervigón, 1982, the former very small and the latter only known from type specimens taken at Cubagua island; both of no interest to fisheries.

SCIAENIDAE

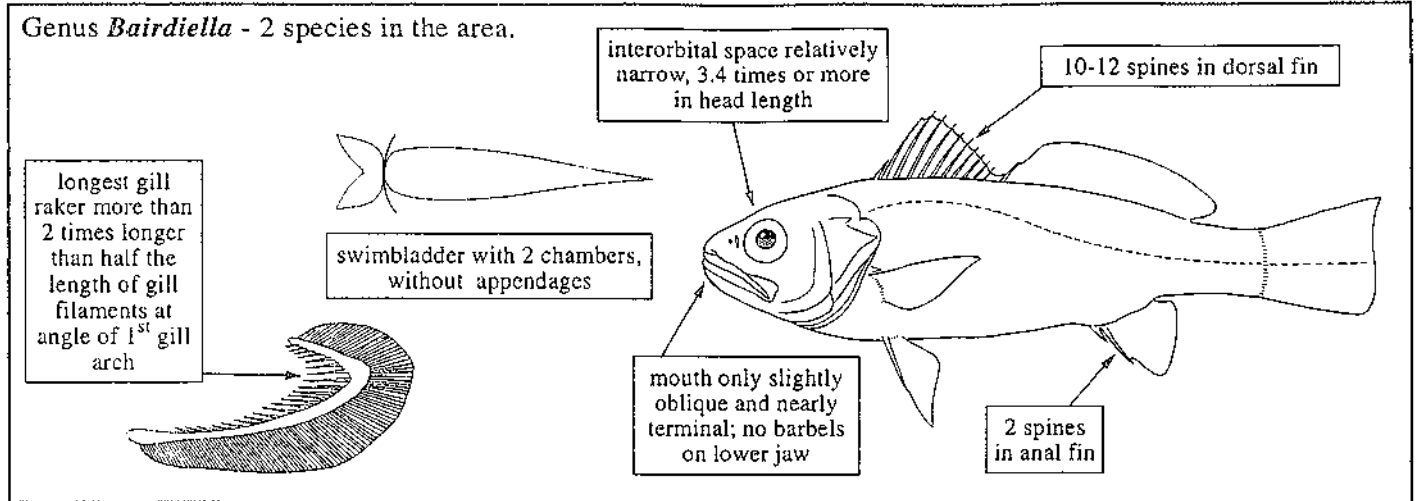
En: Croakers, drums, weakfishes. **Fr:** Acoupas, bourrugues, chevaliers, courbines, évêques, mamselles, tambours, verrus. **Sp:** Barbiches, bombaches, corvinas, corvinatas, corvinetas, corvinillas, lambes, obispos, pescadillas, verrugatos.

Small to medium-sized, carnivorous, demersal fishes, inhabiting mostly soft, muddy or sandy bottoms of the continental shelf, from the shore to a depth of about 600 m (usually less). Some genera and species are restricted to freshwater, a few are strictly brackish-water forms and others tolerate a very wide range of salinities. The marine and some of the brackish-water species occur in large aggregations, mainly in river-mouth areas, where they doubtless constitute the most important group of fishes commercially. This occurs particularly in the region between the Gulf of Paria and the mouth of the Amazon, and some of its members are dominant species within the fish community of that area. The juveniles of many species live in estuaries and move into offshore marine waters when they reach the adult stage. These fishes are generally not very colourful, with silvery or golden tones predominating in most species. Only 5 species, belonging to the genera *Equetus* and *Odontoscion*, occur in coral-reef areas. With the exception of very small species, all sciaenids are commercially important food fishes. They are actively exploited with beach nets and gillnets in artisanal fisheries, and with bottom trawls in industrial fisheries. There are 19 genera and about 45 species in the area; most of the commercially important species belong to the genus *Cynoscion*.

Note: In this group of fishes, examination of the shape and appendages of the swimbladder (an internal organ placed between the viscera and the vertebral column) are particularly helpful in the identification of many genera and some species.



SCIAENIDAE



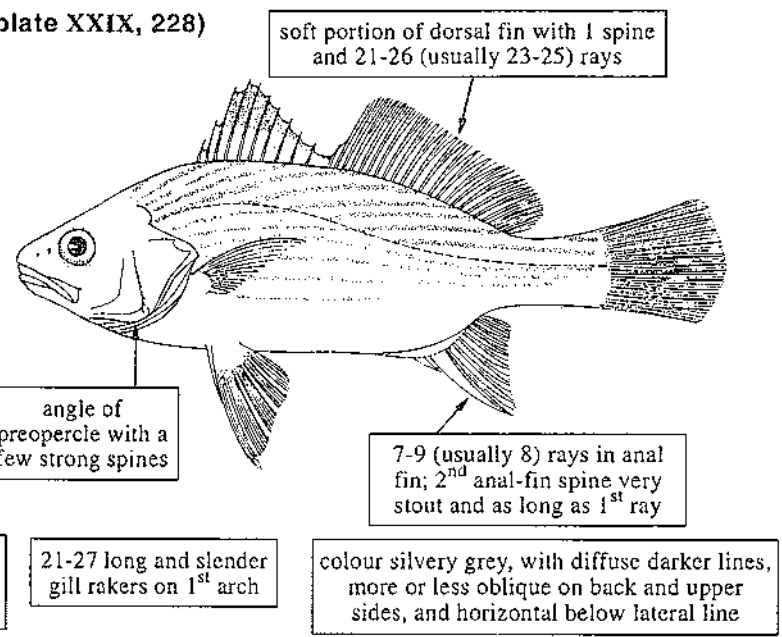
Bairdiella rhonchus (Cuvier, 1830) (plate XXIX, 228)

FAO names: En - Ground croaker; Fr - Mamselle rouio; Sp - Corvineta ruyo.
Common names:

Size: Maximum 35 cm; common to 25 cm.

Distribution and habitat: Throughout the area. In coastal marine waters, over muddy or sandy substrates; also in estuaries and hypersaline lagoons.

Fisheries: Caught with gill nets and as bycatch in the trawl fishery for shrimps. Of little commercial importance because of its small average size.



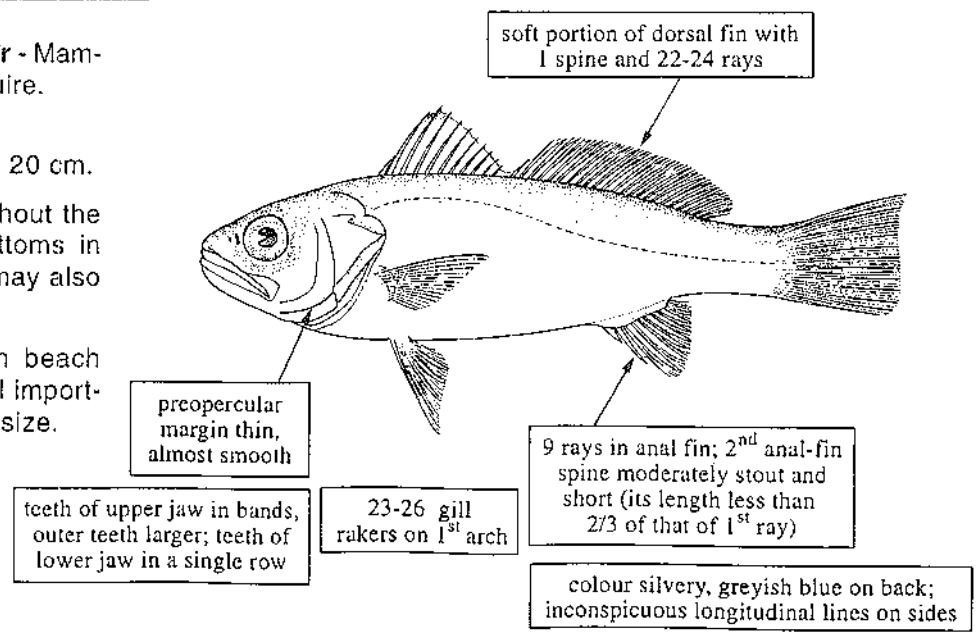
Bairdiella sanctaeluciae (Jordan, 1889) (plate XXIX, 229)

FAO names: En - Striped croaker; Fr - Mamselle caimuire; Sp - Corvineta caimuire.
Common names:

Size: Maximum 26 cm; common to 20 cm.

Distribution and habitat: Throughout the area. Over muddy and sandy bottoms in shallow coastal waters; juveniles may also be found over rocky substrates.

Fisheries: Artisanal. Caught with beach nets and traps. Of little commercial importance because of its small average size.



Genus *Ctenosciaena* - a single species in the area.

Ctenosciaena gracilicirrhus (Metzelaar, 1919)

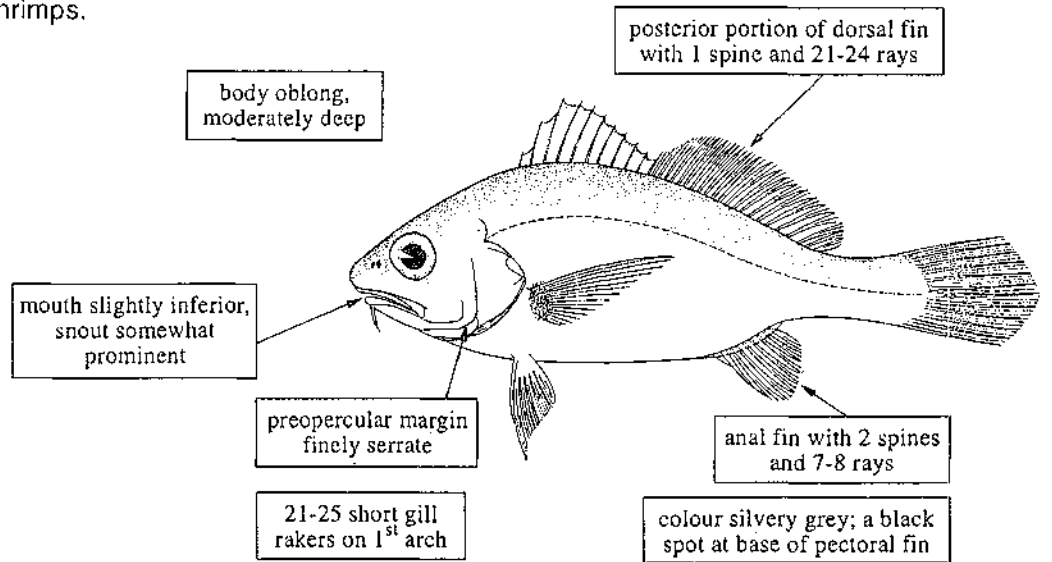
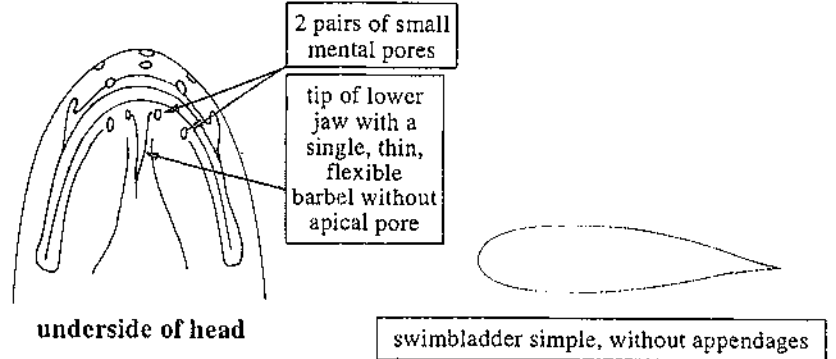
(plate XXIX, 230)

FAO names: En - Barbel drum; Fr - Courbine maroto; Sp - Verrugato maroto.
Common names:

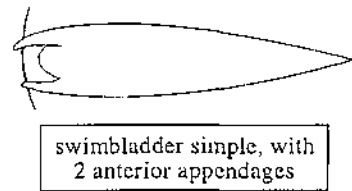
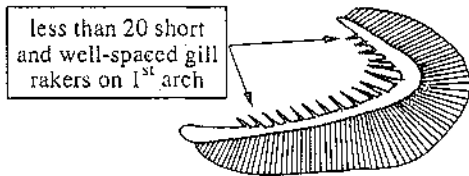
Size: Maximum 21 cm; common to 16 cm.

Distribution and habitat: Throughout the area but absent from oceanic islands. In shallow coastal waters along continental coasts, from a depth of 10 to about 80 m (usually less), over muddy or sandy bottoms.

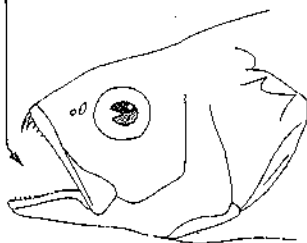
Fisheries: Taken mainly as bycatch in the industrial trawl fishery for shrimps.



Genus *Cynoscion* - 7 species in the area.



mouth large, oblique and terminal; teeth conical, set in bands in both jaws; usually a pair of large canines at front of upper jaw



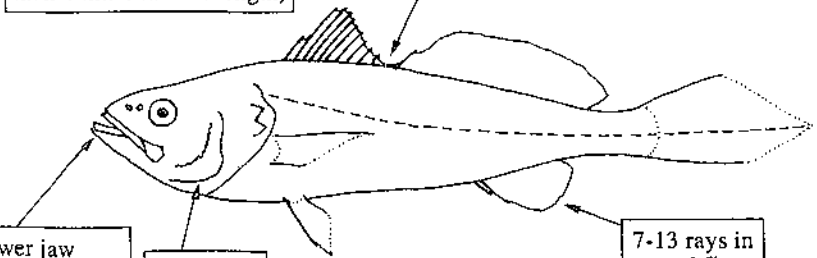
body elongate and compressed (depth more than 4 times in total length)

dorsal fin notched to the base

lower jaw prominent, without barbels or pores

preopercle smooth

7-13 rays in anal fin



Cynoscion acoupa (Lacepède, 1802)

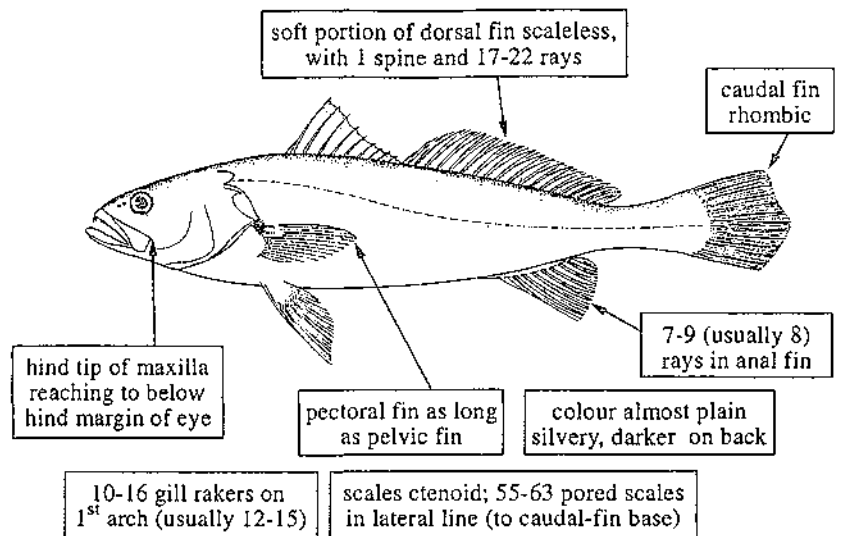
FAO names: En - Acoupa weakfish;
Fr - Acoupa toeroe; Sp - Corvinata amarilla.
Common names:

Size: Maximum 109 cm and about 10 kg;
common to 45 cm.

Distribution and habitat: Throughout the area. In shallow coastal waters, over soft, mainly muddy, substrates to a depth of about 20 m (usually less); also in brackish estuarine waters and in freshwater.

Fisheries: Predominantly artisanal. Caught with gill nets and on hook-and-line. Marketed mostly fresh; the swimbladder is also utilized. A very important fishery resource in some regions.

(plate XXIX, 231)

*Cynoscion jamaicensis* (Vaillant and Bocourt, 1883)

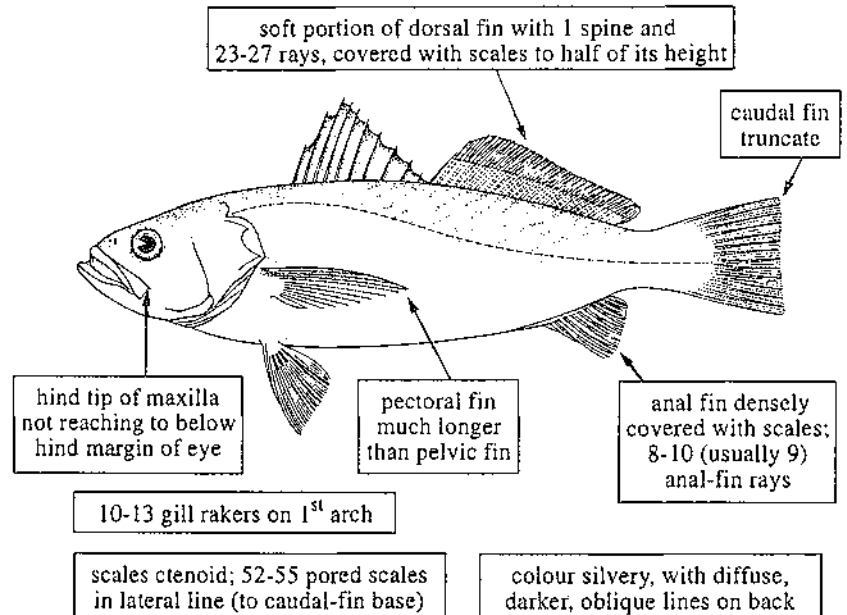
(plate XXIX, 232)

FAO names: En - Jamaica weakfish;
Fr - Acoupa mongolare; Sp - Corvinata goete.
Common names:

Size: Maximum 40 cm and 1 kg; common to 30 cm.

Distribution and habitat: Throughout the area. In shallow coastal waters, over soft, usually sandy or muddy bottoms to a depth of about 60 m (usually less). Juveniles are found in brackish estuarine waters.

Fisheries: Taken mainly in industrial trawl fisheries for shrimps or finfishes; occasionally caught with beach nets. Marketed fresh.

*Cynoscion leiarchus* (Cuvier, 1830)

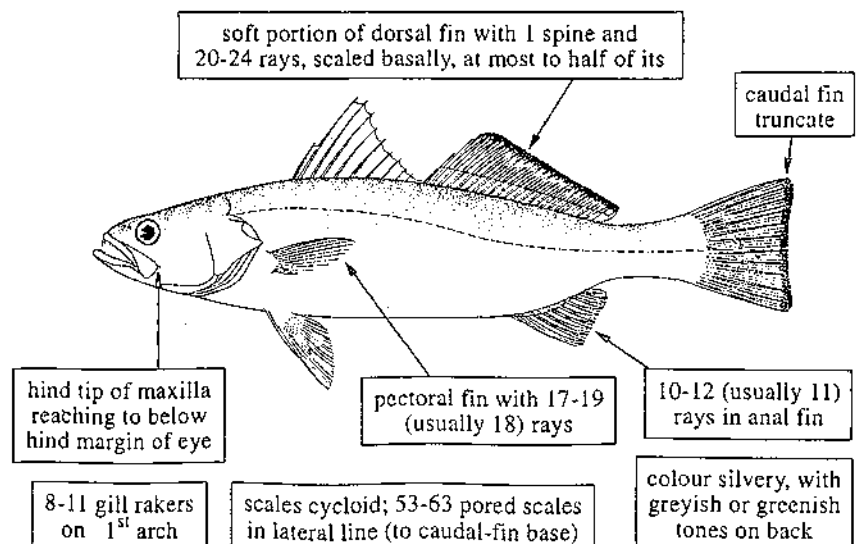
(plate XXX, 233)

FAO names: En - Smooth weakfish;
Fr - Acoupa blanc; Sp - Corvinata blanca.
Common names:

Size: Maximum 60 cm and slightly over 2 kg; common to 40 cm.

Distribution and habitat: Throughout the area. In coastal marine and brackish estuarine waters, over muddy and sandy bottoms to a depth of about 25 m.

Fisheries: Predominantly artisanal. Caught with gillnets, beach nets and also taken in the industrial trawl fishery for shrimps. Marketed mostly fresh.



Cynoscion microlepidotus (Cuvier, 1830)

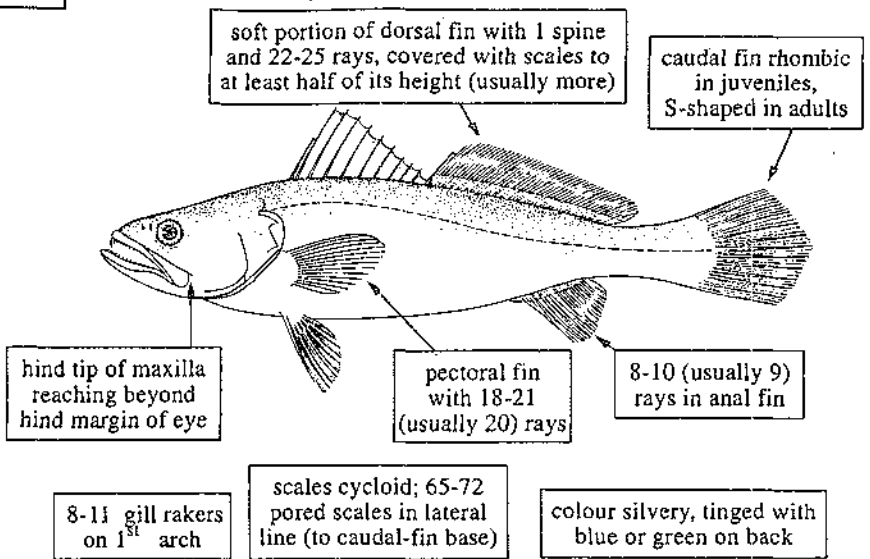
(plate XXX, 234)

FAO names: En - Smallscale weakfish; Fr - Acoupa doré; Sp - Corvinata dorada.
Common names:

Size: Maximum 92 cm and over 3 kg; common to 50 cm.

Distribution and habitat: Throughout the area. Mainly in brackish-water estuaries to a depth of about 20 m, usually over muddy bottoms.

Fisheries: Predominantly artisanal. Caught with gillnets and beach nets; also taken in the industrial trawl fishery for shrimps. Marketed mostly fresh.



Cynoscion similis Randall and Cervigón, 1968

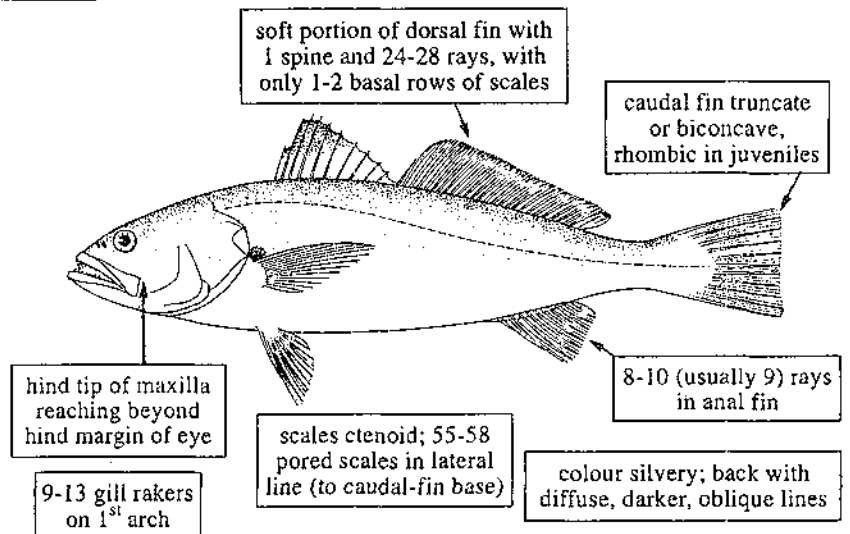
(plate XXX, 235)

FAO names: En - Tonkin weakfish; Fr - Acoupa tonquiche; Sp - Corvinata tonquicha.
Common names:

Size: Maximum 60 cm and nearly 2 kg; common to 40 cm.

Distribution and habitat: Throughout the area. Over muddy or sandy bottoms, usually between depths of 20 and 60 m.

Fisheries: Taken mainly in industrial trawl fisheries for shrimps and finfishes. Marketed mostly fresh.



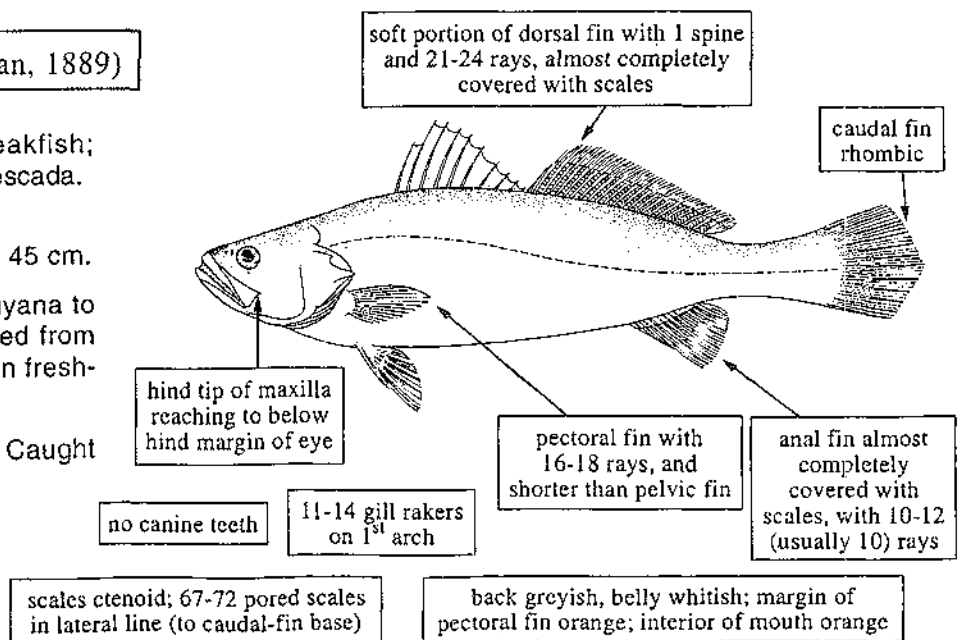
Cynoscion steindachneri (Jordan, 1889)

FAO names: En - Smalltooth weakfish; Fr - Acoupa tident; Sp - Corvinata pescada.
Common names:

Size: Maximum 110 cm; common to 45 cm.

Distribution and habitat: From Guyana to the Amazon river mouth; not reported from the Orinoco delta. In estuaries and in fresh-water, over muddy substrate.

Fisheries: Predominantly artisanal. Caught with gillnets and beach nets.



SCIAENIDAE

Cynoscion virescens (Cuvier, 1830)

(plate XXX, 236)

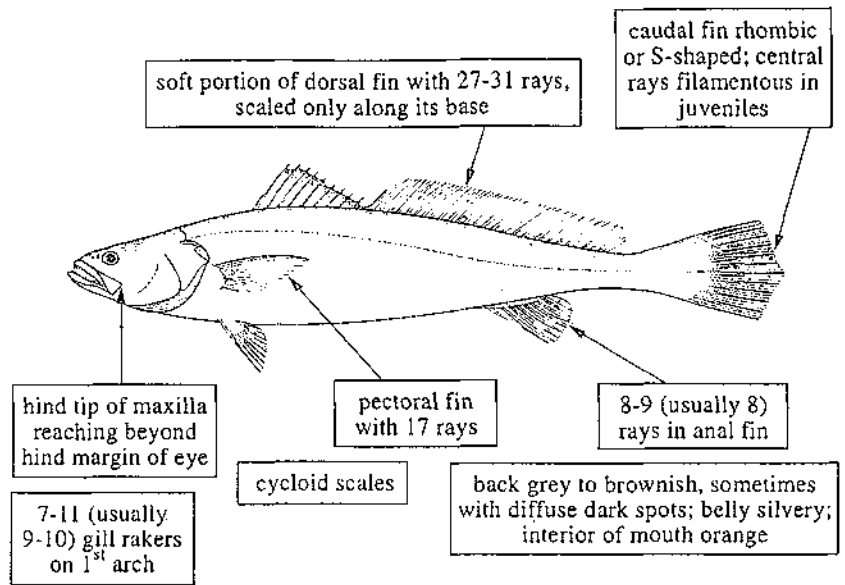
FAO names: En - Green weakfish; Fr - Acoupa cambucu; Sp - Corvinata cambucú.

Common names:

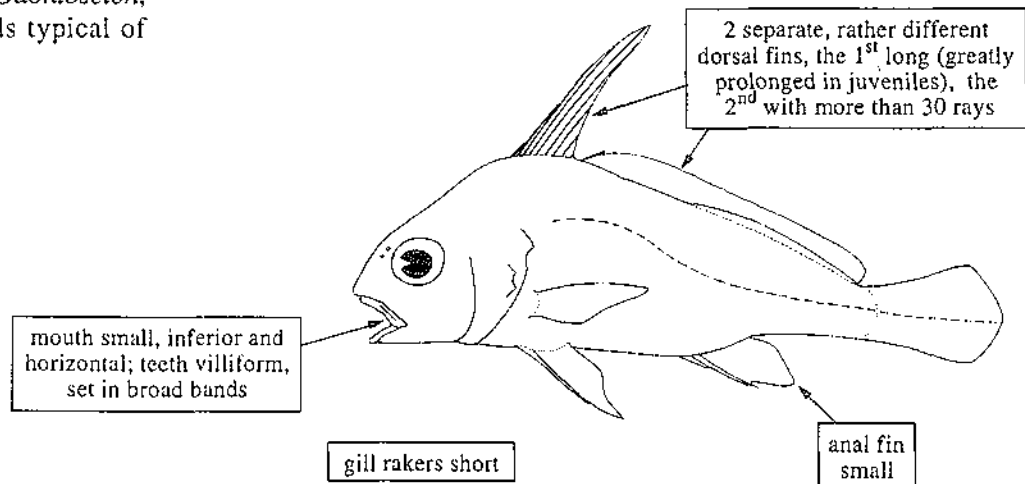
Size: Maximum 95 cm and 3.5 kg; common to 65 cm.

Distribution and habitat: Throughout the area. In coastal marine waters, over mud or sandy mud bottoms. Adults usually occur between depths of 10 and 50 m, while juveniles are found in estuaries.

Fisheries: Predominantly industrial. Caught in bottom trawl fisheries for shrimps and finfishes, between depths of 15 and 45 m. Commercially this is the most important species off Guyana. Marketed fresh; flesh of excellent quality.



Genus *Equetus* - 4 species in the area. Together with *Odontoscion*, these are the sciaenids typical of coral-reef areas.

*Equetus acuminatus* (Bloch and Schneider, 1801)

(plate XXX, 237)

Synonyms: *Pareques acuminatus* (Bloch and Schneider, 1801).

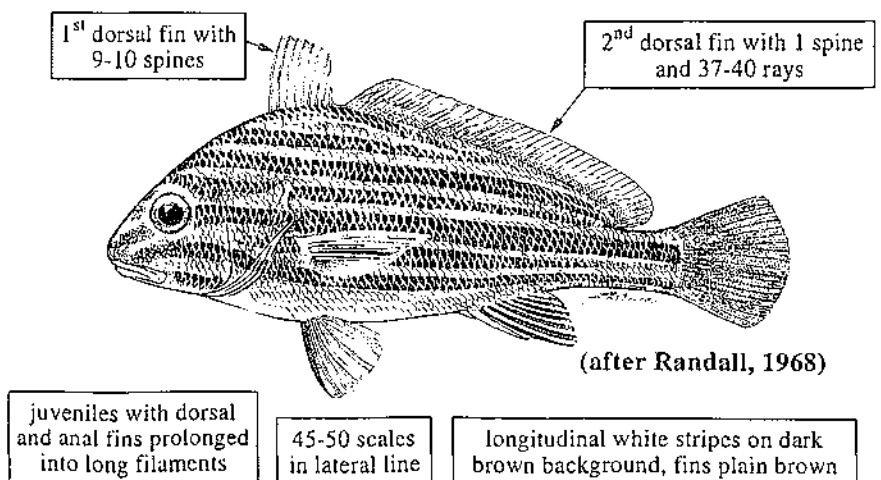
FAO names: En - High-hat; Fr - Evêque; Sp - Obispo.

Common names:

Size: Maximum 23 cm; common to 18 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters, over rocky substrates and in coral-reef areas.

Fisheries: Artisanal. Caught with traps. Of little interest to fisheries.



Equetus lanceolatus (Linnaeus, 1758)

(plate XXX, 238)

FAO names: En - Jack-knife fish; Fr - Evêque couronné; Sp - Obispo coronado.

Common names:

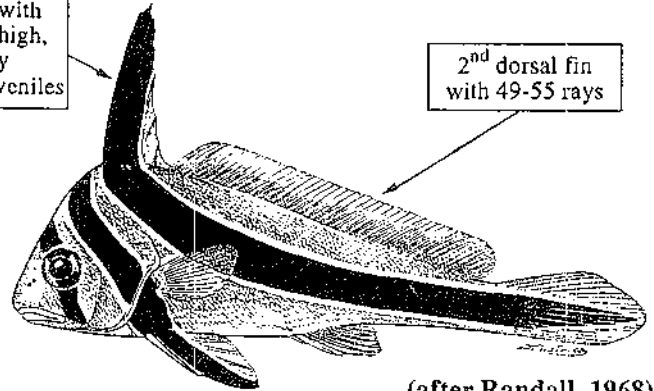
Size: Maximum about 25 cm; common to 15 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters to a depth of at least 60 m, over rocky substrate and in coral-reef areas.

Fisheries: Artisanal. Caught with traps. Of little interest to fisheries.

1st dorsal fin with 13-14 spines, high, and greatly prolonged in juveniles

2nd dorsal fin with 49-55 rays



(after Randall, 1968)

48-55 scales in lateral line

2 dark brown, broad, oblique stripes on head, and a dark brown band along entire body and anterior part of 1st dorsal fin; ground colour very light brown

Equetus punctatus (Bloch and Schneider, 1801) (plate XXX, 239)

FAO names: En - Spotted drum; Fr - Evêque étoilé; Sp - Obispo estrellado.

Common names:

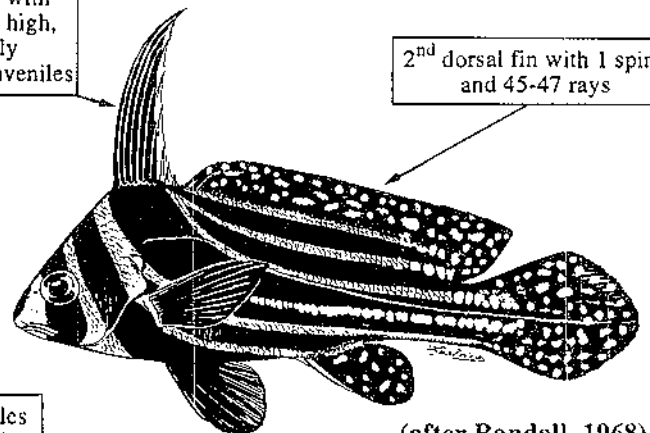
Size: Maximum about 25 cm; common to 18 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters, over rocky bottoms and in coral-reef areas.

Fisheries: Artisanal. Caught with traps. Of little interest to fisheries.

1st dorsal fin with 11-12 spines, high, and greatly prolonged in juveniles

2nd dorsal fin with 1 spine and 45-47 rays



(after Randall, 1968)

52-56 scales in lateral line

2 broad, oblique, dark brown stripes on head, a dark brown band along midline of body and anterior part of 1st dorsal fin, and narrow, dark brown stripes further back; soft dorsal and anal fins, and caudal fin with white spots on dark brown background

Equetus umbrosus (Jordan and Eigenmann, 1899)

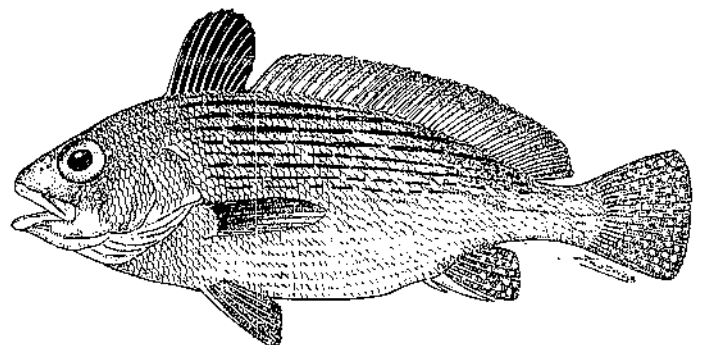
FAO names: En - Cubbyu; Fr - Evêque sombre; Sp - Obispo lucio.

Common names:

Size: Maximum 25 cm; common to 15 cm.

Distribution and habitat: Probably throughout the area. Over more or less hard bottoms of the continental shelf to a depth of about 90 m.

Fisheries: Taken as bycatch in industrial trawl fisheries. Of little interest to fisheries.



somewhat similar to *E. acuminatus*, but almost plain dark brown, with some very diffuse, dark stripes, narrower than diameter of pupil

SCIAENIDAE

Genus *Isopisthus* - a single species in the area.

Isopisthus parvipinnis (Cuvier, 1830)

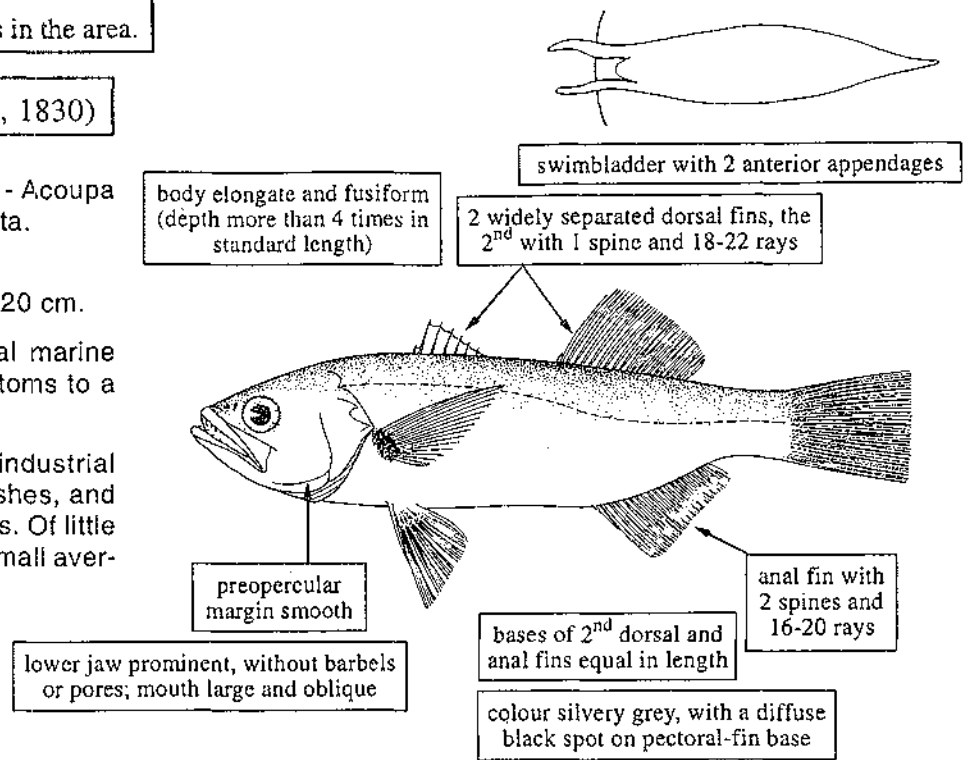
FAO names: En - Shortfin corvina; Fr - Acoupa aîle-courte; Sp - Corvinata aletacorta.

Common names:

Size: Maximum 24 cm; common to 20 cm.

Distribution and habitat: Coastal marine waters and estuaries, over soft bottoms to a depth of about 45 m.

Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps and finfishes, and in artisanal fisheries with beach nets. Of little interest to fisheries because of its small average size.



Genus *Larimus* - a single species in the area.

Larimus breviceps (Cuvier, 1830)

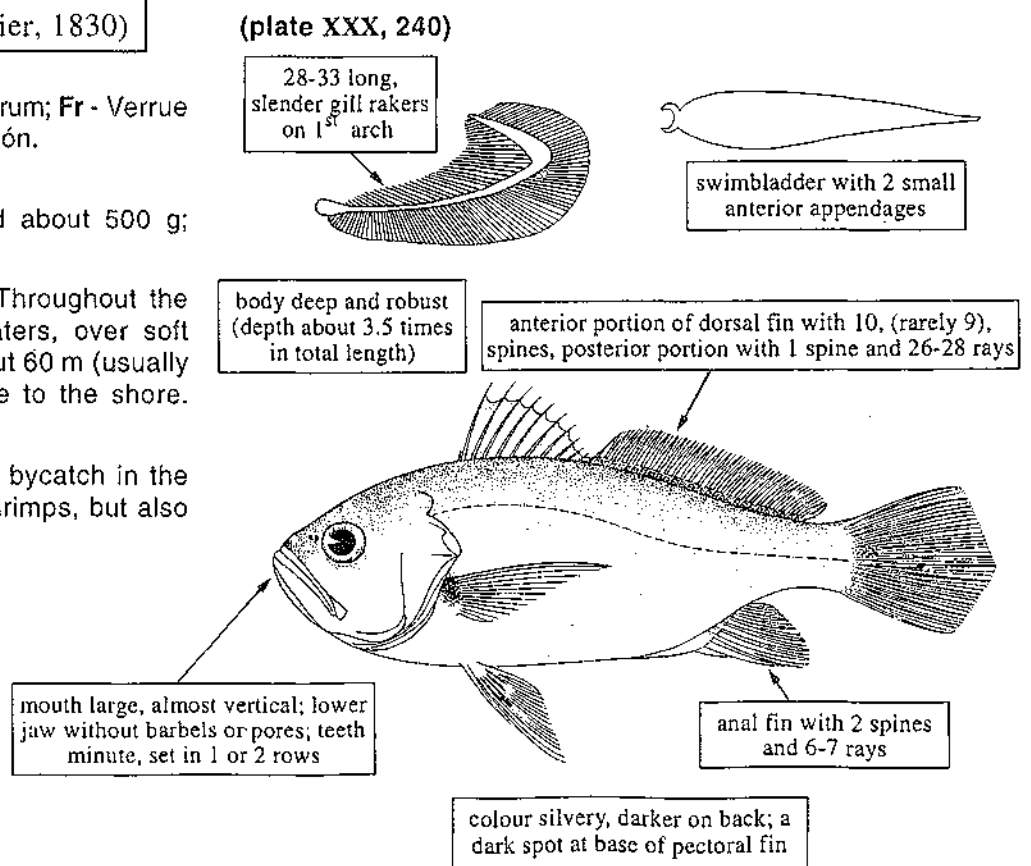
FAO names: En - Shorthead drum; Fr - Verrue tête; Sp - Bombache cabezón.

Common names:

Size: Maximum 31 cm and about 500 g; common to 20 cm.

Distribution and habitat: Throughout the area. In coastal marine waters, over soft substrates to a depth of about 60 m (usually less). Sometimes very close to the shore. Also found in estuaries.

Fisheries: Taken mainly as bycatch in the industrial trawl fishery for shrimps, but also caught with beach nets.



SCIAENIDAE

Genus *Lonchurus* - a single species in the area.

Lonchurus lanceolatus (Bloch, 1788)

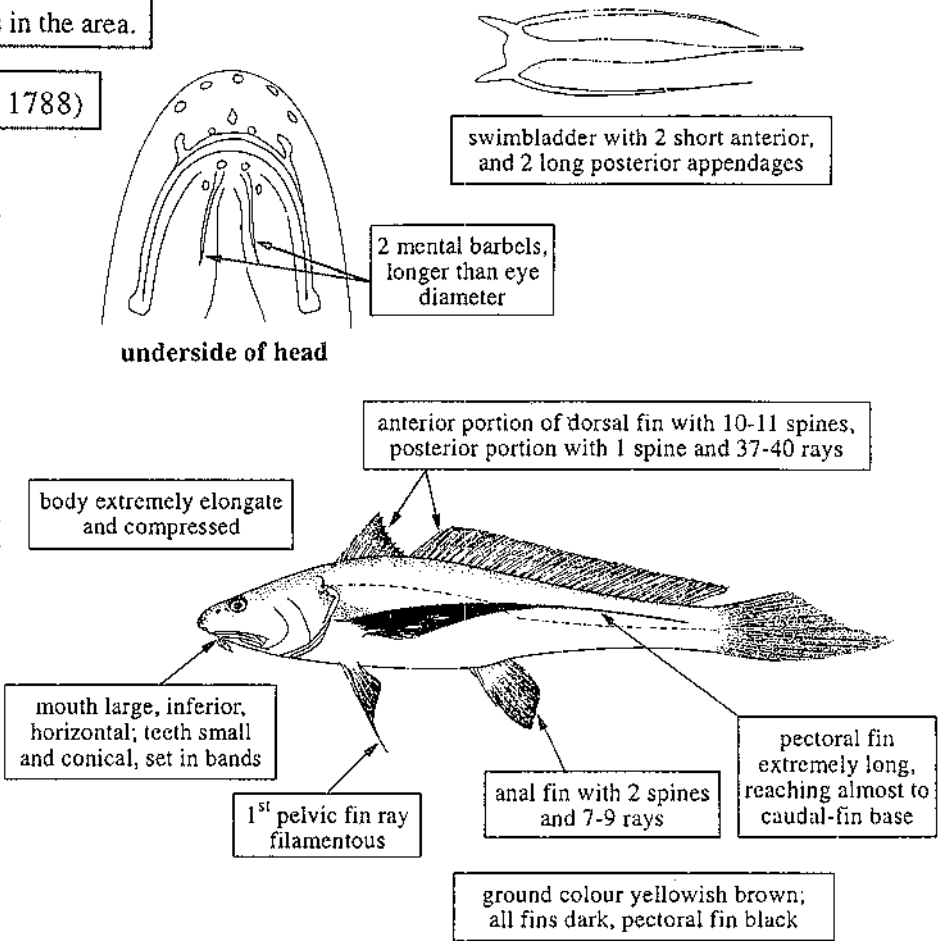
FAO names: En - Longtail croaker; Fr - Barbiche longue-aîle; Sp - Lambe aludo.

Common names:

Size: Maximum 30 cm; common to 22 cm.

Distribution and habitat: Throughout the area. In estuaries, and occasionally in marine waters.

Fisheries: Taken occasionally as by-catch in the industrial trawl fishery for shrimps. Of negligible commercial importance because of its small average size.



Genus *Macrodon* - a single species in the area.

Macrodon ancylodon (Bloch and Schneider, 1801) (plate XXXI, 241)

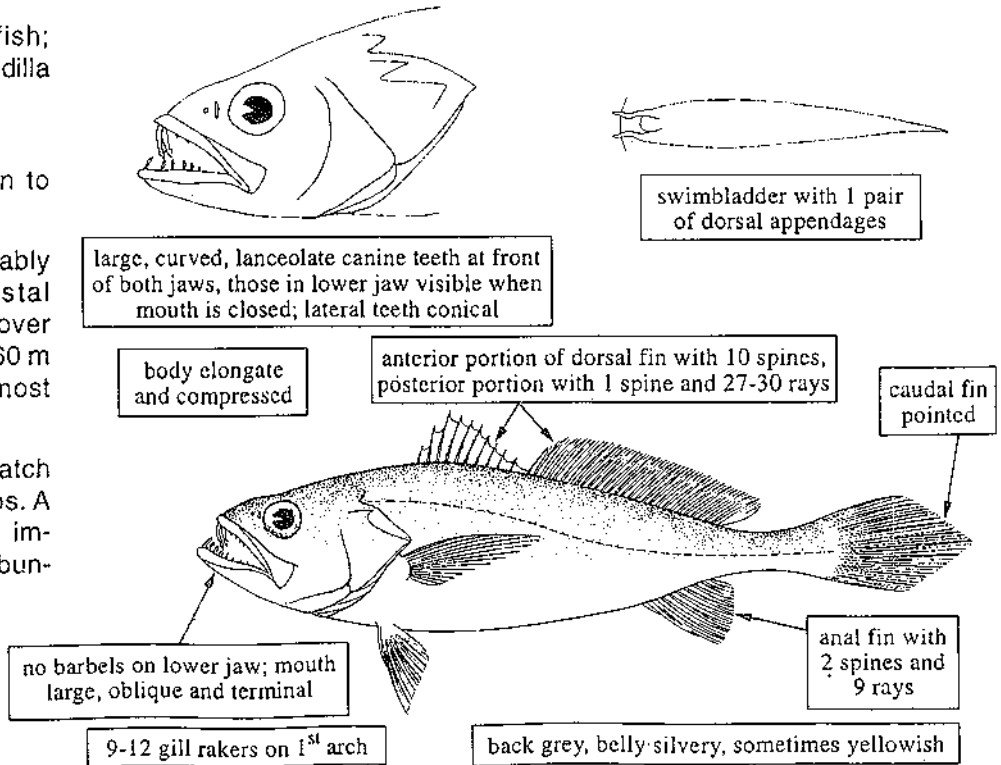
FAO name : En - King weakfish; Fr - Acoupa chasseur; Sp - Pescadilla real.

Common names:

Size: Maximum 45 cm; common to 35 cm.

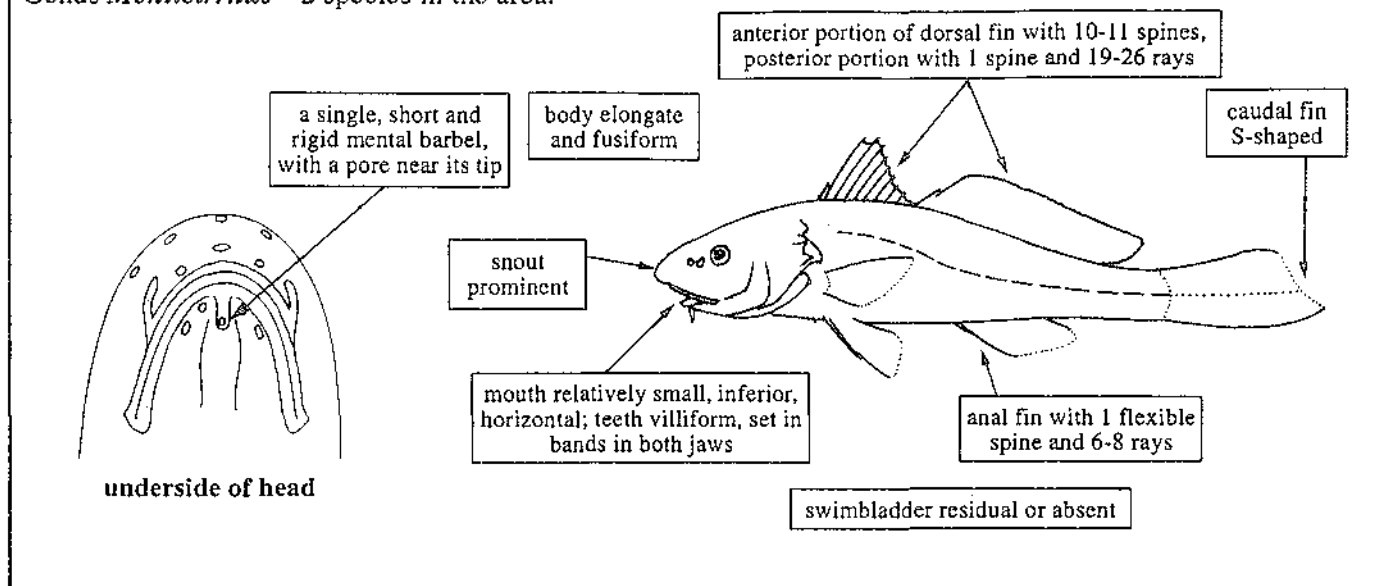
Distribution and habitat: Probably throughout the area. In coastal marine waters and estuaries, over soft bottoms to a depth of about 60 m (usually less). Juveniles are most common in brackish waters.

Fisheries: Taken mainly as bycatch in the industrial fishery for shrimps. A species of growing commercial importance because of its great abundance.



SCIAENIDAE

Genus *Menticirrhus* - 2 species in the area.



Menticirrhus americanus (Linnaeus, 1758)

(plate XXXI, 242)

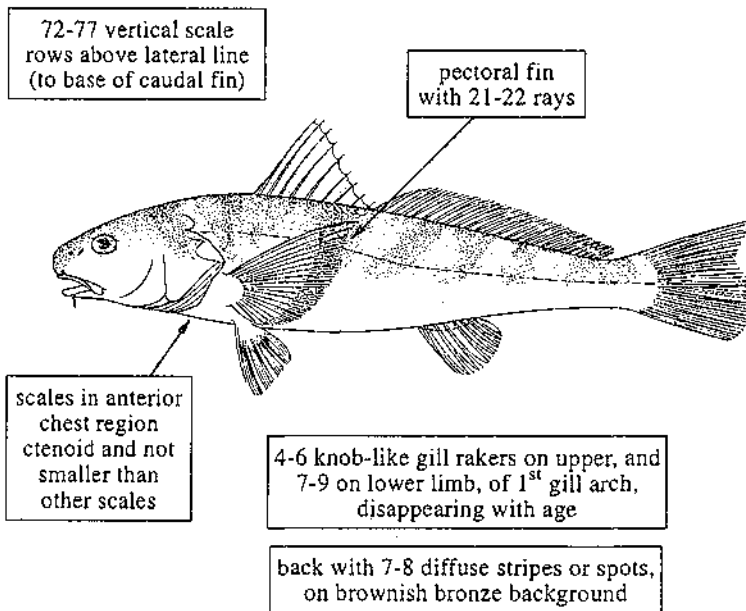
FAO names: En - Southern kingcroaker (AFS: Southern kingfish); Fr - Bourrue de crique; Sp - Lambe caletero.

Common names:

Size: Maximum 50 cm; common to 30 cm.

Distribution and habitat: Throughout the area. In coastal marine waters and estuaries, over muddy or sandy bottoms to a depth of about 40 m.

Fisheries: Taken mainly as bycatch in industrial trawl fisheries for shrimps or finfishes, but the catches are usually not abundant. Marketed mainly fresh.



Menticirrhus littoralis (Holbrook, 1860)

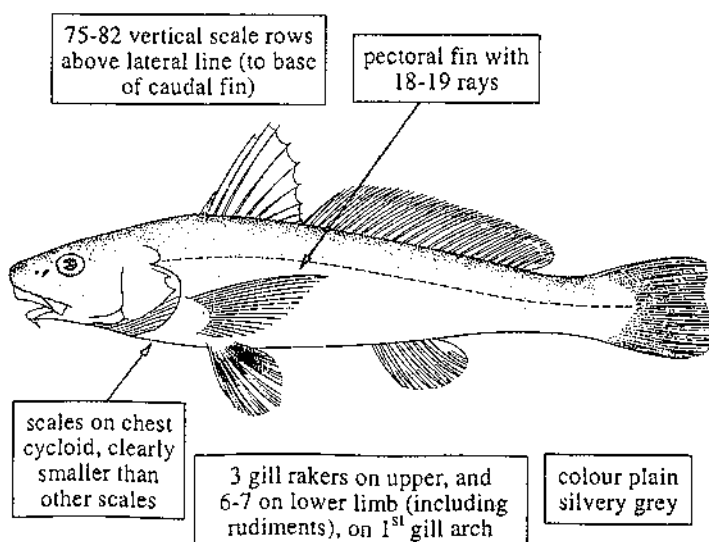
FAO names: En - Gulf kingcroaker (AFS: Gulf kingfish); Fr - Bourrue du Golfe; Sp - Lambe verrugato.

Common names:

Size: Maximum 40 cm; common to 30 cm.

Distribution and habitat: Throughout the area. In coastal marine waters, often close to the shore along exposed beaches. Rare in waters of salinities lower than 21‰.

Fisheries: Artisanal and industrial. Caught with beach nets, and as bycatch in the industrial trawl fishery for shrimps.



Genus *Micropogonias* -
2 species in the area.



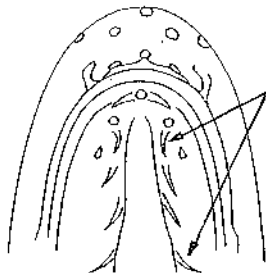
swimbladder with 2 very long and slender, forward-projecting appendages

anterior portion of dorsal fin with 10 spines

3-5 pairs of barbels on lower jaw

body elongate and relatively deep

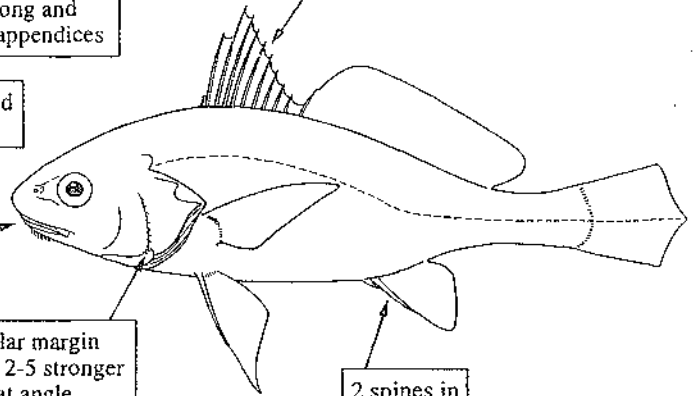
mouth of moderate size, inferior, almost horizontal; teeth villiform, set in bands in both jaws



underside of head

preopercular margin serrate, with 2-5 stronger spines at angle

2 spines in anal fin



Micropogonias furnieri (Desmarest, 1823)

(plate XXXI, 243)

FAO names: En - Whitemouth croaker; Fr - Tambour rayé; Sp - Corvinón rayado.

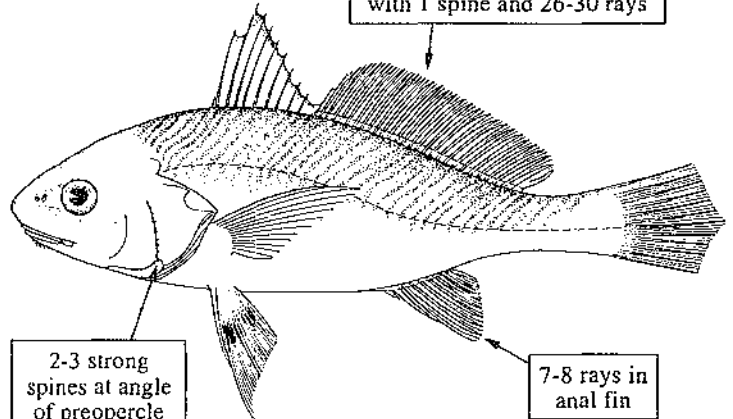
Common names:

Size: Maximum 60 cm; common to 45 cm.

Distribution and habitat: Throughout the area. In coastal waters, over muddy and sandy bottoms to a depth of about 60 m. Juveniles are found in estuaries and sometimes in freshwater.

Fisheries: Taken mainly in bottom trawls but also with gillnets. One of the most important commercial species on the continental shelf of the Guianas and northeastern Venezuela.

posterior portion of dorsal fin with 1 spine and 26-30 rays



2-3 strong spines at angle of preopercle

7-8 rays in anal fin

21-27 (usually 24-25) gill rakers on 1st arch

dark, oblique lines following the scale rows, on silvery grey background

Micropogonias undulatus (Linnaeus, 1766)

FAO names: En - Atlantic croaker; Fr - Tambour brésilien; Sp - Corvinón brasileño.

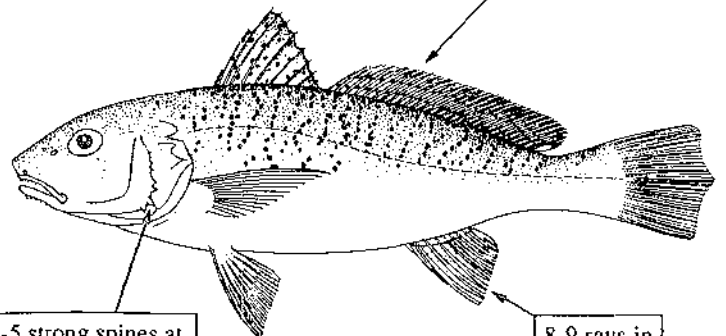
Common names:

Size: Maximum 50 cm; common to 30 cm.

Distribution and habitat: Although the northern coast of South America is generally included in the distributional range of this species, there are no documented records of its presence in experimental or commercial catches from the area.

Fisheries: This species can be caught with bottom trawls, gillnets, beach seines, and on hook-and-line.

posterior portion of dorsal fin with 1 spine and 27-30 rays



3-5 strong spines at preopercular angle

8-9 rays in anal fin

22-29 gill rakers on 1st arch

small black dots forming irregular, broken lines on silvery grey background

Genus *Nebris* - a single species in the area.

SCIAENIDAE

Nebris microps Cuvier, 1830

FAO names: En - Smalleye croaker; Fr - Courbine tiyeux; Sp - Corvina ojo chico.

Common names:

Size: Maximum 39 cm and 570 g; common to 35 cm.

Distribution and habitat: Throughout the area. In coastal marine waters, over muddy or sandy bottoms to a depth of about 60 m (usually less); also in estuaries, especially as juveniles.

Fisheries: Taken mainly as bycatch in industrial trawl fisheries, but also with beach nets. A species of some commercial importance.

(plate XXXI, 244)

body elongate and only slightly compressed, almost circular in cross section anteriorly

eye extremely small, its diameter 9-12 times in head length

mouth large, oblique, terminal; no canines; teeth small and pointed; no barbels on lower jaw

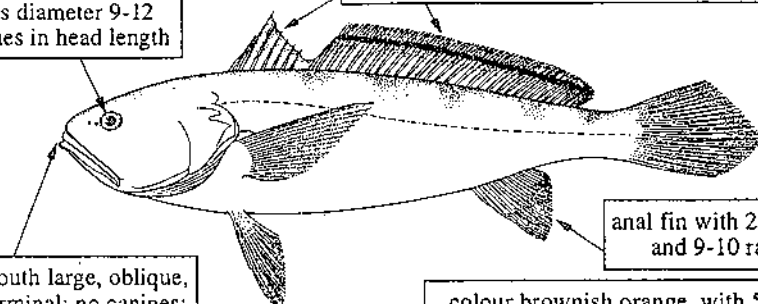
20-24 gill rakers on 1st arch

swimbladder with 2 very long, tubular appendages originating anteriorly, extending backwards nearly to hind end of bladder and then recurving forward

anterior portion of dorsal fin with 8 spines, posterior portion with 1 spine and 31-33 rays

anal fin with 2 spines and 9-10 rays

colour brownish orange, with 5 to 7 dark brown spots on back; a black, longitudinal line near distal margin of posterior portion of dorsal fin



Genus *Odontoscion* - a single species in the area.

Odontoscion dentex (Cuvier, 1830) (plate XXXI, 245)

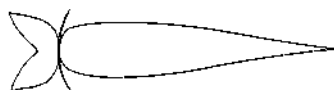
FAO names: En - Reef croaker; Fr - Verrue de roche; Sp - Bombache de roca.

Common names:

Size: Maximum 25 cm; common to 18 cm.

Distribution and habitat: In shallow, clear waters of coral-reef areas.

Fisheries: Predominantly artisanal. Caught with traps. Not commercially important because of its small average size and poor representation in landings.



swimbladder without appendages, divided into a branched (yoke-shaped) anterior, and a simple (carrot-shaped) posterior chamber

mouth large, oblique, terminal; lower jaw with 2 large canines at front, other teeth also relatively large and conical, set in a single row; no barbels on lower jaw

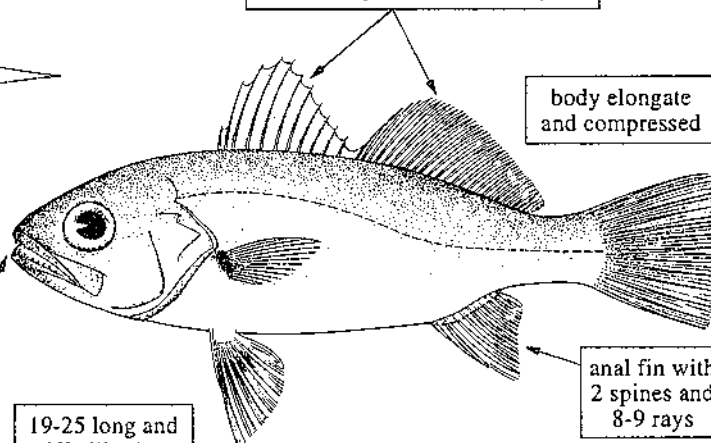
19-25 long and stiff gill rakers on 1st arch

anterior portion of dorsal fin with 11-12 spines, posterior portion with 1 spine and 23-26 rays

body elongate and compressed

anal fin with 2 spines and 8-9 rays

colour plain brown, with silvery reflections; a very conspicuous blackish blotch at base of pectoral fin



Genus *Ophioscion* - 2 species in the area.

Ophioscion punctatissimus Meek and Hildebrand, 1925

FAO names: En - Spotted croaker; Fr - Chevalier tacheté; Sp - Corvinilla punteada.

Common names:

Size: Maximum 25 cm; common to 16 cm.

Distribution and habitat: Throughout the area. In shallow coastal waters, over muddy and sandy bottoms.

Fisheries: Taken as bycatch in industrial trawl fisheries, and with beach nets. Of little commercial importance because of its small average size.

body elongate, not strongly compressed

swimbladder as in *Odontoscion*

mouth small, horizontal; no barbels on lower jaw

preopercular margin strongly serrate

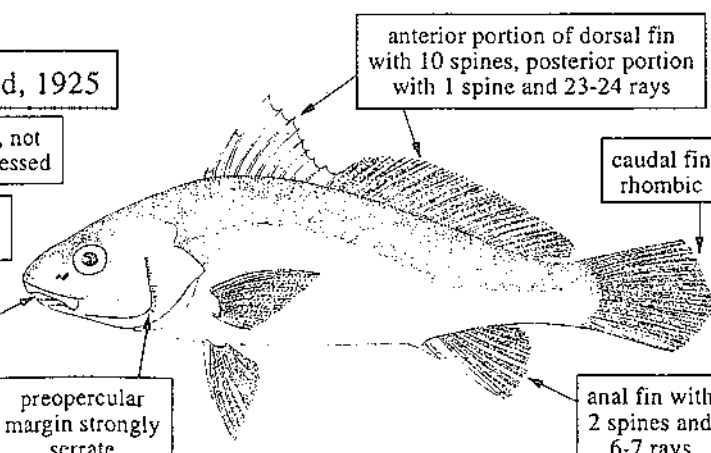
20-24 short gill rakers, the longest less than half the length of gill filaments at angle of 1st gill arch

anterior portion of dorsal fin with 10 spines, posterior portion with 1 spine and 23-24 rays

caudal fin rhombic

anal fin with 2 spines and 6-7 rays

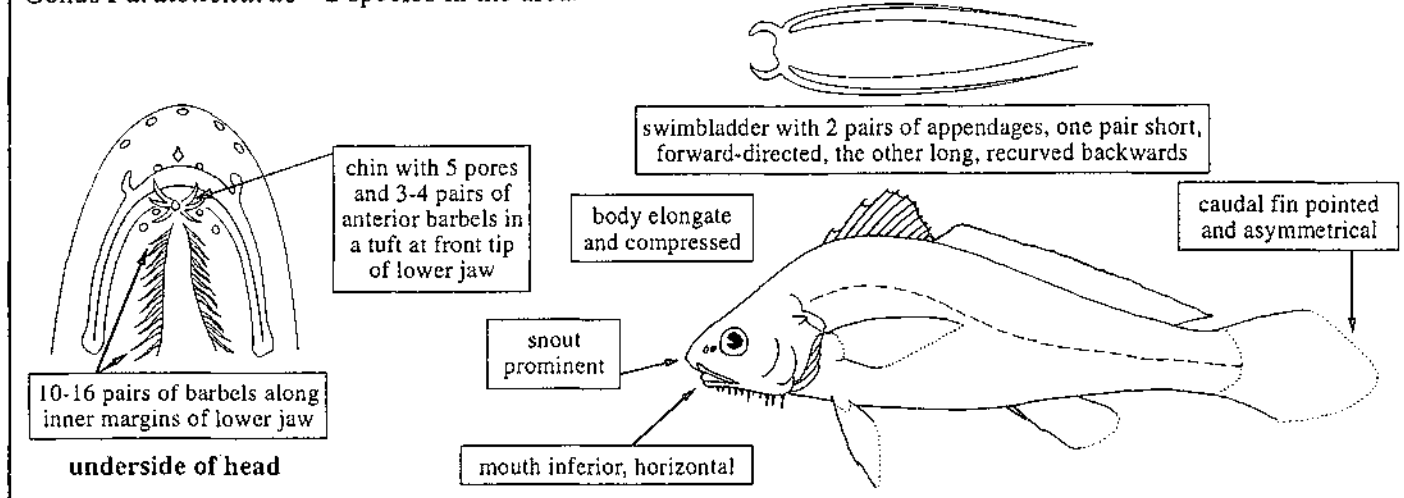
back greyish brown, belly pale; black dots on back and belly



Other species:

Ophioscion sp., apparently not yet described, very similar to the preceding species, with which it is probably confused. It has been caught off the northern coast of Venezuela.

Genus *Paralonchurus* - 2 species in the area.



Paralonchurus brasiliensis (Steindachner, 1875) (plate XXXI, 246)

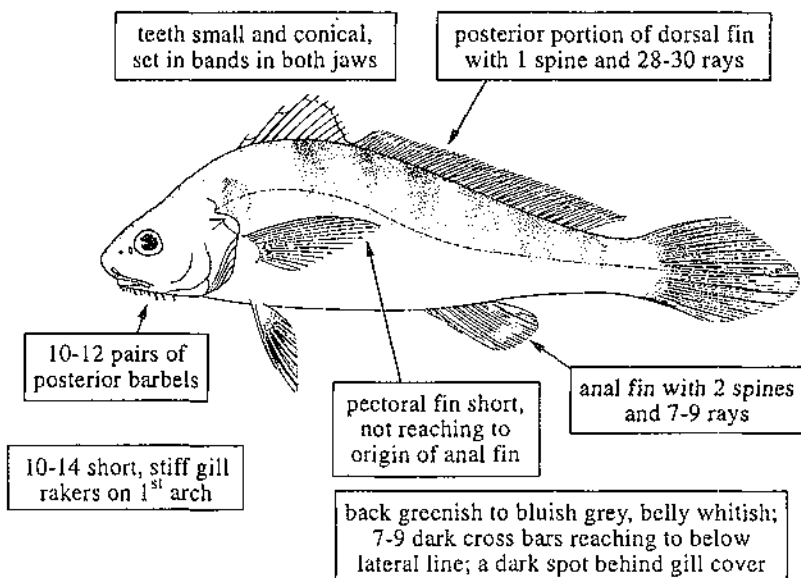
FAO names: En - Banded croaker; Fr - Bourrugue marie-louise; Sp - Lambe marialuisa.

Common names:

Size: Maximum 30 cm; common to 25 cm.

Distribution and habitat: Throughout the area. In coastal waters, usually near river mouths, over sand or muddy-sand bottoms to a depth of about 50 m (usually less).

Fisheries: Taken as bycatch in industrial trawl fisheries, and with beach nets. Of little commercial importance.



Paralonchurus elegans Boesemann, 1948 (plate XXXI, 247)

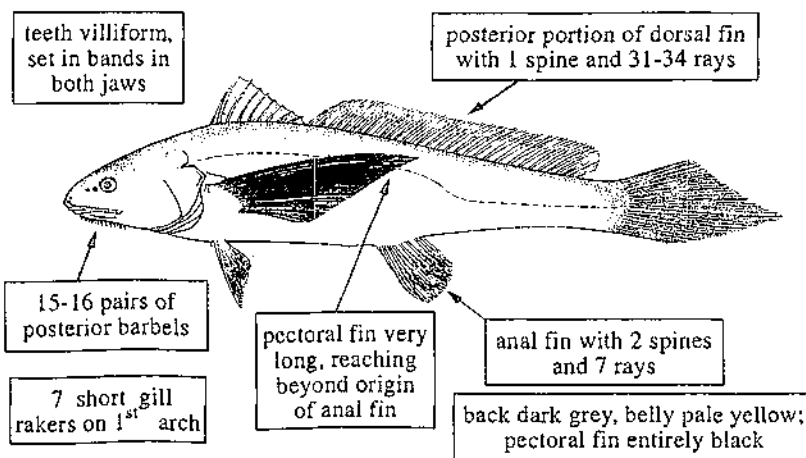
FAO names: En - Blackfin croaker; Fr - Bourrugue coquette; Sp - Lambe aleta negra (=Lambe pituco).

Common names:

Size: Maximum 32 cm; common to 27 cm.

Distribution and habitat: From Venezuela to Brazil. In coastal areas in or near estuaries, over mud or muddy-sand bottoms to a depth of about 25 m (usually less).

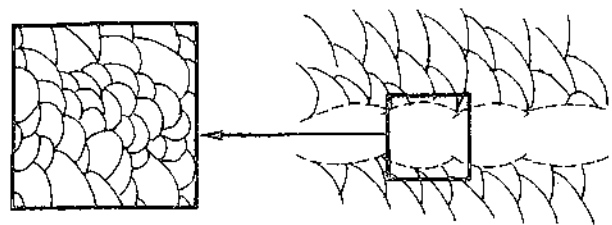
Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps, and with beach nets. Of little commercial importance.



SCIAENIDAE

Genus *Plagioscion*

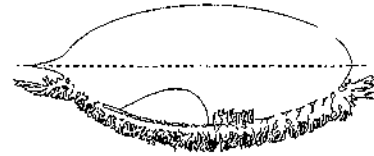
Several species, all living in freshwater; one of them, *P. squamosissimus* (Heckel, 1840), (plate XXXI, 248), may occasionally be found in river mouths, between the Orinoco delta and the mouth of the Amazon; it attains lengths of 75 cm.



lateral line very broad, but completely hidden under small scales

Genus *Pogonias* - a single species in the area.

Pogonias cromis (Linnaeus, 1766)



swimbladder with numerous lateral appendages interconnected in a complicated pattern

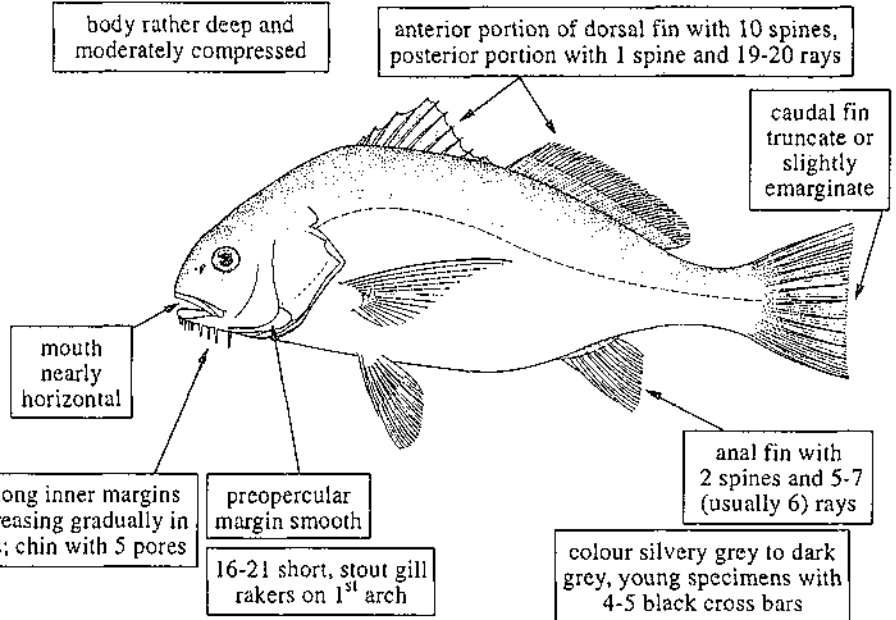
FAO names: En - Black drum; Fr - Grand tambour; Sp - Corvinón negro.

Common names:

Size: Maximum 100 cm; common to 50 cm.

Distribution and habitat: Although quoted as occurring along the northern coast of South America, there are no documented records of its presence in catches from the area. In coastal marine waters and estuaries, over mud and sandy mud bottoms.

Fisheries: Taken as bycatch in industrial trawl fisheries, with beach nets, and on hook-and-line.



body rather deep and moderately compressed

anterior portion of dorsal fin with 10 spines, posterior portion with 1 spine and 19-20 rays

caudal fin truncate or slightly emarginate

mouth nearly horizontal

10-13 barbels along inner margins of lower jaw, increasing gradually in length backwards; chin with 5 pores

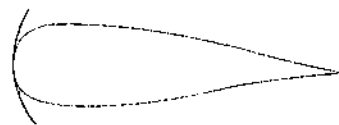
preopercular margin smooth

16-21 short, stout gill rakers on 1st arch

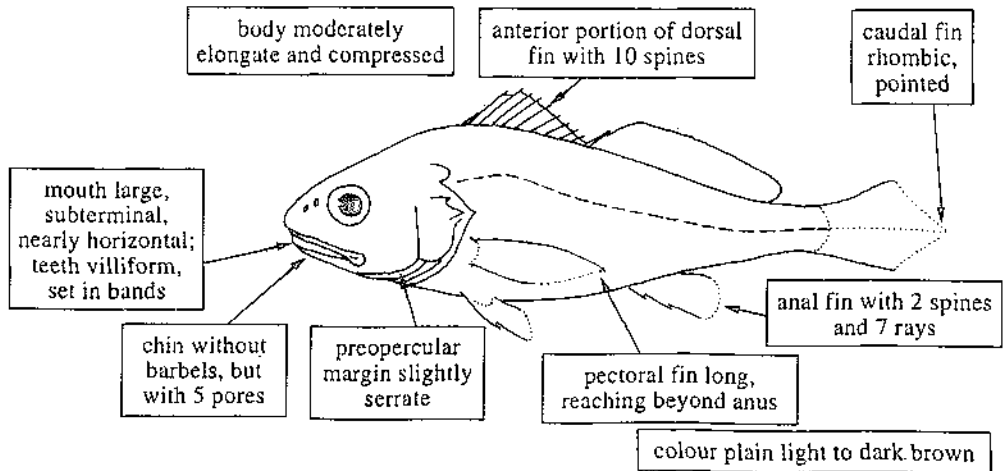
anal fin with 2 spines and 5-7 (usually 6) rays

colour silvery grey to dark grey, young specimens with 4-5 black cross bars

Genus *Sciaena* - 2 species in the area. These are the only representatives of the family commonly occurring to below a depth of 100 m in the area.



swimbladder simple, without appendages



body moderately elongate and compressed

anterior portion of dorsal fin with 10 spines

caudal fin rhombic, pointed

mouth large, subterminal, nearly horizontal; teeth villiform, set in bands

chin without barbels, but with 5 pores

preopercular margin slightly serrate

pectoral fin long, reaching beyond anus

anal fin with 2 spines and 7 rays

colour plain light to dark brown

Sciaena bathytatos Chao and Miller, 1975

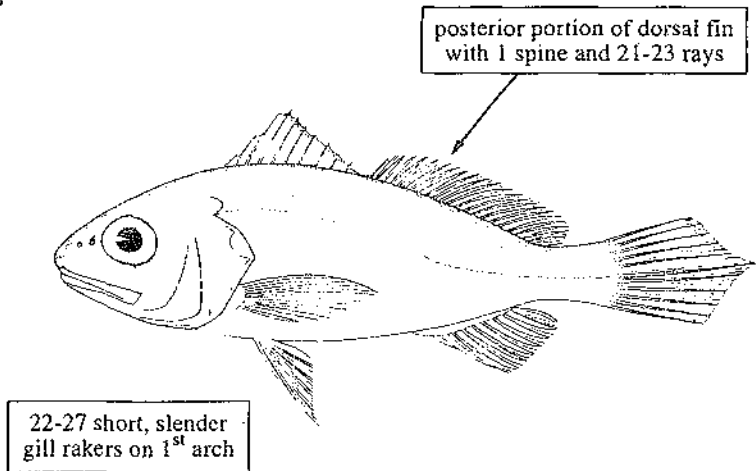
FAO names: En - Deepwater drum; Fr - Courbine de fond; Sp - Corvina de ondo.

Common names:

Size: Maximum 42 cm; common to 30 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad and Tobago. Over muddy bottoms between depths of 70 and 600 m.

Fisheries: Taken as bycatch in industrial trawl fisheries, and on hook-and-line. Not very often caught, but well accepted in markets.



Sciaena trewavasae Chao and Miller, 1975

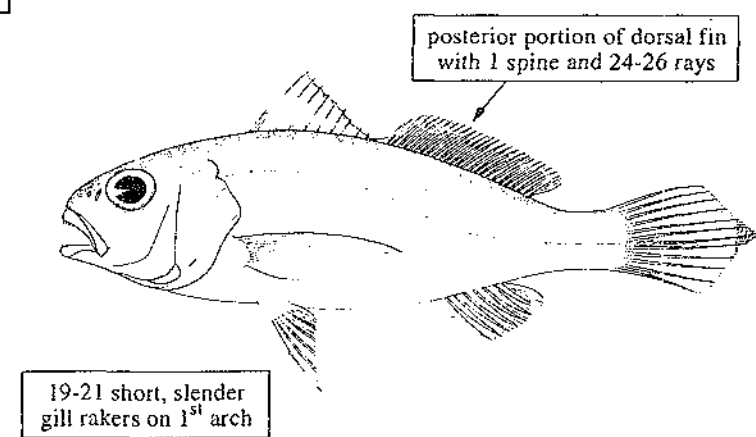
FAO names: En - New Grenada drum; Fr - Courbine grenadine; Sp - Corvina granadina.

Common names:

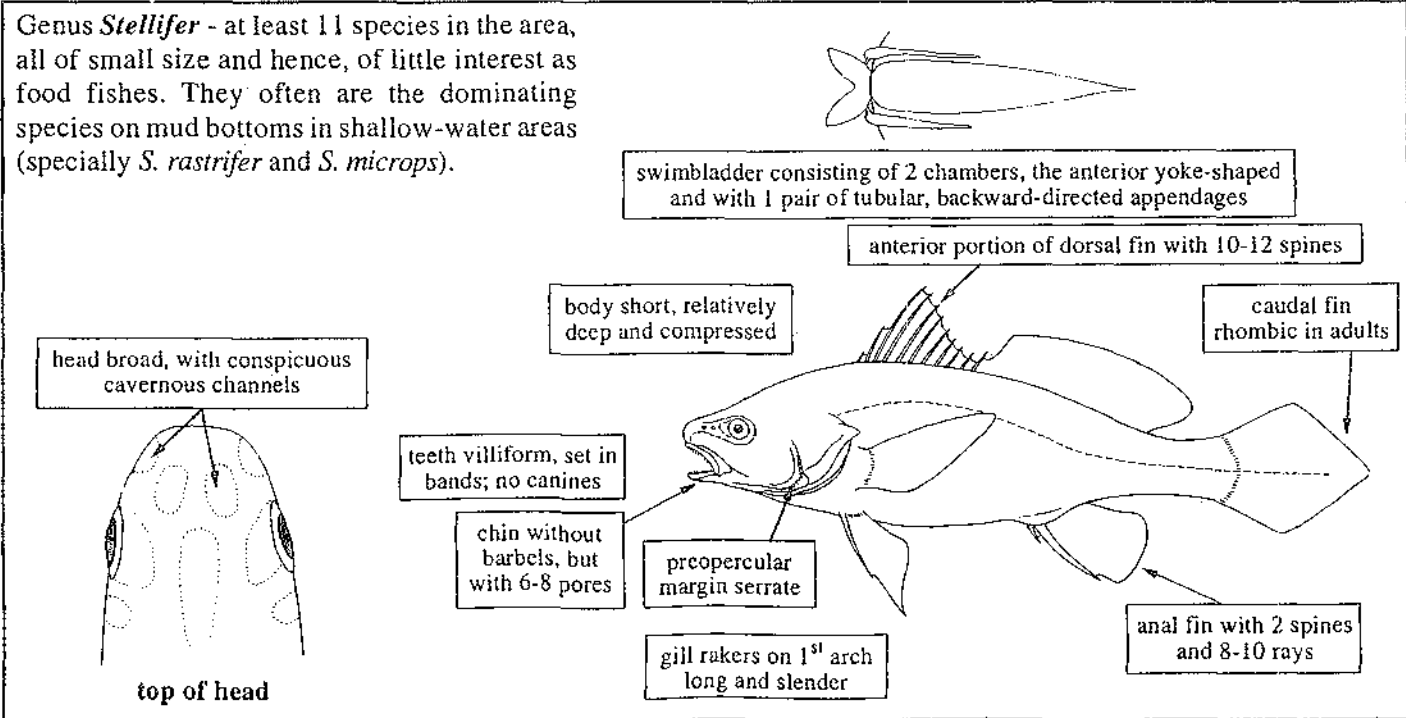
Size: Maximum at least 20 cm; common to 16 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela. Over muddy bottoms between depths of 70 and 220 m.

Fisheries: Taken as bycatch in industrial trawl fisheries. Of very little commercial importance.



Genus *Stellifer* - at least 11 species in the area, all of small size and hence, of little interest as food fishes. They often are the dominating species on mud bottoms in shallow-water areas (specially *S. rastrifer* and *S. microps*).



Stellifer griseus Cervigón, 1966

(plate XXXII, 249)

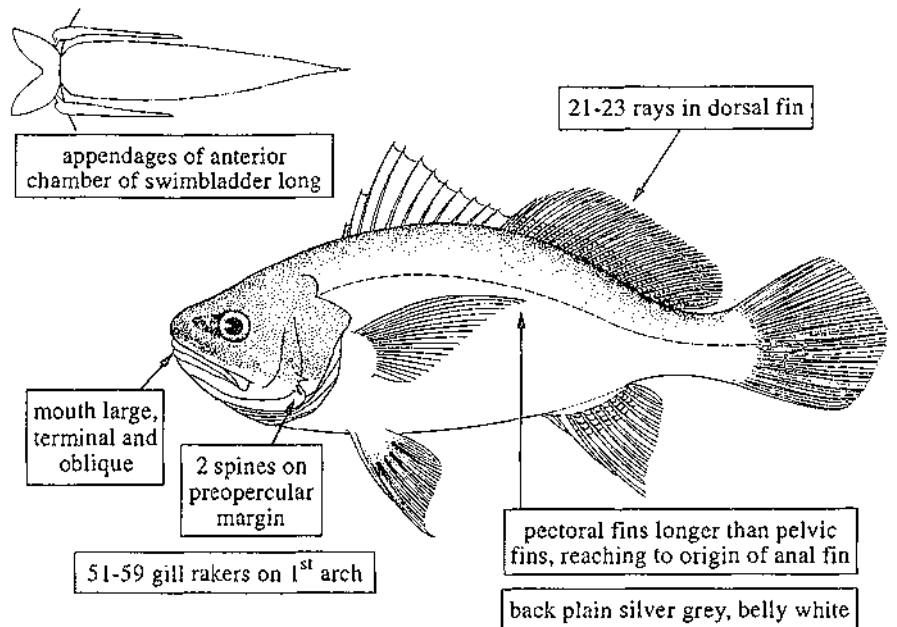
SCIAENIDAE

FAO names: En - Gray stardrum; Fr - Magister gris; Sp - Corvinilla lucia.
Common names:

Size: Maximum 17 cm; common to 13 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad and Tobago. In coastal waters, over sandy substrates to a depth of about 50 m (usually less).

Fisheries: Not a target species, but taken regularly as bycatch in the industrial trawl fishery for shrimps, being especially abundant north of the Paria peninsula. Sometimes taken in large quantities in the Orinoco river delta. Usually not marketed as a food fish.

*Stellifer microps* (Steindachner, 1864)

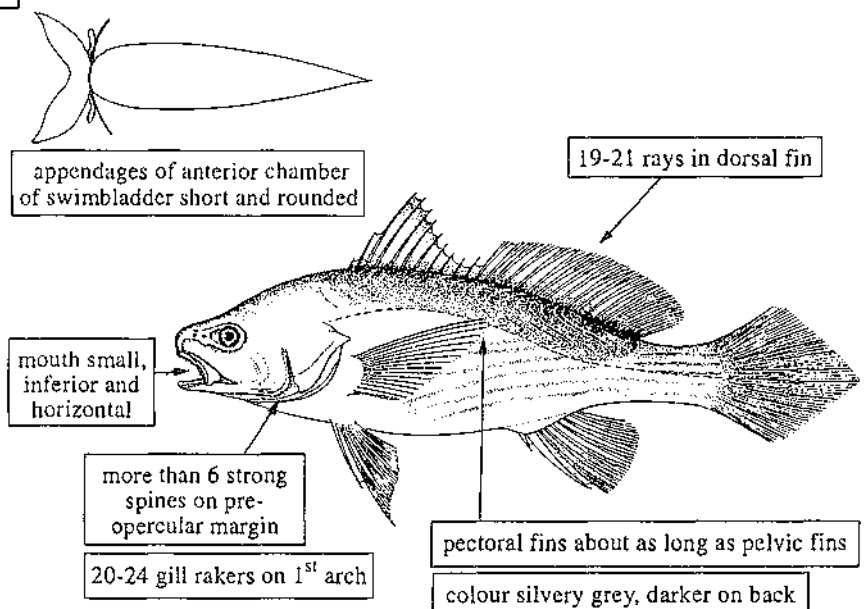
(plate XXXII, 250)

FAO names: En - Smalleye stardrum; Fr - Magister tiyeux; Sp - Corvinilla ojo chico.
Common names:

Size: Maximum 20 cm; common to 12 cm.

Distribution and habitat: Throughout the area. In coastal waters, mainly over soft, muddy bottoms to a depth of about 30 m (usually less). Very abundant in estuaries.

Fisheries: Not a target species, but commonly taken as bycatch in the industrial trawl fishery for shrimps, especially in the Orinoco delta and off Guyana. Usually not marketed as a food fish, but used in the manufacture of fisheries byproducts.

*Stellifer rastrifer* (Jordan, 1889)

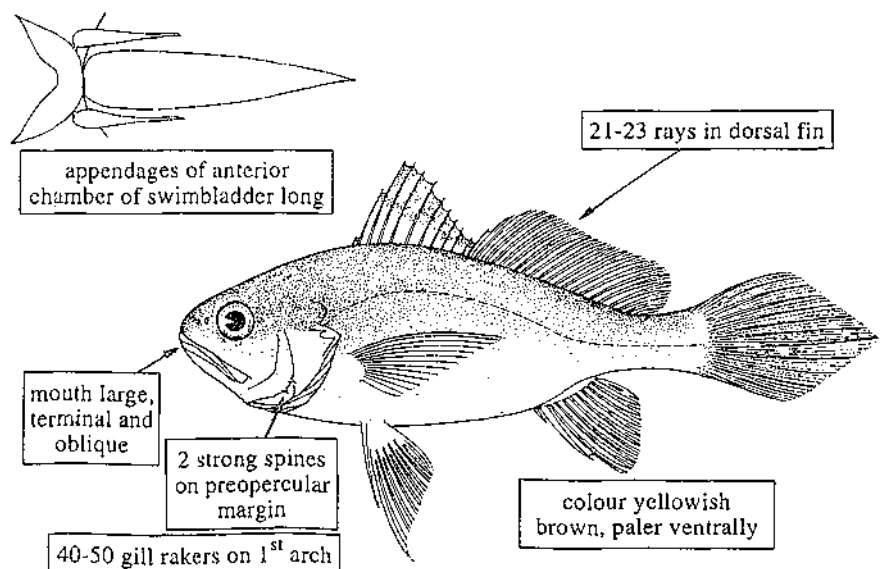
(plate XXXII, 251)

FAO names: En - Rake stardrum; Fr - Magister fourche; Sp - Corvinilla rastra.
Common names:

Size: Maximum 20 cm; common to 15 cm.

Distribution and habitat: Throughout the area. In coastal waters, close to the shore, especially in estuaries, over sandy and muddy bottoms.

Fisheries: Not a target species, but very abundant as bycatch in the industrial trawl fishery for shrimps, especially off Guyana and in the Gulf of Paria. Usually not marketed as a food fish, but used in the manufacture of fisheries byproducts.

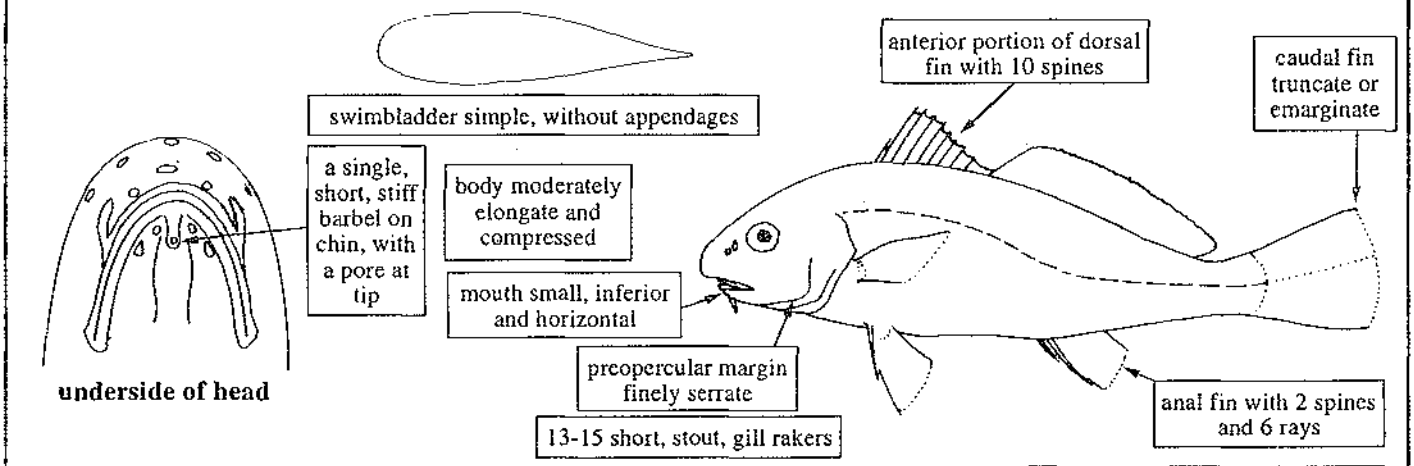


SCIAENIDAE

Other species:

Stellifer brasiliensis (Schultz, 1945), *S. colonensis* Meek and Hildebrand, 1925, *S. chaoi* Aguilera, Solano and Valdés, 1983, *S. magoi* Aguilera, 1983, *S. naso* (Jordan, 1889), *S. stellifer* (Bloch, 1790), *S. venezuelae* (Schultz, 1945), and *Stellifer* sp.; none of these species are of any interest to fisheries because of their small average size.

Genus *Umbrina* - 2 species in the area.



Umbrina broussonnetii (Cuvier, 1830)

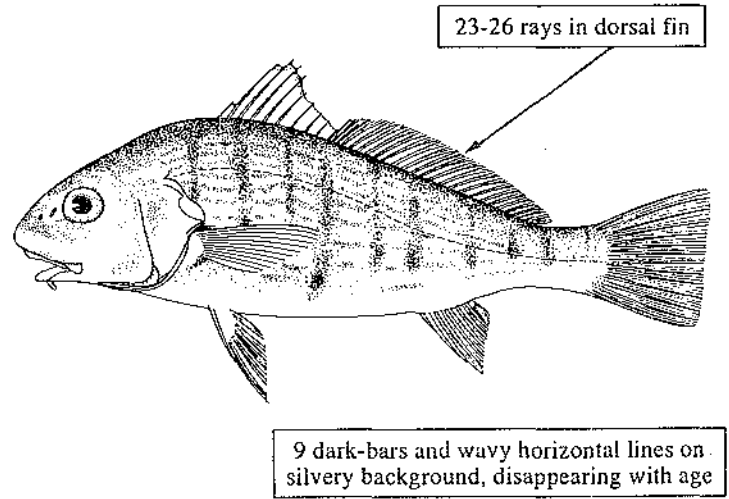
FAO names: En - Striped drum; Fr - Ombrine rayé; Sp - Verrugato rayado.

Common names:

Size: Maximum 25 cm; common to 18 cm.

Distribution and habitat: Northern coast of Colombia. Usually in shallow waters along sandy beaches. Not recorded from Venezuela nor from the Atlantic coasts of the area.

Fisheries: Not a target species, its potential as a fishery resource is unknown. Caught mainly with traps and beach nets. Marketed fresh and salted.



Umbrina coroides (Cuvier, 1830)

(plate XXXII, 252)

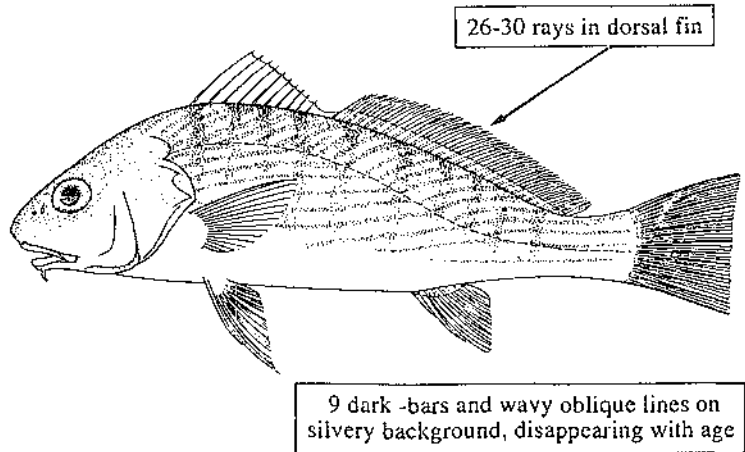
FAO names: En - Sand drum; Fr - Ombrine pétote; Sp - Verrugato petota.

Common names:

Size: Maximum 35 cm; common to 25 cm.

Distribution and habitat: Throughout the area. Mainly in shallow coastal waters along sandy beaches, also over muddy bottoms in estuaries, and sometimes in the vicinity of coral-reef areas.

Fisheries: Caught mainly with beach nets and traps, especially along the coasts of Venezuela, where it is extremely abundant. Large specimens are marketed fresh.



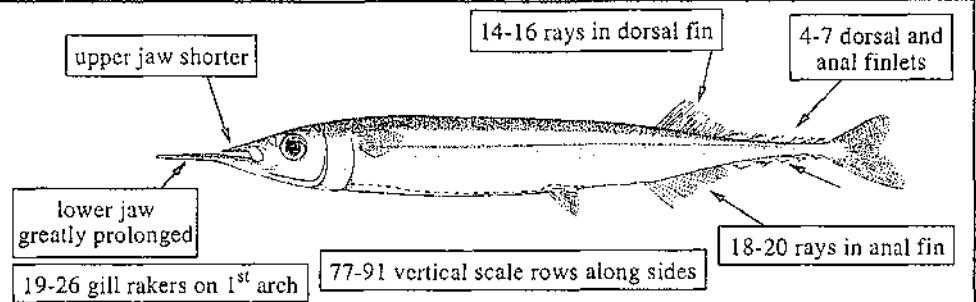
SCOMBERESOCIDAE

En: Sauries. Fr: Balaous. Sp: Papardas.

Rather small fishes, less than 50 cm of total length, characterized by the prolongation of both jaws into a long beak; pelagic oceanic. A single genus with one species in the area.

Genus *Nanichthys*

A single species, *N. simulans* Hubbs and Wisner, 1980, recorded from offshore waters, probably of no interest to fisheries because of its small size (maximum 10 cm).



SCOMBRIDAE

En: Mackerels, tunas, wahoos, bonitos, ceros, albacores. Fr: Auxides, thazards, thons, thonines, pélamides, maquereaux, germons, patudos. Sp: Atunes, bonitos, petos, melvas, bacoretas, listados, estorninos, rabiles, patudos.

Medium-sized to large marine pelagic fishes, including many oceanic and some coastal species. Very strong swimmers, some performing extensive feeding or spawning migrations. They are of major importance as fishery resources, in fish markets as well as for the canning industry. Eight genera with 15 species in the area.

Genus *Acanthocybium* - a single species.

Acanthocybium solandri (Cuvier, 1830)

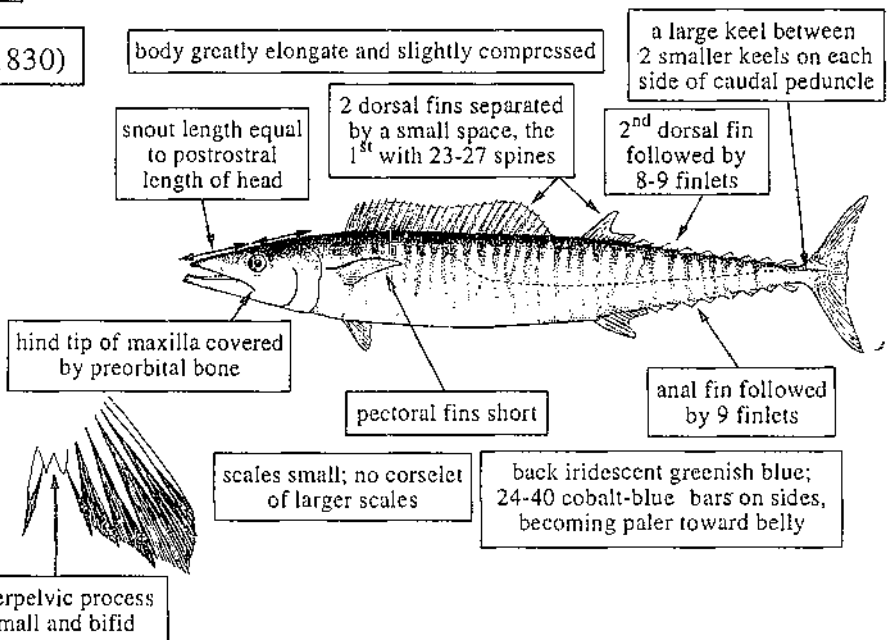
FAO names: En - Wahoo; Fr - Thazard-bâtard; Sp - Peto.

Common names:

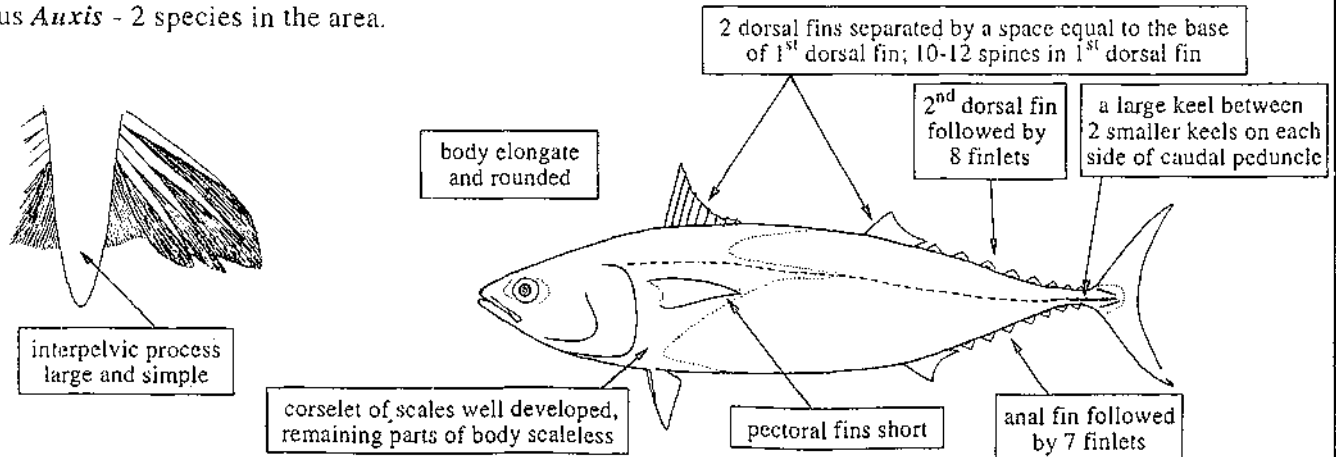
Size: Maximum nearly 200 cm and 36 kg; common to 100 cm.

Distribution and habitat: Throughout the area. An oceanic species usually found in offshore surface waters or around oceanic islands.

Fisheries: Caught by trolling with live bait and occasionally, with gillnets. Of great importance in sports fisheries. Marketed fresh; flesh of excellent quality.



Genus *Auxis* - 2 species in the area.



SCOMBRIDAE

Auxis rochei (Risso, 1810)

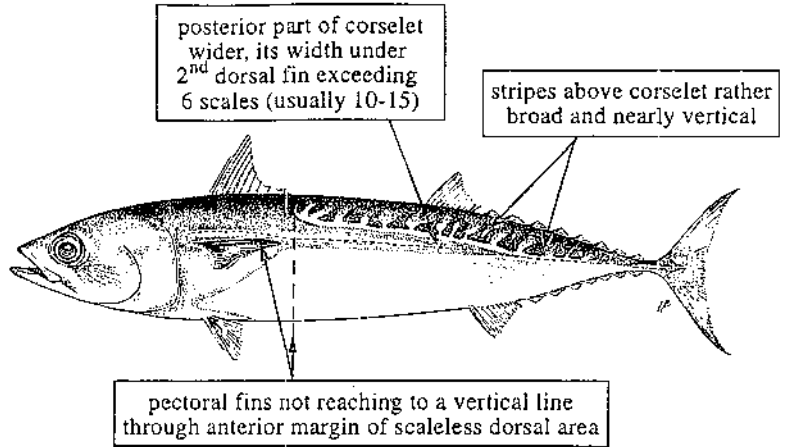
FAO names: En - Bullet tuna; Fr - Bonitou; Sp - Melvera.

Common names:

Size: Maximum 50 cm; common to 35 cm.

Distribution and habitat: Throughout the area. Pelagic in coastal as well as offshore waters. Very difficult to distinguish from *A. thazard*, hence it is not possible to know which of the two species is the more abundant in the area.

Fisheries: Caught with purse seines, on hook-and-line and by trolling, usually with live bait. Marketed fresh.



Auxis thazard (Lacepède, 1803)

(plate XXXII, 253)

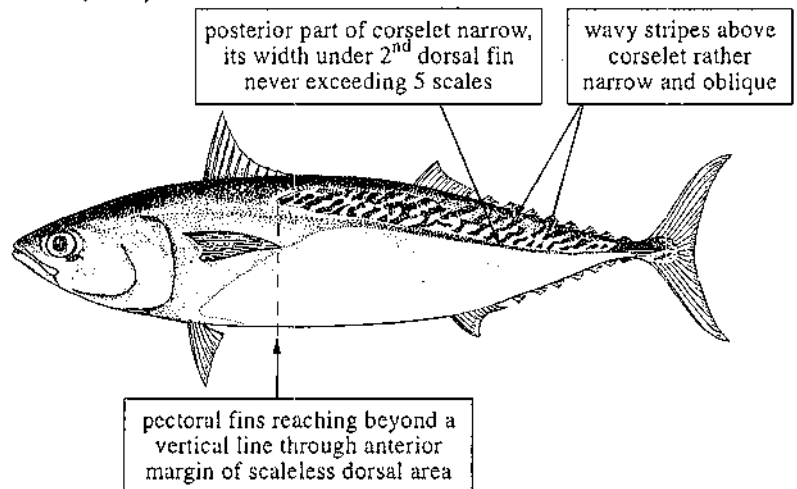
FAO names: En - Frigate tuna; Fr - Auxide; Sp - Melva.

Common names:

Size: Maximum 55 cm; common to 40 cm.

Distribution and habitat: Throughout the area. Pelagic, in coastal as well as in offshore waters.

Fisheries: Caught mainly in coastal waters, with purse seines, gillnets, and on hook-and-line using live bait. Marketed mostly fresh.



Genus *Euthynnus* - a single species in the area.

Euthynnus alletteratus (Rafinesque, 1810)

(plate XXXII, 254)

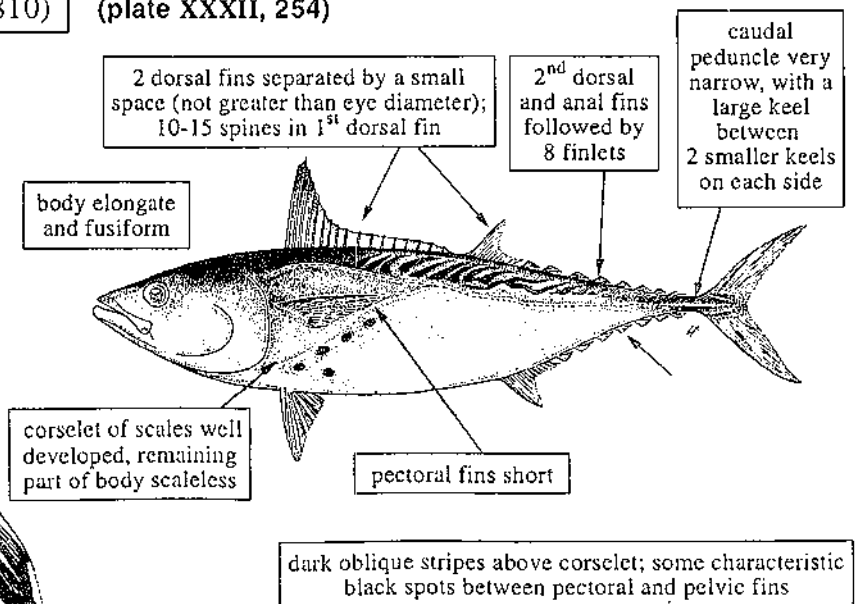
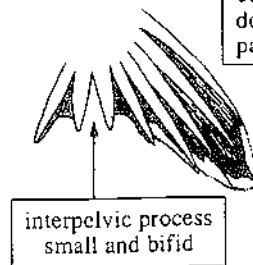
FAO names: En - Little tunny; Fr - Thonine; Sp - Bacoreta.

Common names:

Size: Maximum 110 cm; common to 80 cm.

Distribution and habitat: Throughout the area. Pelagic, generally in coastal waters with strong currents, and over shallow banks in the vicinity of oceanic islands.

Fisheries: Artisanal and industrial. Caught with gillnets and on hook-and-line; the juveniles are taken with beach nets. Marketed fresh and canned.



SCOMBRIDAE

Genus *Katsuwonus* - a single species.

Katsuwonus pelamis (Linnaeus, 1758)

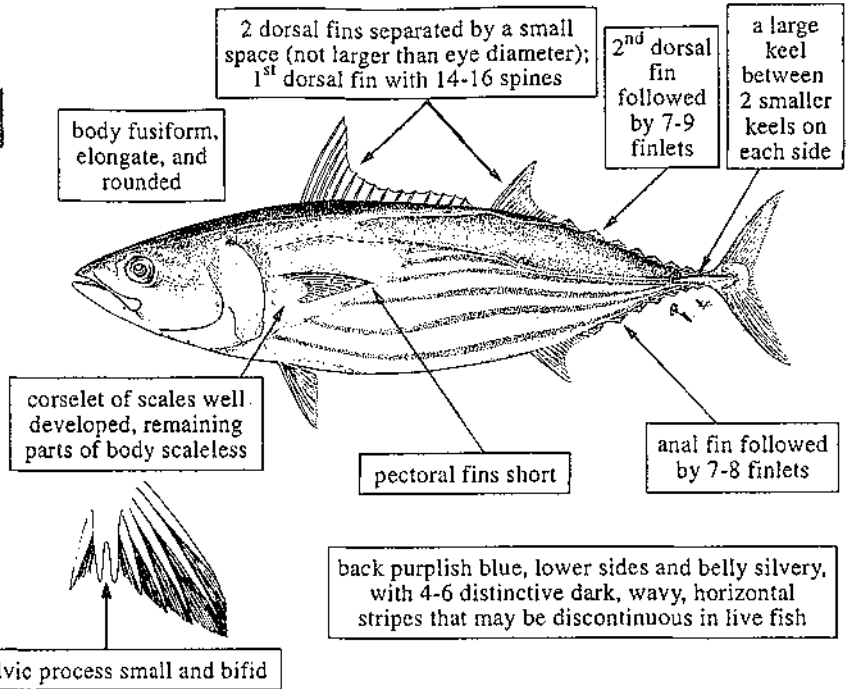
FAO names: En - Skipjack tuna; Fr - Listao; Sp - Listado.

Common names:

Size: Maximum 110 cm; common to 80 cm.

Distribution and habitat: Throughout the area. Pelagic, usually far offshore and around oceanic islands. Normally found above the thermocline.

Fisheries: Industrial. Caught with purse seines, by pole and line, and with longlines. Marketed canned or frozen.



Genus *Sarda* - a single species in the area.

Sarda sarda (Bloch, 1793) (plate XXXII, 255)

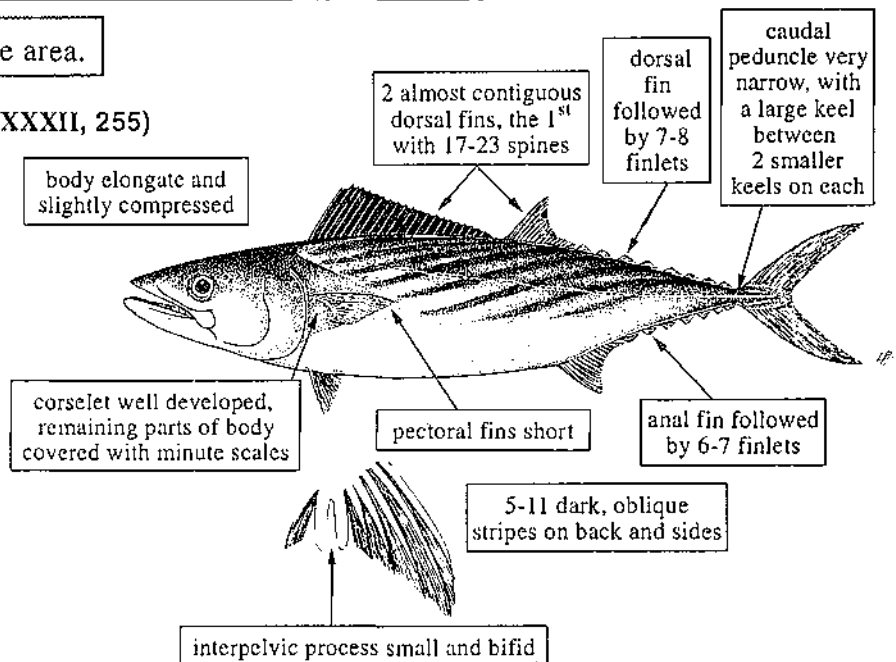
FAO names: En - Atlantic bonito; Fr - Bonite à dos rayé; Sp - Bonito atlántico.

Common names:

Size: Maximum 85 cm; common to 50 cm.

Distribution and habitat: Throughout the area. A pelagic migratory species, often schooling in surface waters, frequently near the coast.

Fisheries: Caught with gillnets and on hook-and-line in offshore waters. Marketed fresh and canned.



Genus *Scomber* - a single species in the area.

Scomber japonicus Houttuyn, 1780 (plate XXXII, 256)

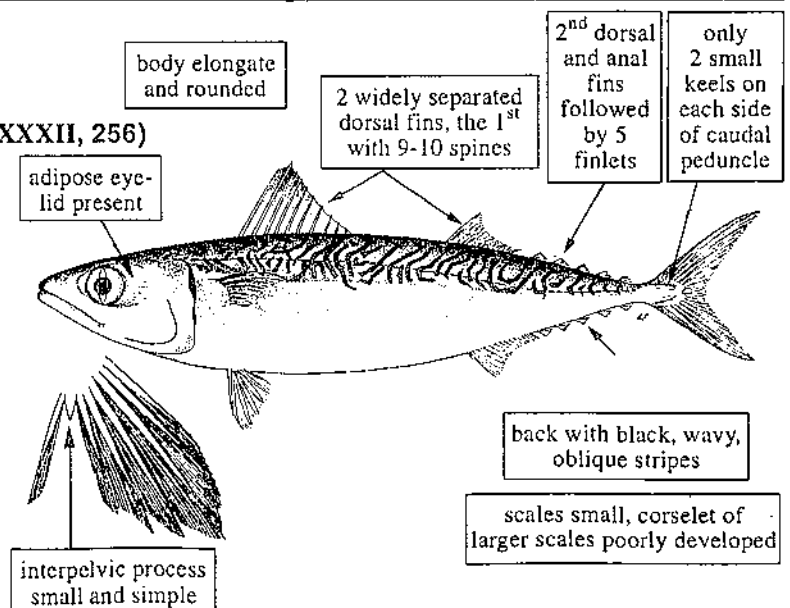
FAO names: En - Chub mackerel; Fr - Maquereau espagnol; Sp - Estornino.

Common names:

Size: Maximum 55 cm; common to 30 cm.

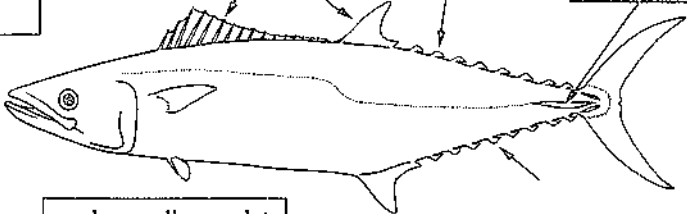
Distribution and habitat: Southern part of the Caribbean sea. A schooling pelagic species occurring mostly in coastal waters.

Fisheries: Artisanal and industrial. Caught with purse seines, often together with sardines in coastal waters over the shelf, on hook-and-line, beach seines, gillnets, and midwater trawls. Marketed fresh, frozen, smoked, and occasionally canned.



SCOMBRIDAE

Genus *Scomberomorus* - 3 species in the area.



body greatly elongate and compressed

2 almost contiguous dorsal fins, the 1st with 12-19 spines

dorsal and anal fins followed by 7-10 finlets

a large keel between 2 smaller keels on each side

interpelvic process small and bifid

scales small, corselet of larger scales absent

Scomberomorus brasiliensis Collette, Russo, and Zavala-Camin, 1978 (plate XXXIII, 257)

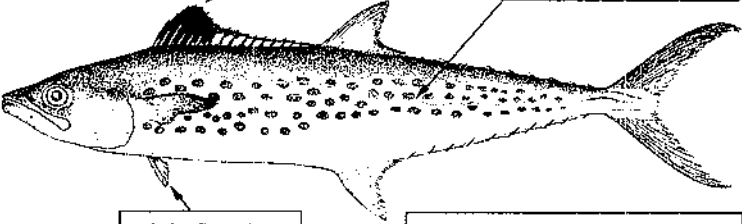
FAO names: En - Serra spanish mackerel; Fr - Thazard tacheté du sud; Sp - Serra.

Common names:

Size: Maximum 75 cm; common to 50 cm.

Distribution and habitat: Throughout the area. In coastal waters. The juveniles occur close to the shore, frequently in estuaries.

Fisheries: Predominantly artisanal. Caught by trolling with live bait, with bottom trawls, and gillnets. A commercially important species, but its flesh is not as good as that of *S. cavalla*.



1st dorsal fin black anteriorly, with 17-19 spines

lateral line descending gradually towards caudal peduncle

pelvic fins short, 3.6-5.9% of fork length

several rows of rounded, yellowish bronze spots, increasing in number with age

Scomberomorus cavalla (Cuvier, 1829)

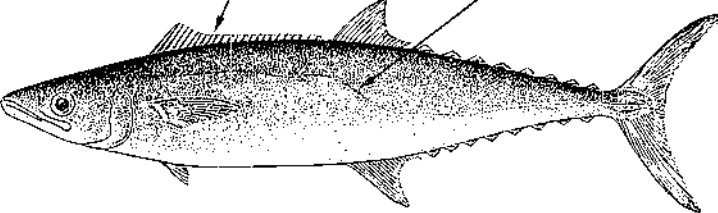
FAO names: En - King mackerel; Fr - Thazard serra; Sp - Carite lucio.

Common names:

Size: Maximum 160 cm; common to 70 cm.

Distribution and habitat: Throughout the area. Pelagic, mainly in coastal waters; often found singly or in small groups in outer reef areas, but not typical of insular coral reefs as *S. regalis*.

Fisheries: Predominantly artisanal or semi-industrial. Caught by trolling with live bait, with trammel nets, and occasionally beach seines. Marketed fresh or frozen. This is the most highly esteemed species of Spanish mackerel in the area.



dorsal fin with 12-18 (usually 15) spines

lateral line descending in an abrupt angle towards caudal peduncle

colour plain in adults; juveniles with rounded spots on back (as in *S. brasiliensis*)

Scomberomorus regalis (Bloch, 1793) (plate XXXIII, 258)

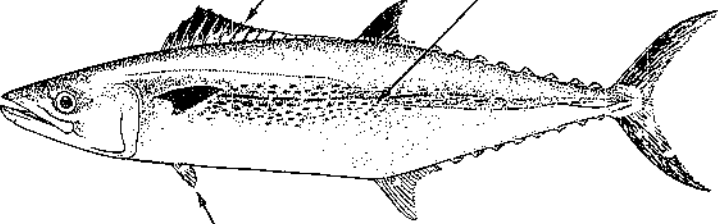
FAO names: En - Cero; Fr - Thazard franc; Sp - Carite chinigua.

Common names:

Size: Maximum 80 cm; common to 50 cm.

Distribution and habitat: Throughout the area. A pelagic species typical of clear waters, common in coral-reef areas and around oceanic islands.

Fisheries: Predominantly artisanal in surface waters. Caught by trolling with live bait, with trammel nets, and occasionally beach seines.



1st dorsal fin with 16-18 spines

lateral line descending gradually towards caudal peduncle

pelvic fins longer, 4.4-6.3% of fork length

anterior part of dorsal fin black; a midlateral series of yellow-orange streaks of variable length; small yellow spots above and below the streaks

SCOMBRIDAE

Genus *Thunnus* - 5 species in the area.

2 barely separated dorsal fins, the 1st with 11-14 spines

2nd dorsal and anal fins followed by 7-10 finlets

caudal peduncle very narrow, with a large keel between 2 smaller keels on each side

body fusiform, slightly compressed

interpelvic process small and bifid

scales very small, corselet of larger scales present, but indistinct

Thunnus alalunga (Bonnaterre, 1788)

FAO names: En - Albacore; Fr - Germon; Sp - Atún blanco.
Common names:

Size: Maximum 130 cm; common to 100 cm.

Distribution and habitat: Throughout the area. A pelagic oceanic species that may be found below the thermocline, at temperatures between 17° and 21°C.

Fisheries: Caught with purse seines, on long-lines, and by trolling. Marketed mostly frozen and canned. Very important for the canning industry.

maximum body depth under origin of 2nd dorsal fin (farther back than in other species of *Thunnus*)

25-31 gill rakers on 1st arch

pectoral fins very long, about 30% of fork length in specimens larger than 50 cm, and reaching to below anterior dorsal finlets

ventral surface of liver striated; anal finlets dark; hind margin of caudal fin white

Thunnus albacares (Bonnaterre, 1788)

FAO names: En - Yellowfin tuna; Fr - Albacore; Sp - Rabil.
Common names:

Size: Maximum over 200 cm; common to 150 cm.

Distribution and habitat: Throughout the area. A pelagic oceanic species found below as well as above the thermocline, usually far offshore.

Fisheries: Caught mainly with purse seines and on longlines; also on line gear. Marketed canned and frozen. This is the most important tuna species in the tropical Atlantic.

maximum body depth under midpoint of 1st dorsal-fin base

lobes of dorsal and anal fins prolonged at sizes of 120 cm fork length and above

26-34 gill rakers on 1st arch

pectoral fins moderately long, reaching beyond origin of 2nd dorsal fin

ventral surface of liver without striations; dorsal fin, as well as dorsal and anal finlets bright yellow, finlets with a black distal margin; belly often with about 20 pale, broken, vertical lines

SCOMBRIDAE

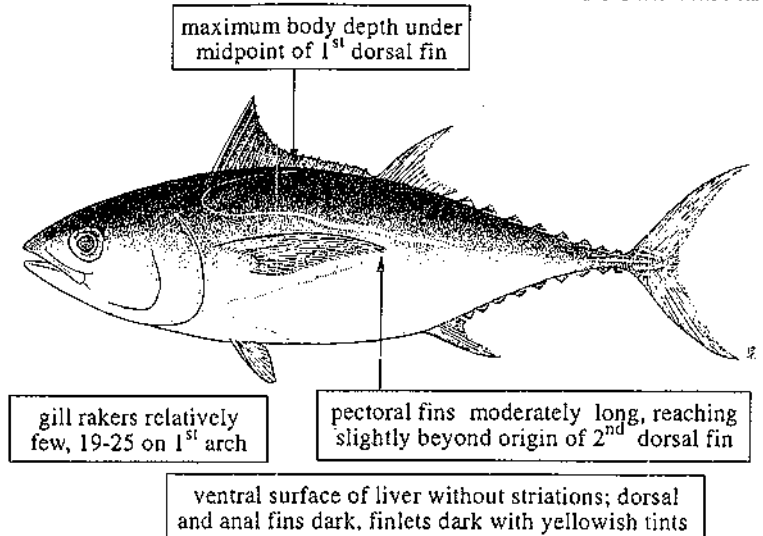
Thunnus atlanticus (Lesson, 1830)

FAO names: En - Blackfin tuna; Fr - Thon à nageoires noires; Sp - Atún aleta negra.
Common names:

Size: Maximum 95 cm; common to 72 cm.

Distribution and habitat: Throughout the area. A pelagic species, sometimes in offshore waters, but also frequently close to the coast.

Fisheries: Caught mainly by trolling with live bait. Marketed fresh, frozen, and canned. The most common tuna species in coastal waters throughout the area.



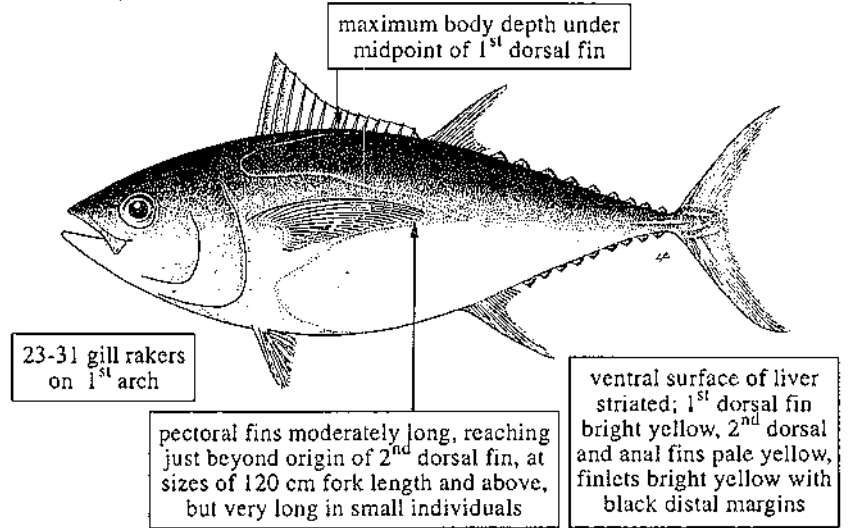
Thunnus obesus (Lowe, 1839)

FAO names: En - Bigeye tuna; Fr - Thon obèse; Sp - Patudo.
Common names:

Size: Maximum 236 cm; common to 180 cm.

Distribution and habitat: Throughout the area. A pantropical pelagic oceanic species, occurring from the surface to a depth of 250 m.

Fisheries: Industrial. Caught in offshore waters with pole and line, on longlines, and occasionally with purse seines. Marketed mostly canned and frozen.



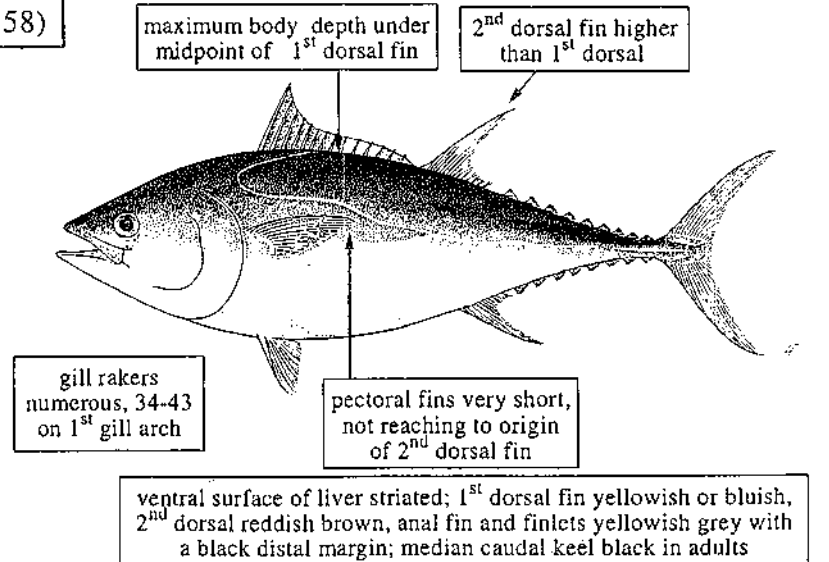
Thunnus thynnus thynnus (Linnaeus, 1758)

FAO names: En - Northern bluefin tuna; Fr - Thon rouge; Sp - Atún.
Common names:

Size: Maximum 325 cm; common to 250 cm.

Distribution and habitat: Throughout the area. Pelagic oceanic, usually far offshore. The least abundant tuna species in the area.

Fisheries: Industrial. Caught in offshore waters, mainly on longlines and with purse seines, but catches of this species are not abundant. Marketed canned and frozen. The most highly esteemed tuna species, because of the extraordinary quality of its flesh.



SCORPAENIDAE

En: Scorpionfishes, rockfishes, rosefishes. **Fr:** Rascasses, sébastes. **Sp:** Rascacios, sapos chasnetes.

Small to medium-sized, usually sedentary, demersal fishes. They occur mostly in coastal waters, over soft or hard substrates, and are coloured to blend in with their background. All species have venomous spines and must be handled with great care. Nine genera with 27 species in the area, of which only a few are currently exploited.

Genus *Helicolenus* - a single species in the area.

Helicolenus dactylopterus (Delaroche, 1809) (plate XXXIII, 259)

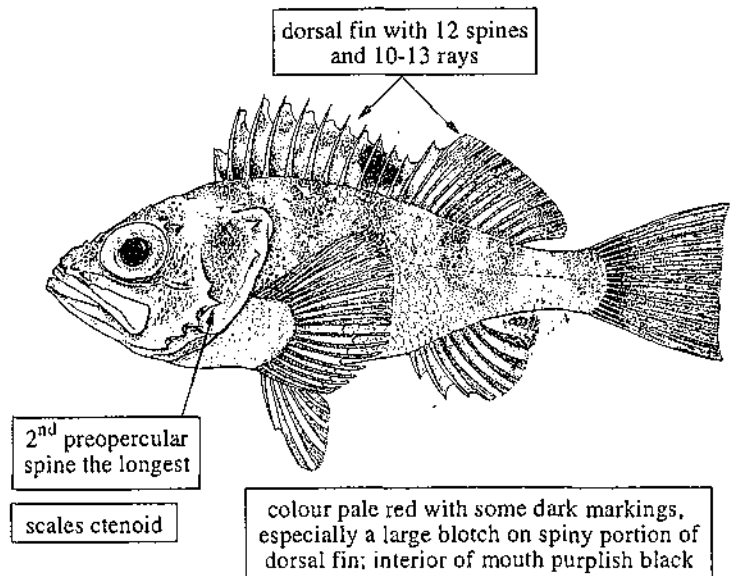
FAO names: En - Blackbelly rosefish; Fr - Sébaste chèvre; Sp - Rascacio rubio.

Common names:

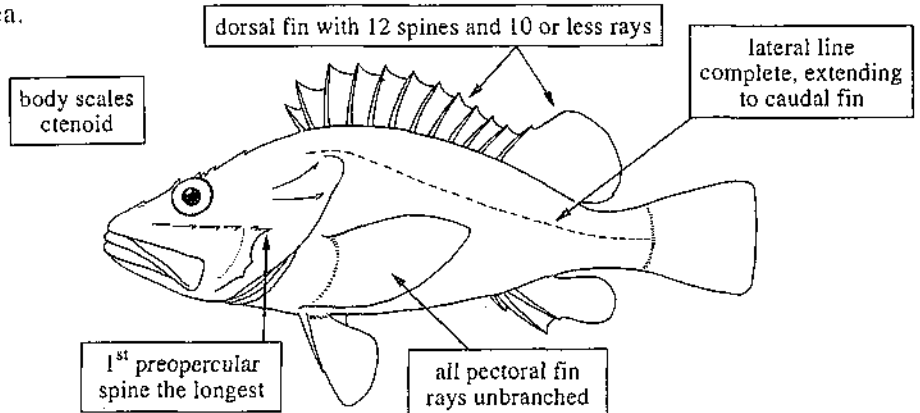
Size: Maximum 38 cm; common to 25 cm.

Distribution and habitat: Probably throughout the area. Over soft bottoms of the continental shelf, mainly between depths of 200 and 650 m.

Fisheries: Industrial. Caught in trawl fisheries for finfishes, but catches are not abundant. Marketed fresh in small quantities. Of little commercial importance at present, but in view of its acceptable size and excellent flesh, it may become a more important resource in the future.



Genus *Pontinus* - 6 species in the area.



Pontinus castor Poey, 1860

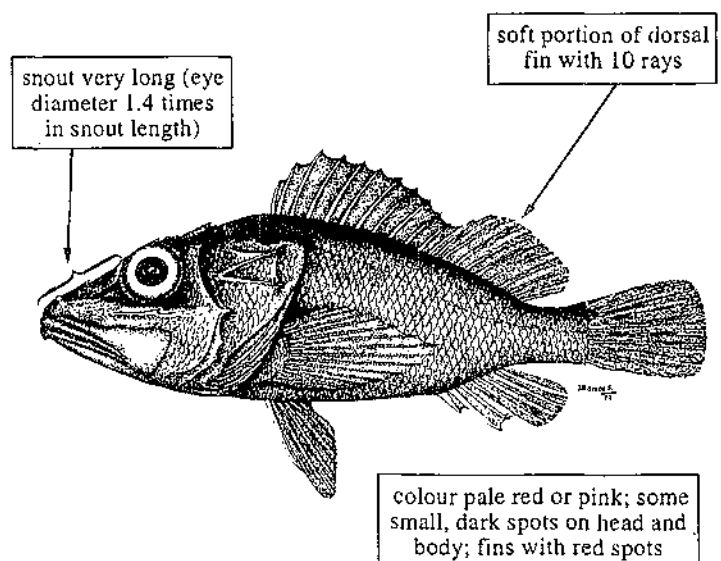
FAO names: En - Longsnout scorpionfish; Fr - Rascaisse longnez; Sp - Rascacio de fondo.

Common names:

Size: Maximum 45 cm; common to 30 cm.

Distribution and habitat: Caribbean sea. A demersal species occurring over rocks and shell fragments, at depths between 45 and 180 m. Most frequently found around oceanic islands. Records of this species from the area are scarce.

Fisheries: Artisanal. Caught with traps and on hook-and-line.



SCORPAENIDAE

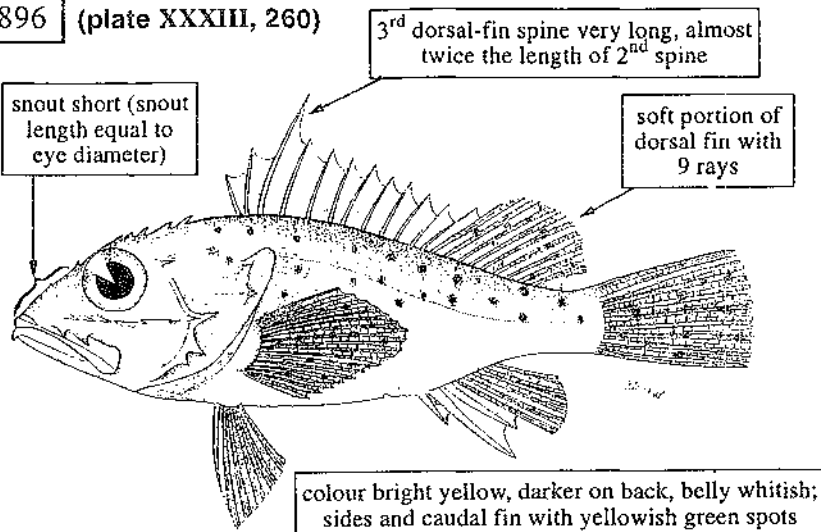
Pontinus longispinis Goode and Bean, 1896 (plate XXXIII, 260)

FAO names: En - Longspine scorpionfish; Fr - Rascasse épineux; Sp - Rascacio espinoso.
Common names:

Size: Maximum about 25 cm; common to 20 cm.

Distribution and habitat: Throughout the area. Over soft or semi-hard substrates, between depths of about 80 and 440 m.

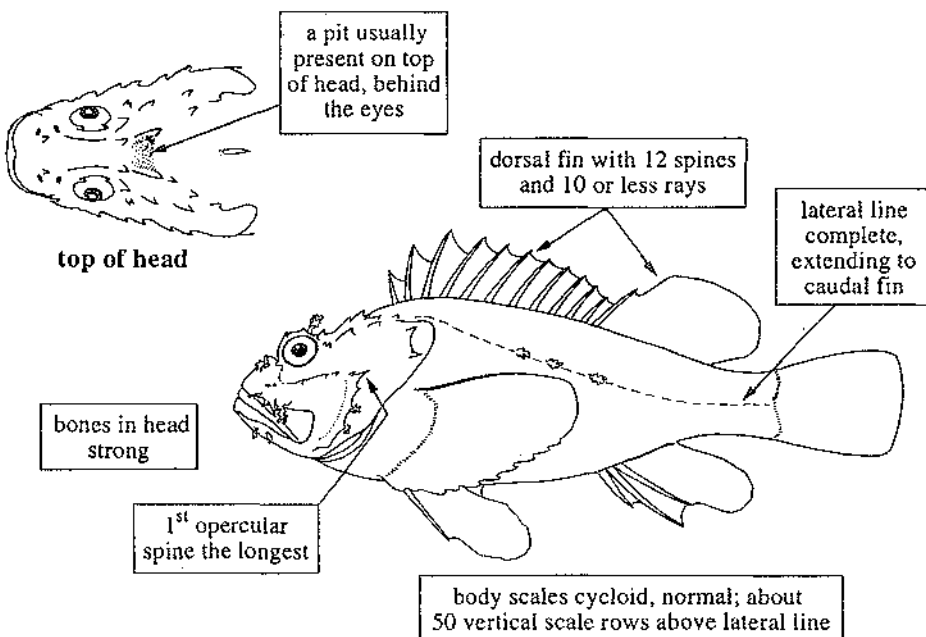
Fisheries: Only caught occasionally on hook-and-line or longlines, and also taken in industrial trawl fisheries.



Other species:

Pontinus corallinus Miranda Ribeiro, *P. helena* Eschmeyer, 1965, *P. nematophthalmus* (Günther, 1860), and *P. rathbuni* Goode and Bean, 1896. None of these species are of interest to fisheries, either because of their small average size or their rare occurrence in catches.

Genus *Scorpaena* - this genus comprises the greatest number of species and these are the most abundant in commercial catches. However, most of them are of little or no commercial importance because of their small average size. At present, only the larger species are occasionally marketed and consumed, but the demand for them is likely to increase in the future. The majority of species occur in coastal waters in less than a depth of 100 m. About 13 species occur in the area.



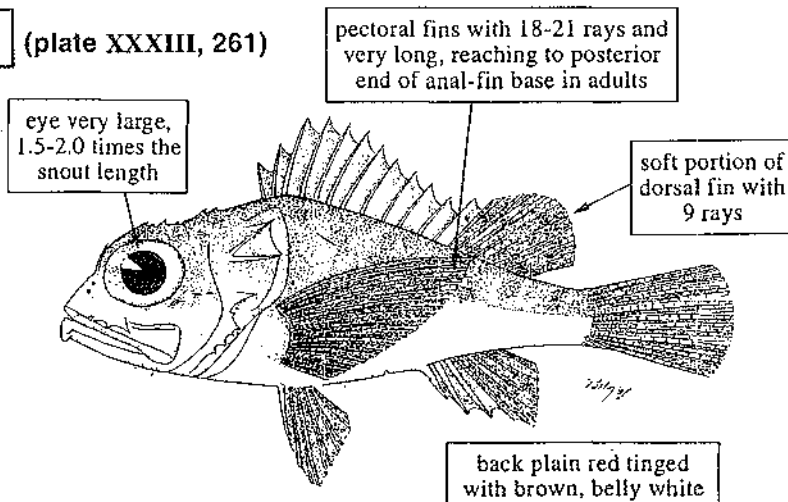
Scorpaena agassizi Goode and Bean, 1895 (plate XXXIII, 261)

FAO names: En - Longfin scorpionfish; Fr - Rascasse aîle-longe; Sp - Rascacio chasnete de fondo.
Common names:

Size: Maximum 20 cm; common to 15 cm.

Distribution and habitat: Probably throughout the area. Over soft bottoms of the continental shelf, between depths to about 50 and 275 m.

Fisheries: Taken in industrial trawl fisheries for shrimps and finfishes. Abundant in some regions (coast of Guyana), but usually not marketed.



SCORPAENIDAE

Scorpaena brasiliensis Cuvier, 1829

(plate XXXIII, 262)

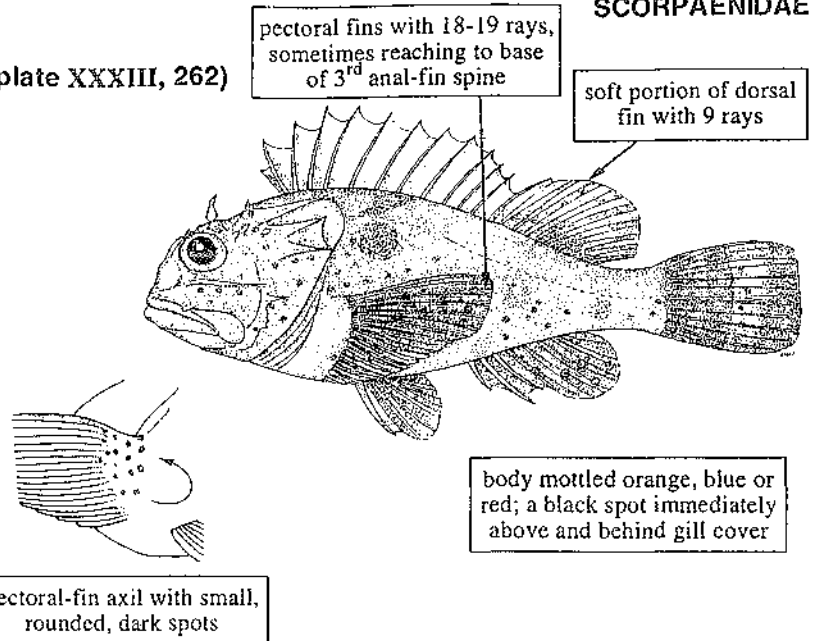
FAO names: En - Barbfish; Fr - Rascasse brésilien; Sp - Rascacio chasnete rojo.

Common names:

Size: Maximum 25 cm; common to 20 cm.

Distribution and habitat: Throughout the area. Over shallow, soft bottoms of the continental shelf, usually in less than a depth of 50 m; occasionally in coral reef areas. The most common species of *Scorpaena* in the area.

Fisheries: Artisanal. Caught with beach nets, and as bycatch in the industrial trawl fishery for shrimps. Usually not marketed, although the flesh is of good quality.

*Scorpaena plumieri* Bloch, 1789

(plate XXXIII, 264)

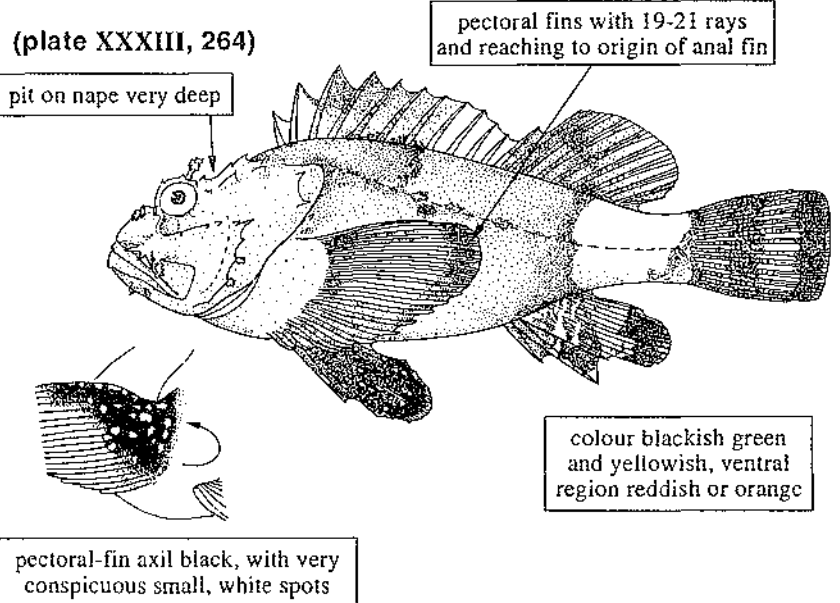
FAO names: En - Spotted scorpionfish; Fr - Rascasse noir; Sp - Rascacio negro.

Common names:

Size: Maximum 43 cm; common to 30 cm.

Distribution and habitat: Throughout the area. A demersal species usually found in shallow water, over rocky bottoms, and in coral-reef areas, as well as over soft bottoms, to a depth of about 60 m.

Fisheries: Predominantly artisanal. Caught on hook-and-line, traps, and occasionally with bottom trawls. Marketed fresh. Although at present the acceptance of this species in markets is limited, the demand for it is likely to increase in the future.

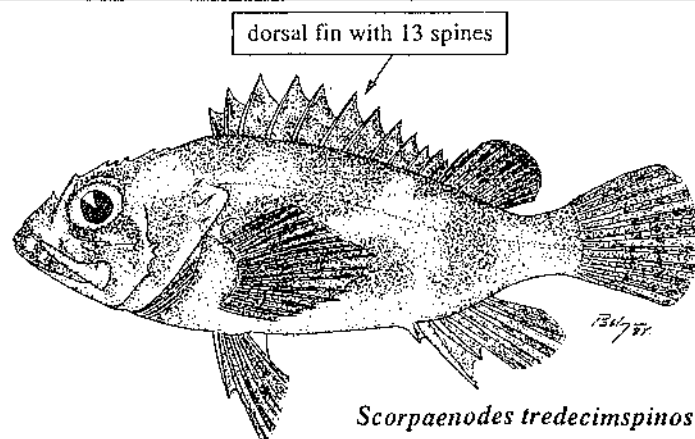


Other species:

Scorpaena bergi Evermann and Marsh, 1900, *S. brachyptera* Eschmeyer, 1965, *S. calcarata* Goode and Bean, 1882, *S. elachys* Eschmeyer, 1965, *S. inermis* Cuvier, 1829, *S. isthmensis* Meek and Hildebrand, 1928, *S. melasma* Eschmeyer, 1965, and *S. petricola* Eschmeyer, 1965. None of these species are of interest to fisheries because of their small average size. *S. dispar* Longley and Hildebrand, 1940 (plate XXXIII, 263), and *S. grandicornis* Cuvier, 1829, are very rare in the area (there are hardly any documented records of their presence there).

Genus *Scorpaenodes*

Two species in the area, *Scorpaenodes caribbaeus* Meek and Hildebrand, 1928, and *S. tredecimspinosus* (Metzelaar, 1919), both smaller than 15 cm in length, and of no interest to fisheries. They occur in creeks and caves on coral reefs or rocks, and hence are inaccessible to conventional fishing gear.

*Scorpaenodes tredecimspinosus*

SCORPAENIDAE

Genus *Setarches* - a single species in the area.

Setarches guntheri Johnson, 1862

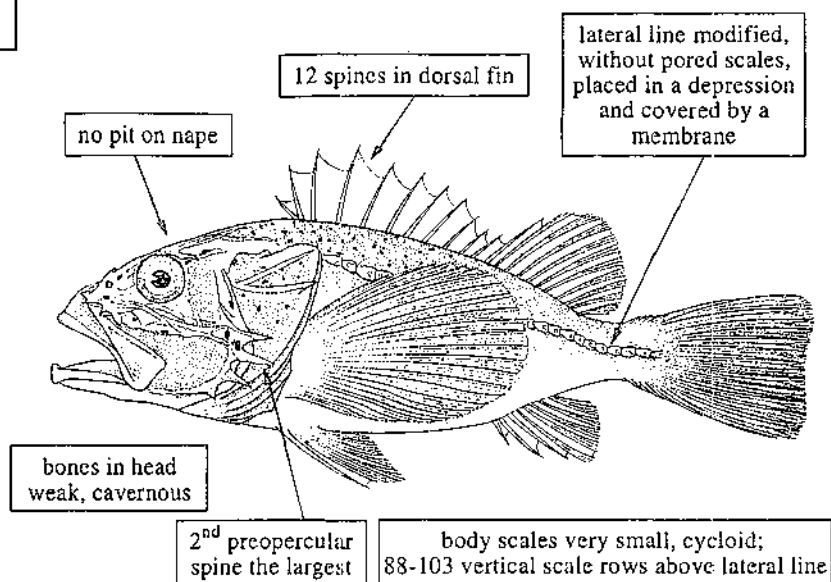
FAO names: En - Channeled rockfish; Fr - Rascasse silloné; Sp - Rascacio acanalado.

Common names:

Size: Maximum 20 cm; common to 15 cm.

Distribution and habitat: A demersal species usually found over soft bottoms, between depths of 170 and 500 m.

Fisheries: Taken in industrial trawl fisheries for finfishes. Relatively common, but hardly marketed at present.



Other genera:

Etreposebastes, *Idiastion*, *Neomerinthe* and *Phenacoscorpius*, each with a single species in the area and of no interest to fisheries.

SERRANIDAE

En: Groupers, hamiets, hinds, sea-basses, sand-perches, tatleys, etc. **Fr:** Badèches, conés, mérans, mérours, serrans, varèches. **Sp:** Chernas, meros, cunas, serranos, cachuchos, guasetas, guatacares.

Small to very large, usually demersal fishes occurring on the continental shelf and upper slope, mostly over hard substrates. Some species attain depths greater than 300 m. They are especially abundant in warm tropical seas and many species are typical residents of clear waters in coral-reef areas. They are carnivorous and protogynic hermaphrodites (females becoming males at a certain age). The large majority of serranids are highly esteemed food fishes, and constitute, together with the Lutjanidae (snappers), the most important fish resources of the Caribbean sea. They are less important along the Atlantic coast of the area, except on rocky bottoms of the slope. Four subfamilies, with 18 genera and more than 60 species in the area. The genera and species are organized by subfamily.

SUBFAMILY ANTHIINAE

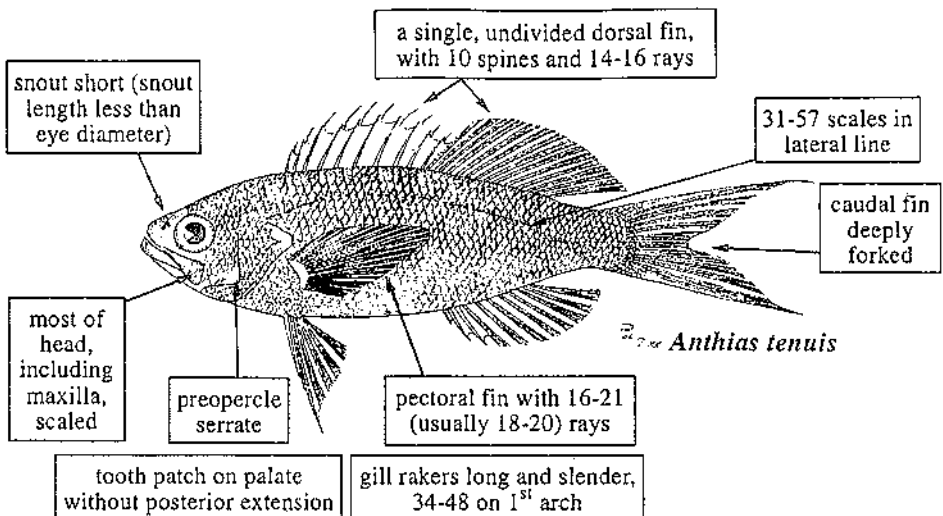
Small to medium-sized, strongly compressed fishes, usually of yellowish or reddish colour, inhabiting moderately deep waters.

» scales moderate-sized, in less than 80 oblique series on sides; lateral-line scales well visible, almost as large as body scales; no skinfold joining pectoral-fin base to body; basal 3rd of pelvic-fin ray joined to body; dorsal fin with 9-10 spines and 13-20 rays; origin of dorsal fin over or behind pectoral-fin base; caudal fin emarginate to forked, usually with filamentous lobes.

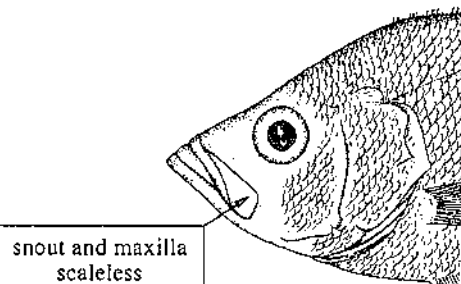
SERRANIDAE

Genus *Anthias*

Four species in the area, *A. asperilinguis* Günther, 1859, *A. nicholsi* Firth, 1933, *A. tenuis* Nichols, 1920, and possibly, *A. menezesi* Anderson and Heemstra, 1980. They usually live below a depth of 100 m, and are taken as bycatch in industrial trawl fisheries. All species are of relatively small size and none of them is very abundant; hence they are of no commercial importance.



Genus *Hemanthias* - 3 species in the area. Their morphology and colour patterns change greatly with growth, hence they are difficult to separate from one another.

*Hemanthias aurorubens* (Longley, 1935)

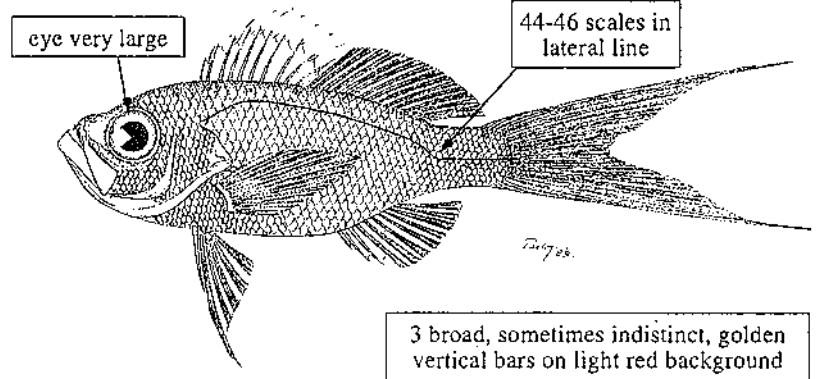
FAO names: En - Streamer bass; Fr - Coné doré; Sp - Cachucho.

Common names:

Size: Maximum 30 cm; common to 25 cm.

Distribution and habitat: Throughout the area. Over semi-hard substrates between depths of 120 and 610 m.

Fisheries: Taken in industrial trawl fisheries for finfishes, usually in small quantities. Of little commercial importance at present.

*Hemanthias leptus* (Ginsburg, 1952)

(plate XXXIV, 265)

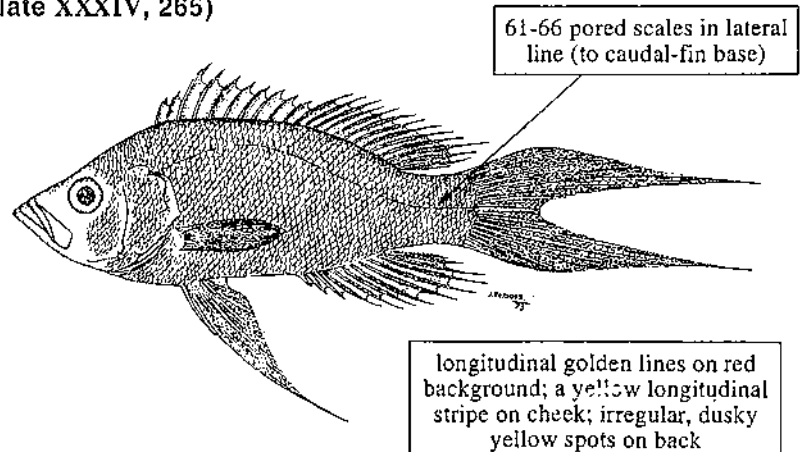
FAO names: En - Longtail bass; Fr - Coné grandoeil; Sp - Cachucho ojón.

Common names:

Size: Maximum 50 cm (including caudal filaments); common to 35 cm.

Distribution and habitat: Throughout the area. Over hard or semi-hard substrates, between depths of 60 and 300 m.

Fisheries: Taken in industrial trawl fisheries for finfishes. Fishing operations below a depth of 100 m may yield commercial catches of this species. Marketed fresh.

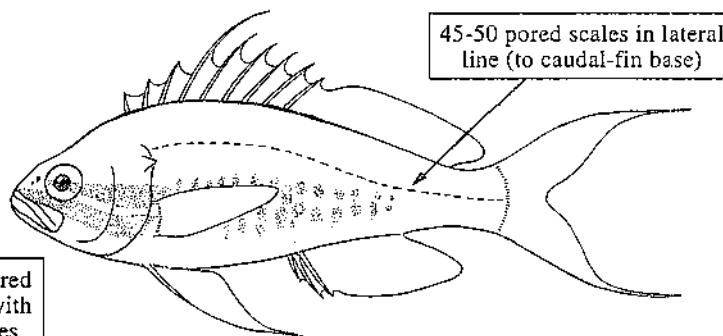


SERRANIDAE

Other species:

Hemanthias vivanus (Jordan and Swain, 1884) (plate XXXIV, 266), caught only occasionally; maximum size 25 cm.

small, yellow spots on dark red background; sides of head with 2 longitudinal yellow stripes



45-50 pored scales in lateral line (to caudal-fin base)

Genus *Holanthias* - a single species in the area.

Holanthias martinicensis (Guichenot, 1868) (plate XXXIV, 267)

FAO names: **En** - Roughtongue bass; **Fr** - Coné langue ruguese; **Sp** - Cachucho lengua rasposa.

Common names:

Size: Maximum about 20 cm; common to 16 cm.

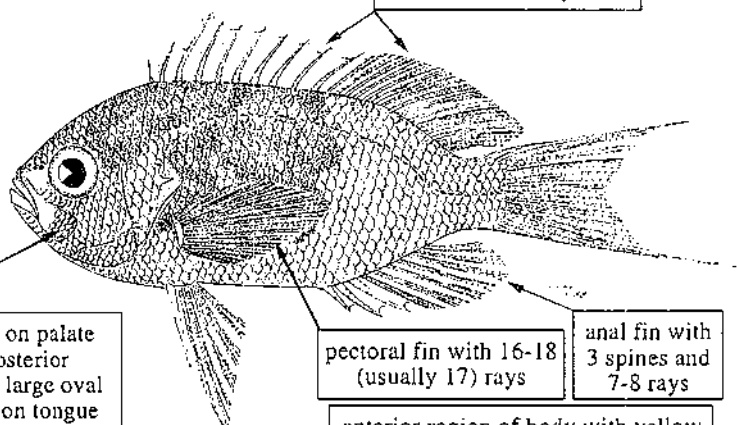
Distribution and habitat: Throughout the area, between depths of 60 and 610 m, usually below 150 m.

Fisheries: Taken as bycatch in industrial trawl fisheries. Of negligible commercial importance because of its small average size.

most of head, including maxilla, scaled

tooth patch on palate with a posterior extension; a large oval tooth patch on tongue

34-41 gill rakers on 1st arch



dorsal fin with 10 spines and 13-16 rays

pectoral fin with 16-18 (usually 17) rays

anal fin with 3 spines and 7-8 rays

anterior region of body with yellow colour sometimes forming a broad stripe; ground colour pink

SUBFAMILY EPINEPHELINAE

Medium-sized to large, robust, carnivorous fishes. They are usually reddish or brownish in colour and inhabit rocky and coral-reef habitats in shallow waters. Most are commercially important foodfishes.

» body scales small; over 80 scale rows on sides (from hind margin of gill cover to base of caudal fin); scales in lateral line smaller than body scales, and partially covered by them; bases of 1st pelvic-fin rays joined to body by a skinfold.

Genus *Alphestes* - a single species in the area.

Alphestes afer (Bloch, 1793)

FAO names: **En** - Mutton hamlet; **Fr** - Varèche; **Sp** - Guaseta.

Common names:

Size: Maximum 33 cm; common to 25 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad and Tobago. Occurs in shallow waters, close to the shore, to a depth of at least 35 m, frequently on seagrass beds.

Fisheries: Caught on hook-and-line and with traps. Marketed fresh, but of little commercial importance because of its relatively small average size.

body deep (depth 2.4-3.1 times in standard length)

preopercular margin serrate, with a large, forward-pointing spine sometimes covered by skin

82-87 oblique series of scales on sides

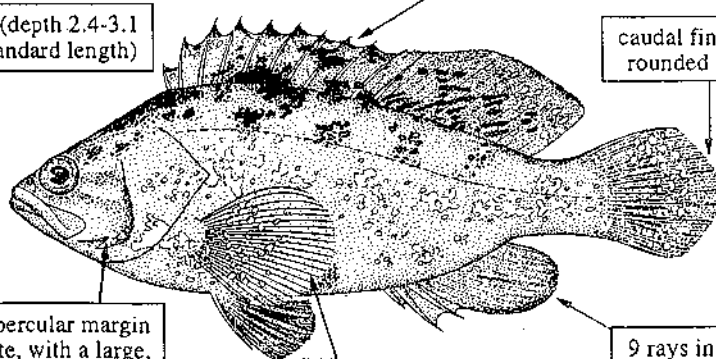
dorsal fin with 11 spines and 17-19 rays

pectoral fins longer than pelvic fins

ground colour brownish orange or mauve, with small, round, orange spots, and large, dark brown blotches that tend to form cross-bars

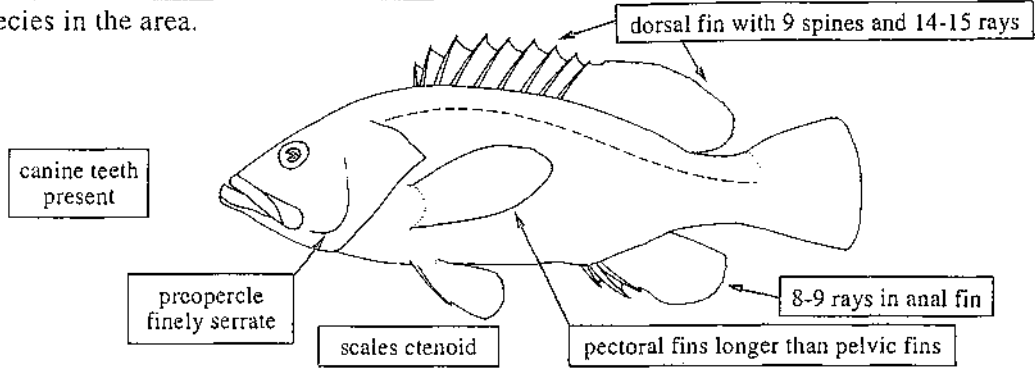
caudal fin rounded

9 rays in anal fin



SERRANIDAE

Genus *Cephalopholis* - 2 species in the area.



Cephalopholis cruentata Lacepède, 1802

(plate XXXIV, 268)

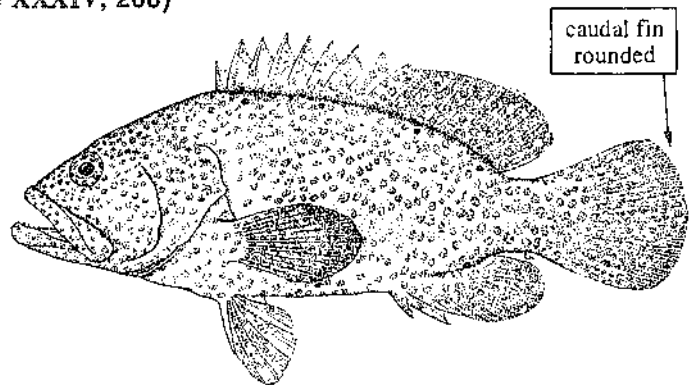
FAO names: En - Grasby seabass; Fr - Coné essaim; Sp - Cherna enjambre.

Common names:

Size: Maximum 32 cm; common to 20 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad and Tobago. Mainly in coral-reef areas, from the shore to a depth of about 70 m (usually less).

Fisheries: Artisanal. Caught mainly on hook-and-line and with traps. Marketed mostly fresh. Although its flesh is of good quality, this species is of little commercial importance because of its relatively small average size.



rounded, reddish brown spots on olive-green or greyish brown background; in deep waters, the ground colour is reddish

Cephalopholis fulva (Linnaeus, 1758)

(plate XXXIV, 269)

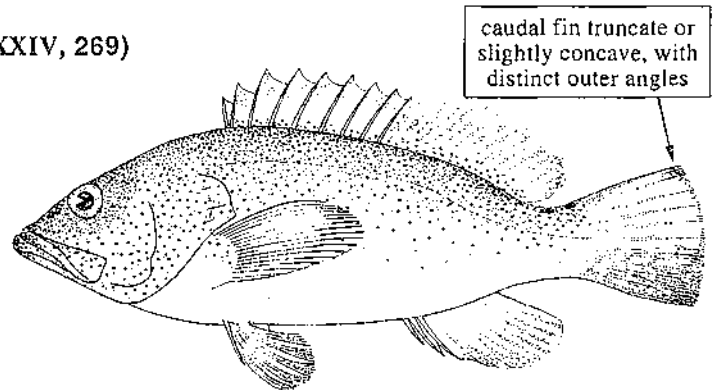
FAO names: En - Coney seabass; Fr - Coné ouatalibi; Sp - Cherna cabrilla.

Common names:

Size: Maximum 39 cm; common to 25 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad and Tobago. In clear waters of coral-reef areas and on rocky bottoms to a depth of about 40 m (usually less).

Fisheries: Artisanal. Caught mainly on hook-and-line and with traps. Marketed mostly fresh. Of limited commercial importance because of its relatively small average size.



3 colour phases: in shallow water, blue dots on brown background; in deep water, black dots on red background; occasionally, black dots on bright yellow background

Genus *Dermatolepis* - a single species in the area.

Dermatolepis inermis (Valenciennes, 1833)

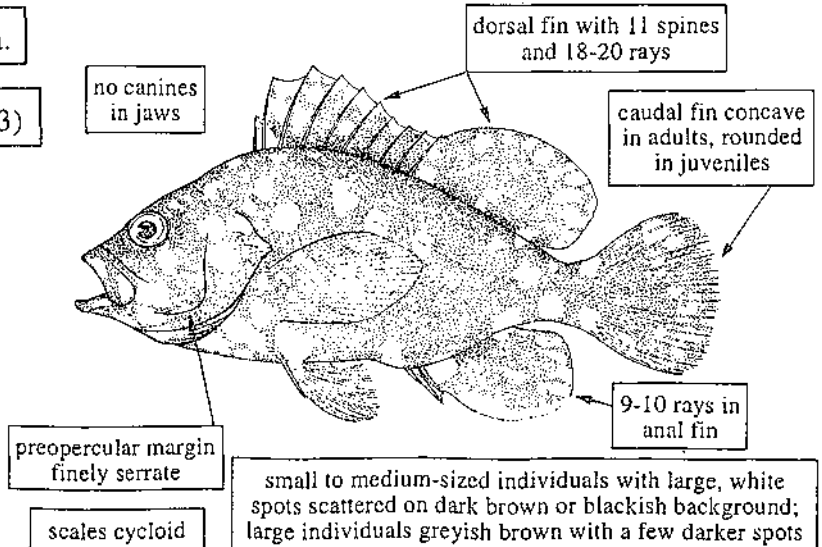
FAO names: En - Marbled grouper; Fr - Méran marbré; Sp - Mero mármol.

Common names:

Size: Maximum 90 cm; common to 50 cm.

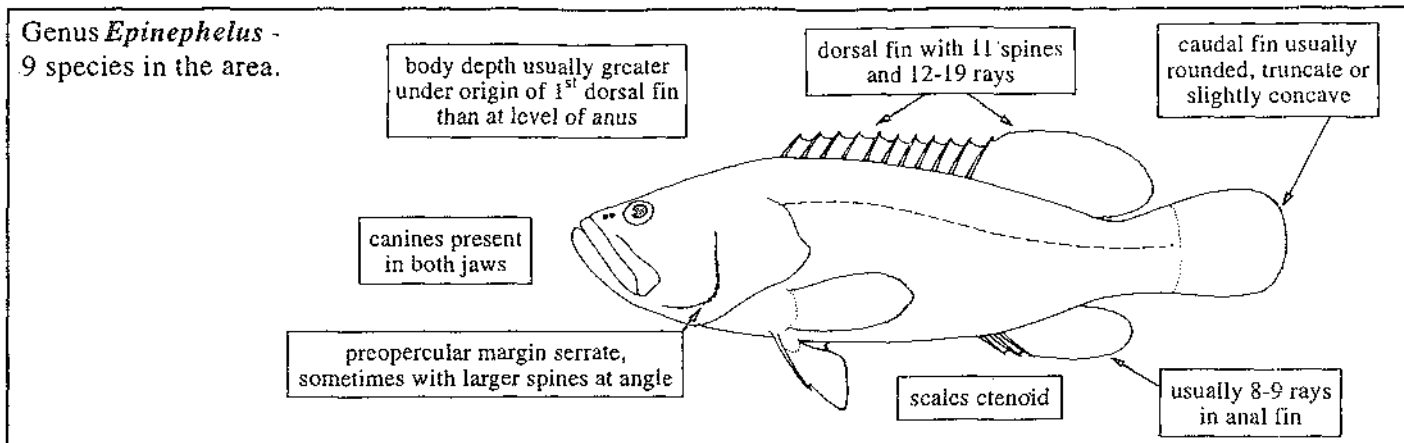
Distribution and habitat: Probably throughout the area, but probably rare, since there are only few records from the area. Large specimens occur over hard bottoms, below a depth of 100 m.

Fisheries: Caught mainly on hook-and-line. Rarely found in markets.



small to medium-sized individuals with large, white spots scattered on dark brown or blackish background; large individuals greyish brown with a few darker spots

SERRANIDAE



Epinephelus adscensionis (Osbeck, 1771) (plate XXXIV, 270)

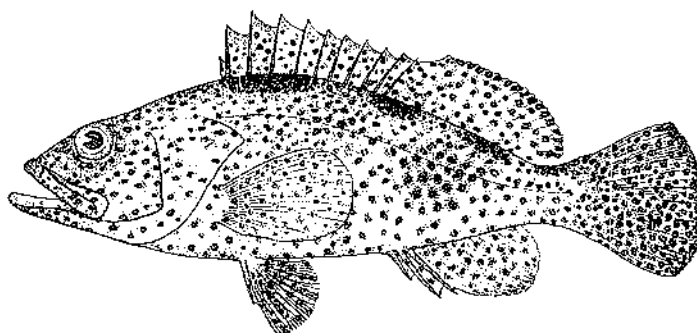
FAO names: En - Rock hind; Fr - Mérou oualioua; Sp - Mero cabrilla.

Common names:

Size: Maximum 48 cm; common to 35 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters over rocky bottoms and in coral-reef areas, to a depth of about 50 m.

Fisheries: Predominantly artisanal. Caught on hook-and-line and with traps. Marketed mostly fresh; flesh of good quality.



small, rounded, reddish brown spots on head, body, and fins, on light brown background; 2-3 large, dark spots along dorsal-fin base and another on caudal peduncle

Epinephelus flavolimbatus Poey, 1865 (plate XXXIV, 271)

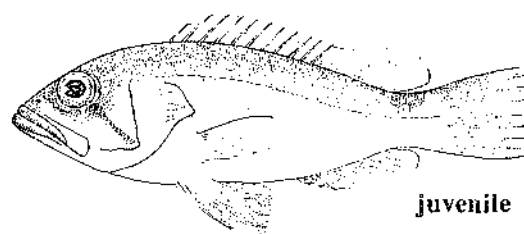
FAO names. En - Yellowedge grouper; Fr - Mérou aîle jaune; Sp - Mero aleta amarilla.

Common names:

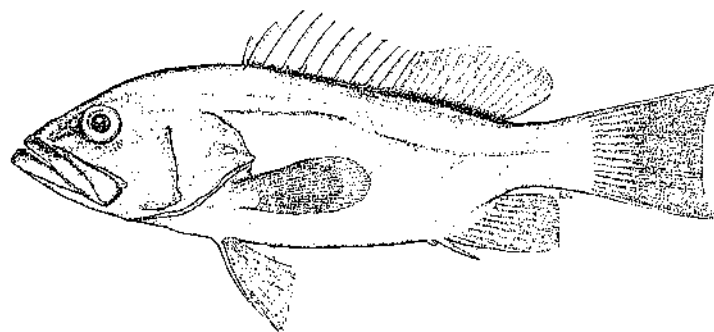
Size: Maximum over 80 cm and about 10 kg; common to 50 cm.

Distribution and habitat: Throughout the area. Over rocky bottoms of the continental shelf and the upper slope, between depths of 35 and 370 m.

Fisheries: Semi-industrial. Caught on line gear. Marketed fresh; flesh of excellent quality. This is the most important grouper species on the rocky slope off Guyana.



juveniles with pearly spots arranged in regular rows and a saddle-shaped blotch on top of caudal peduncle not extending to below lateral line



colour brown to reddish brown, lighter ventrally; anterior (spiny) portion of dorsal fin with a broad yellow margin; a pearly blue line from eye to angle of preopercle

Epinephelus guttatus (Linnaeus, 1758) (plate XXXIV, 272)

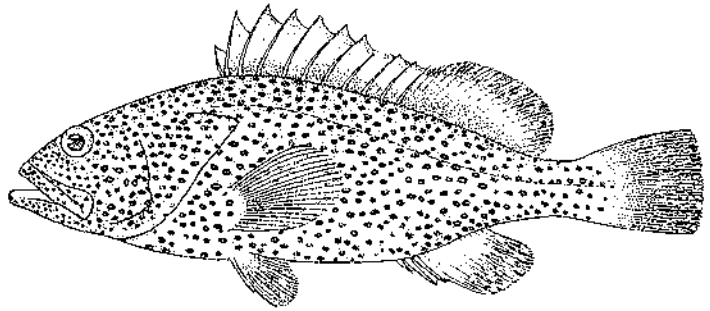
FAO names: En - Red hind; Fr - Mérou couronné;
Sp - Mero colorado.

Common names:

Size: Maximum about 60 cm and 8.2 kg (not in the area); common to 40 cm.

Distribution and habitat: Coasts of the Caribbean sea. In shallow waters, over rocky bottoms and in coral-reef areas, usually in a depth less than 30 m. The most abundant grouper species in coral-reef areas.

Fisheries: Predominantly artisanal. Caught on hook-and-line and with traps. Marketed fresh; flesh of good quality.



dark red, rounded spots only on head and body; ground colour pale pink; soft portions of dorsal and anal fins with conspicuous black margins

Epinephelus itajara (Lichtenstein, 1822) (plate XXXV, 273)

Note: Formerly, often incorrectly identified as *Promicrops itajara*.

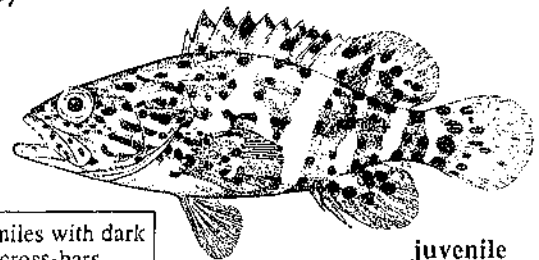
FAO names: En - Jewfish (=Giant grouper);
Fr - Mérou géant; Sp - Mero guasa.

Common names:

Size: Maximum 240 cm and over 250 kg, common to 150 cm.

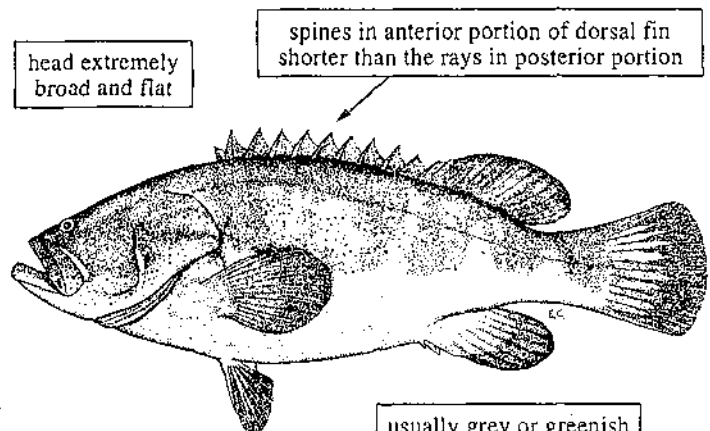
Distribution and habitat: Throughout the area. Adults occur in shallow marine and estuarine waters, over rocky bottoms, in coral reef areas, and over muddy substrates. Juveniles are very common over mud bottoms, among roots of mangrove trees in brackish water, and in hypersaline areas, although they also occur in coastal marine waters.

Fisheries: Small and medium-sized specimens are caught mainly in traps and with gillnets, and are also taken as bycatch in the industrial trawl fishery for shrimps; large individuals are hunted with harpoons. Marketed fresh and salted; flesh of excellent quality.



juveniles with dark cross-bars

juvenile



head extremely broad and flat

spines in anterior portion of dorsal fin shorter than the rays in posterior portion

usually grey or greenish with small black spots

Epinephelus morio (Valenciennes, 1882)

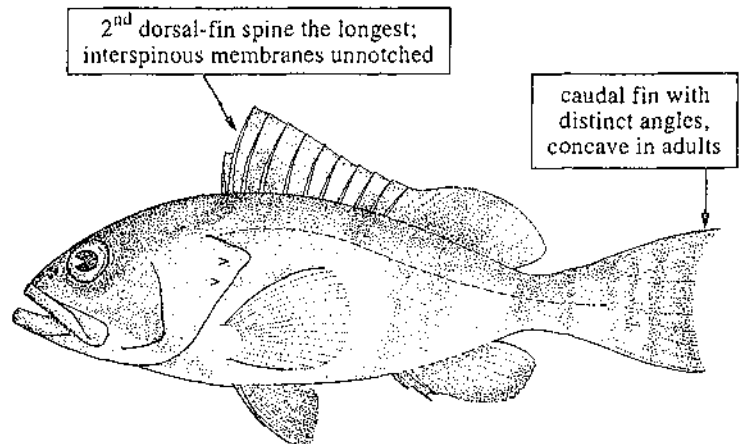
FAO names: En - Red grouper; Fr - Mérou rouge;
Sp - Mero rojo (= Mero americano).

Common names:

Size: Maximum 72 cm and about 15 kg; common to 50 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela, and on Trinidad and Tobago. Mainly over rocky bottoms, but sometimes also on soft substrates, between depths of 5 and 150 m.

Fisheries: Predominantly artisanal. Caught on hook-and-line and with traps. Occasionally taken as bycatch in industrial trawl fisheries. Marketed fresh and frozen.



2nd dorsal-fin spine the longest; interspinous membranes unnotched

caudal fin with distinct angles, concave in adults

ground colour reddish brown, with black dots on cheek and gill cover, but none around eye

SERRANIDAE

Epinephelus mystacinus (Poey, 1852)

FAO names: En - Misty grouper; Fr - Mérou brouillard; Sp - Mero listado.

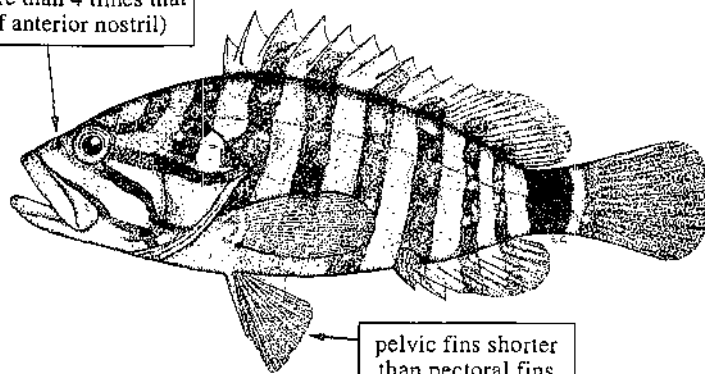
Common names:

Size: Maximum about 90 cm and over 40 kg; common to 60 cm.

Distribution and habitat: Probably throughout the area, but documented records are scarce. A species occurring in deep water, from depths of at least 150 to 500 m.

Fisheries: Caught on hook-and-line. Marketed fresh.

posterior nostril very large (its diameter more than 4 times that of anterior nostril)



pelvic fins shorter than pectoral fins

8-9 dark brown vertical bars on lighter background

Epinephelus nigrinus (Holbrook, 1855)

(plate XXXV, 274)

FAO names: En - Warsaw grouper; Fr - Mérou polonais; Sp - Mero negro.

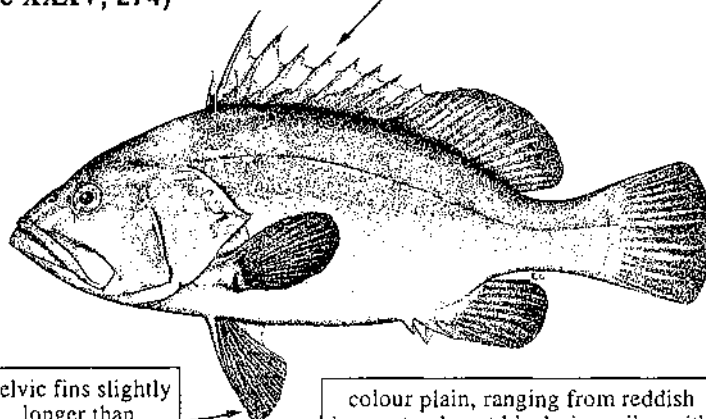
Common names:

Size: Maximum about 100 cm and over 100 kg; common to 60 cm.

Distribution and habitat: Probably throughout the area. A species occurring also in deep water, usually between depths of 40 and 450 m. Juveniles may be found in shallower waters. Records from the area are rather scarce.

Fisheries: Caught on hook-and-line. Marketed fresh.

10 spines in dorsal fin



pelvic fins slightly longer than pectoral fins

colour plain, ranging from reddish brown to almost black; juveniles with pale round spots, not in regular rows

Epinephelus niveatus (Valenciennes, 1828)

FAO names: En - Snowy grouper; Fr - Mérou neige; Sp - Cherna pintada.

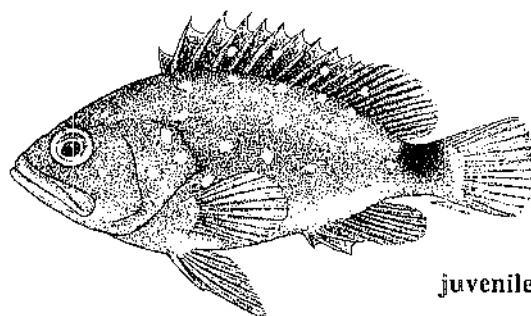
Common names:

Size: Maximum about 100 cm; common to 60 cm.

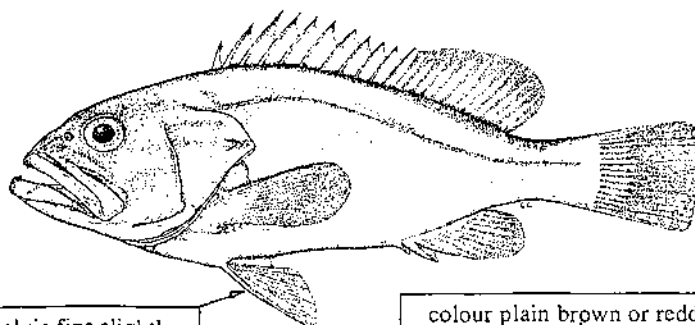
Distribution and habitat: Probably throughout the area. A species occurring in rather deep water; juveniles are occasionally found in shallow coastal waters.

Fisheries: Caught mainly on line gear. Marketed mostly fresh.

juvenile



young specimens with regular rows of pearly spots and a dark, saddle-shaped blotch on caudal peduncle extending to below lateral line



pelvic fins slightly shorter than pectoral fins in large adults

colour plain brown or reddish brown; anterior portion of dorsal fin with a black margin

Epinephelus striatus (Bloch, 1792)

(plate XXXV, 275)

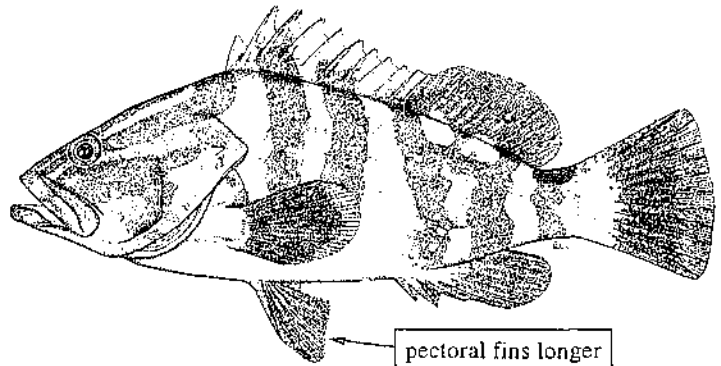
FAO names: En - Nassau grouper; Fr - Mérou rayé; Sp - Cherna criolla.

Common names:

Size: Maximum about 100 cm and about 20 kg; common to 60 cm.

Distribution and habitat: Throughout the area. A common species in coral-reef areas and over rocky bottoms, from the shore to a depth of about 90 m.

Fisheries: Artisanal as well as industrial. Caught mainly with traps and on hook-and-line. Marketed fresh. One of the grouper species most commonly seen in markets of the area, mainly in Colombia and Venezuela.



pectoral fins longer than pelvic fins

5 dark vertical bars on body, the 3rd and 4th Y-shaped; a "tuning-fork"-shaped stripe on top of head; a distinctive squarish black blotch (saddle) on top of caudal peduncle, and small, black spots under and behind eye

Genus *Gonioplectrus* - a single species in the area.

Gonioplectrus hispanus (Cuvier, 1832)

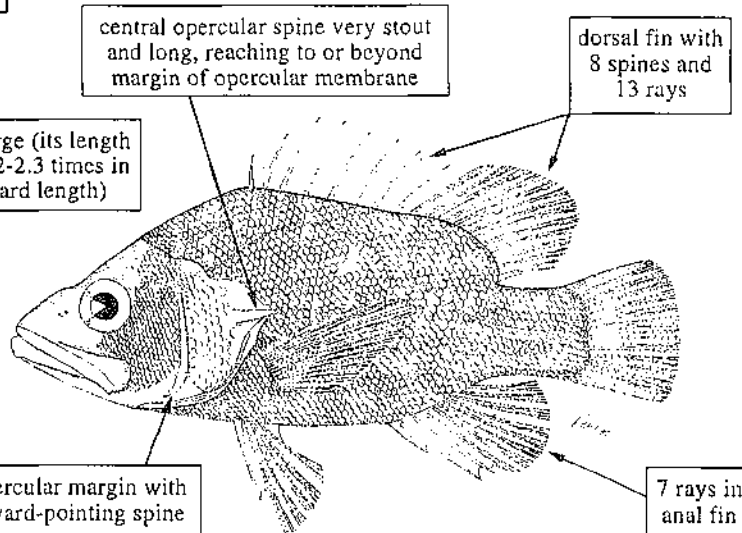
FAO names: En - Spanish flag; Fr - Mérou bandière; Sp - Mero bandera.

Common names:

Size: Maximum about 30 cm.

Distribution and habitat: Documented records of this species from the area are very scarce. It occurs over rocky bottoms in moderately deep waters.

Fisheries: Artisanal. Caught mainly on hook-and-line.



central opercular spine very stout and long, reaching to or beyond margin of opercular membrane

dorsal fin with 8 spines and 13 rays

head large (its length only 2.2-2.3 times in standard length)

preopercular margin with 1 forward-pointing spine

7 rays in anal fin

scales large, cycloid

6-7 longitudinal yellow stripes on reddish pink background

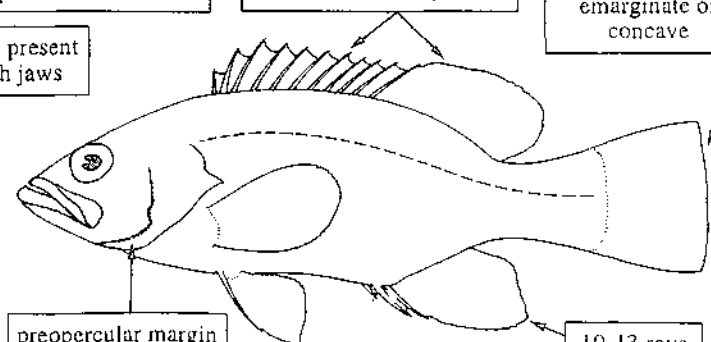
Genus *Mycteroperca* - 7 species in the area. Moderate-sized to large fishes, resembling the groupers of the genus *Epinephelus*, and constituting a group of considerable commercial importance. The adults usually differ from juveniles in morphology as well as in colour pattern.

body depth under origin of dorsal fin less than, or equal to, depth at level of anus

dorsal fin with 11 spines and 15-18 rays

caudal fin truncate, emarginate or concave

canines present in both jaws



preopercular margin finely serrate

10-13 rays in anal fin

SERRANIDAE

Mycteroperca bonaci (Poey, 1860)

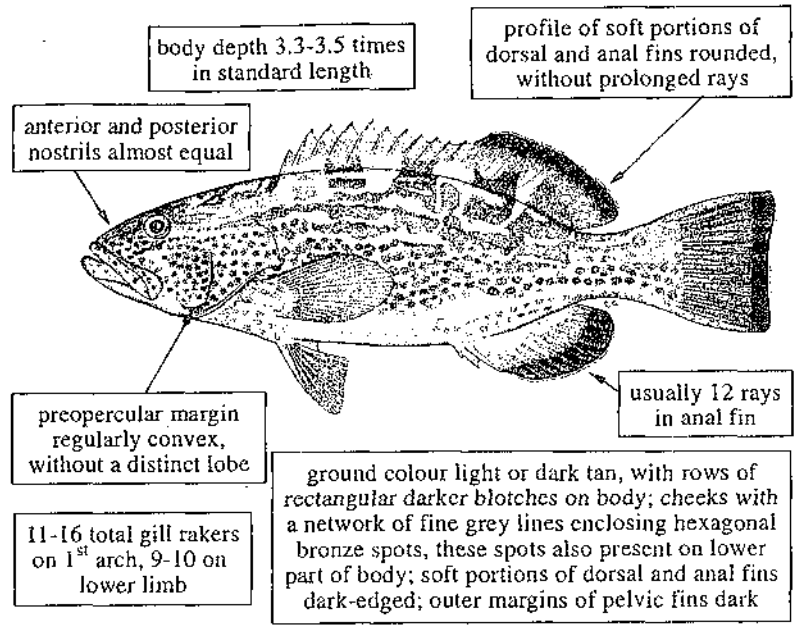
FAO names: En - Black grouper; Fr - Badèche bonaci; Sp - Cuna bonaci.

Common names:

Size: Maximum 100 cm and about 60 kg; common to 70 cm.

Distribution and habitat: Probably throughout the area. Mainly over rocky bottoms, and in habitats with soft corals. Juveniles occur in shallow waters, while adults are usually found below a depth of 20 m.

Fisheries: Predominantly artisanal. Caught on hook-and-line and with traps. Marketed fresh; flesh of excellent quality.



Mycteroperca cidi Cervigón, 1966

(plate XXXV, 276)

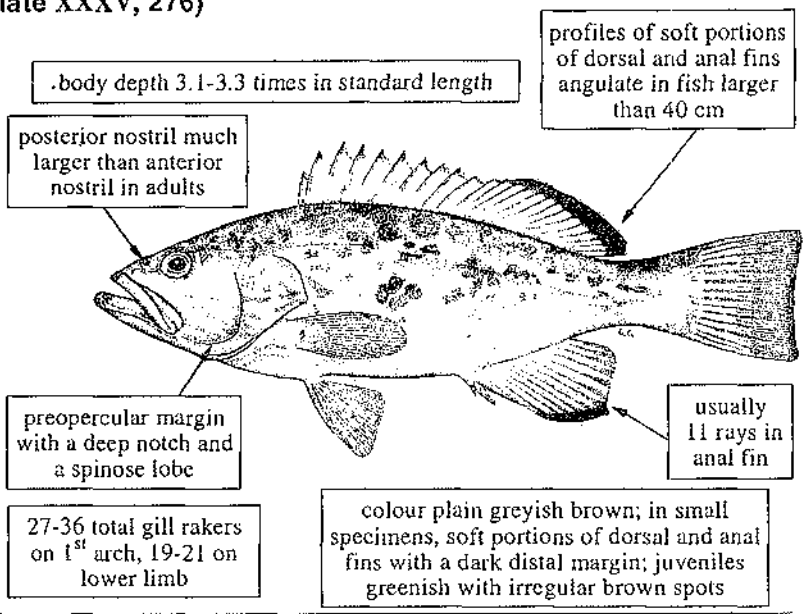
FAO names: En - Venezuelan grouper; Fr - Badèche blanche; Sp - Cuna blanca.

Common names:

Size: Maximum about 100 cm and at least 15 kg; common to 60 cm.

Distribution and habitat: Northern coast of Venezuela. Juveniles and small adults occur in shallow waters, over sandy and rocky substrates to a depth of about 20 m, while large adults are found below this depth.

Fisheries: Predominantly artisanal. Caught on hook-and-line and with traps. Marketed fresh; flesh of excellent quality.



Mycteroperca interstitialis (Poey, 1860)

(plate XXXV, 277)

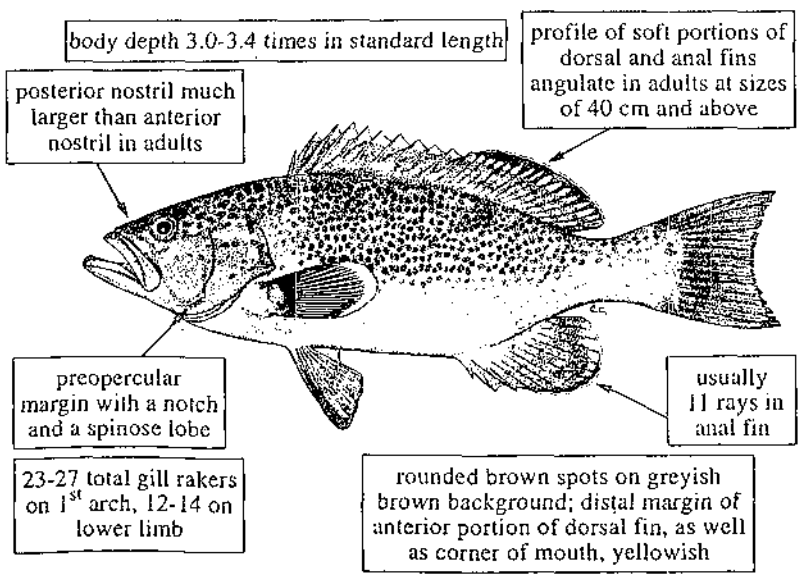
FAO names: En - Yellowmouth grouper; Fr - Badèche gueule jaune; Sp - Cuna amarilla.

Common names:

Size: Maximum 74 cm and about 6 kg; common to 40 cm.

Distribution and habitat: Probably throughout the area. In clear waters, over rock and coral bottoms, from the shore to a depth of about 55 m. Small and medium-sized fish are always found in shallow waters.

Fisheries: Predominantly artisanal. Caught with traps and on hook-and-line. Marketed mostly fresh; flesh of excellent quality.



SERRANIDAE

***Mycteroperca phenax* Jordan and Swain, 1885 (plate XXXV, 278)**

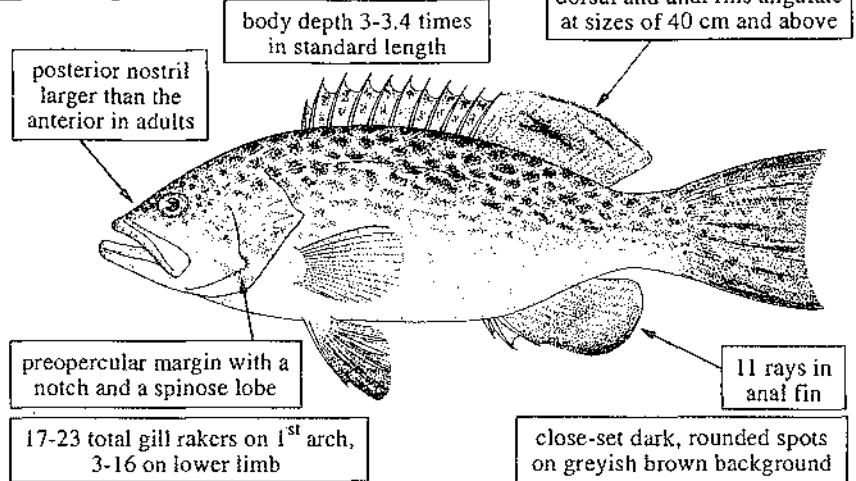
FAO names: En - Scamp; Fr - Badèche galopin; Sp - Cuna garopa.

Common names:

Size: Maximum 58 cm; common to 30 cm.

Distribution and habitat: Probably throughout the area. Over hard and semi-hard bottoms to a depth of about 90 m (usually less). Juveniles are found in shallow waters. A species seldom occurring in coral-reef areas.

Fisheries: Predominantly artisanal. Caught with traps and on hook-and-line. Marketed fresh; the flesh is of good quality.

***Mycteroperca rubra* (Bloch, 1793)**

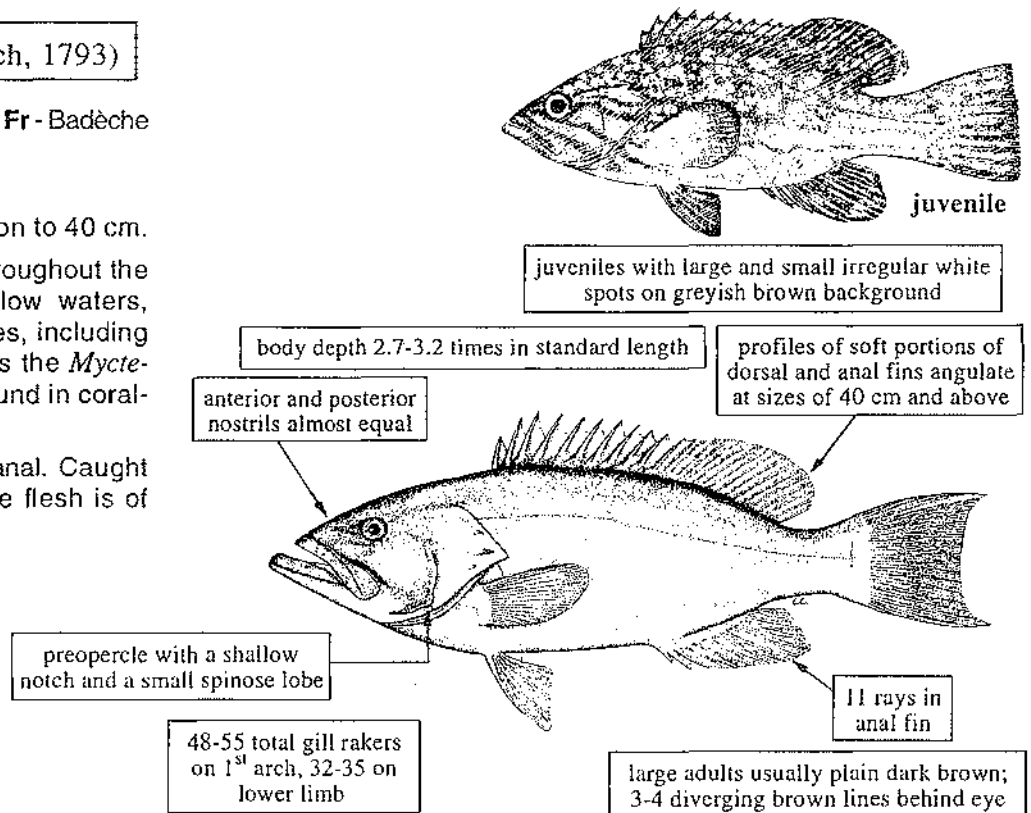
FAO names: En - Comb grouper; Fr - Badèche peigne; Sp - Cuna negra.

Common names:

Size: Maximum 79 cm; common to 40 cm.

Distribution and habitat: Throughout the area. Usually occurs in shallow waters, over a wide range of substrates, including mud, in littoral lagoons. This is the *Mycteroperca* species most rarely found in coral-reef areas.

Fisheries: Predominantly artisanal. Caught with traps. Marketed fresh; the flesh is of good quality.

***Mycteroperca tigris* (Valenciennes, 1828) (plate XXXV, 279)**

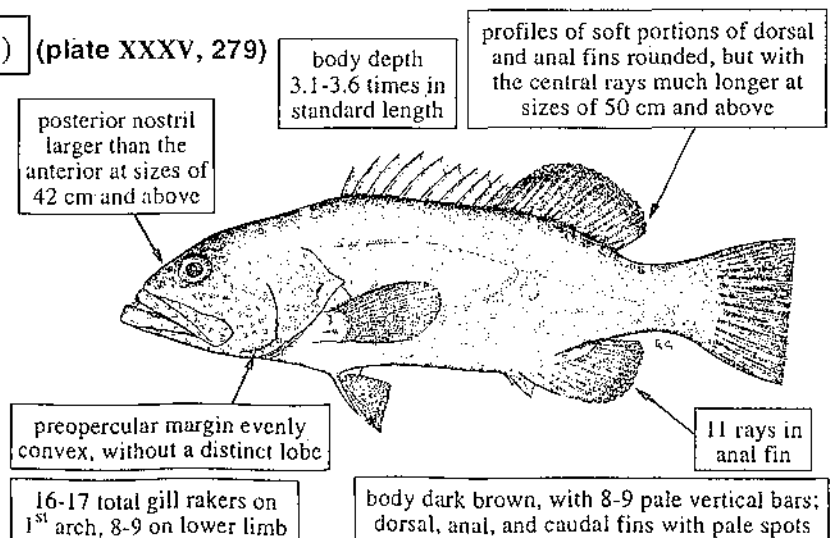
FAO names: En - Tiger grouper; Fr - Badèche tigre; Sp - Cuna tigre (=Cuna gata).

Common names:

Size: Maximum 75 cm and 7.5 kg; common to 40 cm.

Distribution and habitat: Throughout the area. In clear waters, mainly of coral reef-areas, from the shore to a depth of at least 30 m. One of the most typical coral-reef species in the area.

Fisheries: Predominantly artisanal. Caught with traps and on hook-and-line. Marketed fresh; the flesh is of good quality.



SERRANIDAE

Mycteroperca venenosa (Linnaeus, 1758) (plate XXXV, 280)

FAO names: En - Yellowfin grouper; Fr - Badèche de roche; Sp - Cuna de piedra.
Common names:

Size: Maximum 100 cm and about 15 kg; common to 50 cm.

Distribution and habitat: Throughout the area. In clear waters, from the shoreline to a depth of about 80 m. A typical coral-reef species.

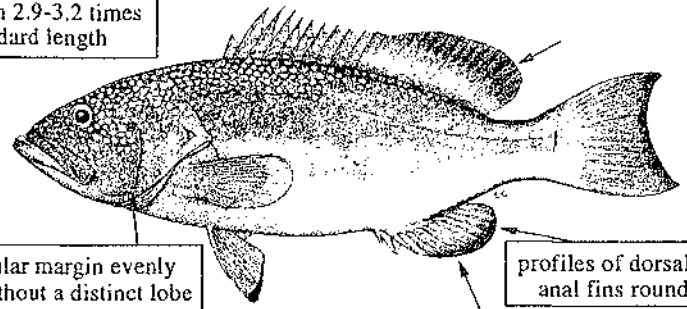
Fisheries: Predominantly artisanal. Caught on hook-and-line and with traps. Marketed fresh. Consumption of large specimens may cause ciguatera poisoning.

anterior and posterior nostrils almost equal in juveniles; in specimens of 50 cm and above, the posterior nostril is twice as big as the anterior



juvenile

body depth 2.9-3.2 times in standard length



preopercular margin evenly convex, without a distinct lobe

profiles of dorsal and anal fins rounded

12-15 total gill rakers on 1st arch, 10-11 on lower limb

11 rays in anal fin

head and body with dark, oblong blotches covered with black dots; lower regions of head and body with small dark red spots; margin of pectoral fin bright yellow; ground colour red in deep-water fish, and green in specimens from shallow water; colour highly variable with age, spots smaller in large individuals

Genus *Paranthias* - a single species in the area.

Paranthias furcifer (Valenciennes, 1828) (plate XXXVI, 281)

FAO names: En - Creole-fish; Fr - Badèche créole; Sp - Cuna lucero.
Common names:

Size: Maximum 35 cm; common to 20 cm.

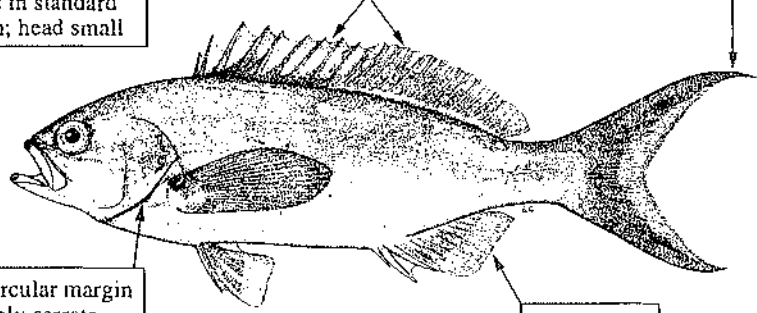
Distribution and habitat: Throughout the area. In shallow waters, mainly of coral-reef areas, usually below a depth of 20 m.

Fisheries: Caught with traps and on hook-and-line. Not very abundant and hence, of little commercial importance. Marketed fresh.

body depth 2.7-3.4 times in standard length; head small

dorsal fin with 9 spines and 17-21 rays

caudal fin deeply forked



preopercular margin finely serrate

rudimentary canines present in jaws

37-38 gill rakers on 1st arch

scales ctenoid

8-11 rays in anal fin

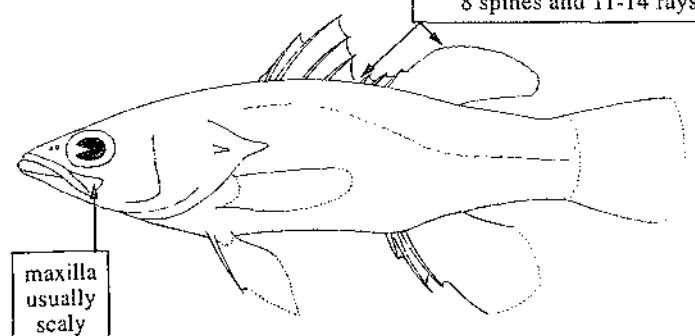
colour reddish to dark-red, often with 4 small, rounded white spots on back

SUBFAMILY GRAMMISTINAE

Small, elongate, brightly coloured fishes (mostly less than 10 cm in length) usually inhabiting coral-reef areas; of no interest to fisheries.

» morphological features as in Serraninae, except those indicated here.

dorsal fin deeply notched, with 8 spines and 11-14 rays



maxilla usually scaly

Genus *Liopropoma*

Seven species in the area: *L. aberrans* (Poey, 1860), *L. carmabi* (Randall, 1963), *L. eukrines* (Starck and Courtenay, 1962), *L. mowbrayi* Woods and Kanazawa, 1951, *L. mexicana* Schultz, 1958, *L. rosea* (Günther) and *L. rubre* Poey, 1861. They are small fishes inhabiting mainly coral reefs; of no interest to fisheries.

SUBFAMILY SERRANINAE

Small to medium-sized fishes, elongate and usually compressed, generally inhabiting shallow waters, over rock and coral bottoms, as well as on muddy and sandy substrates. Many species of interest to fisheries.

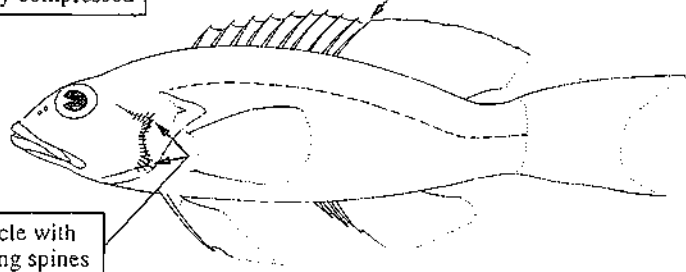
» body scales moderate-sized, in less than 80 oblique rows on sides; lateral-line scales easily visible, almost equal in size to other scales; no skin fold joining base of pectoral fin to body; 1st pelvic-fin ray completely free of body; dorsal fin with 10 spines and 10 rays, its origin above or behind pectoral-fin base; maxilla scaleless.

Genus *Diplectrum* - 3 species in the area, all simultaneous hermaphrodites.

body greatly elongate and slightly compressed

dorsal fin continuous, with only a shallow notch

hind margin of preopercle with 1 or 2 groups of diverging spines

*Diplectrum bivittatum* (Valenciennes, 1828)

(plate XXXVI, 282)

upper lobe of caudal fin usually filamentous

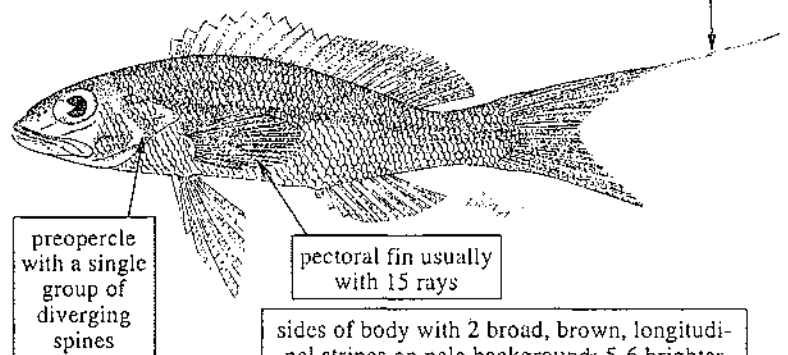
FAO names: En - Dwarf sand perch; Fr - Serran fil; Sp - Guatacare de hebra.

Common names:

Size: Maximum about 15 cm; common to 12 cm.

Distribution and habitat: Throughout the area. Over soft bottoms of the continental shelf to a depth of about 100 m.

Fisheries: Caught mainly on hook-and-line and with bottom trawls. Not as important as the other two species, because of its small size and less abundance, but its flesh is of good quality.



preopercle with a single group of diverging spines

pectoral fin usually with 15 rays

sides of body with 2 broad, brown, longitudinal stripes on pale background; 5-6 brighter spots along the longitudinal stripes

Diplectrum formosum (Linnaeus, 1766)

(plate XXXVI, 283)

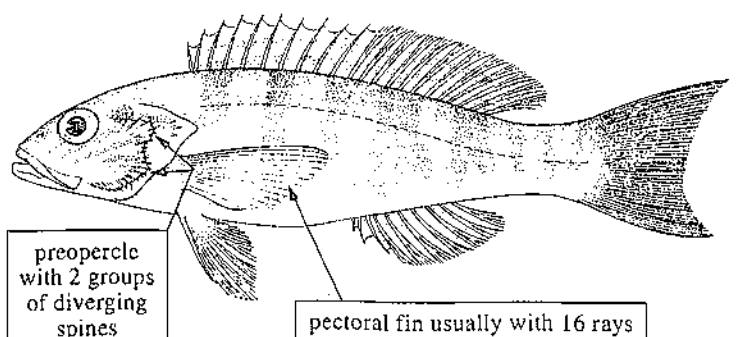
FAO names: En - Sand seabass; Fr - Serran de sable; Sp - Serrano arenero.

Common names:

Size: Maximum 25 cm; common to 16 cm.

Distribution and habitat: Throughout the area. In coastal waters, over soft substrates, and in habitats with soft corals, from a depth of 1, to at most, 80 m. Not a typical coral-reef species.

Fisheries: Caught mainly with traps and on hook-and-line; also with bottom trawls. Marketed fresh; flesh of good quality.



preopercle with 2 groups of diverging spines

pectoral fin usually with 16 rays

sides of body with 6-7 dark brown bars and yellow-orange longitudinal lines on greyish brown to yellow background; 3 longitudinal blue lines on head, and 1 vertical line from eye to maxilla

***Diplectrum radiale* (Quoy and Gaimard, 1824)**

(plate XXXVI, 284)

SERRANIDAE

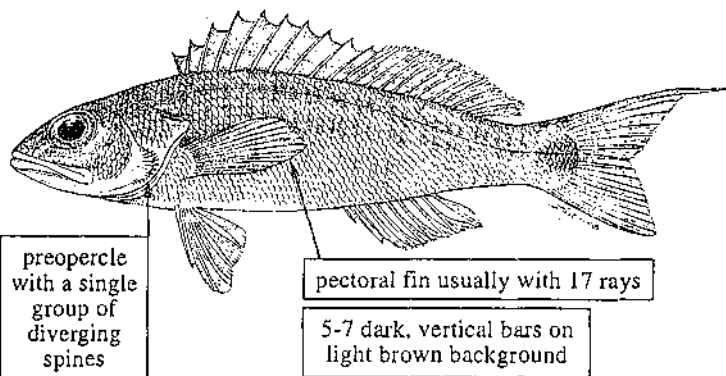
FAO names: En - Pond perch; Fr - Serran des lagunes; Sp - Guatacare de charco.

Common names:

Size: Maximum about 26 cm; common to 20 cm.

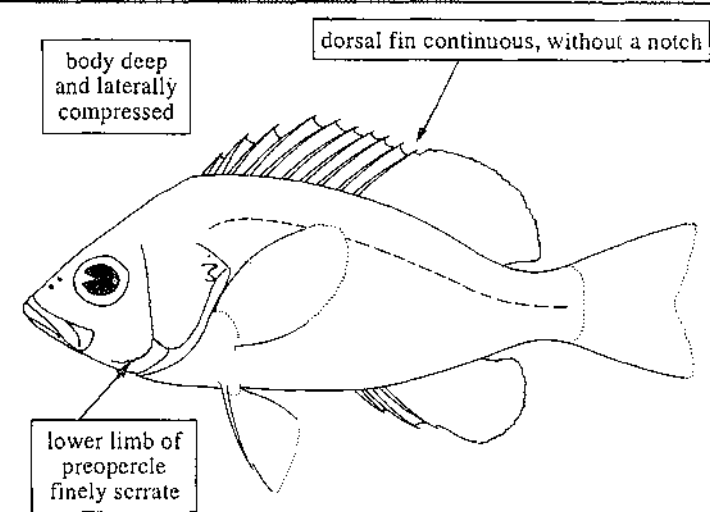
Distribution and habitat: Throughout the area. Over soft bottoms of the continental shelf, to a depth of about 50 m.

Fisheries: Artisanal. Caught on hook-and-line and with traps. Also taken as bycatch in the industrial trawl fishery for shrimps. Marketed fresh; flesh of good quality.



Genus *Hypoplectrus*

A group of very small fishes, less than 15 cm in length, distinguishable from one another almost exclusively by their more or less distinctive colour patterns. For this reason, many authors tend to accept the existence of only 2 or 3 species, each with genetically-defined chromatic variations. These fishes usually inhabit shallow waters, on rocky substrates or in coral reef areas. Rarely marketed and hence, of little or no interest to fisheries. Nine species in the area: *H. aberrans* Poey, 1852, *H. chlorurus* (Cuvier and Valenciennes, 1828), *H. gemma* Goode and Bean, *H. gummigutta* (Poey, 1852), *H. guttavarius* (Poey, 1852), *H. indigo* (Poey, 1852), *H. nigricans* (Poey, 1852), *H. puella* (Cuvier and Valenciennes, 1828), and *H. unicolor* (Walbaum, 1792) (plate XXXVI, 285).



Genus *Paralabrax* - a single species in the area.

***Paralabrax dewegeri* Metzelaar, 1919**

(plate XXXVI, 286)

Note: In most publications quoted erroneously as *Serranus dewegeri*.

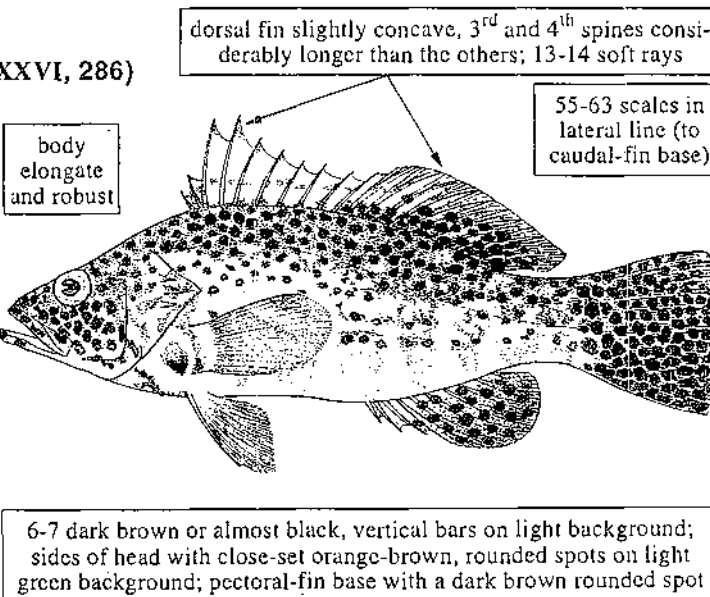
FAO names: En - Vieja; Fr - Serran vieux; Sp - Mero viejo.

Common names:

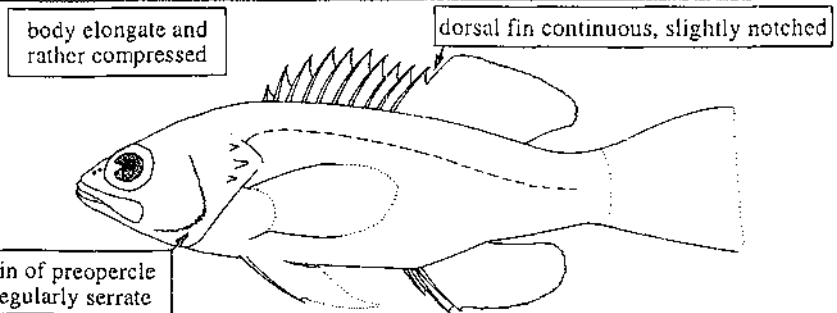
Size: Maximum 43 cm and 1.3 kg; common to 35 cm.

Distribution and habitat: Throughout the area. Over semi-hard bottoms of the continental shelf. Common in soft-coral areas to a depth of about 50 m. The juveniles are found on seagrass beds of *Thalassia*.

Fisheries: Artisanal. Caught mainly on hook-and-line and with traps, between depths of 5 and 20 m; occasionally taken as bycatch in the industrial trawl fishery for shrimps. Marketed fresh; flesh of excellent quality, but the catches are not abundant.



Genus *Serranus* - 8 species in the area, of little commercial importance because of their small average size.



SERRANIDAE

Serranus phoebe Poey, 1852

(plate XXXVI, 287)

50-52 vertical scale rows above lateral line (to base of caudal fin)

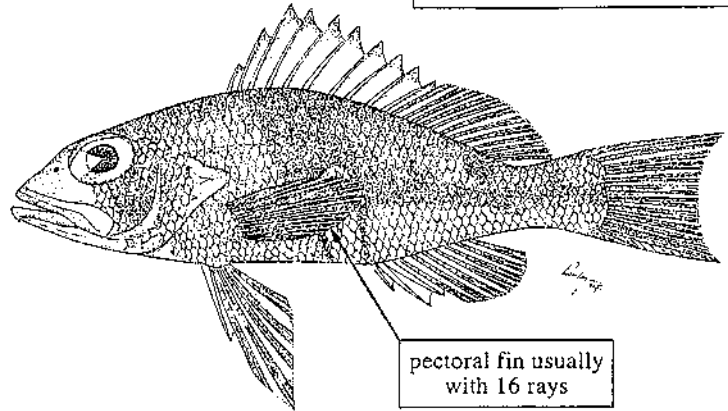
FAO names: En - Tattler; Fr - Serran tattler; Sp - Serrano de charco.

Common names:

Size: Maximum 20 cm; common to 15 cm.

Distribution and habitat: Throughout the area. Over shallow, semi-hard bottoms to a depth of about 50 m.

Fisheries: Taken as bycatch in industrial trawl fisheries. Of little commercial importance because of its small average size, but large specimens are marketed fresh; flesh of good quality.



pectoral fin usually with 16 rays

a broad, dark, vertical bar under spinous portion of dorsal fin to almost midline of sides; a pearly white vertical bar before anus (as broad as diameter of pupil)

Serranus tabacarius (Cuvier, 1829)

80-85 vertical scale rows above lateral line (to base of caudal fin)

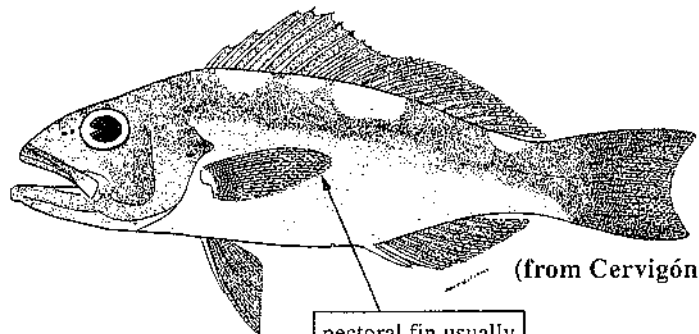
FAO names: En - Tobaccofish; Fr - Serran tabac; Sp - Serrano de canto.

Common names:

Size: Maximum 22 cm; common to 16 cm.

Distribution and habitat: Throughout the area. In shallow, clear waters, over rocky and coral bottoms to a depth of about 30 m.

Fisheries: Artisanal. Caught on hook-and-line; occasionally with traps. Of negligible commercial importance because of its small average size.



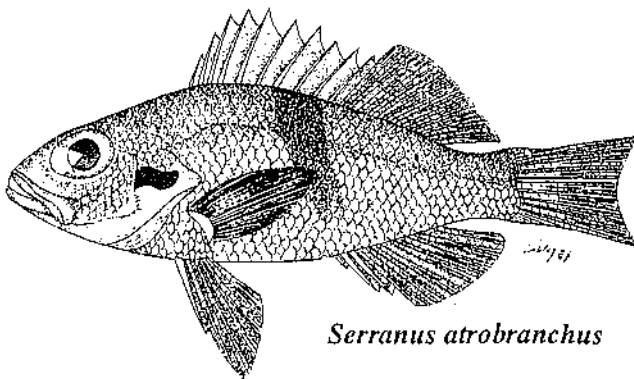
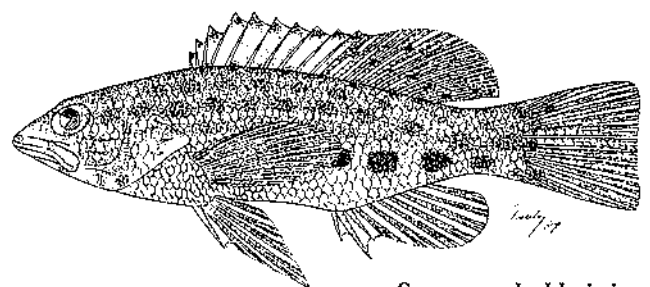
(from Cervigón, 1966)

pectoral fin usually with 15 rays

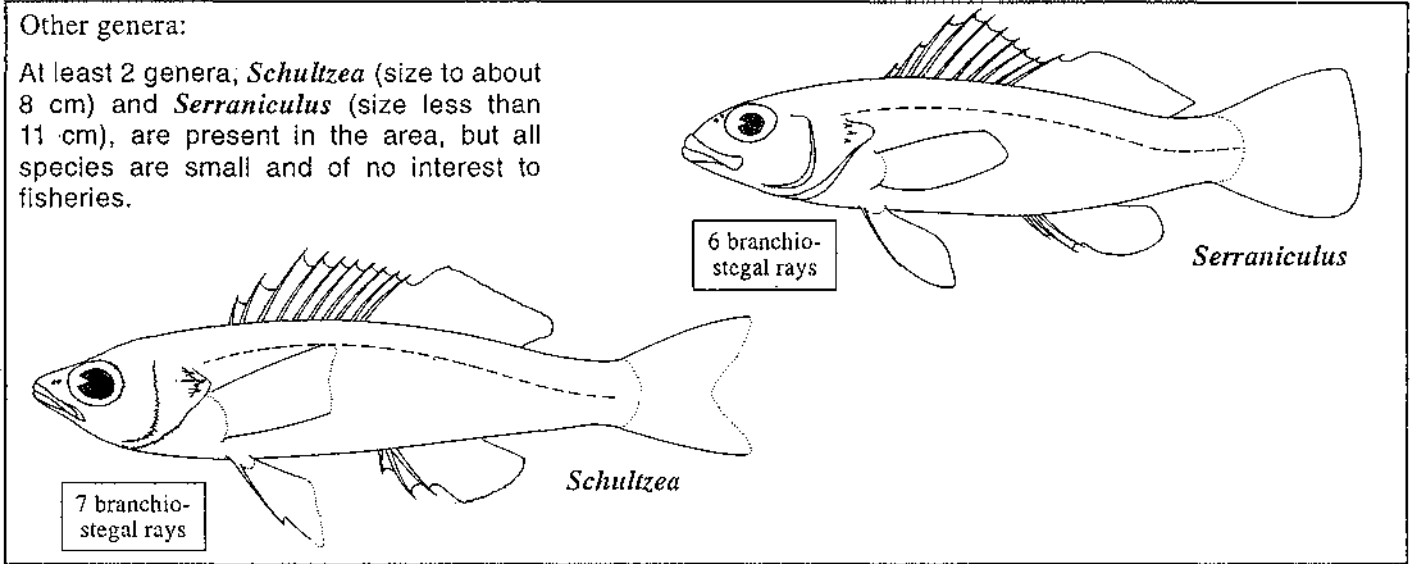
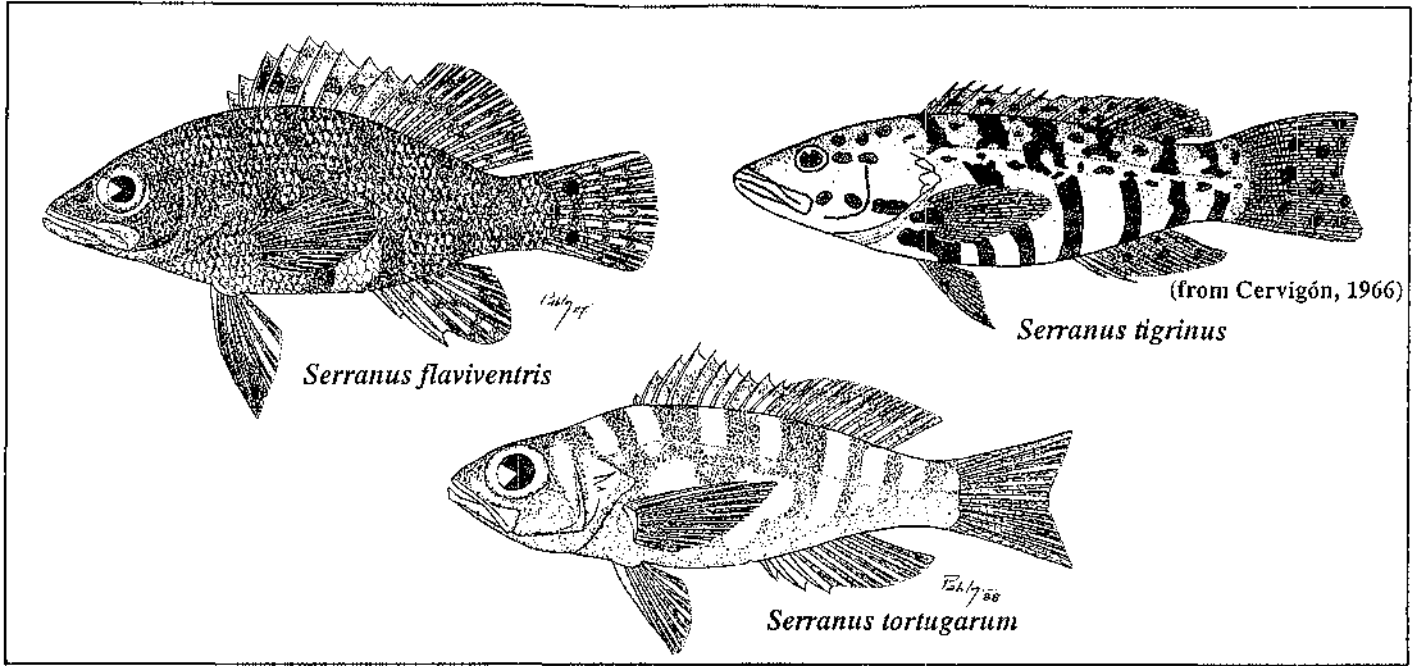
back with large, whitish blotches on orange-brown background; upper and lower parts of caudal fin with a longitudinal dark stripe

Other species:

Serranus atrobranchus (Cuvier, 1829) (to 12 cm), *S. baldwini* (Evermann and Marsh, 1900) (to 12 cm), *S. flaviventris* (Cuvier and Valenciennes, 1829) (to 25 cm), *S. notospilus* Longley, 1935 (to 10 cm), *S. tigrinus* (Bloch, 1790) (to 16 cm) and *S. tortugarum* Longley, 1935 (to 10 cm). All species relatively small and never abundant, hence, of little or no interest to fisheries, even though some of them are taken as bycatch in trawl fisheries for shrimps.

*Serranus atrobranchus**Serranus baldwini*

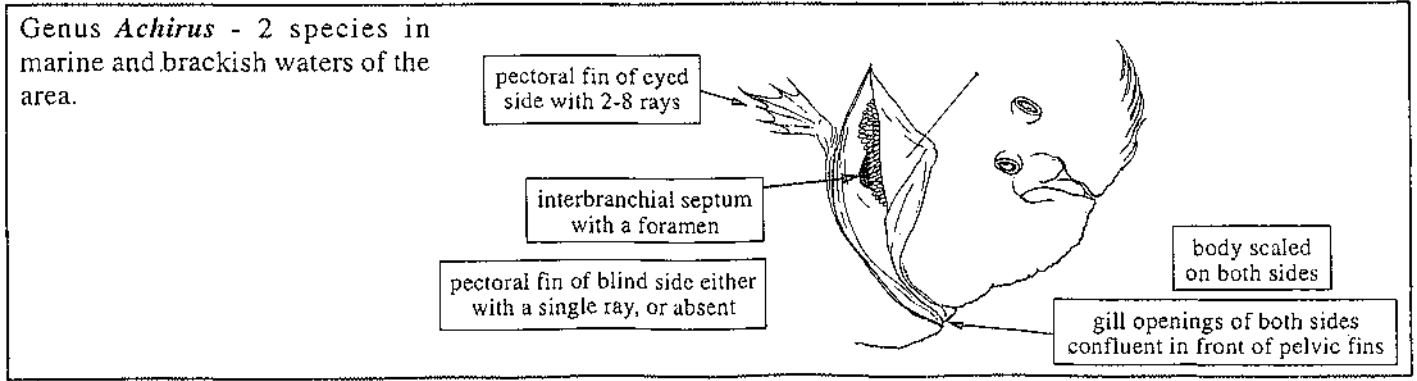
SERRANIDAE



SOLEIDAE

En: Soles. Fr: Soles. Sp: Suelas.

Small flatfishes, only exceptionally larger than 35 cm, with eyes and colour pattern on the right side of the body. Most species live close to the shore, in marine, brackish, and hypersaline waters, usually on muddy substrates. At present they are, generally speaking, of little commercial importance in our area. Four genera with 6 species in the area.



SOLEIDAE

Achirus achirus (Linnaeus, 1758)

(plate XXXVI, 288)

dorsal fin with 60-67 rays

body depth
61.5-74% of
standard length

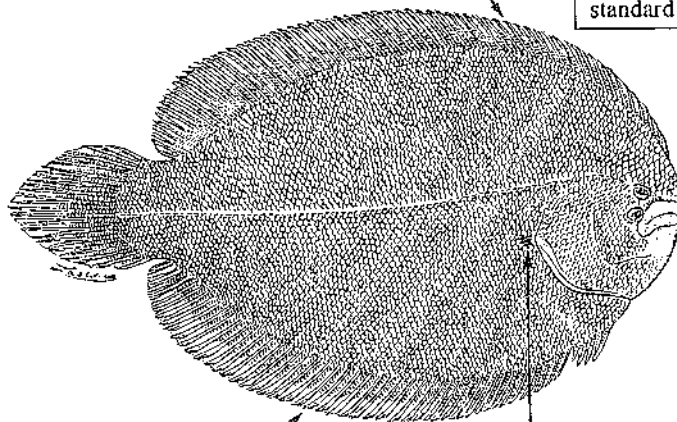
FAO names: En - Drab sole; Fr - Sole sombre;
Sp - Suela lucia.

Common names:

Size: Maximum 37 cm and slightly over 1 kg;
common to 30 cm.

Distribution and habitat: From the Gulf of Paria
to the mouth of the Amazon river. In estuarine
waters to almost freshwater.

Fisheries: Artisanal. Caught with bottom trawls
and trammel nets. At present, this species is
under-exploited; it might become an important
fishery resource in estuarine areas of the area.



eyed side greatly variable in
coloration, either plain dark brown
or with irregular dark spots

anal fin with
43-51 rays

pectoral fin of eyed side usually
with 3-4 rays, that of blind side
either with 1 ray, or absent

Achirus lineatus (Linnaeus, 1758)

(plate XXXVII, 289)

dorsal fin with 49-60 rays

body depth
53.4-65% of
standard length

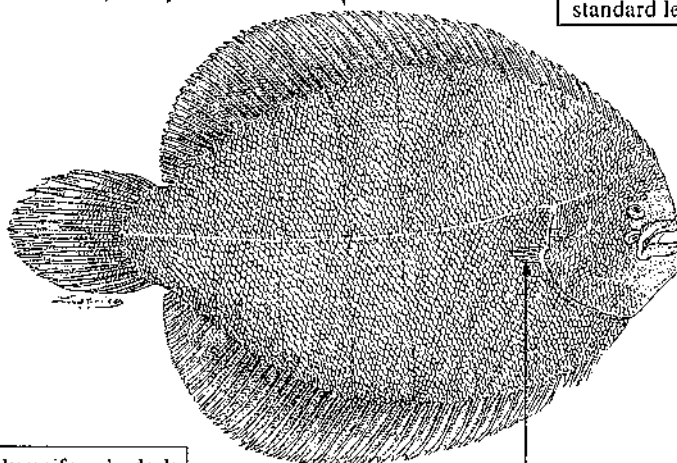
FAO names: En - Lined sole; Fr - Sole achire;
Sp - Suela pintada.

Common names:

Size: Maximum 23 cm, common to 17 cm.

Distribution and habitat: Throughout the area,
especially in brackish waters and hypersaline
lagoons.

Fisheries: Artisanal. Caught with beach nets.
Of negligible commercial importance because of
its small average size.



eyed side in adults usually uniformly dark
brown, sometimes with brown spots on
fins; small specimens uniformly mottled;
wavy transverse bars usually distinct

anal fin with
38-46 rays

pectoral fin with 3-8 rays on eyed
side, usually absent on blind side

Genus *Apionichthys* - a single species in the area.

Apionichthys dumerili Kaup, 1858

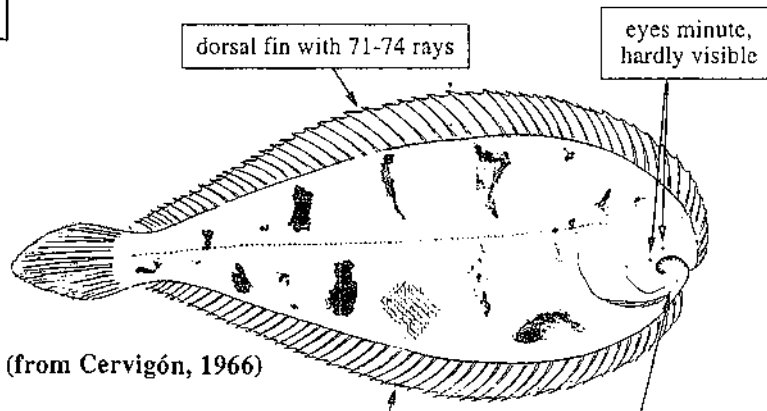
FAO names: En - Longtail sole; Fr - Sole
queue longue; Sp - Suela colalarga.

Common names:

Size: Maximum 15 cm; common to 11 cm.

Distribution and habitat: From the Gulf of
Paria to the mouth of the Amazon river.

Fisheries: Taken as bycatch in trawl fish-
eries for shrimps. Of negligible commercial
importance because of its small average
size.



dorsal fin with 71-74 rays

eyes minute,
hardly visible

(from Cervigón, 1966)

body scaled on
both sides

anal fin with
52-54 rays

gill openings of both sides
reduced to small slits, not
confluent anteriorly

eyed side plain greyish brown,
some specimens with darker
bars or scattered irregular spots

pectoral fins very small or absent;
pelvic fin of eyed side rudimentary, that
of blind side confluent with anal fin

SOLEIDAE

Genus *Gymnachirus* - a single species in the area.

Gymnachirus nudus Kaup, 1858

(plate XXXVII, 290)

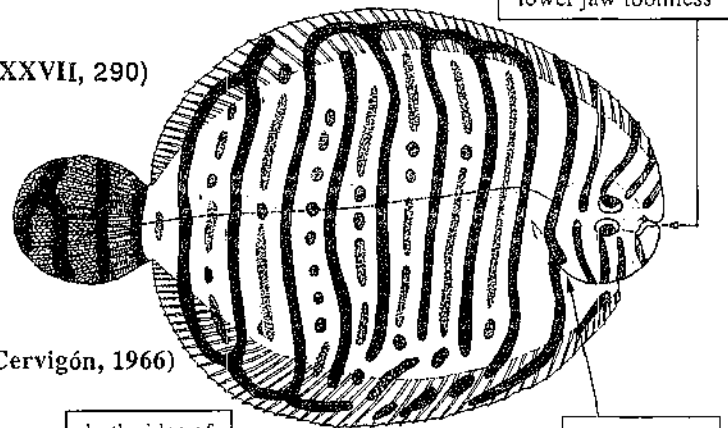
FAO names: En - Naked sole; Fr - Sole nue; Sp - Suela desnuda.

Common names:

Size: Maximum 15 cm; common to 12 cm.

Distribution and habitat: Throughout the area. In relatively shallow marine waters, over soft bottoms to a depth of about 100 m.

Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps and finfishes. A rather rare species, hence of little commercial importance.



(from Cervigón, 1966)

mouth very small, lower jaw toothless

both sides of body scaleless

pectoral fins rudimentary or absent; pelvic fin confluent with anal fin on eyed side, absent on blind side

gill openings very narrow

eyed side yellowish, with distinct dark brown bars

Genus *Trinectes* - 2 species in the area.

» gill openings of both sides confluent in front of pelvic fins; interbranchial septum continuous, without foramen; pectoral fin of eyed side residual, normally with a single ray or none (rarely 2-3); pectoral fin of blind side usually absent (or rarely present, with a single ray); body scaled on both sides.

Trinectes inscriptus (Gosse, 1851)

(plate XXXVII, 291)

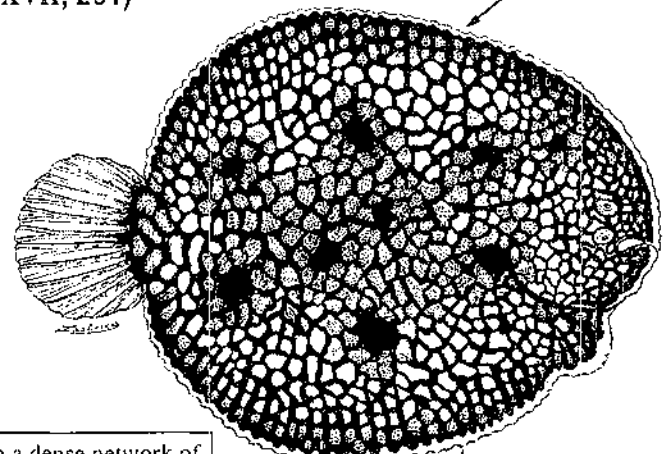
FAO names: En - Scrawled sole; Fr - Sole réticulée; Sp - Suela reticulada.

Common names:

Size: Maximum 15 cm; common to 10 cm.

Distribution and habitat: Throughout the area. On soft bottoms, in clear waters of oceanic islands and in bays and mangrove-lined lagoons along continental coasts.

Fisheries: Caught with experimental beach nets. Of negligible commercial importance because of its small average size.



dorsal fin with 51-55 rays

eyed side with a dense network of dark brown lines on yellowish or light yellow-brown background

anal fin with 39-41 rays

Trinectes paulistanus (Ribeiro, 1915)

(plate XXXVII, 292)

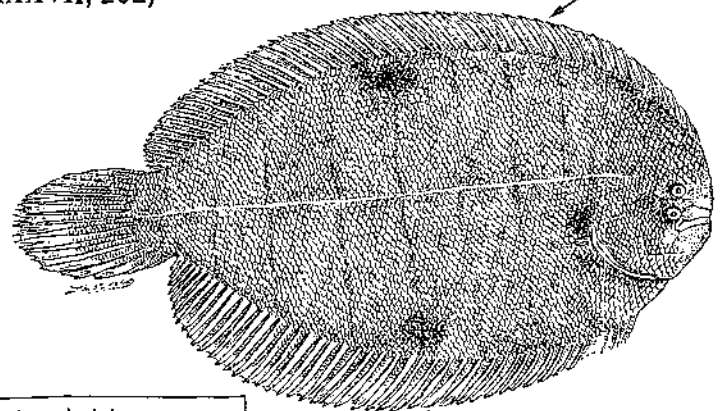
FAO names: En - Slipper sole; Fr - Sole pantoufle; Sp - Suela chancleta.

Common names:

Size: Maximum 16 cm; common to 12 cm.

Distribution and habitat: Throughout the area. Over soft bottoms in estuaries and hypersaline lagoons.

Fisheries: Artisanal. Caught with beach nets and taken as bycatch in the industrial trawl fishery for shrimps. Usually not marketed; not very abundant.



dorsal fin with 54-58 rays

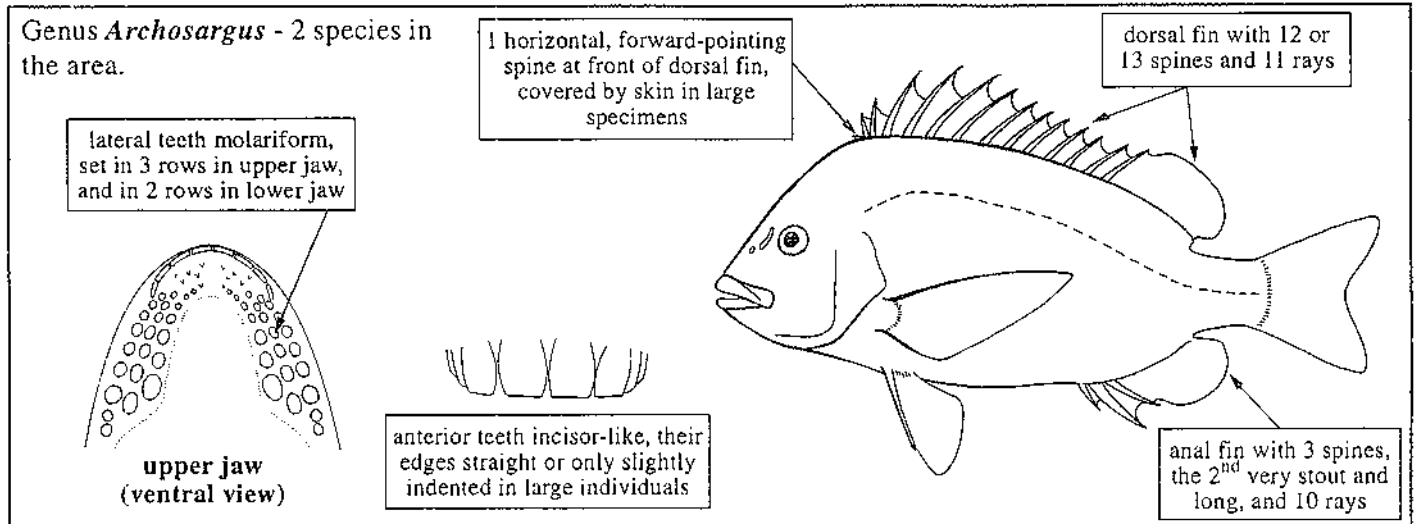
eyed side more or less dark brown, some specimens with large, dark spots and others, with small spots; wavy transverse bars sometimes well visible

anal fin with 40-44 rays

SPARIDAE

En: Porgies, seabreams. **Fr:** Pagres, sars, daubenets, rondeaux. **Sp:** Pargos, cachicatos, sargos, plumas.

Small to medium-sized fishes, very seldom exceeding 50 cm in length. All species occurring in the area inhabit shallow waters. Some are found along continental coasts on muddy bottoms, others in clear waters of insular areas in coral-reef habitats, but most occur over semi-hard bottoms of sand or shell fragments. Almost all porgies are commercially important food fishes. Four genera and 9 species in the area.

*Archosargus probatocephalus* (Walbaum, 1792)

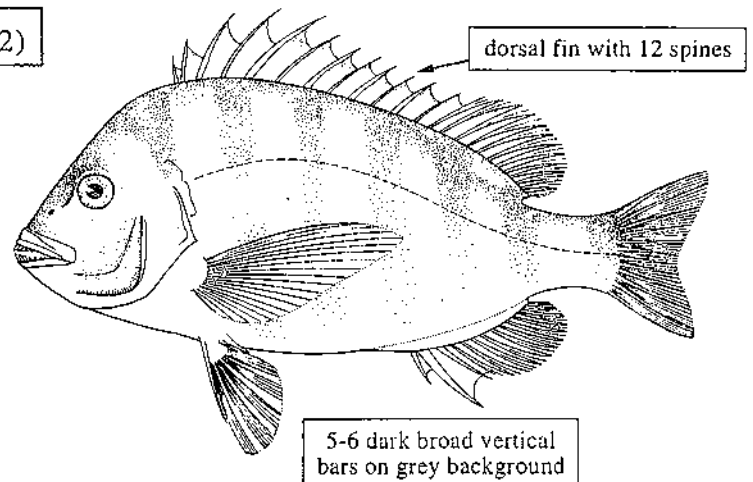
FAO names: En - Sheepshead; Fr - Rondeau mouton; Sp - Sargo chopa.

Common names:

Size: Maximum 75 cm; common to 35 cm.

Distribution and habitat: Throughout the area. In shallow marine and brackish waters. Very rare along the coast of Venezuela.

Fisheries: Caught mainly on longlines and with bottom trawls. Marketed fresh.

*Archosargus rhomboidalis* (Linnaeus, 1758) (plate XXXVII, 293)

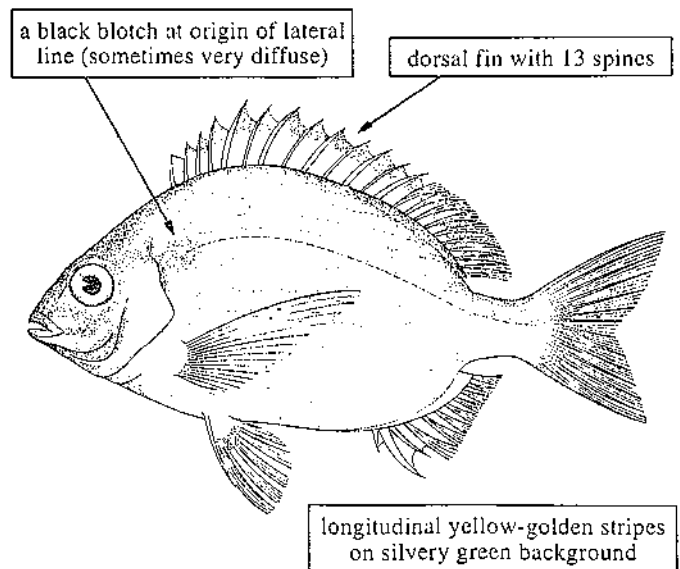
FAO names: En - Western Atlantic seabream (AFS: Seabream); Fr - Rondeau brème; Sp - Sargo amarillo.

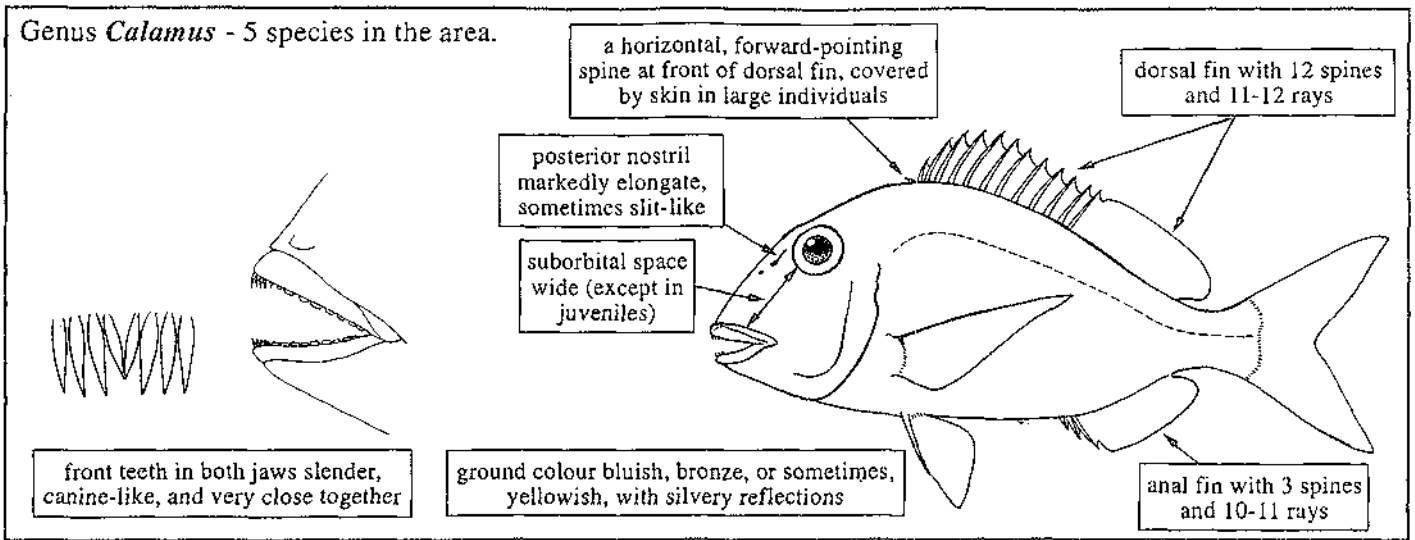
Common names:

Size: Maximum 32.5 cm and slightly over 500 g; common to 20 cm.

Distribution and habitat: Throughout the area. Over shallow soft bottoms. Juveniles are abundant on sea-grass beds of *Thalassia* and in hypersaline waters of mangrove-lined lagoons. Adults are usually found in coastal marine waters, but may also occur in mangrove areas of oceanic islands.

Fisheries: Taken mainly with bottom trawls, gillnets and traps. Marketed fresh. Rather abundant and of some commercial importance, but the flesh is not of very high quality.





***Calamus bajonado* (Bloch and Schneider, 1801) (plate XXXVII, 294)**

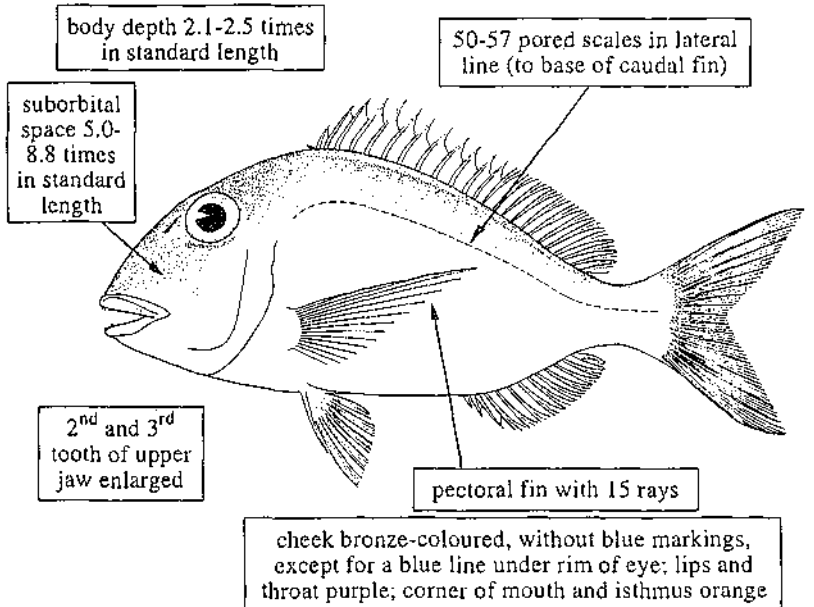
FAO names: En - Jolthead porgy; Fr - Daubenet trembleur; Sp - Pluma bajonado.

Common names:

Size: Maximum 68 cm; common to 50 cm.

Distribution and habitat: Throughout the area. Over shallow vegetated bottoms, and most frequently in coral-reef areas, between depths of 6 and 45 m. Adults are usually solitary. A species typical of clear waters, abundant in oceanic insular areas; rare or absent from continental inshore waters.

Fisheries: Predominantly artisanal. Caught with trammel nets, longlines, on hook-and-line, and with traps. Marketed fresh, its flesh is of average quality.



***Calamus calamus* (Valenciennes, 1830) (plate XXXVII, 295)**

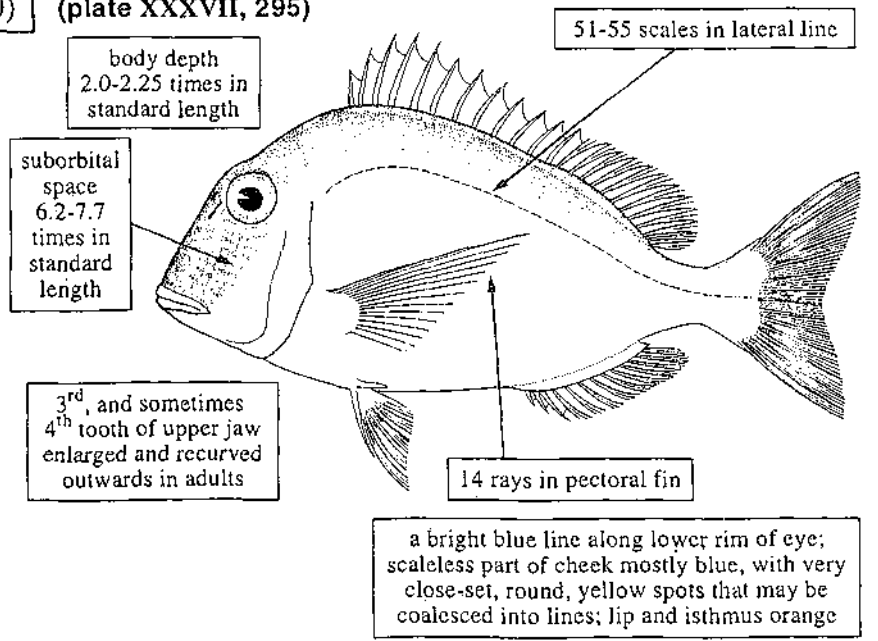
FAO names: En - Saucereye porgy; Fr - Daubenet loto; Sp - Pluma cálamo.

Common names:

Size: Maximum 36 cm; common to 30 cm.

Distribution and habitat: Adults occur mostly in coral and rocky reef areas, between depths of 6 and 75 m, while juveniles are found on vegetated sandy bottoms, especially seagrass beds of *Thalassia*.

Fisheries: Artisanal. Caught with trammel nets and traps. Marketed mostly fresh and frozen; the flesh is of excellent quality.



Calamus cervigoni Randall and Caldwell, 1966 (plate XXXVII, 296)

FAO names: En - Spottfin porgy; Fr - Daubenet grostache; Sp - Pluma aleta negra.

Common names:

Size: Maximum 20 cm; common to 18 cm.

Distribution and habitat: More abundant in some localities such as Margarita Island and the northern parts of Araya and Paria peninsulæ. Absent from oceanic islands. Over muddy bottoms. Usually between depths of 25 and 70 m.

Fisheries: Taken mainly with bottom trawls. Marketed usually fresh.

body depth 1.8-2.0 times in standard length

head profile angulate at level of eyes

suborbital space 7.3-9.5 times in standard length

44-48 pored scales in lateral line (to caudal-fin base)

15 rays in pectoral fin

diffuse dark bars on nape; a dark vertical bar from eye to posterior part of maxilla; an inconspicuous large black spot at junction between spinous and soft portions of dorsal fin; caudal fin with grey oblique stripes

Calamus penna (Valenciennes, 1830)

FAO names: En - Sheeps-head porgy; Fr - Daubenet bélier; Sp - Pluma cachicato.

Common names:

Size: Maximum 40 cm and slightly over 1 kg; common to 28 cm.

Distribution and habitat: Throughout the area, between depths of 3 and 87 m. In coastal waters of the continental shelf as well as in clear waters of coral-reef areas, on hard or semi-hard bottoms.

Fisheries: Caught with bottom trawls and on hook-and-line. Marketed fresh and frozen. One of the most abundant porgy species, but its flesh is not of highest quality.

body depth 2.0-2.6 times in standard length

suborbital space narrower, 7-12 times in standard length

45-49 pored scales in lateral line (to caudal-fin base)

15 rays in pectoral fin

diffuse, longitudinal greyish stripes usually present; cheek silvery, tinged with yellowish brown; a brown vertical bar from lower rim of eye to corner of mouth; a small black spot on upper part of pectoral-fin base; juveniles with dark grey bars

Calamus pennatula Guichenot, 1868 (plate XXXVIII, 297)

FAO names: En - Pluma porgy; Fr - Daubenet plume; Sp - Pluma de charco (=Pluma plumilla).

Common names:

Size: Maximum 36 cm; common to 30 cm.

Distribution and habitat: Throughout the area. Adults occur in rocky and coral-reef areas, or on flat bottoms to a depth of about 85 m. Juveniles are found in shallow coastal waters.

Fisheries: Caught mainly with traps, but also on hook-and-line and with bottom trawls. Marketed fresh. Abundant, but the flesh is not of highest quality.

body depth 1.9-2.4 times in standard length

suborbital space 6.4-9.2 times in standard length

51-57 pored scales in lateral line (to caudal-fin base)

4th canine tooth in upper jaw enlarged and recurved outwards in specimens over 20 cm length

14 rays in pectoral fin

a very conspicuous blue, rectangular blotch behind eye; alternating narrow blue and broad yellow stripes across scaleless region of cheek; an iridescent blue area and a small orange-red spot on upper part of pectoral-fin base

SPARIDAE

Genus *Diplodus* - a single species in the area.

Diplodus argenteus caudimacula (Poey, 1861)

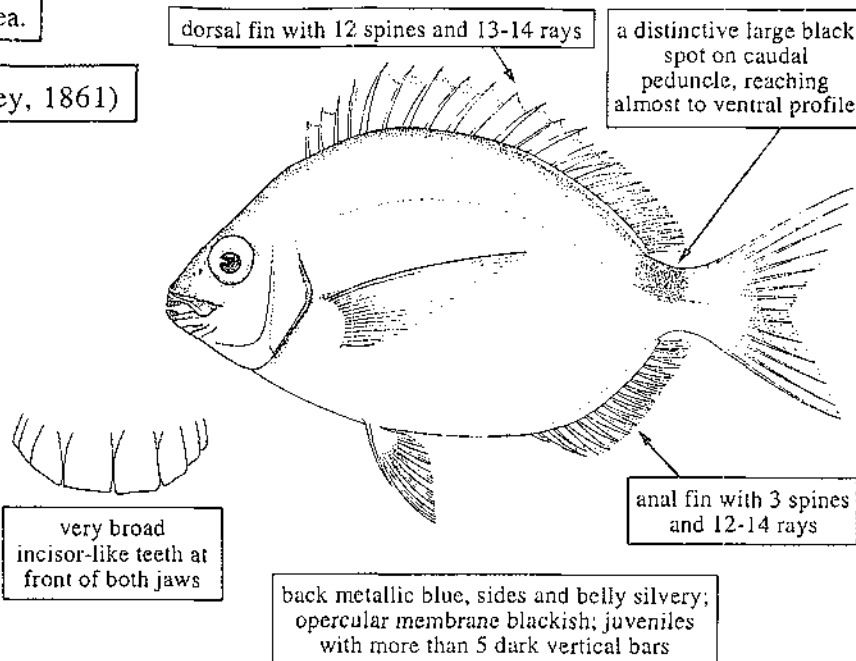
FAO names: **En** - Silver porgy; **Fr** - Sar argenté; **Sp** - Sargo fino.

Common names:

Size: Maximum 28 cm; common to 22 cm.

Distribution and habitat: Throughout the area. In shallow, mostly clear waters, over rock and coral bottoms. The juveniles are common in littoral pools and around docks.

Fisheries: Artisanal. Caught mainly with traps. Marketed mostly fresh. Not a very abundant species, but its flesh is of very good quality.



Genus *Pagrus* - a single species in the area.

Pagrus pagrus (Linnaeus, 1758)

FAO names: **En** - Red porgy (=Common seabream); **Fr** - Pagre commun; **Sp** - Pargo.

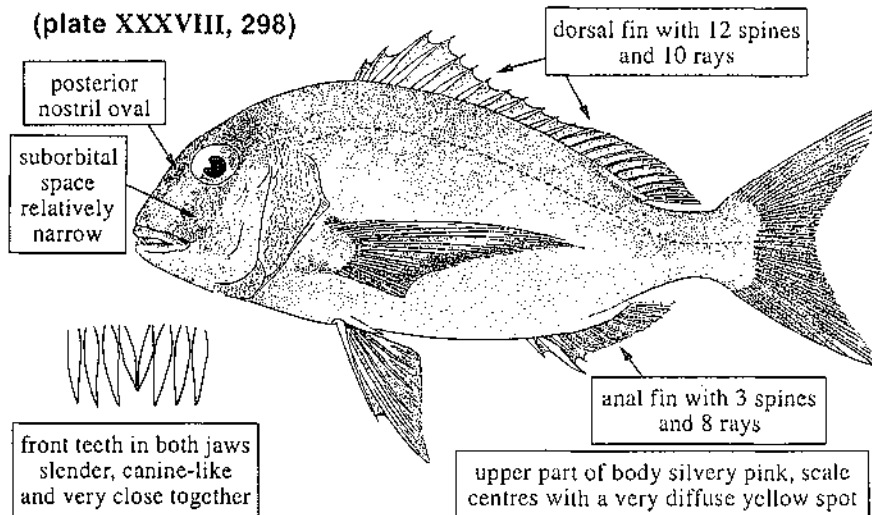
Common names:

Size: Maximum 50 cm; common to 30 cm.

Distribution and habitat: Throughout the area. Inhabits mainly on rocky bottoms or on hard sand, between depths of 10 and 80 m.

Fisheries: Caught mainly in traps, but occasionally with bottom trawls and on hook-and-line. A species of good quality, but rather rare in the area.

(plate XXXVIII, 298)

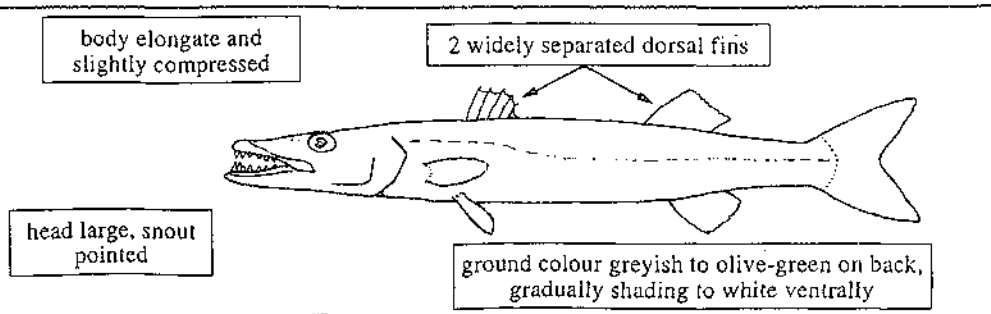


SPHYRAENIDAE

En: Barracudas, sennets. **Fr:** Barracudas, bécunes. **Sp:** Barracudas, picudas.

Elongate, medium-sized to large fishes with a long, pointed snout. They are voracious predators occurring in marine waters over the continental shelf, usually not far from the coast, but sometimes to a depth of 100 m. The smaller species often occur in aggregations or large schools. A single genus with 3 species in the area, all edible and of some commercial importance.

Genus *Sphyraena* - 3 species in the area.



SPHYRAENIDAE

Sphyraena barracuda (Walbaum, 1792) (plate XXXVIII, 299-300)

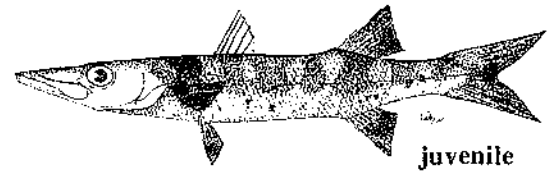
FAO names: En - Great barracuda; Fr - Barracuda; Sp - Picuda barracuda.

Common names:

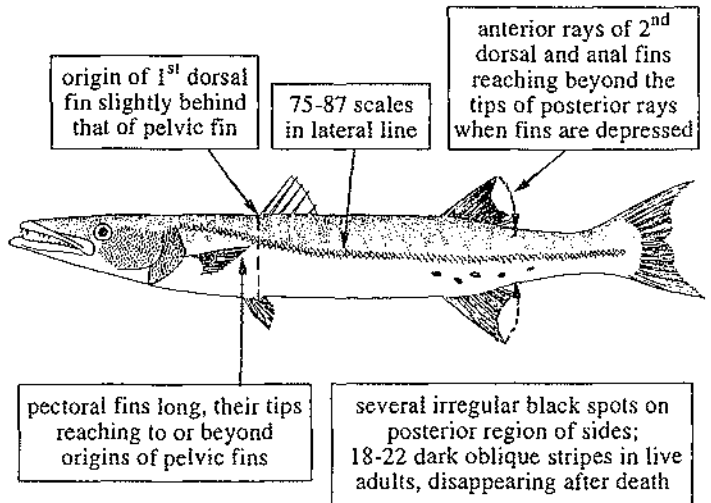
Size: Maximum 200 cm and about 35 kg; common to 130 cm.

Distribution and habitat: Throughout the area. Small individuals occur mainly in shallow water over sandy bottoms and seagrass beds, often forming schools. Large individuals (over 65 cm) are generally solitary, but may occur in large schools during the spawning season; they are found in the vicinity of coral reefs or in offshore waters.

Fisheries: Not a target species, but caught mainly in artisanal fisheries, on hook-and-line, by trolling, with bottom trawls, and gillnets. Marketed fresh and salted; the flesh is considered of second-rate quality in some regions. Consumption of large specimens may cause ciguatera poisoning, which results from their preying upon other fishes that have ingested toxic microscopic organisms in coral-reef areas.



juvenile

*Sphyraena guachancho* Cuvier, 1829 (plate XXXVIII, 310)

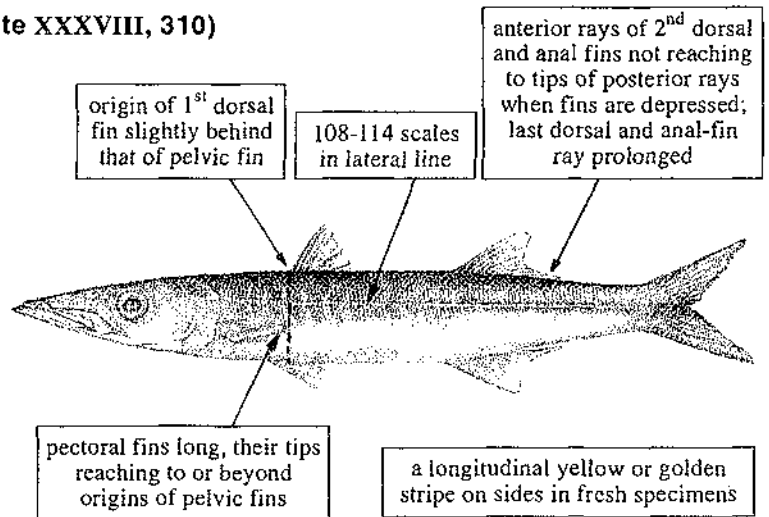
FAO names: En - Guaguanche; Fr - Bécune guachanche; Sp - Picuda guachanche.

Common names:

Size: Maximum 100 cm; common to 70 cm.

Distribution and habitat: Throughout the area. Occurs in schools over soft bottoms in shallow, turbid waters along continental coasts, occasionally near river estuaries. Absent from coral-reef areas.

Fisheries: Artisanal and industrial. Caught mainly with bottom trawls and on hook-and-line. Marketed fresh and salted; its flesh is of better quality than that of other barracuda species and there are no records of ciguatera poisoning.

*Sphyraena picudilla* (Poey, 1860)

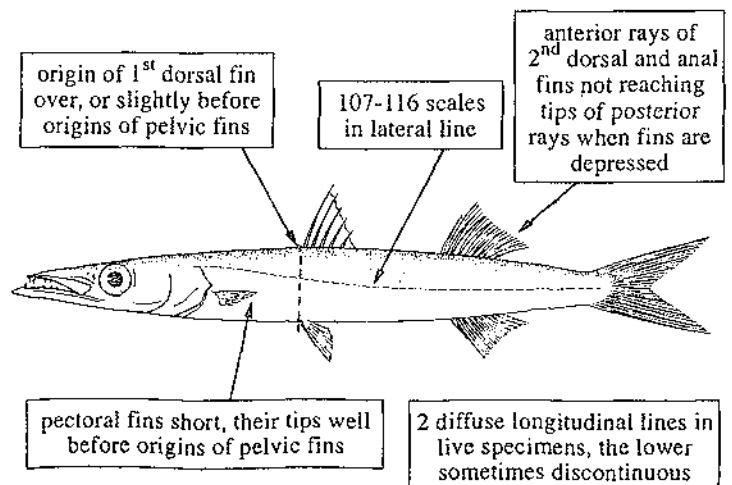
FAO names: En - Southern sennet; Fr - Bécune chandelle; Sp - Picuda china.

Common names:

Size: Maximum 50 cm; common to 36 cm.

Distribution and habitat: Throughout the area. Inhabits coastal waters between depths of 10 and 65 m, occasionally occurring in large schools. Found over any type of substrate, but more often over soft bottoms.

Fisheries: Caught mainly with bottom trawls. Marketed fresh and frozen; never reported to have caused ciguatera poisoning.



STROMATEIDAE

En: Harvestfishes. **Fr:** Stromatés. **Sp:** Palometas.

Small to medium-sized fishes, their bodies deep and strongly compressed. The adults are normally pelagic and may occur in large schools. Juveniles are often found under floating objects, such as seaweeds, jellyfish, or syphonophores. In some cases, the juveniles are demersal and occur in the vicinity of estuaries. A single genus with one species in the area.

Genus *Peprilus* - a single species in the area.

Peprilus paru (Linnaeus, 1758)

(plate XXXVIII, 302)

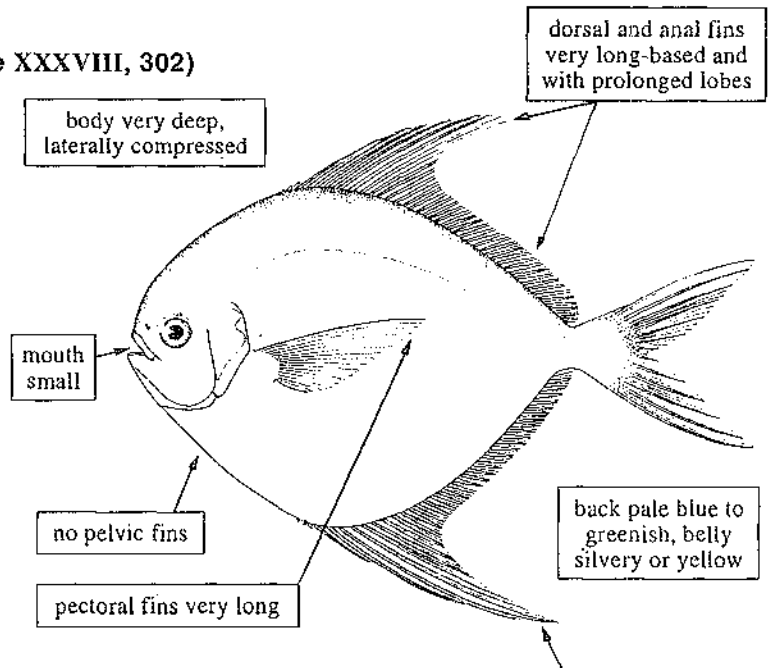
FAO names: **En** - American harvestfish; **Fr** - Stromaté lune; **Sp** - Palometa mono (=Palometa pámpano).

Common names:

Size: Maximum 30 cm; common to 18 cm.

Distribution and habitat: Throughout the area. Adults are usually pelagic, sometimes occurring in large schools in coastal or offshore waters over the continental shelf, between depths of 50 and 70 m. Juveniles are frequently found in coastal waters under seaweeds and other floating objects or animals; they are also common, and sometimes very abundant, in or near estuaries.

Fisheries: Caught mainly with purse seines and bottom trawls. Marketed fresh and frozen; flesh well esteemed.

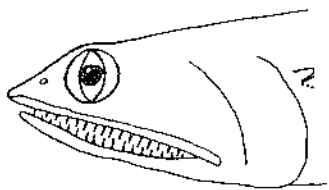


SYNODONTIDAE

En: Lizardfishes. **Fr:** Anolis. **Sp:** Lagartos, guaripetes.

Small to medium-sized fishes, with elongate bodies, nearly circular in cross section, a large mouth, and usually a pointed snout. Almost all species are of brownish colour, changing in tonality between dark and pale in accordance with the colour of the substrate. They are usually found resting on sandy and muddy bottoms, sometimes half-buried in the substrate. Most species occur in coastal waters, from the shore to a depth of about 150 m, although a few may descend to below 200 m. Lizardfishes are more common along continental shores than in oceanic insular reef areas, and when they occur in the latter type of habitat, they always occupy the sandy patches between the corals. The larvae are pelagic and undergo a striking metamorphosis when they change to demersal habits. These fishes are of little commercial importance at present; they are marketed only occasionally because their flesh is considered of low quality. Three genera and 9 species, all very common throughout the area.

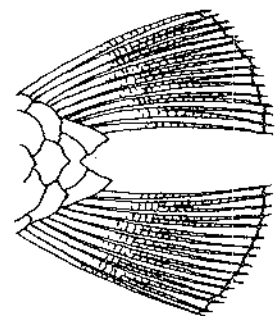
Genus *Saurida* - 3 species in the area.



teth small and very numerous, visible along jaws even when mouth is closed



2 pairs of tooth bands on palate



pelvic fins with 9 nearly equally long rays

SYNODONTIDAE

Saurida normani Longley, 1935

(plate XXXVIII, 304)

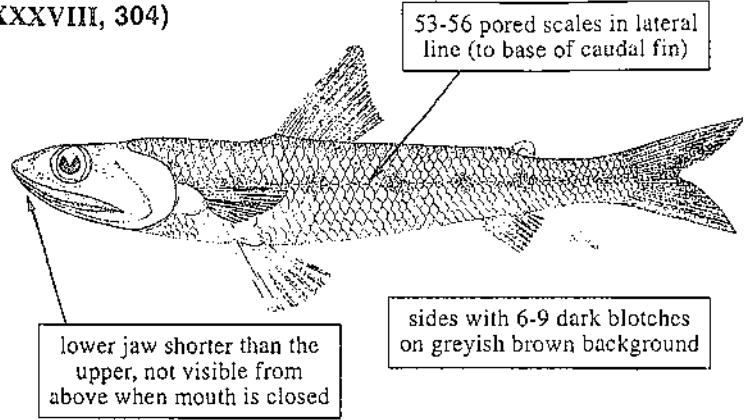
FAO names: En - Shortjaw lizardfish; Fr - Anoli; Sp - Lagarto dientón.

Common names:

Size: About 40 cm and 500 g; common to 30 cm.

Distribution and habitat: Throughout the area. Over soft bottoms, usually from depths of 40 (sometimes to 25) to 550 m.

Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps and finfishes. Usually not marketed, but this species may have some potential importance in view of its relatively large size.



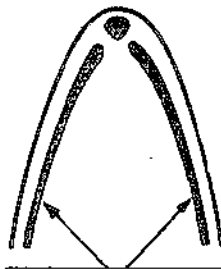
Other species:

Saurida brasiliensis Norman, 1935 (plate XXXIX, 303) and *S. caribbea* Breder, 1927. Although they are sometimes abundant in trawl catches, these species are of no commercial importance because of their small average size. The presence in the area of another species, *S. suspicio* Breder, has not been confirmed.

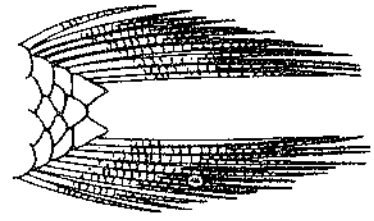
Genus *Synodus* - 5 species in the area.



head flattened, teeth not visible when mouth is closed



a single pair of tooth bands on palate



pelvic fins with 8 rays, inner rays much longer than the outer

Synodus foetens (Linnaeus, 1766)

(plate XXXIX, 305)

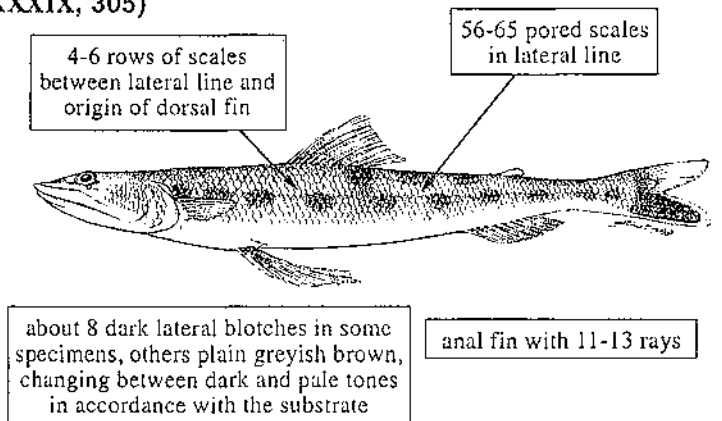
FAO names: En - Inshore lizardfish; Fr - Anoli des plages; Sp - Lagarto playero.

Common names:

Size: Maximum 43 cm, common to 30 cm.

Distribution and habitat: Throughout the area. In shallow water, over soft bottoms ranging from mud to clean coral sand. The most common and abundant species of *Synodus* in the area.

Fisheries: Caught with beach nets and bottom trawls. Marketed occasionally.



Synodus intermedius (Agassiz, 1829)

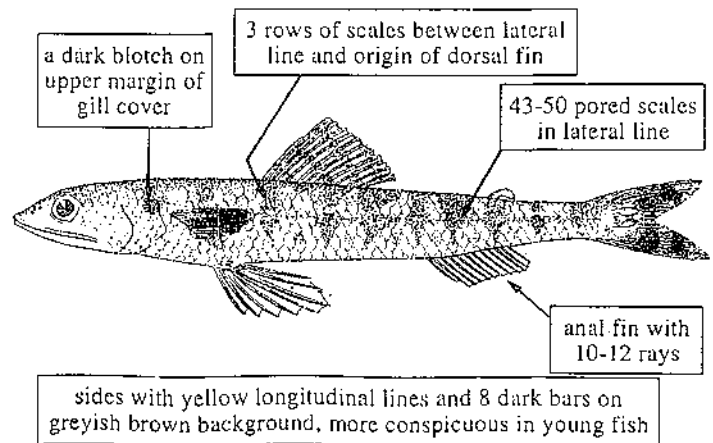
FAO names: En - Sand diver; Fr - Anoli de sable; Sp - Lagarto mato.

Common names:

Size: Maximum about 55 cm and over 1 kg; common to 40 cm.

Distribution and habitat: Throughout the area. Over soft bottoms, mainly in coastal waters along continental shores. The largest species of the genus.

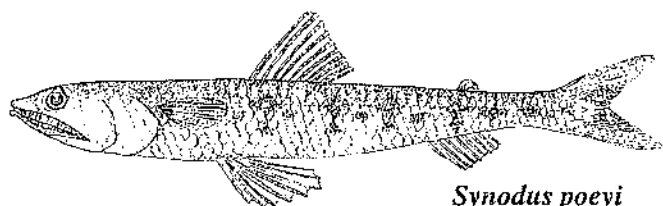
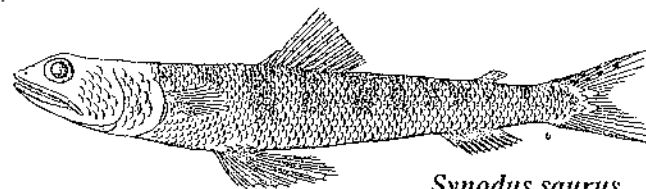
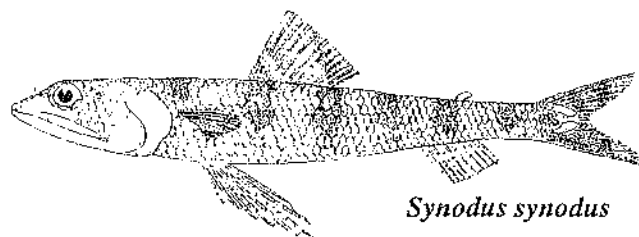
Fisheries: Artisanal. Caught with beach nets and on hook-and-line. This is the lizardfish species most often found in markets because of its large size, but its flesh is not highly esteemed.



SYNODONTIDAE

Other species:

Synodus poeyi Jordan, 1887, *S. saurus* (Linnaeus) and *S. synodus* (Linnaeus, 1758), either very rare or of small size (always below 20 cm), hence of no commercial importance.

*Synodus poeyi**Synodus saurus**Synodus synodus*

Genus *Trachinocephalus* - a single species in the area.

Trachinocephalus myops (Forster, 1801) (plate XXXIX, 306)

FAO names: **En** - Snakefish (=Bluntnose lizardfish); **Fr** - Anoli serpent; **Sp** - Lagarto fiato.

Common names:

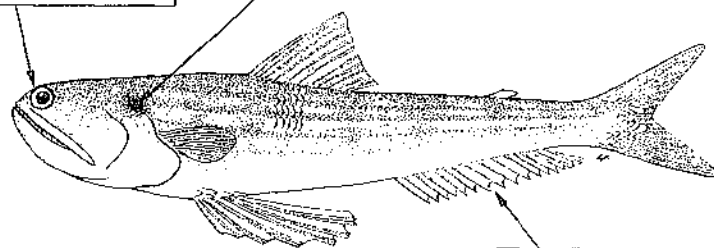
Size: Maximum 33 cm; common to 25 cm.

Distribution and habitat: Throughout the area. Demersal over soft or semi-hard substrates of the continental shelf, from the shore to a depth of about 100 m. Usually solitary and sedentary.

Fisheries: Caught with beach seines and taken as bycatch in the industrial trawl fishery for shrimps. Marketed occasionally; of negligible commercial importance.

head not flattened, eye over anterior half of upper jaw

an elongate black spot above gill cover



a single pair of teeth bands on palate; teeth in jaws not visible laterally when mouth is closed

base of anal fin longer than that of dorsal fin

pelvic fins with 8 rays, inner rays much longer than the outer

sides with alternating yellow and greyish blue longitudinal lines and about 7 brown bars on greenish brown background,

TETRAODONTIDAE

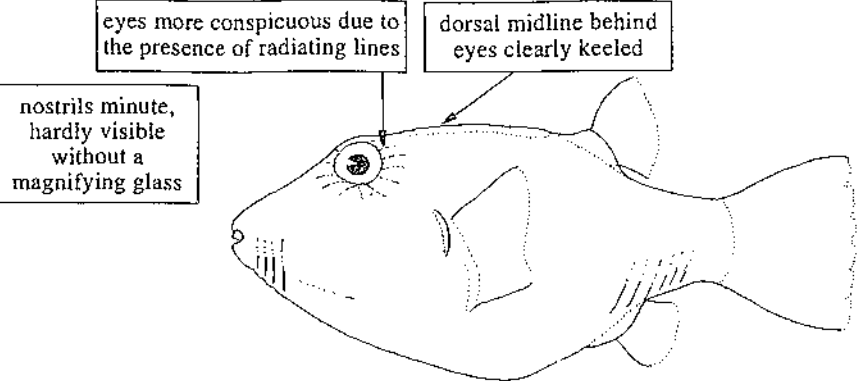
En: Pufferfishes. **Fr:** Compères. **Sp:** Tamboriles, corrotuchos.

Small to medium-sized demersal and pelagic fishes with a heavy, blunt body capable of rapid inflation by intake of water (or air when not immersed). Most species live on soft bottoms, from the shore to a depths of about 100 m, descending only occasionally into deeper waters. The flesh of many species is reportedly of excellent flavour, but some are toxic and their consumption has caused serious (often lethal) poisoning. The toxin is apparently located mainly in certain visceral organs, but the flesh may become contaminated by contact with the poisonous organs. Some species occur in brackish waters or even in freshwater, and others are typical of clear waters in coral-reef habitats. Four genera with about 13 species in the area.

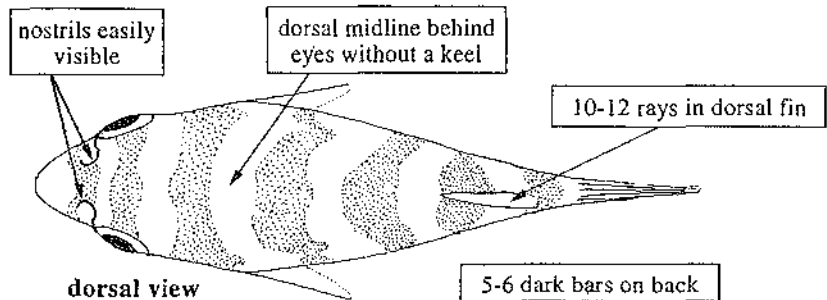
TETRAODONTIDAE

Genus *Canthigaster*

A single species in the area, *C. rostrata* (Bloch, 1782) (plate XXXIX, 307) of no commercial importance because of its small average size.



Genus *Colomesus* - 2 species in the area, one of them confined to freshwater.



Colomesus psittacus (Bloch and Schneider, 1801) (plate XXXIX, 308)

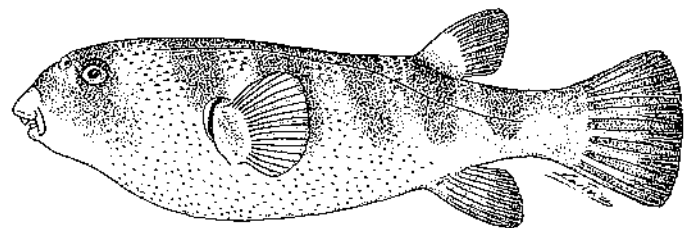
FAO names: **En** - Banded puffer; **Fr** - Compère à bandes; **Sp** - Corrotucho listado.

Common names:

Size: Maximum 30 cm, common to 25 cm.

Distribution and habitat: From the Gulf of Paria to the Amazon river mouth. Over soft bottoms, between the shore and a depth of about 40 m; also in brackish waters.

Fisheries: Caught with beach nets. Usually not marketed; of negligible commercial importance.



no black blotch around anal-fin base

Other species:

Colomesus asellus (Müller and Troschel, 1848), restricted to freshwater, from the Gulf of Paria to the Amazon river mouth, characterized by the presence of a conspicuous black blotch around anal-fin base.

Genus *Lagocephalus* - a single species in the area.

Lagocephalus laevigatus (Linnaeus, 1766) (plate XXXIX, 309)

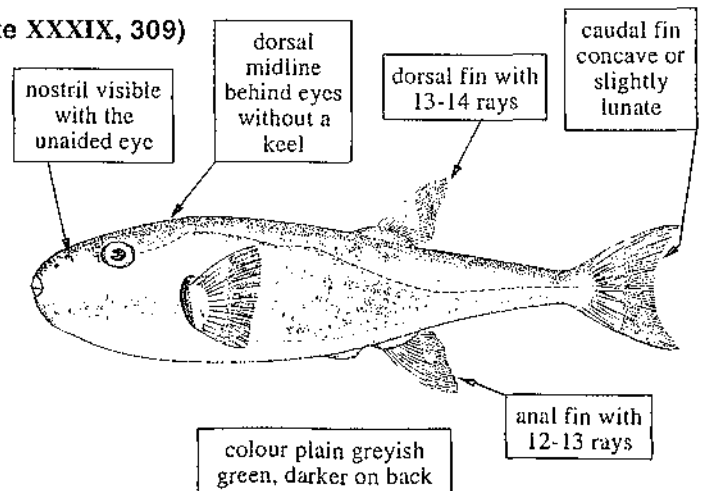
FAO names: **En** - Smooth puffer; **Fr** - Compère lisse; **Sp** - Tamboril mondeque.

Common names:

Size: Maximum 60 cm and 1.5 kg; common to 40 cm.

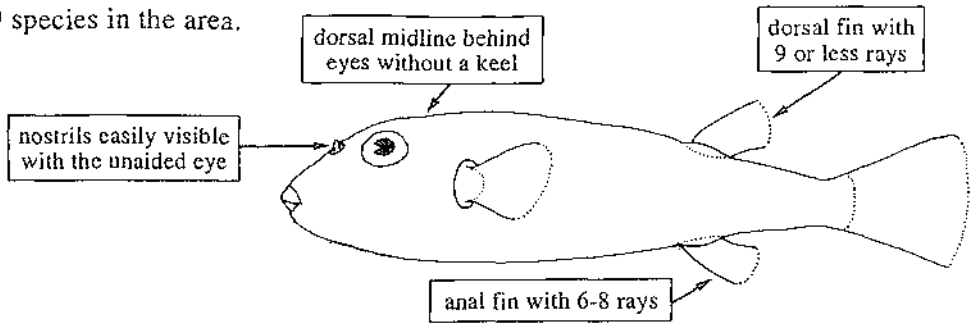
Distribution and habitat: In coastal waters. Over sandy and muddy bottoms to a depth of 60 m; occurs singly or in small groups.

Fisheries: Predominantly artisanal. Caught on hook-and-line and with longlines; also taken in bottom trawl fisheries. The flesh is apparently non-toxic and of excellent quality. Marketed fresh regularly, after careful removal of the viscera; also the liver is consumed (although this may cause poisoning).



TETRAODONTIDAE

Genus *Sphoeroides* - possibly 9 species in the area.



Sphoeroides dorsalis Longley, 1934

FAO names: En - Marbled puffer; Fr - Compère marbré; Sp - Corrotucho futre.

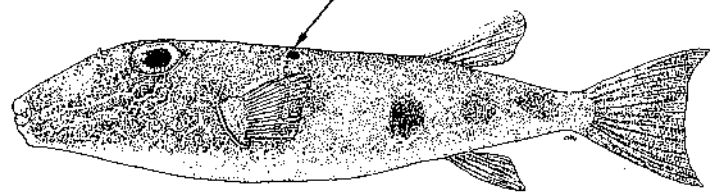
Common names:

Size: Maximum 18 cm; common to 14 cm.

Distribution and habitat: Within the area, only present along the Caribbean coasts of Colombia and Venezuela. Over soft substrates, between depths of 20 and 50 m.

Fisheries: Taken as bycatch in industrial trawl fisheries. At present, of no commercial importance. Apparently not common.

a single pair of black flaps on back, no flaps on posterolateral region of body



1-5 dark, diffuse spots behind pectoral fin; snout and sides of head mottled pale blue in subadult males and in adults

Sphoeroides greeleyi Gilbert, 1900

FAO names: En - Green puffer; Fr - Compère vert; Sp - Corrotucho verde.

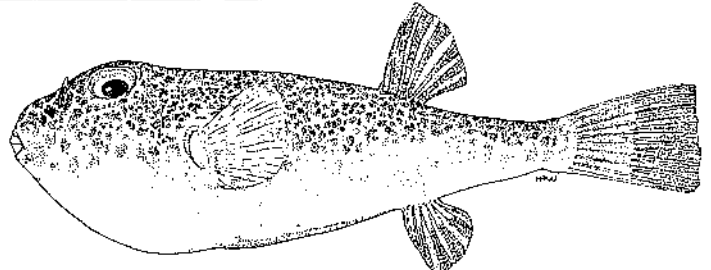
Common names:

Size: Maximum 18 cm; common to 14 cm.

Distribution and habitat: Throughout the area. Over shallow, soft bottoms, usually seagrass beds of *Thalassia testudinum*.

Fisheries: Mostly artisanal. Caught with beach seines. Marketed locally, but the visceral organs are considered toxic.

internarial distance 5-5.5 times in snout length



back with irregular pale areas on greenish brown or greyish background

Sphoeroides spengleri (Bloch, 1785) (plate XXXIX, 310)

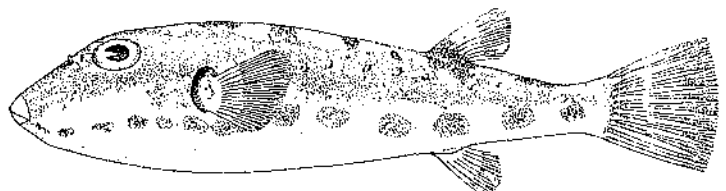
FAO names: En - Bandtail puffer; Fr - Compère collier; Sp - Corrotucho mataperros (=Tamboril collarete).

Common names:

Size: Maximum 15 cm; common to 12 cm.

Distribution and habitat: Throughout the area. Usually in shallow, clear water, on seagrass beds of *Thalassia*, from the shore to a depth of about 30 m.

Fisheries: Caught chiefly with beach nets. Definitely a toxic species.



a row of distinct black, round spots along lower sides; a black bar at base, and another at hind margin of caudal fin

TETRAODONTIDAE

***Sphoeroides testudineus* (Linnaeus, 1758)** (plate XXXIX, 311)

FAO names: **En** - Checkered puffer; **Fr** - Compère corotuche; **Sp** - Corrotucho común (=Tamboril corrotucho).

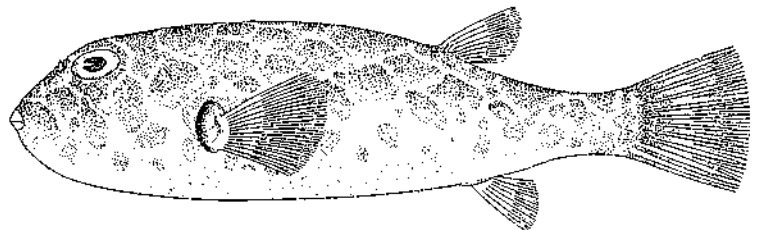
Common names:

Size: Maximum 30 cm and 400 g; common to 20 cm.

Distribution and habitat: Throughout the area. Confined to shallow waters, over soft, sandy or muddy bottoms; often on seagrass beds of *Thalassia* and in brackish or hypersaline mangrove areas. One of the most common pufferfishes in the area.

Fisheries: Caught with beach seines, traps, and on hook-and-line. A toxic species, not marketed.

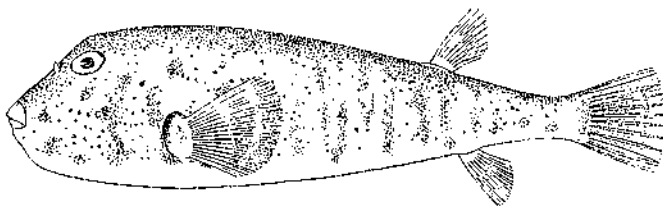
internarial distance
3-3.5 times in snout
length



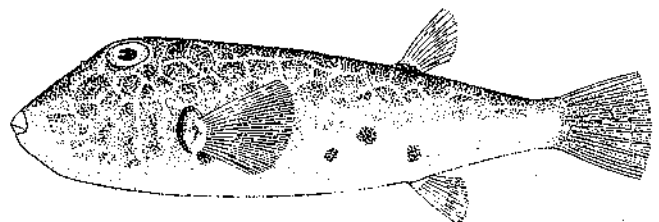
back of head and body with whitish areas forming a geometrical network on greenish brown background; 1 or 2 transverse white lines between eyes

Other species:

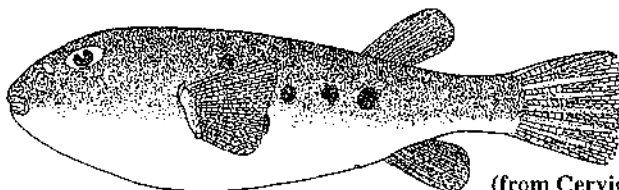
Sphoeroides maculatus (Bloch and Schneider, 1801), a species possibly present in the northeastern and the extreme western parts of the area; *S. nephelus* (Goode and Bean, 1882), very rare in the area, found only occasionally in oceanic insular areas; *S. pachigaster* (Müller and Troschel, 1848), reaching over 20 cm in length and characterized by the presence of 5 very conspicuous, rounded black spots on sides behind the pectoral fin, is caught occasionally below a depth of 150 m; *S. tyleri* Shipp, 1972, and *S. yegeri* Shipp, 1972, small species, the former confined to the eastern part and the latter, to the extreme western part of the area.



Sphoeroides maculatus



Sphoeroides nephelus



(from Cervigón, 1966)

Sphoeroides pachigaster

TRICHIURIDAE

En: Cutlassfishes, hairtails. **Fr:** Poissons sabre. **Sp:** Peces sable, tajalíes.

Ribbon-like fishes, usually exceeding 100 cm in total length, bright silvery in colour. Pelagic and demersal, mostly inhabiting rather deep water over the continental slope, but some species occur in shallow water. Two genera, each with one species in the area.

TRICHIURIDAE

Genus *Evoxymetopon* - a single species in the area.

Evoxymetopon taeniatus (Poey, 1863)

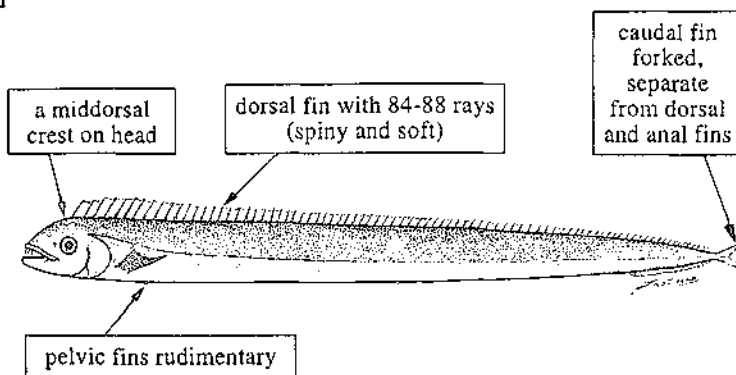
FAO names: En - Channel hairtail; Fr - Poisson-sabre de canal; Sp - Tajali de canal.

Common names:

Size: Maximum 150 cm and about 1.7 kg; common to 130 cm.

Distribution and habitat: Insular areas of the Caribbean sea. Below a depth of 100 m.

Fisheries: Caught only occasionally on hook-and-line. Edible, but records from the area are scarce.



Genus *Trichiurus* - a single species in the area.

Trichiurus lepturus (Linnaeus, 1758) (plate XL, 315-316)

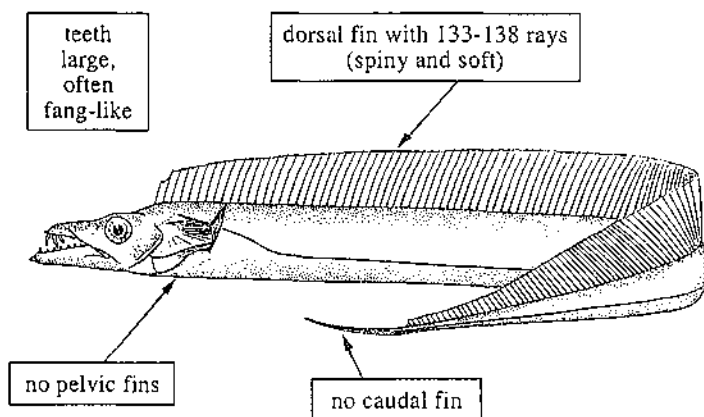
FAO names: En - Largehead hairtail (AFS: Atlantic scabbardfish); Fr - Poisson sabre commun; Sp - Pez sable.

Common names:

Size: Maximum 150 cm; common to 70 cm.

Distribution and habitat: Throughout the area. Juveniles are mainly demersal, while adults are pelagic. They may occur to depths of 100 m, but are normally found in coastal marine and even brackish waters, over muddy bottoms.

Fisheries: Juveniles and small adults are caught mainly with bottom trawls and beach seines; adults are taken on hook-and-line at night, using artificial lights. Marketed mostly fresh and salted, sometimes also frozen. Highly esteemed in local markets.



Other genera:

The presence of the genera *Aphanopus*, *Assurger* and *Benthodesmus*, in the area is doubtful, but they are of no interest to fisheries.

TRIGLIDAE

En: Searobins. **Fr:** Grondins. **Sp:** Rubios, testolines, gallinas.

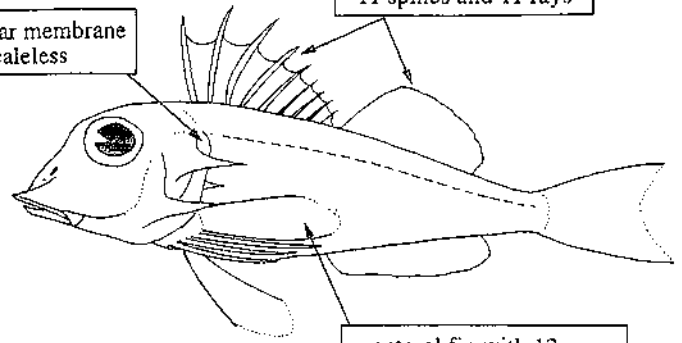
Small to moderate-sized fishes never reaching 50 cm in length. They occur on sandy or muddy substrates, rubble or reef-type bottom, using the free rays of their pectoral fins for support and search of food. All species are edible and their flesh is of good quality, but their acceptance in markets of the area is still limited. Two genera with 8 species in the area.

Genus *Bellator*

Three species in the area, *B. brachyhir* (Regan, 1914), *B. egretta* (Goode and Bean, 1896) and *B. riberoi* Miller, 1965, of no interest to fisheries because of their small average size.

opercular membrane scaleless

dorsal fin usually with 11 spines and 11 rays

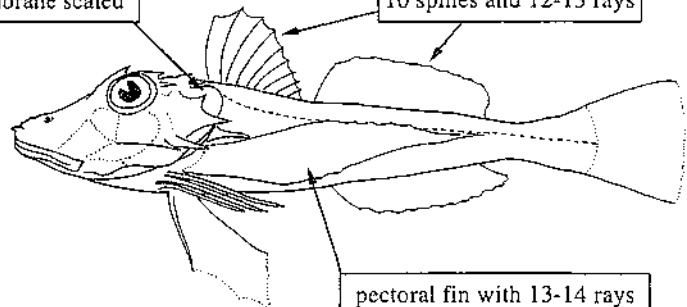


pectoral fin with 12 rays

Genus *Prionotus* - 5 species in the area, some of them of commercial value.

opercular membrane scaled

dorsal fin usually with 10 spines and 12-13 rays



pectoral fin with 13-14 rays

***Prionotus beani* Goode, 1896**

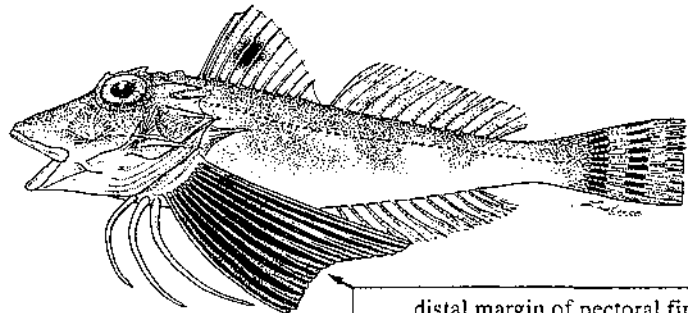
FAO names: En - Bean's searobin; Fr - Grondin de Bean; Sp - Gallinita.

Common names:

Size: Maximum about 15 cm; common to 12 cm.

Distribution and habitat: Throughout the area. Over soft and semi-hard bottoms (sand or shell fragments), mainly between depths of 35 and 200 m.

Fisheries: Taken as bycatch in industrial trawl fisheries. At present of no commercial importance because of its small size.



distal margin of pectoral fins emarginate or concave, the central rays shorter than upper and lower rays

back greenish brown, with irregular reddish brown spots; a conspicuous black blotch between 4th and 5th dorsal-fin spines; caudal fin with 3 reddish vertical bars

***Prionotus ophryas* Jordan and Swain, 1884**

FAO names: En - Bandtail searobin; Fr - Grondin fil; Sp - Gallina cornúa.

Common names:

Size: Maximum 27 cm; common to 22.5 cm.

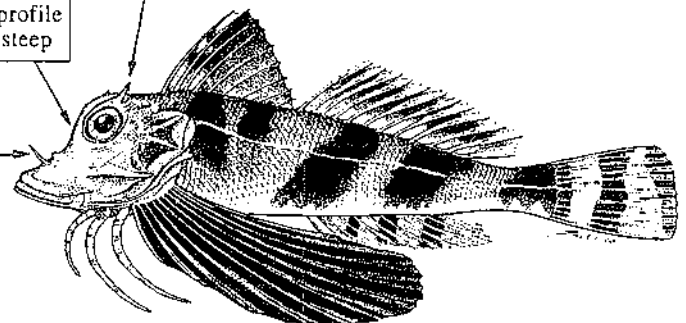
Distribution and habitat: Northern coasts of Colombia and Venezuela and probably, on Trinidad. In shallow waters very close to the shore, over soft substrates.

Fisheries: Artisanal. Caught usually on hook-and-line, but taken only in small quantities.

a dermal tentacule above eye

front profile very steep

a long filament above anterior nostril



broad black bars on head and body on copper-orange background; caudal fin with 3 dark vertical bars

***Prionotus punctatus* (Bloch, 1797)**

(plate XXXIX, 312)

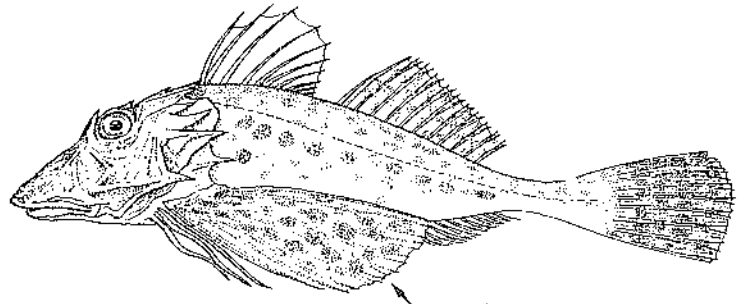
FAO names: En - Bluewing searobin; Fr - Grondin poule; Sp - Gallina pintada (=Testolín azul).

Common names:

Size: Maximum 40 cm; common to 30 cm.

Distribution and habitat: Throughout the area, in shallow waters of the continental shelf, over soft, sandy, or muddy substrates, usually between depths of 18 and 70 m, sometimes very close to the shore.

Fisheries: Artisanal. Caught with beach seines, beach nets, and as bycatch in the industrial trawl fishery for shrimps. Marketed fresh; not in great demand, even though the flesh is of good quality.



pectoral fins very long (length 45-49% of standard length), the longest ray reaching at least to base of 4th anal-fin ray

back greenish brown with small reddish brown spots; a longitudinal series of large spots below lateral line; 2nd dorsal fin and caudal fin with brown spots; pectoral fins with oval spots on dark green background

***Prionotus roseus* Jordan and Evermann, 1886**

(plate XL, 313)

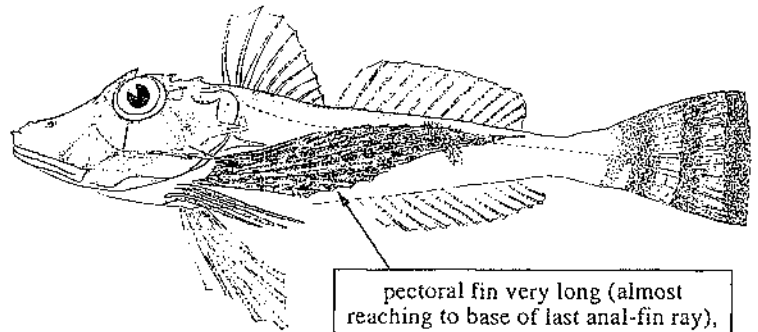
FAO names: En - Bluespotted searobin; Fr - Grondin de lagune; Sp - Gallina de charco.

Common names:

Size: Maximum 20 cm; common to 15 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela and probably, on Trinidad. In shallow water, over soft bottoms.

Fisheries: Taken as bycatch in industrial trawl fisheries. Marketed fresh; of little commercial importance.



pectoral fin very long (almost reaching to base of last anal-fin ray), with 12 rays joined by membranes

outer surface of pectoral fin with numerous bright blue spots tending to form continuous stripes; caudal fin with 2 dark vertical bars

***Prionotus stearnsi* Jordan and Swain, 1884**

(plate XL, 314)

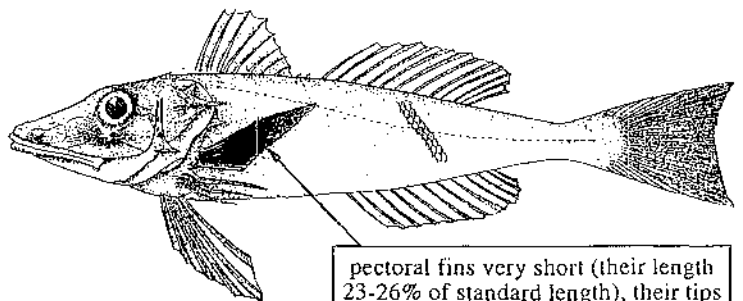
FAO names: En - Shortwing searobin; Fr - Grondin aîle-courte; Sp - Gallina aleta corta.

Common names:

Size: Maximum about 15 cm; common to 12 cm.

Distribution and habitat: Throughout the area. Over soft or semi-hard bottoms of the continental shelf and upper slope, to a depth of about 300 m.

Fisheries: Taken as bycatch in industrial trawl fisheries for shrimps and for finfishes. At present of no commercial importance because of its small size.



pectoral fins very short (their length 23-26% of standard length), their tips just reaching to origin of anal fin

back plain brown; pectoral fins and posterior part of caudal fin black

Other species:

There is another, doubtful species, similar to *Prionotus rubio* Jordan, 1886.

URANOSCOPIDAE

En: Stargazers. **Fr:** Uranoscopes. **Sp:** Miracielos.

Medium-sized demersal fishes. Their head and body robust, with the eyes placed on top of head. They are sedentary residents of soft and semi-hard bottoms, occurring from shallow coastal waters to a depth of about 550 m. Usually solitary and not abundant, hence of little importance as fishery resources, although their flesh is edible. Two genera, each with one species in the area.

Genus *Astroscopus* - a single species in the area.

Astroscopus y-graecum (Cuvier, 1832) (plate XL, 317)

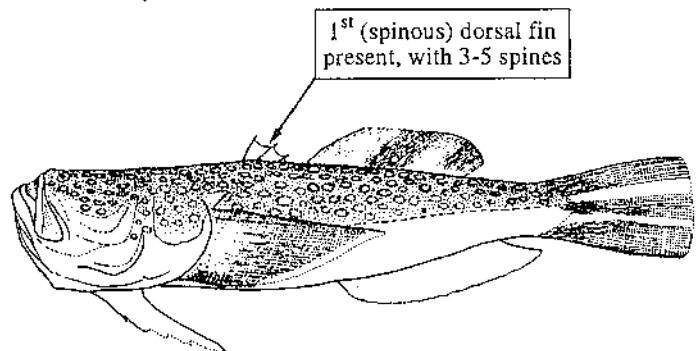
FAO names: **En** - Southern stragazer; **Fr** - Uranoscope tâcheté; **Sp** - Miracielo pintado.

Common names:

Size: Maximum 44 cm; common to 35 cm.

Distribution and habitat: Throughout the area. In shallow water, over soft bottoms.

Fisheries: Taken as bycatch in industrial trawl fisheries, but the catches are never abundant.



back of head and body with large, irregular, black-edged white spots

Genus *Kathetostoma* - a single species in the area.

Kathetostoma cubana Barbour, 1941 (plate XL, 318)

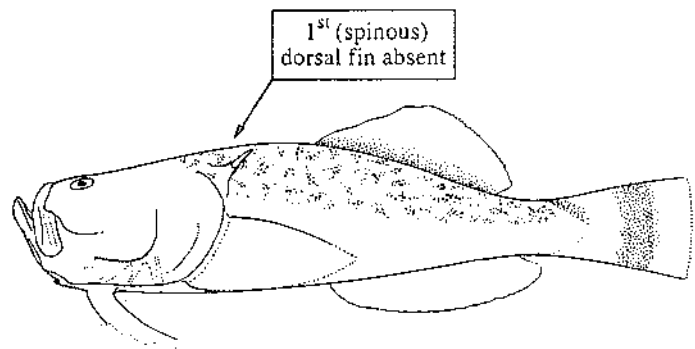
FAO names: **En** - Spiny stargazer; **Fr** - Uranoscope épineux; **Sp** - Miracielo espinoso.

Common names:

Size: Maximum about 30 cm; common to 20 cm.

Distribution and habitat: Northern coasts of Colombia and Venezuela and probably, on Trinidad. On soft bottoms in rather deep water, from depths below 200 m to about 600 m.

Fisheries: Taken as bycatch in industrial trawl fisheries. Rather rare; of no commercial importance.



back mottled; dorsal fin with a diffuse dark spot; caudal fin with a broad vertical bar

XIPHIIDAE

En: Swordfishes. **Fr:** Espadons. **Sp:** Peces espada; emperadores.

A single species.

Xiphias gladius Linnaeus, 1758

(plate XL, 319)

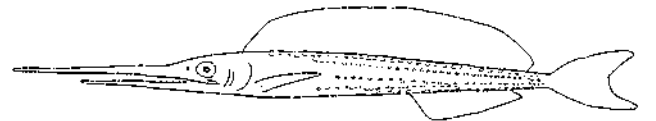
FAO names: **En** - Swordfish; **Fr** - Espadon;
Sp - Pez espada.

Common names:

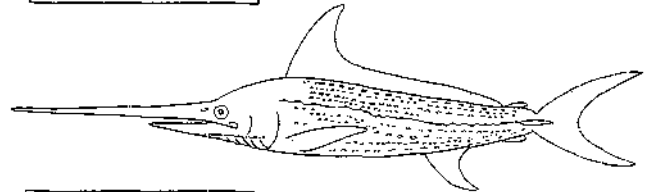
Size: Maximum 450 cm; common to 220 cm.

Distribution and habitat: Throughout the area. In coastal as well as in open oceanic waters. An active migratory fish, never found in schools. A spawning area for this species seems to exist in the southern part of the Caribbean sea where it occurs in waters below a depth of 200 m in daytime and migrates to the surface at night.

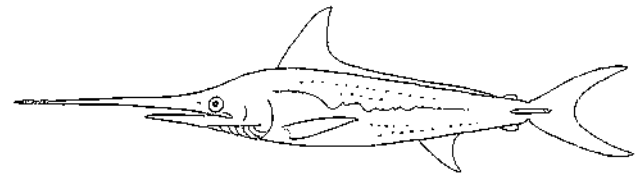
Fisheries: Caught mainly with longlines, by trolling, or shot with harpoons. Marketed fresh or frozen. A special fishery for this species operates in the southern Caribbean sea, between depths of 200 and 400 m. Its flesh is highly esteemed. A species of great commercial importance, usually exported to the USA.



23.4 cm body length

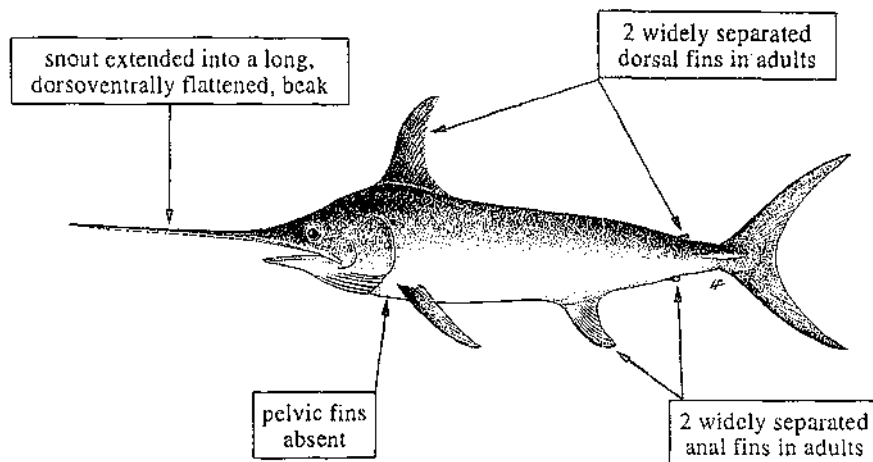


52.8 cm body length



75.9 cm body length

growth variations of shape in juveniles



ZEIDAE

En: Dories. **Fr:** Saint-Pierres. **Sp:** San Pedros.

Small to medium-sized, very deep-bodied fishes. They are demersal or mesopelagic in moderately deep water, from depths below 100 to 400 or 500 m, and may occur in schools. At present they are of little commercial importance. Two genera, each with one species in the area.

Genus *Cyttopsis* - a single species in the area.

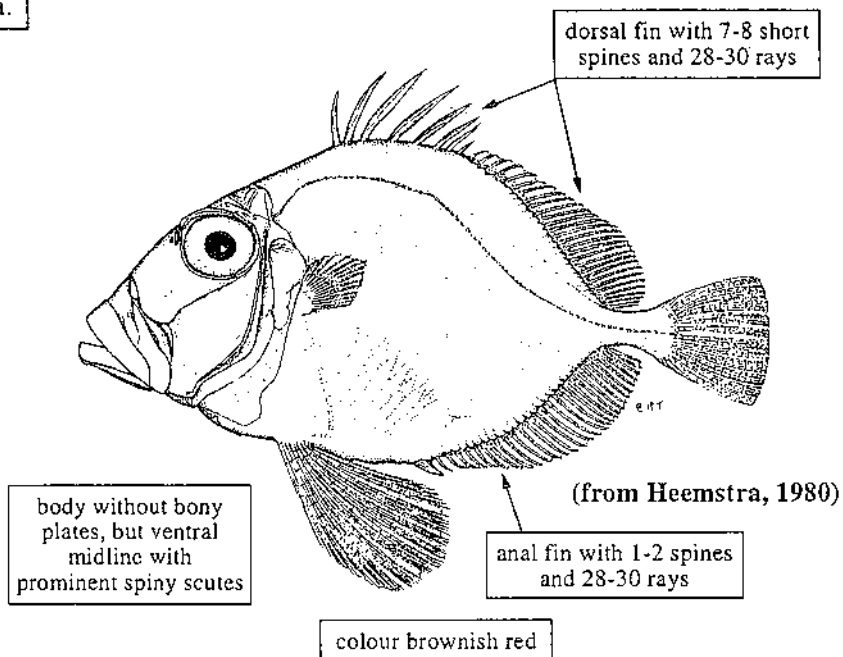
Cyttopsis roseus (Lowe, 1843)

Names. **FAO:** **En** - Red dory; **Fr** - Saint-Pierre rouge; **Sp** - San Pedro colorado.
Common names:

Size: Maximum 15 cm; common to 12 cm.

Distribution and habitat: Northern coast of South America, usually in waters below a depth of 300 m.

Fisheries: Taken in trawl fisheries for fin-fish. At present not marketed because of its small size.



Genus *Zenopsis* - a single species in the area.

Zenopsis conchifer (Lowe, 1852)

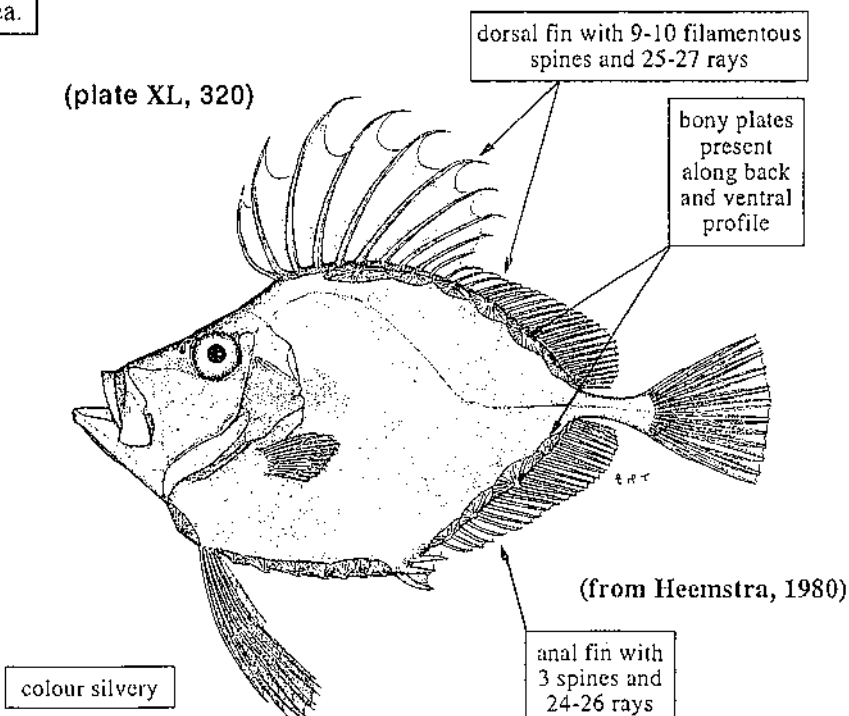
Synonyms: *Zenopsis ocellata* (Storer, 1859).

FAO names: **En** - Bucklet dory; **Fr** - Saint-Pierre argenté; **Sp** - San Pedro plateado.
Common names:

Size: Maximum 61 cm and over 3 kg; common to 50 cm.

Distribution and habitat: Throughout the area, in waters below a depth of 100 m.

Fisheries: Taken in industrial trawl fisheries. Although not a rare species, it is not sufficiently abundant to be considered an important fishery resource at present.



MARINE TURTLES

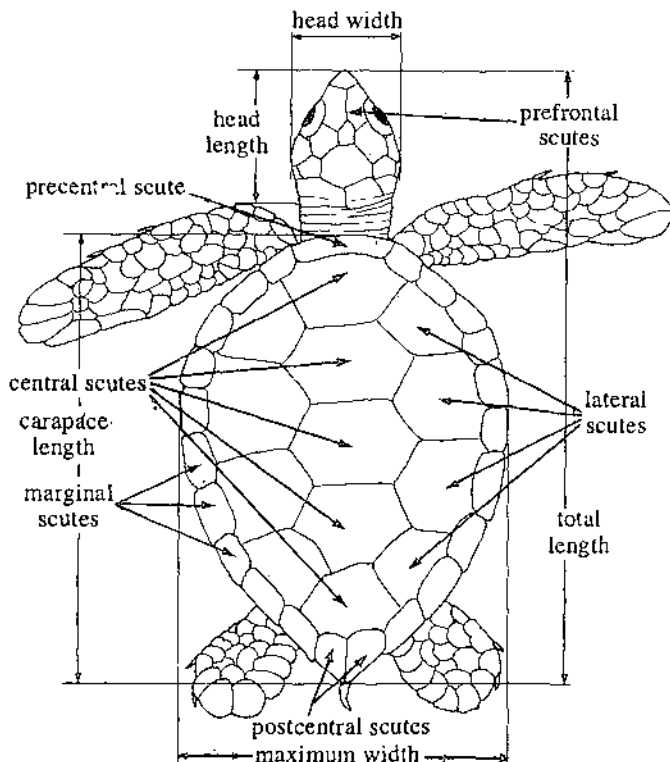
The most typical feature of a turtle is the hard shell encasing the entire body. This shell is composed of a layer of bones underneath and a layer of horn on the outside that often, but not always, displays a geometrical pattern of lamellae or scutes. The top of the shell or carapace is joined at the sides with the bottom shell or plastron that is notched in front and rear where the limbs emerge from the shell. All turtles have a strong, horny beak; none have true teeth, although tooth-like projections may be present on the jaws. The limbs or flippers of marine turtles are paddle-shaped.

Marine turtles occur in all tropical and warm-water seas. They usually inhabit shallow waters along coasts and around islands, but some species are highly migratory and found in the open sea. They are swift swimmers and some are said to attain speeds of about 35 km per hour. Unlike freshwater turtles they move forward by simultaneous action of the front flippers. All species are compelled to return in regular intervals to the land during the nesting season when they lay their eggs in a nest dug into the sand. After a relatively long incubation period (usually from 45 to 70 days), the hatchlings go back to the sea where they spend their juvenile phase. Very little is known about their movements and fate before they attain sexual maturity.

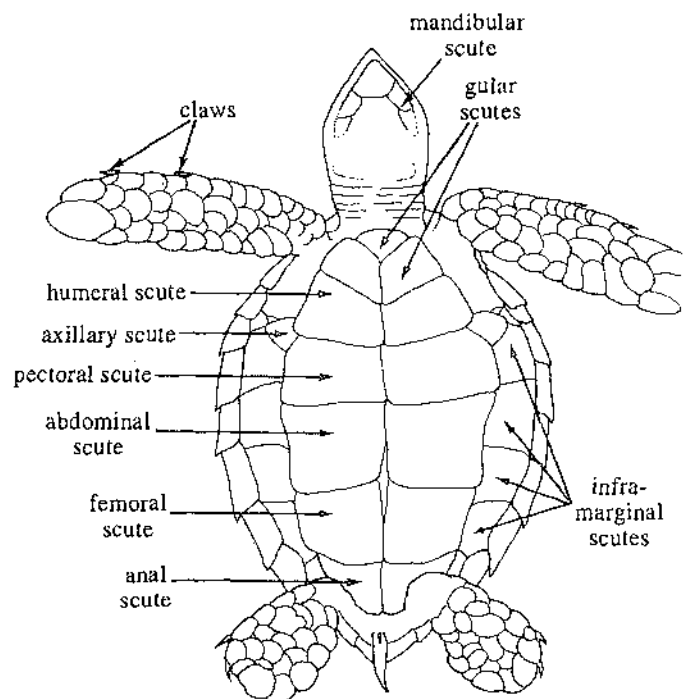
Since ancient times turtles have been held in high esteem as food for man. The flesh as well as the eggs are of delicate taste and much of the production goes frozen or canned to export markets for the preparation of turtle soup, calipees, and other delicacies.

Other uses are in the extraction of oil from turtle fat, in the tortoise shell industry and in the leather industry. Fishing gear at sea includes catch by hand, tangle nets, gillnets, seines and harpoons. Frequently turtles get accidentally entangled in the nets, but some fishermen lay out their nets intentionally in areas of passage of marine turtles or off nesting beaches. One of the most common practices is to upturn the turtles when they come onto the beaches to lay their eggs. Also the eggs are collected and sold at very high prices. All species are strongly over-exploited and most of them are seriously endangered. Currently, a turtle protection programme has been enacted in the entire area, including also culture and repopulation activities. However, illegal fishing of marine turtles is still a problem that has not yet been brought under control.

TECHNICAL TERMS AND MEASUREMENTS



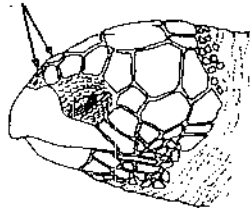
dorsal view of a juvenile marine turtle
(Family Cheloniidae)



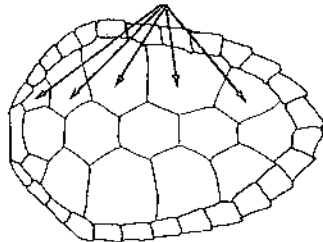
ventral view of a juvenile marine turtle
(Family Cheloniidae)

GUIDELINES FOR THE IDENTIFICATION OF FAMILIES

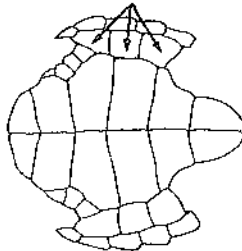
2 pairs of prefrontal scutes



5 lateral scutes

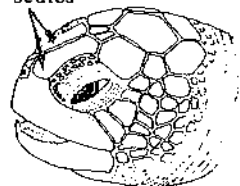


3 inframarginal scutes without pores

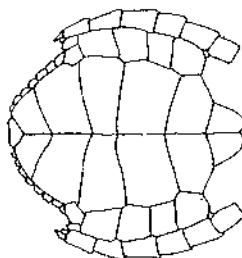
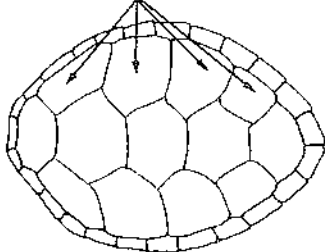


Caretta caretta

1 pair of prefrontal scutes



4 lateral scutes

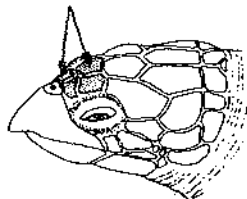


Chelonia mydas mydas

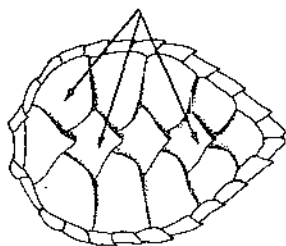


lower jaw

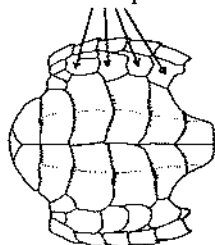
2 pairs of prefrontal scutes



scutes imbricated

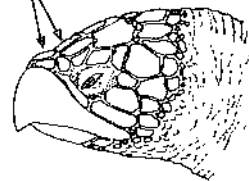


4 inframarginal scutes without pores

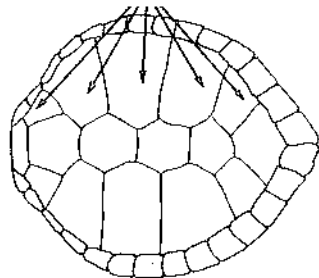


Eretmochelys imbricata

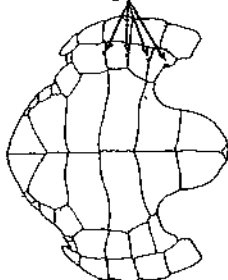
2 pairs of prefrontal scutes



5 or more lateral scutes



4 pored inframarginal scutes



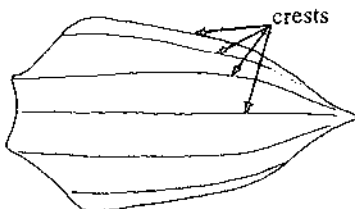
Lepidochelys olivacea

no scutes

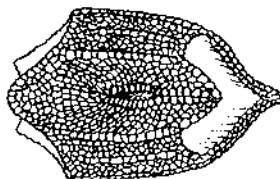


head

crests



carapace



plastron

Dermochelys coriacea

FAMILY
CHELONIDAE

FAMILY
DERMOCHELIDAE

FAMILIES AND SPECIES OF INTEREST TO FISHERIES

CHELONIDAE

Four genera, each with a single species in the area.

Caretta caretta (Linnaeus, 1758)

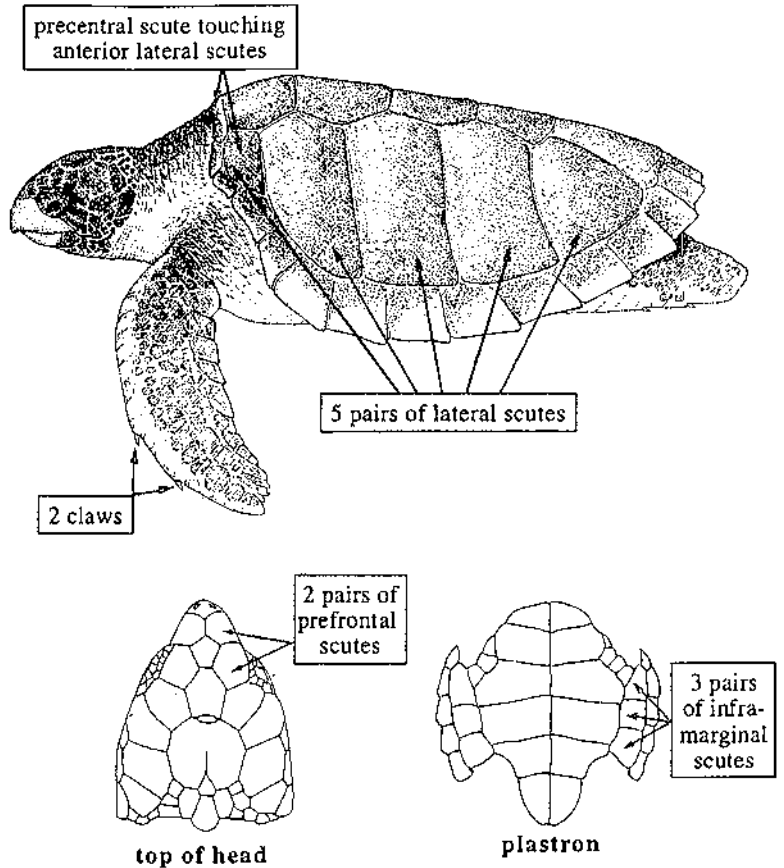
FAO names: En - Atlantic loggerhead turtle; Fr - Tortue caoune de l'Atlantique; Sp - Tortuga cahuama del Atlántico.

Common names:

Size: Maximum carapace length 125 cm and 140 kg weight; common to 110 cm.

Distribution and habitat: Throughout the area, and from Nova Scotia (Canada) to Río de la Plata, Argentina. A migratory species occurring in coastal as well as oceanic waters. Feeds on crustaceans, molluscs, sea urchins, sponges, and fish. In captivity it is fed on sardines. Mating extends from March to April, and nesting from May to August. It lays from 100 to 120 eggs and the incubation period ranges from 46 to 62 days.

Fisheries: Considered an endangered species. Despite a total ban on fisheries and consumption of this species, people inhabiting coastal continental and insular areas eat its flesh and eggs. Culture and repopulation programmes for this species have been initiated in the area.



Chelonia mydas mydas (Linnaeus, 1758)

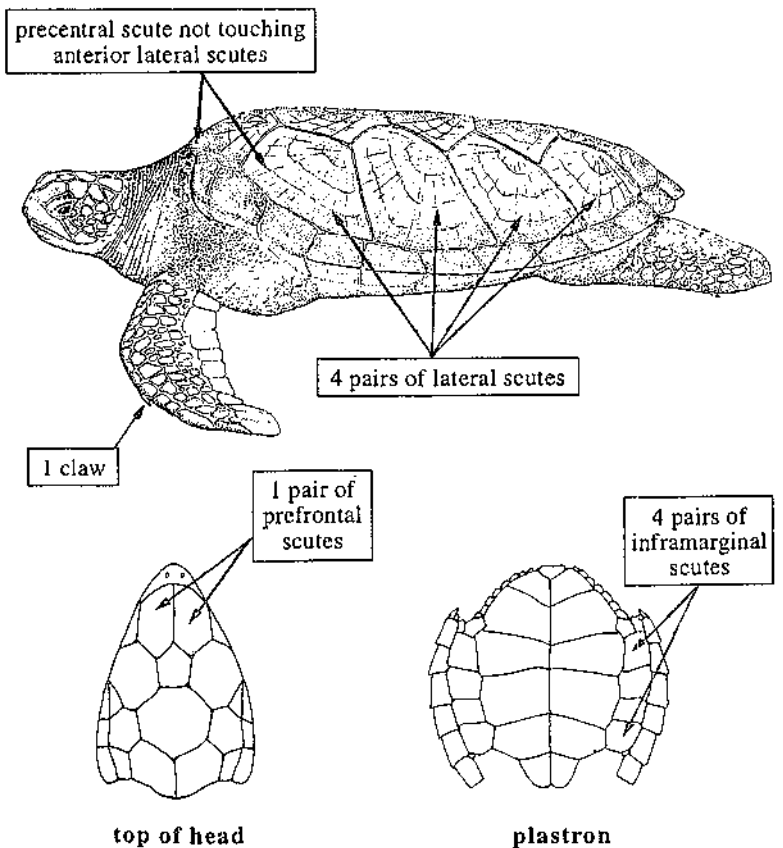
FAO names: En - Atlantic green sea turtle; Fr - Tortue verte de l'Atlantique; Sp - Tortuga verde del Atlántico.

Common names:

Size: Maximum carapace length 105 cm and 140 kg; common to 90 cm.

Distribution and habitat: Throughout the area, and from Maine (USA) to Río de la Plata, Argentina. A highly migratory species occurring in shallow water over vegetated bottoms, but also in the open sea. Predominantly herbivorous (algae and phanerogams). In captivity it is fed with plants, sardines, and food concentrates. Mating extends from May to July, and nesting from June to September. It lays an average of about 110 eggs and the incubation period ranges from 45 to 60 days.

Fisheries: The western Caribbean sea is the area of greatest concentration of this species. It is considered endangered and many countries bordering the area have established a total ban on its fishery and consumption. Its flesh and eggs are held in high esteem and are consumed locally and exported in small quantities to neighbouring Caribbean islands. This is one of the target species in turtle culture, tagging, and repopulation programmes in the area.



Eretmochelys imbricata (Linnaeus, 1766)

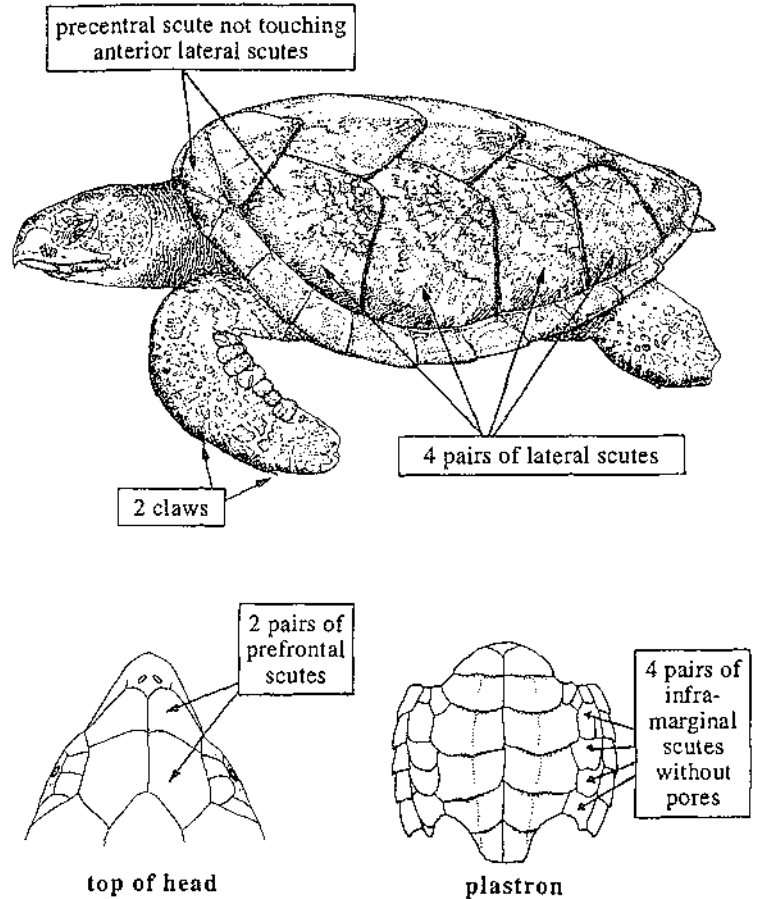
FAO names: En - Atlantic hawksbill turtle; Fr - Tortue caret de l'Atlantique; Sp - Tortuga de carey del Atlántico.

Common names:

Size: Maximum carapace length 90 cm and 120 kg weight; common to 80 cm.

Distribution and habitat: Throughout the area, and from Massachusetts (USA) to Brazil. Occurs predominantly in shallow coastal waters on seagrass beds and in bays and lagoons over muddy bottoms. Omnivorous, feeding mainly on benthic organisms, seaweeds, and invertebrates. In captivity it also takes sardines. Mating extends from February to March, and nesting from April to June. It lays about 100 to 160 eggs and the incubation period ranges from 45 to 55 days.

Fisheries: An endangered species and at present there is a total ban on its fishery and consumption. It has been intensively exploited in the past because of its valuable shell which has been used in the elaboration of artisanal ornamental objects made of shell. This species is also included in ongoing turtle culture and repopulation programmes.



Lepidochelys olivacea (Eschscholtz, 1829)

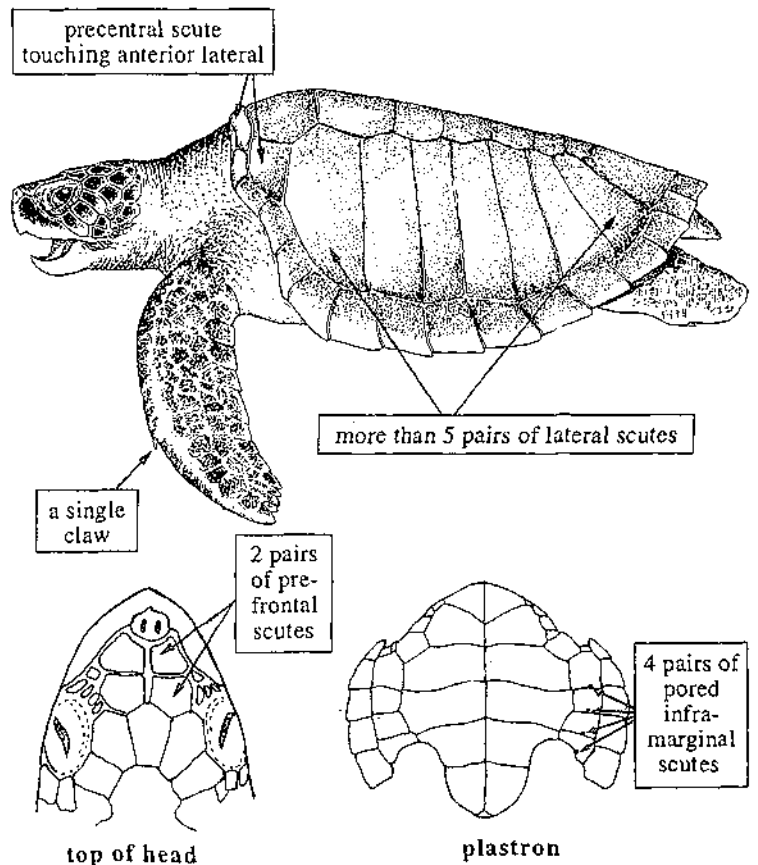
FAO names: En - Pacific ridley turtle; Fr - Tortue ridley du Pacifique; Sp - Tortuga golfina.

Common names:

Size: Maximum carapace length 76 cm and 55 kg weight; common to 72 cm.

Distribution and habitat: Present mainly in the eastern part of the area, including the eastern part of Venezuela and the Guianas. This species is more typical of the Pacific ocean. Occurs in shallow water near the shore, as well as in the open sea. Nesting extends from April to August and the incubation period ranges from 49 to 62 days.

Fisheries: An endangered species. There is a total ban on its fishery and consumption. Also included in ongoing turtle culture and tagging programmes.



DERMOCHELIDAE

A single species.

Dermochelys coriacea (Linnaeus, 1758)

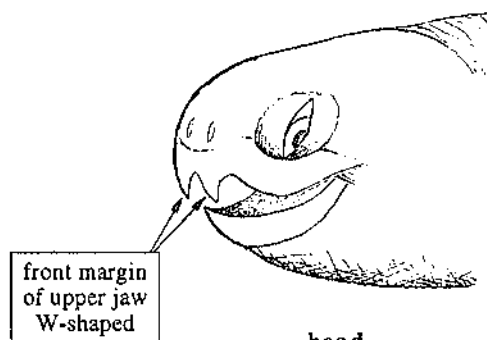
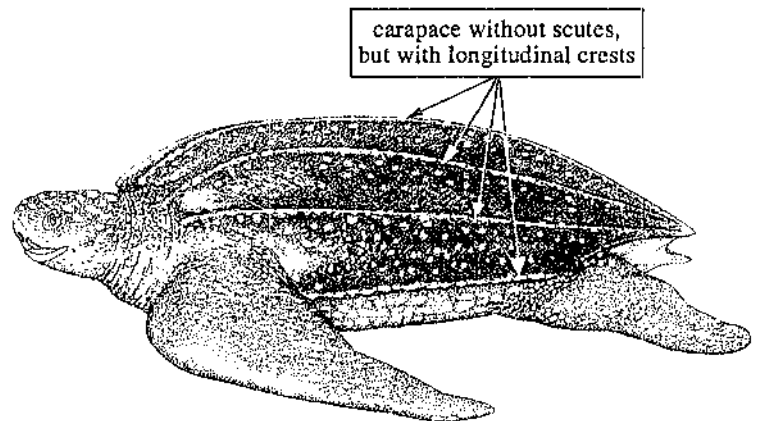
FAO names: En - Atlantic leatherback turtle; Fr - Tortue luth de l'Atlantique; Sp - Tortuga laúd del Atlántico.

Common names:

Size: Maximum carapace length 180 cm, and 725 kg weight; common to 140 cm.

Distribution and habitat: Throughout the area, and from Nova Scotia (Canada) to Río de la Plata, Argentina. A predominantly pelagic species, highly migratory and frequently found far offshore. It feeds mainly on jellyfish, tunicates and other soft-bodied pelagic invertebrates. Nesting extends from March to September, and the incubation period from 50 to 70 days. The most important nesting areas are located in the Guianas.

Fisheries: An endangered species. There is a total ban on its fishery and consumption. Nevertheless, its flesh and eggs are still consumed locally. This species is also included in ongoing turtle culture and tagging programmes. Its culture meets with considerable difficulties because of its selective feeding habits.



INDEX OF SCIENTIFIC AND VERNACULAR NAMES

Explanation of the system

Italics : Valid scientific names (genera and species)

Italics : Synonyms (genera and species)

ROMAN : Family names

ROMAN : Names of groups, classes, orders, suborders, and subfamilies

Roman : FAO and vernacular names

A

<i>aberrans</i> , <i>Liopropoma</i>	434	<i>Aetobatus narinari</i>	202
<i>aberrans</i> , <i>Hypoplectrus</i>	435	<i> afer</i> , <i>Alphestes</i>	425
<i>Ablennes</i>	269	<i>affinis</i> , <i>Hirundichthys</i>	319
<i>Ablennes hians</i>	269	African pompano	284
<i>Abralia redfieldi</i>	83	<i>Agardhiella tenera</i>	27
<i>Abralia veranyi</i>	83	<i>agassizi</i> , <i>Opisthoteuthis</i>	95
<i>Abudedefduf</i>	384	<i>agassizi</i> , <i>Scorpaena</i>	421
<i>Abudedefduf saxatilis</i>	384	<i>agassizii</i> , <i>Nephropsis</i>	141
<i>Abudedefduf taurus</i>	384	Aguilas marinas	202
<i>Acanthacaris</i>	137	Aguja azul	343
<i>Acanthacaris caeca</i>	137	Aguja blanca	343
<i>Acanthocybium</i>	414	Aguja picuda	343
<i>Acanthocybium solandri</i>	414	Agujas	342
<i>acanthonotus</i> , <i>Plesionika</i>	120	Agujeta balajú	338
<i>Acanthophora</i>	28	Agujeta blanca	339
<i>Acanthophora spicifera</i>	28	Agujeta del Brasil	338
ACANTHURIDAE	245, 251-252	Agujeta larga	338
ACANTHUROIDEI	245	Agujeta voladora	337
<i>Acanthurus</i>	251-252	Agujetas	337
<i>Acanthurus bahianus</i>	251	Agujon needlefish	270
<i>Acanthurus chirurgus</i>	251	Agujón timucu	270
<i>Acanthurus coeruleus</i>	252	Agujón verde	269
<i>acanthurus</i> , <i>Macrobrachium</i>	116	Agujones	269
<i>acerosa</i> , <i>Gellidiella</i>	23	<i>Ahlia</i>	370
<i>Achirus</i>	437-438	<i>Ahlia egmontis</i>	370
<i>Achirus achirus</i>	438	Aigle de mer du sud	203
<i>achirus</i> , <i>Achirus</i>	438	Aigle de mer léopard	202
<i>Achirus lineatus</i>	438	Aigle taureau	203
<i>acicularis</i> , <i>Gigartina</i>	26	Aigles de mer	202
<i>Acoupa aîle-courte</i>	404	Aiguillat cubain	189
<i>Acoupa blanc</i>	400	Aiguille crocodile	270
<i>Acoupa cambucu</i>	402	Aiguille voyeuse	270
<i>Acoupa chasseur</i>	405	Aiguilles	269
<i>Acoupa doré</i>	401	Aiguillette timucu	270
<i>Acoupa mongolare</i>	400	Aiguillette verte	269
<i>Acoupa tident</i>	401	Aiguillettes	269
<i>Acoupa toeroe</i>	400	Ailes d'ange	69
<i>Acoupa tonquiche</i>	401	Ala de ángel	69
<i>Acoupa weakfish</i>	400	<i>alalunga</i> , <i>Thunnus</i>	418
<i>acoupa</i> , <i>Cynoscion</i>	400	Alas de ángel	69
<i>Acoupas</i>	397	<i>alata</i> , <i>Mactrellona</i>	65
<i>Acromycter</i>	304	<i>alatus</i> , <i>Isognomon</i>	64
<i>acronotus</i> , <i>Carcharhinus</i>	169	<i>albacares</i> , <i>Thunnus</i>	418
<i>aculeata</i> , <i>Nephropsis</i>	140	Albacore	418
<i>acuminata</i> , <i>Solenocera</i>	131	Albacores	246, 414
<i>acuminatus</i> , <i>Equetus</i>	402	<i>albicans</i> , <i>Istiophorus</i>	342
<i>acuminatus</i> , <i>Myrichthys</i>	373	<i>albidus</i> , <i>Merluccius</i>	221, 359
<i>acuminatus</i> , <i>Pareques</i>	402	<i>albidus</i> , <i>Tetrapturus</i>	343
<i>acus acus</i> , <i>Tylosurus</i>	270	<i>Albula</i>	252-253
<i>acus</i> , <i>Tylosurus acus</i>	270	<i>Albula nemoptera</i>	252
<i>adami</i> , <i>Pholidoteuthis</i>	84, 87	<i>Albula vulpes</i>	253
<i>Adenops</i>	262	ALBULIDAE	213, 252-253
<i>Adenops analis</i>	262	<i>album</i> , <i>Haemulon</i>	331
<i>adscensionis</i> , <i>Epinephelus</i>	427	<i>Alectis</i>	284
<i>adscensionis</i> , <i>Holocentrus</i>	339	<i>Alectis ciliaris</i>	284
<i>aequilatera</i> , <i>Polymesoda</i>	62	ALEPISAUROIDAE	219, 253
<i>aequinoctialis</i> , <i>Scyllarides</i>	146	<i>Alepisaurus</i>	253
<i>Aequipecten gibbus</i>	68	<i>Alepisaurus brevirostris</i>	253
<i>Aetobatus</i>	202	<i>Alepisaurus ferox</i>	253
		ALEPOCEPHALIDAE	218
		Alfonsino	271
		Alfonsino palometón	271

Alfonsinos	227, 271	ANACANTHOBATIDAE	207
Alitán boa	185	<i>Anacanthobatis</i>	207
Alitán ensillado	185	<i>Anacanthobatis (Schroederichthys) americanus</i>	207
Alitán pecoso	185	<i>Anadara</i>	60
Alitanes	183	<i>Anadara brasiliiana</i>	61
Allache	301	<i>Anadara deshayesi</i>	60
<i>alletteratus, Euthynnus</i>	415	<i>Anadara notabilis</i>	60
ALLOPOSIDAE	96	<i>analis, Adenops</i>	262
<i>Alloposus mollis</i>	96	<i>analis, Ariosoma</i>	302
Almaco jack	293	<i>analis, Lutjanus</i>	351
Almeja calico	75	<i>Anarchias</i>	366
Almejas	74	<i>Anarchias yoshiae</i>	366
Alón	307	<i>Anchoa</i>	309-312
Alones	307	Anchoa aletona	316
<i>Alopias</i>	168	Anchoa banda ancha	311
<i>Alopias superciliosus</i>	168	Anchoa banda estrecha	310
<i>Alopias vulpinus</i>	168	Anchoa bocona	313
ALOPIIDAE	166, 168	<i>Anchoa cayorum</i>	310
Alose-caille brésillienne	390	<i>Anchoa colonensis</i>	310
Alose-caille fluviale	390	<i>Anchoa cubana</i>	310
Aloses	298	Anchoa de cayo	310
Aloses-caille	388	Anchoa de charco	312
<i>Alphestes</i>	425	Anchoa de hebra	310
<i>Alphestes afer</i>	425	Anchoa de río	313
<i>alta, Pristigenys</i>	388	Anchoa dientona	316
<i>altavela, Gymnura</i>	200	Anchoa enana	311
<i>altimus, Carcharhinus</i>	170	<i>Anchoa filifera</i>	310
<i>Aluterus</i>	359	<i>Anchoa hepsetus</i>	311
<i>Aluterus heudelotii</i>	359	<i>Anchoa lamprotaenia</i>	311
<i>Aluterus monoceros</i>	359	<i>Anchoa lyolepis</i>	311
<i>Aluterus schoepfi</i>	359	Anchoa machete	312
<i>Aluterus scriptus</i>	359	Anchoa ojo gordo	311
Amazon river prawn	116	<i>Anchoa parva</i>	311
<i>amazonica, Rhinosardinia</i>	301	<i>Anchoa spinifer</i>	312
<i>amazonicum, Macrobrachium</i>	116	Anchoa tigre	316
Amber pen shell	70	<i>Anchoa trinitatis</i>	312
Amberjacks	235, 283	Anchoa trompalarga	311
<i>ambiguus, Lutjanus</i>	355	Anchoas	309
<i>amblybregmatus, Citharichthys</i>	275	Anchois	309
<i>amblyrhynchus, Hemicaranx</i>	288	Anchois à bande brune	314
American coastal pellona	390	Anchois à bande étroite	310
American eel	254	Anchois à bande large	311
American harvestfish	445	Anchois allongée	314
American yellow cockle	62	Anchois cubain	310, 315
<i>americana, Dasyatis</i>	198	Anchois de banc	310
<i>americanus, Anacanthobatis (Schroederichthys)</i>	207	Anchois de Cayennes	314
<i>americanus, Menticirrhus</i>	406	Anchois de Guiane	314
<i>americanus, Modiolus</i>	66	Anchois de Suriname	313
<i>americanus, Scyllarus</i>	147	Anchois fil	310
<i>americanus, Spondylus</i>	72	Anchois goulard	316
<i>Americardia</i>	61	Anchois grande aîle	316
<i>Americardia media</i>	61	Anchois grandoeil	311
<i>Amphichthys</i>	266	Anchois gris	315
<i>Amphichthys cryptocentrus</i>	266	Anchois hachue	313
<i>amplicostatus, Argopecten irradians</i>	68	Anchois longnez	311
<i>Amusium</i>	67	Anchois machète	312
<i>Amusium papyraceum</i>	67	Anchois nain	311
ANABLEPIDAE	225, 254	Anchois nez court	313
<i>Anableps</i>	254	Anchois queue jaune	315
<i>Anableps anableps</i>	254	Anchois spicule	312
<i>anableps, Anableps</i>	254	Anchois-tigre	316
<i>Anableps microlepis</i>	254	Anchoita negra	315

Anchova de banco	386	<i>Antigonia</i>	282-283
Anchovas de banco	386	<i>Antigonia capros</i>	283
Anchoveta alargada	314	<i>Antigonia combatia</i>	283
Anchoveta chata	313	<i>antillarum, Monolene</i>	277
Anchoveta rabo amarillo	315	<i>antillarum, Ornithoteuthis</i>	92
Anchovetas	309	Antillean razor clam	72
<i>Anchovia</i>	312-313	Antillean snake eel	374
<i>Anchovia clupeioides</i>	313	<i>antillensis, Aristeus</i>	113
<i>Anchovia surinamensis</i>	313	<i>antillensis, Rossia</i>	80
<i>Anchoviella</i>	313-315	<i>Aphanopus</i>	451
<i>Anchoviella brevisrostris</i>	313	<i>Apionichthys</i>	438
<i>Anchoviella cayennensis</i>	314	<i>Apionichthys dumerili</i>	438
<i>Anchoviella elongata</i>	314	<i>Aplatophis</i>	371
<i>Anchoviella guianensis</i>	314	<i>Aplatophis chauliodus</i>	371
<i>Anchoviella lepidentostole</i>	314	<i>apodus, Lutjanus</i>	352
<i>Anchoviella perfasciata</i>	315	APOGONIDAE	234
Anchovies	213-214, 309	<i>aporrhox, Lepophidium</i>	375
Anchovieta cubana	315	Apple murex	42
Anchovieta de Cayena	314	<i>Apristurus</i>	183
Anchovieta de mar	314	<i>Apristurus parvipinnis</i>	183
Anchovieta de río	314	<i>Apristurus riveri</i>	183
<i>ancyledon, Macrodon</i>	405	<i>Aprognathodon</i>	371
<i>Ancylosetta</i>	271-272	<i>Aprognathodon platyventris</i>	371
<i>Ancylosetta cycloidea</i>	272	<i>Apsilus</i>	350
<i>Ancylosetta kumperae</i>	272	<i>Apsilus dentatus</i>	350
Andorreros	309	<i>Apterichtus</i>	371
Andorrèves	309	<i>Apterichtus kendalli</i>	371
Ange de mer	190	<i>aquilonaris, Pristipomoides</i>	355
Angel sharks	165, 190	<i>arae, Galeus</i>	184
Angel wing	69	<i>arawak, Symphurus</i>	306
Angel wings	69	<i>Arca</i>	60
Angelfishes	241, 382	<i>Arca auriculada</i>	60
Angelotes	190	<i>Arca cebra</i>	60
Anges de mer	190	<i>Arca imbricata</i>	60
Anglerfishes	223	<i>Arca incongrua</i>	61
Anguila americana	254	<i>Arca orejona</i>	60
Anguilas	254	<i>Arca pata de cabra</i>	60
<i>Anguilla</i>	254	<i>Arca pepitona</i>	61
<i>Anguilla rostrata</i>	254	<i>Arca zebra</i>	60
Anguille (d'Amérique)	254	Arcas	60
Anguilles	254	Arche auriculée	60
ANGUILLIDAE	216, 254	Arche crochue	60
ANGUILLIFORMES	214	Arche incongrue	61
Angular triton	44	Arche zèbre	60
<i>angusta, Calappa</i>	153	Arches	60
<i>Anisotremus</i>	329-330	<i>Archosargus</i>	440
<i>Anisotremus moricandi</i>	330	<i>Archosargus probatocephalus</i>	440
<i>Anisotremus surinamensis</i>	329	<i>Archosargus rhomboidalis</i>	440
<i>Anisotremus virginicus</i>	329	ARCIDAE	53, 60-61
Anoli	446	<i>Arcopagia fausta</i>	73
Anoli de sable	446	<i>arctata, Polymesoda</i>	63
Anoli des plages	446	<i>arcuatus, Pomacanthus</i>	383
Anoli serpent	447	<i>arenaceus, Citharichthys</i>	275
Anolis	445	<i>Arenaenus</i>	158
<i>antarcticus, Parribacus</i>	145	<i>Arenaenus cribarius</i>	158
ANTENNARIIDAE	223	<i>arenatus, Priacanthus</i>	387
<i>Anthias</i>	424	Arenquillo cuchilla	389
<i>Anthias asperilinguis</i>	424	Arenquillo dentón	388
<i>Anthias menezesi</i>	424	Arenquillo machete	389
<i>Anthias nicholsi</i>	424	Arenquillos	298
<i>Anthias tenuis</i>	424	<i>argalus argalus, Platybelone</i>	269
ANTHIINAE	423	<i>argalus, Platybelone argalus</i>	269

<i>argentea</i> , <i>Steindachneria</i>	359	<i>Aspredinichthys fibicens</i>	261
<i>argenteus caudimacula</i> , <i>Diplodus</i>	443	ASPREDINIDAE	217, 261-262
<i>argenteus</i> , <i>Eucinostomus</i>	326-327	<i>Aspredo</i>	261
<i>Argentina</i>	255	<i>Aspredo aspredo</i>	261
<i>Argentina brucei</i>	255	<i>aspredo</i> , <i>Aspredo</i>	261
Argentina de Bruce	255	<i>Assurger</i>	451
Argentina rayada	255	<i>Astraea tecta</i>	48
<i>Argentina striata</i>	255	<i>Astroscopus</i>	454
Argentinas	255	<i>Astroscopus y-graecum</i>	454
Argentine de Bruce	255	Atelopids	227
Argentine strié	255	ATELEPODIDAE	227
Argentines	218, 255	Athérine brésilienne	263
ARGENTINIDAE	218, 255	Athérine de plage	263
<i>argi</i> , <i>Centropyge</i>	383	Athérine des récifs	263
<i>argo</i> , <i>Argonauta</i>	96	Athérine lacunaire	262
<i>Argonauta argo</i>	96	Athérine tete-dure	262
ARGONAUTIDAE	96	Athérines	262
<i>Argopecten</i>	68	ATHERINIDAE	226, 262-263
<i>Argopecten gibbus</i>	68	ATHERINIFORMES	226
<i>Argopecten irradians amplicostatus</i>	68	<i>atherinoides</i> , <i>Pterengraulis</i>	316
<i>argus</i> , <i>Panulirus</i>	143	<i>Atherinomorus</i>	262
ARIIDAE	217, 256-260	<i>Atherinomorus stipes</i>	262
<i>Ariomas</i>	248	Atlantic anchoveta	315
ARIOMMATIDAE	248	Atlantic bay scallop	68
ARIOMMIDAE	248	Atlantic bigeye	387
<i>Ariopsis</i>	256	Atlantic bird squid	92
<i>Ariopsis bonillai</i>	256	Atlantic bonito	416
<i>Ariosoma</i>	302	Atlantic bumper	286
<i>Ariosoma analis</i>	302	Atlantic croaker	407
<i>Ariosoma balearicum</i>	302	Atlantic deep-sea lobster	137
<i>Ariosoma coquettei</i>	302	Atlantic flyingfish	318
<i>Ariosoma selenops</i>	302	Atlantic goldeye tilefish	281
<i>Aristaeomorpha</i>	113	Atlantic green sea turtle	459
<i>Aristaeomorpha foliacea</i>	113	Atlantic hawksbill turtle	460
ARISTEIDAE	109, 113-114	Atlantic leatherback turtle	461
<i>Aristeus</i>	113	Atlantic leatherjack	290
<i>Aristeus antillensis</i>	113	Atlantic loggerhead turtle	459
<i>Arius</i>	256-259	Atlantic look down	291
<i>Arius couma</i>	256	Atlantic manta	201
<i>Arius grandicassis</i>	257	Atlantic midshipman	268
<i>Arius herzbergii</i>	257	Atlantic moonfish	291
<i>Arius parkeri</i>	257	Atlantic needlefish	269
<i>Arius passany</i>	258	Atlantic pearl oyster	71
<i>Arius phrygiatus</i>	258	Atlantic piquitinga	300
<i>Arius proops</i>	258	Atlantic rubyfish	309
<i>Arius quadriscutis</i>	259	Atlantic sabretooth anchovy	316
<i>Arius rugispinis</i>	259	Atlantic sailfish	342
Ark shells	60	Atlantic scabbardfish	451
Armed nylon shrimp	120	Atlantic seabob	128
Armoured catfishes	218	Atlantic spadefish	317
Armoured searobins	232, 378	Atlantic spiny oyster	72
Amoglosses	271	Atlantic strawberry cockle	61
Arrowtooth eels	216	Atlantic thread herring	300
Asafis	71	Atlantic threadfin	381
Asafis arrugada	71	Atlantic tiger lucine	65
Asaphis	71	Atlantic tripletail	348
Asaphis clams	71	Atlantic triton's trumpet	44
<i>Asaphis deflorata</i>	71	<i>atlantica</i> , <i>Charonia</i>	44
<i>asellus</i> , <i>Colomesus</i>	448	<i>atlanticus</i> , <i>Emmelichthyops</i>	342
<i>asperilinguis</i> , <i>Anthias</i>	424	<i>atlanticus</i> , <i>Tarpon</i>	358
<i>Aspredinichthys</i>	261	<i>atlanticus</i> , <i>Thunnus</i>	419
<i>Aspredinichthys filamentosus</i>	261	<i>atlantidis</i> , <i>Solenocera</i>	131

<i>atomarium, Sparisoma</i>	397	Bagre cogotúo	379
<i>atrimana, Monolene</i>	277	Bagre cuinche	260
<i>Atrina</i>	69-70	Bagre cuma	256
<i>Atrina listeri</i>	70	Bagre doncella	260
<i>Atrina patagonica</i>	70	Bagre guatero	257
<i>Atrina rigida</i>	69	Bagre laulao	379
<i>Atrina seminuda</i>	70	Bagre laulau	379
<i>Atrina serrata</i>	70	Bagre marinus	260
<i>atrobranchus, Serranus</i>	436	Bagre mucuro	258
Atún	419	Bagre paisano	341
Atún aleta negra	419	Bagre patriota	264
Atún blanco	418	Bagre paysan	341
Atunes	414	Bagre piedrero	258
<i>Atya</i>	114	Bagre pimélode	379
<i>Atya scabra</i>	114	Bagre roncador diez barbas	261
ATYIDAE	111, 114	Bagre roncador sietebarras	261
AUCHENIPTERIDAE	217, 264	Bagre Tomás	257
AULOPIDIDAE	219	Bagre tumbeló	259
Aulopids	219	Bagre vaillant	379
AULOPIFORMES	219	Bagres	217
AULOSTOMIDAE	230, 264	Bagres à yeux bès	341
<i>Aulostomus</i>	264	Bagres cabezones	264
<i>Aulostomus maculatus</i>	264	Bagres cogotúos	379
<i>aurantonotus, Centropyge</i>	383	Bagres cogotúos	379
<i>auratus, Diapterus</i>	325	Bagres laulau	379
<i>auratus, Mullus</i>	394	Bagres marinos	256
<i>aurita, Sardinella</i>	301	Bagres ojicaídos	341
<i>aurofrenatum, Sparisoma</i>	395	Bagres pimélodes	379
<i>aurolineatum, Haemulon</i>	331	Bagres roncadores	261
<i>aurorubens, Hemanthias</i>	424	<i>bahianus, Acanthurus</i>	251
<i>aurorubens, Rhomboplites</i>	356	<i>baiensis, Rhinosardinia</i>	301
Auxide	415	<i>Bairdiella</i>	398
Auxides	414	<i>Bairdiella rhonchus</i>	398
<i>Auxis</i>	414-415	<i>Bairdiella sanctaeluciae</i>	398
<i>Auxis rochei</i>	415	<i>bairdii, Eunephrops</i>	138
<i>Auxis thazard</i>	415	<i>bajonado, Calamus</i>	441
		<i>balanoides, Fissurella</i>	39
B		Balao	338
Bacaladilla imberbe	360	<i>balao, Hemiramphus</i>	338
Bacaladillas	360	Balaous	414
Backwaters silverside	262	<i>baldwini, Serranus</i>	436
Bacoreta	415	<i>balearicum, Ariosoma</i>	302
Bacoretas	414	Baliste cabri	265
Badèche blanche	431	Baliste royal	265
Badèche bonaci	431	Balistes	264
Badèche créole	433	Balistes	265
Badèche de roche	433	<i>Balistes capriscus</i>	265
Badèche galopin	432	<i>Balistes vetula</i>	265
Badèche gueule jaune	431	BALISTIDAE	250, 264-266
Badèche peigne	432	Ballyhoo	338
Badèche tigre	432	Banane de mer	253
Badèches	423	Banane fil	252
Bagre	259-260	Bananes de mer	252
Bagre amarillo	257	Banded banjo	262
<i>Bagre bagre</i>	260	Banded croaker	409
<i>bagre, Bagre</i>	260	Banded puffer	448
Bagre bresú	259	Banded rudderfish	293
Bagre cacumo	260	Bandtail puffer	449
Bagre cazón	256	Bandtail searobin	452
Bagre chato	258	Bandtooth conger	302
		Bandwing flyingfish	318
		Banjo	261

Banjo catfishes	217, 261	Bécune guachanche	444
Bank cusk-eel	376	Bécunes	443
<i>banksi, Onychoteuthis</i>	84, 93	<i>Bellator</i>	452
Bar jack	286	<i>Bellator brachyichir</i>	452
<i>barbadensis, Fissurella</i>	39	<i>Bellator egretta</i>	452
Barbados keyhole limpet	39	<i>Bellator riberoi</i>	452
<i>barbata, Brotula</i>	374	<i>bellus, Murex</i>	41
Barbel drum	399	BELONIDAE	225, 269-270
Barbfish	422	<i>Benthobatis</i>	208
Barbiche longue-aîle	405	<i>Benthobatis marcida</i>	208
Barbiches	397	<i>Benthoctopus</i>	100
Barbu	381	<i>Benthoctopus januari</i>	100
Barbudo barbu	381	<i>Benthoctopus oregonae</i>	100
Barbudo de charco	381	<i>Benthodesmus</i>	451
Barbudo ochobarbas	381	Berberecho amarillo	62
Barbudo sietebarbas	381	Berberecho fresa	61
Barbudos	380	Berberecho guacuco	62
Barbure à huit barbillons	381	Berberecho huevo	61
Barbure à sept barbillons	381	Berberechos	61
Barbure argenté	381	<i>bergi, Scorpaena</i>	422
Barbures	380	Bermuda sea chub	344
Barracuda	444	<i>bermudensis, Octopus</i>	98
<i>barracuda, Sphyræna</i>	444	<i>beroe, Lophiodes</i>	349
Barracudas	242, 443	<i>berryi, Symphysanodon</i>	357
Barracudinas	219	BERYCIDAE	227, 271
Barred grunt	330	BERYCIFORMES	227
<i>bartholomæi, Caranx (Carangoides)</i>	284	<i>Beryx</i>	271
<i>bartrami, Ommastrephes</i>	91	Béryx	271
Bates' sabretooth anchovy	316	Béryx commun	271
<i>batesii, Lycengraulis</i>	316	<i>Beryx decadactylus</i>	271
Batfishes	224	<i>bicaudalis, Lactophrys</i>	377
<i>bathoiketes, Porichthys</i>	268	<i>bidentatus, Paraxenomystax</i>	365
<i>bathophilus, Halichoeres</i>	347	<i>bifasciatum, Thalassoma</i>	348
<i>bathytatos, Sciaena</i>	411	Bigclaw river shrimp	117
<i>Bathyroconger</i>	304	Bigeye anchovy	311
BATOID FISHES	193	Bigeye mojarra	326
<i>Batrachoides</i>	267	Bigeye scad	290
<i>Batrachoides manglae</i>	267	Bigeye thresher	168
<i>Batrachoides surinamensis</i>	267	Bigeye tuna	419
BATRACHOIDIDAE	223, 266-268	Bigeyed sixgill shark	179
BATRACHOIDIFORMES	222	Bigeyes	234, 386
Batwing coral crab	162	Bignose shark	170
Baudroie pêcheuse	349	<i>bimaculatus, Heterodonax</i>	71
Baudroie reticulée	349	<i>binghami, Metanephrops</i>	139
Baudroies	348	<i>bipinnulata, Elagatis</i>	288
Bay whiff	275	<i>birostris, Manta</i>	201
Beach silverside	263	BIVALVES	51
Bean	63	<i>bivittatum, Diplectrum</i>	434
Bean's searobin	452	<i>bivittatus, Halichoeres</i>	347
<i>beani, Prionotus</i>	452	Black drum	410
Bearded brotula	374	Black grouper	431
Beardfish	380	Black grunt	332
Beardfishes	227-228, 380	Black jack	286
Beardless codling	360	Black margate	329
Beauclaire de roche	387	Black snapper	350
Beauclaire du large	388	Blackbar soldierfish	340
Beauclaire soleil	387	Blackbelly rosefish	420
Beauclaire voyeur	386	<i>blackburni, Coleotropis</i>	263
Beauclaires	386	Blackedge cusk-eel	375
Bécasse de mer	357	Blackfin croaker	409
Bécasses de mer	357	Blackfin goosefish	349
Bécune chandelle	444	Blackfin snapper	352

Blackfin tuna	419	<i>bonaci</i> , <i>Mycteroperca</i>	431
Blackline tilefish	281	<i>bonariense</i> , <i>Haemulon</i>	332
Blacknose shark	169	<i>bonasus</i> , <i>Rhinoptera</i>	204
Blackrim cusk-eel	375	Bonefish	253
Blacktip shark	172	Bonefishes	213, 252
Blanche argentée	326	<i>bonillai</i> , <i>Ariopsis</i>	256
Blanche brésilienne	327	Bonite à dos rayé	416
Blanche cabuche	325	Bonito atlántico	416
Blanche cendré	328	Bonitos	246, 414
Blanche drapeau	327	Bonitou	415
Blanche espagnole	326	Bonnet sharks	167, 185
Blanche gros yaya	325	Bonnethead	187
Blanche gros yeux	326	Bonnetmouths	237, 342
Blanche rayé	328	BONY FISHES	209
Blanches	324	<i>boops</i> , <i>Cookeolus</i>	386
Blanquillo camello	282	Borrachones	306
Blanquillo ojo amarillo	281	<i>boschmae</i> , <i>Haemulon</i>	332
Blanquillo raya negra	281	BOTHIDAE	248, 271-280
Blanquillo vermiculado	282	<i>Bothus</i>	272-274
Blanquillos	280	<i>Bothus lunatus</i>	273
Bleeding tooth	43	<i>Bothus maculiferus</i>	273
<i>bleekermanus</i> , <i>Chirocentron</i>	388	<i>Bothus ocellatus</i>	273
BLENNIIDAE	244	<i>Bothus robinsi</i>	274
BLENNIOIDEI	244	Boucot nain	129
Bloch's catfish	379	Boucot ocellé	130
<i>blochii</i> , <i>Pimelodus</i>	379	Boucot roitelet	130
Blotched swimming crab	162	Bouquet amazonien	116
Blue crab	161	Bouquet buchura	117
Blue land crab	156	Bouquet canelle	116
Blue marlin	343	Bouquet covac	118
Blue parrotfish	392	Bouquet du Surinam	118
Blue runner	285	Bouquet pintade	117
Blue shark	177	Bouquet potitinga	119
Blue sharks	169	Bourrugue coquette	409
Blue tang surgeonfish	252	Bourrugue de crique	406
Bluefish	386	Bourrugue du Golfe	406
Bluefishes	235, 386	Bourrugue marie-louise	409
Bluelip parrotfish	391	Bourrugues	397
Bluespotted cornetfish	321	Bourses	359
Bluespotted searobin	453	Boxfishes	250, 377
Bluestriped grunt	335	BRACHIOTEUTHIDAE	85
Bluewing searobin	453	<i>Brachioteuthis riisei</i>	85
Blunthorn spiny lobster	142	<i>brachyichir</i> , <i>Bellator</i>	452
Bluntnose flyingfish	320	<i>Brachyplatistoma</i>	379
Bluntnose jack	288	<i>Brachyplatistoma filamentosum</i>	379
Bluntnose lizardfish	447	<i>Brachyplatystoma</i>	379
Bluntnose sixgill shark	179	<i>Brachyplatystoma vaillantii</i>	379
Blunttooth swimcrab	158	<i>brachyptera</i> , <i>Scorpaena</i>	422
Boa catshark	185	<i>brachypterus</i> , <i>Parexcoetus</i>	320
<i>boa</i> , <i>Scyliorhinus</i>	185	BRAMIDAE	236
Boarfishes	228-229, 282	BRANCHIOSTEGIDAE	234, 280-282
Bocon toadfish	266	<i>brasiliiana</i> , <i>Anadara</i>	61
<i>bocourti</i> , <i>Callinectes</i>	158	<i>brasiliiana</i> , <i>Cunearca</i>	61
<i>Bodianus</i>	345	<i>brasiliiana</i> , <i>Iphigenia</i>	64
<i>Bodianus pulchellus</i>	345	<i>brasiliiana</i> , <i>Scapharca</i>	61
<i>Bodianus rufus</i>	345	<i>brasilianus</i> , <i>Eugerres</i>	327
Boga	342	<i>brasiliensis</i> , <i>Hemiramphus</i>	338
Bogas	342	<i>brasiliensis</i> , <i>Loligo</i>	87
BOLITAENIDAE	95	<i>brasiliensis</i> , <i>Narcine</i>	208
Bombache cabezón	404	<i>brasiliensis</i> , <i>Paralonchurus</i>	409
Bombache de roca	408	<i>brasiliensis</i> , <i>Penaeus</i> (<i>Farfantepenaeus</i>)	124
Bombaches	397	<i>brasiliensis</i> , <i>Rhinoptera</i>	204

Cajeta ornamentada	154	Camarón de Burkenroad	129
Cajeta puntillada	155	Camarón del Suriname	118
Calafates	264	Camarón fijador	127
Calamar de arrecife	90	Camarón fijador amarillo	127
Calamar dedal	89	Camarón gallo	115
Calamar flecha	87	Camarón gladiador	121
Calamar insular	88	Camarón megalops	123
Calamar pálido	88	Camarón nailón armado	120
Calamar surinamés	89	Camarón ocelado	130
Calamares	87	Camarón pintado	117
Calamarines	87	Camarón potitinga	119
Calamaretos	87	Camarón rayado menor	120
<i>Calamus</i>	441-442	Camarón reyecito	130
<i>Calamus bajonado</i>	441	Camarón rojo real	131
<i>Calamus calamus</i>	441	Camarón rosado con manchas	124
<i>calamus, Calamus</i>	441	Camarón rosado sureño	125
<i>Calamus cervigoni</i>	442	Camarón salmón	130
<i>Calamus penna</i>	442	Camarón siete barbas	128
<i>Calamus pennatula</i>	442	Camarón soldado rayado	121
<i>Calappa</i>	153-154	Camaroncito de piedra	129
<i>Calappa angusta</i>	153	Cañabota gris	179
<i>Calappa flammea</i>	153	Cañabota ojigrande	179
<i>Calappa nitida</i>	154	Cañabotas	179
<i>Calappa ocellata</i>	154	<i>canadum, Rachycentron</i>	390
<i>Calappa sulcata</i>	154	<i>canaliculatus, Turbo</i>	48
CALAPPIDAE	150, 153-155	<i>cancellata, Chione</i>	74
<i>calcarata, Scorpaena</i>	422	Candil de piedra	340
Calicagère blanche	344	Candil gallito	339
Calicagère jaune	344	Candil soldado	340
Calicagères	344	Candiles	339
Calico clam	75	Cangrejo azul	161
Calico scallop	68	Cangrejo capuco fantasma	157
<i>Callinectes</i>	158-159	Cangrejo de mangle azul	156
<i>Callinectes bocourti</i>	158	Cangrejo El Dorado	156
<i>Callinectes danae</i>	159	Cangrejo esponjoso	155
<i>Callinectes exasperatus</i>	159	Cangrejo moro	162
<i>Callinectes larvatus</i>	160	Cangrejo rey del Caribe	157
<i>Callinectes maracaiboensis</i>	160	Cangrejo sirí	159
<i>Callinectes marginatus</i>	160	<i>canis, Mustelus</i>	191
<i>Callinectes ornatus</i>	160	Cano toadfish	268
<i>Callinectes sapidus</i>	149, 161	<i>Cantherhines</i>	359
CALLIONYMIDAE	244	<i>Cantherhines macrocerus</i>	359
CALLIONYMOIDEI	244	<i>Cantherhines pullus</i>	359
<i>Callista maculata</i>	75	<i>Canthidermis</i>	265
Calmar créole	88	<i>Canthidermis maculata</i>	265
Calmar doigtier	89	<i>Canthidermis sufflamen</i>	265
Calmar du Surinam	89	<i>Canthigaster</i>	448
Calmar flèche	87	<i>Canthigaster rostrata</i>	448
Calmar ris	90	Capellanes	321
Calmar totam	88	<i>capillacea, Pterocladia</i>	23
Calmars	87	<i>capitellum, Vasum</i>	47
Camacuto shrimp	114	<i>capriscus, Balistes</i>	265
Camarón amazónico	116	CAPROIDAE	229, 282-283
Camarón blanco sureño	125	<i>capros, Antigonia</i>	283
Camarón buchura	117	Capucín jaune	363
Camarón café sureño	126	CARANGIDAE	235, 283-295
Camarón camacuto	114	Carangue comade	286
Camarón canela	116	Carangue coubali	285
Camarón canguro	122	Carangue crevalle	285
Camarón cebador	119	Carangue grasse	284
Camarón coludo	122	Carangue mayole	285
Camarón cuac	118	Carangue nez court	288

Carangue noire	286	<i>carmabi</i> , <i>Liopropoma</i>	434
Carangue-coton	295	<i>carnea</i> , <i>Pinna</i>	70
Carangues	283	<i>carolinus</i> , <i>Trachinotus</i>	294
<i>Caranx</i>	284-286	<i>Carpilius</i>	162
<i>Caranx</i> (<i>Carangoides</i>) <i>bartholomaei</i>	284	<i>Carpilius corallinus</i>	162
<i>Caranx</i> (<i>Carangoides</i>) <i>ruber</i>	286	Carved star-shell	47
<i>Caranx crysos</i>	285	<i>carychroa</i> , <i>Enchelycore</i>	367
<i>Caranx hippos</i>	285	Casabe	286
<i>Caranx latus</i>	285	Casabe chicharra	288
<i>Caranx lugubris</i>	286	Casco flameante	36
CARAPIDAE	222	Casco impérial	36
<i>carbonarium</i> , <i>Haemulon</i>	332	Casco real	36
CARCHARHINIDAE	167, 169-178	Cascos	36
CARCHARHINIFORMES	167	Cascos de burro	40
<i>Carcharhinus</i>	169-175	Casque flamme	36
<i>Carcharhinus acronotus</i>	169	Casque impérial	36
<i>Carcharhinus altimus</i>	170	Casque royal	36
<i>Carcharhinus brevipinna</i>	170	Casques	36
<i>Carcharhinus falciformis</i>	171	Casserons	87
<i>Carcharhinus galapagensis</i>	171	CASSIDAE	30, 36
<i>Carcharhinus leucas</i>	172	<i>Cassis</i>	36
<i>Carcharhinus limbatus</i>	172	<i>Cassis flammea</i>	36
<i>Carcharhinus longimanus</i>	173	<i>Cassis madagascariensis</i>	36
<i>Carcharhinus obscurus</i>	173	<i>Cassis tuberosa</i>	36
<i>Carcharhinus perezi</i>	174	<i>castanea</i> , <i>Turbo</i>	49
<i>Carcharhinus plumbeus</i>	174	Castin leatherjack	289
<i>Carcharhinus porosus</i>	175	<i>castor</i> , <i>Pontinus</i>	420
<i>Carcharhinus signatus</i>	175	Catalana de canto	388
<i>carcharias</i> , <i>Carcharodon</i>	180	Catalanas	386
<i>Carcharodon</i>	180	Catalucia de fondo	386
<i>Carcharodon carcharias</i>	180	Catalucias	386
<i>carcinus</i> , <i>Macrobrachium</i>	117	Catalufa de roca	387
Cardeau tropical	277	Catalufa toro	387
CARDIIDAE	53, 61-62	Catalufas	386
Cardinalfishes	234	<i>catenata</i> , <i>Echidna</i>	366
Cardinal snapper	356	Catfishes	217
<i>Cardisoma</i>	156	<i>Cathorops</i>	260
<i>Cardisoma guanhumi</i>	156	<i>Cathorops spixii</i>	260
<i>Caretta</i>	459	Catsharks	167, 183
<i>Caretta caretta</i>	459	<i>caudalis</i> , <i>Halichoeres</i>	347
<i>caretta</i> , <i>Caretta</i>	459	<i>caudilimbatus</i> , <i>Paraconger</i>	304
<i>caribaeus</i> , <i>Nephropides</i>	139	<i>caudimacula</i> , <i>Diplodus aragenteus</i>	443
<i>caribbaea</i> , <i>Trichopsetta</i>	279	<i>Caulerpa</i>	20-21
<i>caribbaeus</i> , <i>Oxynotus</i>	182	<i>Caulerpa racemosa</i>	20
<i>caribbaeus</i> , <i>Scorpaenodes</i>	422	<i>Caulerpa sertularioides</i>	21
<i>caribbeanus</i> , <i>Symphurus</i>	306	<i>Caulolatilus</i>	281-282
<i>caribbea</i> , <i>Saurida</i>	446	<i>Caulolatilus chrysops</i>	281
Caribbean bait prawn	119	<i>Caulolatilus cyanops</i>	281
Caribbean flounder	279	<i>Caulolatilus guppyi</i>	282
Caribbean lobster	139	<i>cavalla</i> , <i>Scomberomorus</i>	417
Caribbean longfin herring	389	Cayenne anchovy	314
Caribbean reef octopus	97	Cayenne pompano	294
Caribbean reef shark	174	<i>cayennensis</i> , <i>Anchoviella</i>	314
Caribbean reef squid	90	<i>cayennensis</i> , <i>Trachinotus</i>	294
Caribbean rough shark	182	<i>cayorum</i> , <i>Anchoa</i>	310
Caribbean sharpnose shark	178	Cazón chino	178
Caribbean spiny lobster	143	Cazón picudo	176
Caribbean vase	47	Cazón picudo antillano	178
Caribbean winged mactra	65	Cazón playón	178
CARIDEA	111	Cazones de púas	189
Carite chinigua	417	Cazones picudos	169
Carite lucio	417	Centrines	165, 182

CENTROPOMIDAE	232, 296-297	Chauffets	384
<i>Centropomus</i>	296-297	<i>chauliodus, Aplatophis</i>	371
<i>Centropomus ensiferus</i>	296	Checkedred puffer	450
<i>Centropomus mexicanus</i>	296	Chelonia	459
<i>Centropomus parallelus</i>	297	<i>Chelonia mydas mydas</i>	459
<i>Centropomus pectinatus</i>	297	CHELONIDAE	459-460
<i>Centropomus undecimalis</i>	297	Chere-chere grunt	335
<i>Centropyge</i>	383	Cherna cabrilla	426
<i>Centropyge argi</i>	383	Cherna criolla	430
<i>Centropyge aurantonotus</i>	383	Cherna enjambre	426
<i>centroura, Dasyatis</i>	198	Cherna pintada	429
<i>Cephalopholis</i>	426	Chernas	423
<i>Cephalopholis cruentata</i>	426	Chestnut latirus	38
<i>Cephalopholis fulva</i>	426	Chestnut turban	49
CEPHALOPODS	77	Chevalier tacheté	408
<i>cephalus, Mugil</i>	361	Chevaliers	397
<i>Ceramium</i>	27	Chicharrita	261
<i>Ceramium nitens</i>	27	Chicharrita rayada	262
<i>Ceratobatis</i>	202	Chicharritas	261
<i>Ceratobatis robertsi</i>	202	Chicharro garretón	295
Cerdos marinos	165, 182	Chicharro ojón	290
Cero	417	Chicoreus	40
Ceros	246, 414	<i>Chicoreus (Phyllonotus) margaritensis</i>	42
<i>cervigoni, Calamus</i>	442	<i>Chicoreus (Phyllonotus) pomum</i>	42
<i>cervigoni, Raja</i>	206	Chicoreus brevifrons	40
<i>Cetengraulis</i>	315	Chien à queue rude	184
<i>Cetengraulis edentulus</i>	315	Chiens	183
<i>chacei, Scyllarus</i>	147	Chinchard frappeur	295
<i>Chaceon</i>	156	Chinchards	283
<i>Chaceon eldorado</i>	156	Chione	74
<i>Chaetodipterus</i>	317	<i>Chione cancellata</i>	74
<i>Chaetodipterus faber</i>	317	Chione paphia	74
CHAETODONTIDAE	240	Chipi-chipi	71
Chaffet queue jaune	385	Chipiloua commun	93
Chain moray	366	Chipilouas	93
<i>chamaeleonticeps, Lopholatilus</i>	282	Chipirón volantin	93
Channel clinging crab	157	Chipirones	93
Channel flounder	278	Chirla real	75
Channel hairtail	451	Chirla relámpago	76
Channeled rockfish	423	Chirlas	74
Channelled turban	48	Chirocentrodon	388
<i>Channomuraena</i>	366	<i>Chirocentrodon bleekermanus</i>	388
<i>Channomuraena vittata</i>	366	Chirurgien bayolle	252
<i>chaoi, Stellifer</i>	413	Chirurgien docteur	251
Chapín baqueta	378	Chirurgien marron	251
Chapín búfalo	378	Chirurgiens	251
Chapín común	378	<i>chirurgus, Acanthurus</i>	251
Chapín pintado	377	<i>chittendeni, Cyclosetta</i>	276
Chapín tresfilos	378	Chivato	380
Chapines	377	Chivato de fondo	380
Chardin fil	300	CHLOROPHTHALMIDAE	220
Charonia	44	CHLOROPHYTA	18-21
<i>Charonia atlantica</i>	44	<i>Chloroscombrus</i>	286
<i>Charonia nobilis</i>	44	<i>Chloroscombrus chrysurus</i>	286
<i>Charonia tritonis variegata</i>	44	<i>chlorurus, Hypoplectrus</i>	435
<i>charruana, Mytella</i>	66	Chopa amarilla	344
<i>Chascanopsetta</i>	274	Chopa blanca	344
<i>Chascanopsetta lugubris</i>	274	Chopas	344
<i>Chascanopsetta prolifera</i>	274	<i>chromatus, Octopus</i>	98
Chasnetes	419	Chromis	241
Chauffet de nuit	384	Chromis	384-385
Chauffet soleil	384	<i>Chromis cyanea</i>	385

<i>Chromis enchrysur</i>	385	<i>Clepticus parrai</i>	345
<i>Chromis insolata</i>	385	CLINIDAE	244
<i>Chromis multilineata</i>	385	Clinids	244
<i>Chromis scotti</i>	385	Clingfishes	222
<i>chrysargyreum, Haemulon</i>	333	<i>closter, Fusinus</i>	38
<i>chrysops, Caulolatilus</i>	281	CLUPEIDAE	214, 298-301
<i>chrysopterum, Sparisoma</i>	395	CLUPEIFORMES	213
<i>chrysostoma, Haustellum</i>	41	<i>clupeoides, Anchovia</i>	313
<i>chrysostoma, Murex</i>	41	<i>clupeola, Harengula</i>	298
<i>chrysurus, Chloroscombrus</i>	286	Cobia	390
<i>chrysurus, Microspathodon</i>	385	Cobias	235, 390
<i>chrysurus, Ocyurus</i>	355	Cobo ala de águila	46
Chub mackerel	416	Cobo cola de gallo	45
Chucho amarillo	203	Cobo lechoso	45
Chucho blanco	203	Cobo luchador	46
Chucho pintado	202	Cobo rosado	45
Chuchos	202	Cobos	45
Chupare	200	Cock shrimp	115
Chupare stingray	200	Cockles	61
<i>cidi, Mycteroperca</i>	431	Coco sea catfish	260
Cigala colorada	138	Cocosoda catfish	264
Cigala de Florida	140	Cocosoda catfishes	217, 264
Cigala de fondo	137	Cocosoda kakinette	264
Cigala de grano	141	Cocosodas	264
Cigala del Caribe	139	Codakia	65
Cigale à trois taches	146	<i>Codakia orbicularis</i>	65
Cigale marie-carogne	146	Codium	20
Cigale savate	145	<i>Codium decorticatum</i>	20
Cigarro chino	145	Codlets	221
Cigarro de tres manchas	146	Codlings	221, 321, 360
Cigarro español	146	Cods	220-221, 321
<i>ciliaris, Alectis</i>	284	<i>coelestinus, Scarus</i>	392
<i>ciliaris, Holacanthus</i>	382	<i>coeruleus, Acanthurus</i>	252
<i>ciliatus, Monacanthus</i>	360	<i>coeruleus, Scarus</i>	392
<i>cinereus, Gerres</i>	328	Coffre à cornes	378
Cinnamon river prawn	116	Coffre baquette	378
Cinnamon river shrimp	116	Coffre polygone	377
CIRRATA	94	Coffre taureau	377
Cipotero	254	Coffre zinga	377
Cipotero escamoso	254	Coffres	377
Cipoteros	254	Cofres	377
<i>cirrata, Urophycis</i>	321	<i>coindetii, Illex</i>	90
<i>cirratum, Ginglymostoma</i>	182	<i>coindetii, Illex illecebrosus</i>	90
CIRRITIDAE	241	Cojinua amarilla	284
CIRROTEUTHIDAE	94	Cojinua carbonera	286
<i>Cirrothauma</i>	94	Cojinua negra	285
<i>Cirrothauma murrayi</i>	94	Cojinuas	283
<i>Citharichthys</i>	275	Colas élégant	356
<i>Citharichthys amblybregmatus</i>	275	Colas gros yeux	356
<i>Citharichthys arenaceus</i>	275	Colas vorace	355
<i>Citharichthys cornutus</i>	275	Coleotropis	263
<i>Citharichthys minutus</i>	275	<i>Coleotropis blackburni</i>	263
<i>Citharichthys spilopterus</i>	275	Colomesus	448
<i>Citharichthys valdezi</i>	275	<i>Colomesus asellus</i>	448
<i>Cittarium</i>	46	<i>Colomesus psittacus</i>	448
<i>Cittarium pica</i>	46	<i>colonensis, Anchoa</i>	310
Claqueur dix-barbes	261	<i>colonensis, Stellifer</i>	413
Claqueur sept-barbes	261	<i>comatus, Cyupselurus</i>	318
Claqueurs	261	Comb grouper	432
<i>clarki, Raja</i>	206	Combtooth blennies	244
Clearwing flyingfish	318	combatia, Antignonia	283
<i>Clepticus</i>	345	Comète maquereau	287

Comète queue rouge	288	<i>Conus</i>	37
Comète quiaquia	287	<i>Conus mus</i>	37
Comète saumon	288	<i>Conus nebulosus</i>	37
Common Caribbean donax	63	<i>Conus regius</i>	37
Common clubhook squid	93	<i>Cookeolus</i>	386
Common dolphinfish	305	<i>Cookeolus boops</i>	386
Common egg cockle	61	<i>corallinus, Carpilus</i>	162
Common halfbeak	339	<i>corallinus, Pontinus</i>	421
Common music volute	49	CORBICULIDAE	53, 62
Common octopus	98	Cordonnier	284
Common rangia	65	<i>coriacea, Dermochelys</i>	461
Common seabream	443	Corneta	320
Common snook	297	Corneta colorada	320
Compère à bandes	448	Cornetas	320
Compère collier	449	Cornetfishes	230, 320
Compère corotuche	450	Cornetta rouge	320
Compère lisse	448	Cornetta tachetée	320
Compère marbré	449	Cornettes	320
Compère vert	449	<i>Corniger</i>	340
Compères	447	<i>Corniger espinosus</i>	340
<i>compressus, Odontognathus</i>	389	Cornuda común	186
Concha hojarasca chata	64	Cornuda cuchara	186
Conchas hojarascas	64	Cornuda cruz	188
<i>conchifer, Zenopsis</i>	456	Cornuda de corona	187
Cône couronné	37	Cornuda gigante	187
Coné doré	424	Cornuda ojichica	188
Coné essaim	426	Cornudas	185
Coné grandoeil	424	<i>cornutus, Cúharichthys</i>	275
Coné langue ruguese	425	<i>coroides, Umbrina</i>	413
Coné ouatalibí	426	<i>coquettei, Ariosoma</i>	302
Cone shells	37	Coquina del Caribe	63
Cône souris	37	Coquina gigante	64
Cônes	37	Coquina rayada	63
Conés	423	Coquinas	63
Coney seabass	426	Cornet crochu	93
<i>Conger</i>	302-303	Corocoro congo	336
Conger eels	214, 302	Corocoro crocro	337
<i>Conger esculentus</i>	303	Corocoro gris	336
<i>Conger triporiceps</i>	303	<i>corona corona, Histiotеuthis</i>	85
Congre de plage	304	<i>corona, Histiotеuthis corona</i>	85
Congre dentu	303	Corrotuchos común	450
Congre des Baléares	302	Corrotuchos futre	449
Congre gris	303	Corrotuchos listado	448
Congre jaune	303	Corrotuchos mataperros	449
Congres	302	Corrotuchos verde	449
CONGRIDAE	214, 302-305	<i>coruscus, Holocentrus</i>	340
Congrillo amarillo	303	<i>corvinaeformis, Pomadasys</i>	336
Congrillo de charco	302	Corvina de fondo	411
Congrillo playón	304	Corvina grandina	411
Congrillos	302	Corvina ojo chico	408
Congrio dentón	303	Corvinas	397
Congrio gris	303	Corvinata aletacorta	404
Congrios	302	Corvinata amarilla	400
CONIDAE	31, 37	Corvinata blanca	400
Cono coronado	37	Corvineta caimuire	398
Cono ratón	37	Corvinata cambucú	402
<i>Conodon</i>	330	Corvinata dorada	401
<i>Conodon nobilis</i>	330	Corvinata goete	400
Conoro	309	Corvinata pescada	401
Conoros	309	Corvineta ruyo	398
Conos	37	Corvinata tonquicha	401
<i>constrictus, Trachypenaeus</i>	127	Corvinatas	397

Corvinetas	397	Crevette édouard	121
Corvinilla lucia	412	Crevette gambri	127
Corvinilla ojo chico	412	Crevette gambri jaune	127
Corvinilla punteada	408	Crevette gladiateur rayée	121
Corvinilla rastra	412	Crevette kangourou	122
Corvinillas	397	Crevette ligubam du sud	125
Corvinón brasileño	407	Crevette longue	122
Corvinón negro	410	Crevette megalops	123
Corvinón rayado	407	Crevette naine rayée	120
Corvinones	397	Crevette nylon armée	120
CORYPHAENIDAE	236, 304	Crevette pouprée	113
<i>Coryphaena</i>	304-305	Crevette rodché du Sud	125
<i>Coryphaena equiselis</i>	304	Crevette rose	123
<i>Coryphaena hippurus</i>	305	Crevette royale rose	124
Coryphène commune	305	Crevette saumon	130
Coryphène dauphin	304	Crevette seabob	128
Coryphènes	304	Crevette zélateur Caraïbe	119
Cottonmouth jack	295	<i>cribarus, Arenaeus</i>	158
Cottonwick grunt	334	Croakers	239, 397
Cotuero toadfish	267	<i>crocodilus crocodilus, Tylosurus</i>	270
<i>cotylephorus, Platystacus</i>	262	<i>crocodilus, Tylosurus crocodilus</i>	270
<i>couma, Arius</i>	256	<i>crocro, Pomadasys</i>	337
Couma sea catfish	256	<i>croicensis, Scarus</i>	393
Courbine de fond	411	<i>cromis, Pogonias</i>	410
Courbine grenadine	411	Croncron	261
Courbine maroto	399	Croncrons	261
Courbine tiyeux	408	Croncron rayé	262
Courbines	397	Cross-barred venus	74
Couteau antillais	72	Crossie blanc	297
Couteaux	72	Crossie chucumite	297
Cowfishes	250	Crossie constantin	297
Cownose rays	202	Crossie épée	296
Cow sharks	165, 179	Crossie mexicaine	296
Crabe bleu	161	Crossies	296
Crabe chancre	158	<i>crossotus, Etropus</i>	276
Crabe cyrique	158	Croupia roche	348
Crabe d'Alaine	160	Croupias	348
Crabe draguenelle	160	Crown conchs	40
Crabe épongeux	155	Crown cone	37
Crabe gris	160	Crucifix sea catfish	258
Crabe iridéscent	161	<i>cruentata, Cephalopholis</i>	426
Crabe lénée	159	<i>cruentatus, Priacanthus</i>	387
Crabe liré	159	<i>crumenophthalmus, Selar</i>	290
Crabe mantou	157	<i>Cruriraja</i>	207
Crabe moro	162	<i>Cruriraja cadenati</i>	207
Crabe royal des Caraïbes	157	<i>Cruriraja poeyi</i>	207
Crabe tacheté	162	<i>Cruriraja rogusa</i>	207
CRABS	149	CRURIRAJIDAE	207
Crapaud enchainé	268	<i>cryptocentrus, Amphichthys</i>	266
Crapaud goulu	266	<i>Cryptotomus</i>	391
Crapaud guyansis	267	<i>Cryptotomus roseus</i>	391
Crapaud lagunaire	267	<i>crysos, Caranx</i>	285
Crapaud tacheté	268	<i>Ctenoides</i>	64
Crapauds	266	<i>Ctenoides scabra</i>	64
<i>Crassostrea rhizophorae</i>	67	<i>Ctenosciaena</i>	399
Creole-fish	433	<i>Ctenosciaena gracilicirrus</i>	399
Creole wrasse	345	Cuatro ojos	254
Crestfishes	226	Cuban anchovy	310
Crevalle jack	285	Cuban dogfish	189
Crevette buhotte	115	<i>cubana, Anchoa</i>	310
Crevette café	126	<i>cubana, Kathetostoma</i>	454
Crevette de Burkenroad	129	Cubbyu	403

<i>cubensis, Squalus</i>	189	<i>Cyrtopleura</i>	69
Cubera snapper	352	<i>Cyrtopleura costata</i>	69
Cuna amarilla	431	<i>Cyttopsis</i>	455
Cuna blanca	431	<i>Cyttopsis roseus</i>	455
Cuna bonaci	431		
Cuna de piedra	433	D	
Cuna garopa	432	DACTYLOPTERIDAE	231, 307
Cuna gata	432	DACTYLOPTERIFORMES	231
Cuna lucero	433	<i>Dactylopterus</i>	307
Cuna negra	432	<i>Dactylopterus volitans</i>	307
Cuna tigre	432	<i>dactylopterus, Helicolenus</i>	420
Cunas	423	DACTYLOSCOPIIDAE	244
<i>Cunearca brasiliiana</i>	61	Daggernose shark	176
<i>cuneata, Rangia</i>	65	Damselfishes	241, 384
<i>curema, Mugil</i>	361-362	Dana swimcrab	159
<i>curvidens, Mugil</i>	362	<i>danae, Callinectes</i>	159
Cusk-eels	222, 374	<i>Danoctopus</i>	100
Cutlassfishes	246, 450	<i>Danoctopus schmidti</i>	100
Cuttlefishes	79	DASYATIDAE	196, 198-200
<i>cuvier, Galeocerdo</i>	176	<i>Dasyatis</i>	198-199
<i>cyanea, Chromis</i>	385	<i>Dasyatis americana</i>	198
<i>cycanocephalus, Halichoeres</i>	346	<i>Dasyatis centroura</i>	198
<i>cyanops, Caulolatilus</i>	281	<i>Dasyatis geijkesi</i>	199
<i>cyanopterus, Cypselurus</i>	318	<i>Dasyatis guttata</i>	199
<i>cyanopterus, Lutjanus</i>	352	<i>Dasyatis sayi</i>	199
<i>cycloidea, Ancylosetta</i>	272	Daubenet bélier	442
Cyclope flounder	272	Daubenet grostache	442
<i>cyclophora, Raja</i>	206	Daubenet loto	441
<i>Cyclosetta</i>	275-276	Daubenet plume	442
<i>Cyclosetta chittendeni</i>	276	Daubenet trembleur	441
<i>Cyclosetta fimbriata</i>	276	Daubenets	440
CYMATIIDAE	33, 44	<i>decadactylus, Beryx</i>	271
<i>Cymatium</i>	44	<i>Decapterus</i>	287-288
<i>Cymatium femorale</i>	44	<i>Decapterus macarellus</i>	287
<i>Cymatium parthenopeum</i>	44	<i>Decapterus punctatus</i>	287
<i>Cymatium rederi</i>	44	<i>Decapterus tabl</i>	288
CYNOGLOSSIDAE	249, 305-306	<i>Decodon</i>	346
<i>Cynoponticus</i>	365	<i>Decodon puellaris</i>	346
<i>Cynoponticus savanna</i>	365	<i>decorticatedum, Codium</i>	20
<i>Cynoscion</i>	399-402	Deepbody boarfish	283
<i>Cynoscion acoupa</i>	400	Deepwater drum	411
<i>Cynoscion jamaicensis</i>	400	Deepwater flounder	277
<i>Cynoscion leiarchus</i>	400	<i>defilippi, Octopus</i>	99
<i>Cynoscion microlepidotus</i>	401	<i>deflorata, Asaphis</i>	71
<i>Cynoscion similis</i>	401	<i>delfosi, Scyllarides</i>	146
<i>Cynoscion steindachneri</i>	401	Deltoid rock shell	42
<i>Cynoscion virescens</i>	402	<i>deltoides, Thais</i>	42
<i>Cyprinodon</i>	306	Démi-bec allongé	338
<i>Cyprinodon variegatus</i>	306	Démi-bec balaou	338
CYPRINODONTIDAE	224, 306	Démi-bec blanc	339
CYPRINODONTIFORMES	224	Démi-bec brésilien	338
CYPRINODONTOIDEI	224	Démi-bec volant	337
<i>Cypselurus</i>	317-318	Démi-becs	337
<i>Cypselurus comatus</i>	318	Demoiselle beauté	382
<i>Cypselurus cyanopterus</i>	318	Demoiselle blanche	383
<i>Cypselurus exciliens</i>	318	Demoiselle chiririte	383
<i>Cypselurus furcatus</i>	318	Demoiselle royale	382
<i>Cypselurus heterurus</i>	318	Demoiselles	382
<i>Cypselurus melanurus</i>	318	DENDROBRANCHIATA	109
Cyrène élancée	63	<i>dentatus, Apsilus</i>	350
Cyrène équilatérale	62		
Cyrènes	62		

<i>dentex</i> , <i>Odontoscion</i>	408	Doncellas	344
<i>denticulatus</i> , <i>Donax</i>	63	<i>donmoorei</i> , <i>Haustellum</i>	41
<i>depressus</i> , <i>Scyllarus</i>	147	<i>donmoorei</i> , <i>Murex</i>	41
<i>Dermatolepis</i>	426	Donzelle arc en ciel	346
<i>Dermatolepis inermis</i>	426	Donzelle créole	345
DERMOCHELIDAE	461	Donzelle lame	347
<i>Dermochelys</i>	461	Donzelles	344
<i>Dermochelys coriacea</i>	461	Dorado	304
<i>deshayesi</i> , <i>Anadara</i>	60	Dorado común	305
Devil ray	202	Dorados	304
Devil rays	197	<i>Doratonotus</i>	346
<i>dewegeri</i> , <i>Paralabrax</i>	435	<i>Doratonotus megalepis</i>	346
<i>dewegeri</i> , <i>Serranus</i>	435	Dories	228-229, 455
Diablo géant	202	Dormilona	348
Diablos de mer	201	Dormilonas	348
Diamondback squid	93	<i>dorsalis</i> , <i>Sicyonia</i>	129
<i>Diapterus</i>	325	<i>dorsalis</i> , <i>Sphoeroides</i>	449
<i>Diapterus auratus</i>	325	<i>dorsopunicans</i> , <i>Pomacentrus</i>	385
<i>Diapterus olisthostomus</i>	325	<i>Doryteuthis</i>	87
<i>Diapterus rhombeus</i>	325	<i>Doryteuthis plei</i>	87
<i>diencaeus</i> , <i>Pomacentrus</i>	385	Drab sole	438
DIODONTIDAE	250	Dragonets	244
<i>Diodora</i>	39	Driftfishes	248
<i>Diodora listeri</i>	39	<i>Dromia</i>	155
<i>diomedianus</i> , <i>Symphurus</i>	305	<i>Dromia erythropus</i>	155
<i>dione</i> , <i>Pitar</i>	75	DROMIIDAE	150, 155
<i>diopus</i> , <i>Uropterygius</i>	370	Drums	239, 397
<i>Diplectrum</i>	434	<i>ductor</i> , <i>Naucrates</i>	289
<i>Diplectrum bivittatum</i>	434	<i>dumeril</i> , <i>Squatina</i>	190
<i>Diplectrum formosum</i>	434	<i>dumerili</i> , <i>Apionichthys</i>	438
<i>Diplectrum radiale</i>	435	<i>dumerili</i> , <i>Seriola</i>	292
<i>Diplobatis</i>	208	Durgons	
<i>Diplobatis guamachensis</i>	208	Dusky cusk-eel	375
<i>Diplobatis pictus</i>	208	Dusky flounder	279
<i>Diplodus</i>	443	Dusky shark	173
<i>Diplodus argenteus caudimacula</i>	443	Dusky snake eel	374
DIRETMIDAE	228	Duskycheek tonguefish	306
Diretmids	228	Dwarf goatfish	364
Diskfishes	235, 307	Dwarf mullet	362
<i>dispar</i> , <i>Scorpaena</i>	422	Dwarf sand perch	434
Disque portuguais	317	DYSOMMIDAE	216
Disques	317		
Doctorfish	251		
Dog snapper	353	E	
Dogfish sharks	165, 189	Eagle rays	197, 202
Dogtooth herring	388	Eared ark	60
Dogtooth herrings	214, 388	ECHENEIDIDAE	235, 307-308
Dolphinfishes	236, 304	<i>Echeneis</i>	307-308
<i>domingensis</i> , <i>Gracilaria</i>	24	<i>Echeneis naucrates</i>	307
Don Moore's murex	41	<i>Echeneis neucratoides</i>	308
Donace géante	64	<i>Echidna</i>	366
Donaces	63	<i>Echidna catenata</i>	366
DONACIDAE	54, 63-64	<i>Echiophis</i>	371-372
<i>Donax</i>	63	<i>Echiophis interfunctus</i>	372
Donax clams	63	<i>Echiophis mordax</i>	372
<i>Donax denticulatus</i>	63	<i>Echiophis punctifer</i>	372
<i>Donax striatus</i>	63	<i>Ectreposebastes</i>	423
Doncella arco iris	346	<i>edentatus</i> , <i>Hypophthalmus</i>	341
Doncella cuchilla	347	<i>edentulus</i> , <i>Cetengraulis</i>	315
Doncella de canto	346	<i>edwardsianus</i> , <i>Plesiopenaeus</i>	114
Doncella de pluma	347	<i>edwardsii</i> , <i>Plesionika</i>	121
Doncella mulata	345		

Eels	214	<i>Equetus</i>	397, 402-403
<i>egmontis, Ahlia</i>	370	<i>Equetus acuminatus</i>	402
<i>egretta, Bellator</i>	452	<i>Equetus lanceolatus</i>	403
El Dorado shrimp	156	<i>Equetus punctatus</i>	403
<i>elachys, Scorpaena</i>	422	<i>Equetus umbrosus</i>	403
<i>Elagatis</i>	288	Equilateral marsh clam	62
<i>Elagatis bipinnulata</i>	288	<i>equiselis, Coryphaena</i>	304
<i>eldorado, Chaceon</i>	156	<i>Eretmochelys</i>	460
Electric rays	195, 208	<i>Eretmochelys imbricata</i>	460
<i>elegans, Paralonchurus</i>	409	<i>Erythrocles</i>	309
ELEOTRIDAE	245	<i>Erythrocles monodi</i>	309
<i>elongata, Anchoviella</i>	314	<i>erythropus, Dromia</i>	155
Elongate anchovy	314	Escolar	322
ELOPIDAE	213, 308	Escolar clavo	323
ELOPIFORMES	213	Escolar de canal	322
<i>Elops</i>	308	Escolar negro	322
<i>Elops saurus</i>	308	Escolar oriental	323
Emerald parrotfish	391	Escolar prometeo	323
Emissole douce	191	Escolares	322
Emissole tiyeux	191	Escolars	246, 322
Emissole veuve	192	Escolier clair	323
Emissoles	190	Escolier noir	322
EMMELICHTHYIDAE	236, 309	Escolier oriental	323
<i>Emmelichthyops</i>	342	Escolier serpent	322
<i>Emmelichthyops atlanticus</i>	342	Escoliers	322
Emperadores	454	<i>esculentus, Conger</i>	303
Emperor helmet	36	Espadon	455
<i>empusa, Squilla</i>	105	Espadons	454
<i>Enchelycore</i>	367	Españolas	324
<i>Enchelycore carychroa</i>	367	<i>espinosus, Corniger</i>	340
<i>Enchelycore nigricans</i>	367	Estornino	416
<i>enchrysur, Chromis</i>	385	Estorninos	414
Encornet à dos orange	92	<i>Etelis</i>	351
Encornet oiseau	92	<i>Etelis oculatus</i>	351
Encornet rouge	90	<i>Etopus</i>	276
Encornet volant	91	<i>Etopus crossotus</i>	276
Encornets	87, 90	<i>Etrumeus</i>	298
ENGRAULIDIDAE	214, 309-316	<i>Etrumeus teres</i>	298
<i>Engraulis</i>	315	<i>Euaxoctopus</i>	100
<i>Engraulis eurystole</i>	315	<i>Euaxoctopus pillsburyae</i>	100
<i>Engyophrys</i>	280	<i>Eucheuma</i>	27
<i>Engyophrys senta</i>	280	<i>Eucinostomus</i>	325-327
ENOPLOTEUTHIDAE	83	<i>Eucinostomus argenteus</i>	326
<i>ensifer, Heterocarpus</i>	120	<i>Eucinostomus gula</i>	326
<i>ensiferus, Centropomus</i>	296	<i>Eucinostomus havana</i>	326
<i>ensis, Plesionika</i>	121	<i>Eucinostomus jonesii</i>	327
<i>Enteromorpha</i>	18	<i>Eucinostomus lefroyi</i>	327
<i>Enteromorpha flexuosa</i>	18	<i>Eucinostomus melanopterus</i>	327
<i>Enteromorpha intestinalis</i>	18	<i>Eugerres</i>	327-328
EPHIPPIDAE	240, 317	<i>Eugerres brasilianus</i>	327
EPINEPEHELINAE	425	<i>Eugerres plumieri</i>	328
<i>Epinephelus</i>	427	<i>eukrines, Liopropoma</i>	434
<i>Epinephelus adscensionis</i>	427	<i>Euleptorhamphus</i>	337
<i>Epinephelus flavolimbatus</i>	427	<i>Euleptorhamphus velox</i>	337
<i>Epinephelus guttatus</i>	428	<i>Eunephrops</i>	137-138
<i>Epinephelus itajara</i>	428	<i>Eunephrops bairdii</i>	138
<i>Epinephelus morio</i>	428	<i>Eunephrops cadenasi</i>	138
<i>Epinephelus mystacinus</i>	429	<i>eurystole, Engraulis</i>	315
<i>Epinephelus nigritus</i>	429	<i>Euthynnus</i>	415
<i>Epinephelus striatus</i>	430	<i>Euthynnus alletteratus</i>	415
<i>Epinnula</i>	324	<i>Euvoia</i>	69
<i>Epinnula magistralis</i>	324	Even cockle	62

Evêque	402	<i>ferox</i> , <i>Alepisaurus</i>	253
Evêque couronné	403	<i>ferruginosa</i> , <i>Pinna</i>	70
Evêque étoilé	403	Fiddlerfish	208
Evêque sombre	403	Fiddlerfishes	207
Evêques	397	Fighting conch	46
<i>Evoxymetopon</i>	451	<i>filamentosos</i> , <i>Aspredinichthys</i>	261
<i>Evoxymetopon taeniatus</i>	451	<i>filamentosum</i> , <i>Brachyplatistoma</i>	379
<i>exasperatus</i> <i>Callinectes</i>	159	File shells	64
<i>exciliens</i> , <i>Cypselurus</i>	318	Filefishes	250, 359
<i>Exhippolysmata</i>	115	<i>filifera</i> , <i>Anchoa</i>	310
<i>Exhippolysmata oplophoroides</i>	115, 118	<i>filiformis</i> , <i>Solieria</i>	27
Exocet atlantique	318	<i>filipendula</i> , <i>Sargassum</i>	21
Exocet bouledogue	319	<i>fimbriata</i> , <i>Cyclosetta</i>	276
Exocet codène	318	Finspot ray	206
Exocet hirondelle	319	<i>Fissurella</i>	39
Exocet hollandais	318	<i>Fissurella balanoides</i>	39
Exocet jibeux	320	<i>Fissurella barbadensis</i>	39
Exocet miroir	319	<i>Fissurella nimbose</i>	39
Exocet rayé	318	Fissurelle de Lister	39
Exocet tacheté	318	Fissurelle des Barbades	39
Exocet voilier	320	Fissurelle rayonnante	39
Exocet volant	319	Fissurelles	39
EXOCOETOIDEI	225	FISSURELLIDAE	31, 39
Exocets	317	<i>Fistularia</i>	320-321
EXOCOETIDAE	225, 317-320	<i>Fistularia petimba</i>	321
<i>Exocoetus</i>	319	<i>Fistularia tabacaria</i>	321
<i>Exocoetus obtusirostris</i>	319	FISTULARIIDAE	230, 320-321
<i>Exocoetus volitans</i>	319	Fisurelas	39
<i>exsiliens</i> , <i>Cypselurus</i>	318	Flagfin mojarra	327
Eyed flounder	273	Flame box crab	153
Eyespot rock shrimp	130	Flame helmet	36
F			
<i>faber</i> , <i>Chaetodipterus</i>	317	<i>flammea</i> , <i>Calappa</i>	153
Fairy basslets	233	<i>flammea</i> , <i>Cassis</i>	36
<i>falcata</i> , <i>Mytella</i>	66	Fiat needlefish	269
<i>falcatus</i> , <i>Trachinotus</i>	294	Flat tree oyster	64
<i>falciformis</i> , <i>Carcharhinus</i>	171	Flatheads	243
False herring	298	<i>flava</i> , <i>Hildebrandia</i>	303
False morays	216	<i>flavipinnis</i> , <i>Pellona</i>	390
False pilchard	298	<i>flaviventris</i> , <i>Serranus</i>	436
False tulip mussel	66	<i>flavobrunneum</i> , <i>Lepidocybium</i>	322
Fangtooth snake eel	371	<i>flavolimbatus</i> , <i>Epinephelus</i>	427
Fantail mullet	363	<i>flavolineatum</i> , <i>Haemulon</i>	333
<i>fasciata</i> , <i>Seriola</i>	292	Fleeked box crab	155
<i>fasciata</i> , <i>Ulva</i>	19	<i>flexuosa</i> , <i>Enteromorpha</i>	18
Fasciolaire tulipe	37	Flion des Caraïbes	63
Fasciolaires	37	Flion ridé	63
<i>Fasciolaria</i>	37	Flions	63
<i>Fasciolaria tulipa</i>	37	<i>floresia</i> , <i>Halymenia</i>	26
FASCIOLARIIDAE	31, 37-38	Florida lobsterette	140
Fat snook	297	Florida pompano	294
Fausse donace à deux taches	71	Florida rock shell	42
Fausse limande de banc	278	<i>floridana</i> , <i>Thais haemastoma</i>	42
Fausse limande sombre	279	Flying gurnard	307
Faust tellin	73	Flying gurnards	231
<i>fausta</i> , <i>Arcopagia</i>	73	Flying halfbeak	337
<i>fausta</i> , <i>Tellina</i>	73	Flying squids	90
<i>faxoni</i> , <i>Scyllarus</i>	147	Flyingfishes	224-225, 317
<i>femorale</i> , <i>Cymatium</i>	44	<i>foetens</i> , <i>Synodus</i>	446
		<i>foliacea</i> , <i>Aristaeomorpha</i>	113
		Footballfishes	224
		<i>formosum</i> , <i>Diplectrum</i>	434
		Foureyed flounder	272

Foureyes	225, 254
Fourwing flyingfish	319
Freckled catshark	185
<i>freemani</i> , <i>Pristipomoides</i>	356
<i>fremenvillei</i> , <i>Myliobatis</i>	203
French angelfish	383
French grunt	333
Freshwater eels	216, 254
Frigate tuna	415
Frilled sharks	165
Fringed flounder	276
Frogfishes	223
<i>frontalis</i> , <i>Gastropsetta</i>	280
<i>fuliginea</i> , <i>Raja</i>	206
Full moonfish	291
<i>fulminatus</i> , <i>Pitar</i>	76
<i>fulva</i> , <i>Cephalopholis</i>	426
<i>funnebris</i> , <i>Lycodontis</i>	368
<i>furcatus</i> , <i>Cypselurus</i>	318
<i>furcifer</i> , <i>Paranthias</i>	433
<i>furnieri</i> , <i>Micropogonias</i>	407
Furry lobster	147
<i>fuscus</i> , <i>Pomacentrus</i>	385
Fuseau de Philippi	38
Fuseau marron	38
Fuseau zébré	38
Fuseaux	37
<i>Fusinus</i>	38
<i>Fusinus closter</i>	38

G

<i>Gadella</i>	360
<i>Gadella imberbis</i>	360
GADIDAE	221, 321
GADIFORMES	220
Gafftopsail sea catfish	260
<i>gaimardianus</i> , <i>Mugil</i>	362
<i>galapagensis</i> , <i>Carcharhinus</i>	171
Galapagos shark	171
<i>Galeocerdo</i>	176
<i>Galeocerdo cuvier</i>	176
Galera carenada	105
Galera lisa	105
Galeras	103
<i>Galeus</i>	184
<i>Galeus arae</i>	184
Galletas	282
Gallina aleta corta	453
Gallina cornúa	452
Gallina de charco	453
Gallina pintada	453
Gallinas	451
Gallineta	452
Galludo cubano	189
Galludos	189
<i>gallus</i> , <i>Strombus</i>	45
Gamba carabinero	114
Gamba purpúrea	113
Gamba rosada	123
Gambon écarlat	114

Gambon rouge	113
<i>garnoti</i> , <i>Halichoeres</i>	347
<i>gastrophysus</i> , <i>Lophius</i>	349
GASTROPODS	29
<i>Gastropsetta</i>	280
<i>Gastropsetta frontalis</i>	280
Gata atlántica	182
Gatas nodrizas	182
Gatillos	264
Gaudy asaphis	71
Gavilán mancha	204
Gavilanes	202
<i>Gayralia</i>	19
<i>Gayralia oxysperma</i>	19
GECARCINIDAE	152, 156
<i>geijkesi</i> , <i>Dasyatis</i>	199
<i>geijskesi</i> , <i>Solenocera</i>	131
<i>Gelidium</i>	23
<i>Gelidium serrulatum</i>	23
<i>gelidium</i> , <i>Meristiella</i>	27
<i>Gellidiella</i>	23
<i>Gellidiella acerosa</i>	23
<i>gemma</i> , <i>Hypoplectrus</i>	435
GEMPYLIDAE	246, 322-324
<i>Gempylus</i>	322
<i>Gempylus serpens</i>	322
<i>Genyatremus</i>	330
<i>Genyatremus luteus</i>	330
Germon	418
Germons	414
GERREIDAE	237, 324-328
<i>Gerres</i>	328
<i>Gerres cinereus</i>	328
Géryon El Dorado	156
<i>Geryon quinquedens</i>	156
GERYONIDAE	151, 156
Ghost crab	157
Giant false donax	64
Giant gamba prawn	113
Giant grouper	428
Giant hairy melongena	40
Giant hairy triton	44
Giant red shrimp	113
<i>gibbesii</i> , <i>Portunus</i>	161
<i>gibbifrons</i> , <i>Prognichthys</i>	320
<i>gibbus</i> , <i>Aequipecten</i>	68
<i>gibbus</i> , <i>Argopecten</i>	68
<i>Gigartina</i>	26
<i>Gigartina acicularis</i>	26
<i>gigas</i> , <i>Strombus</i>	45
Gillbacker sea catfish	257
<i>Ginglymostoma</i>	182
<i>Ginglymostoma cirratum</i>	182
GINGLYMOSTOMATIDAE	166, 182
Gizzard shads	214, 298
Gladiator striped shrimp	121
<i>gladius</i> , <i>Xiphias</i>	455
Glasseye	387
<i>glauca</i> , <i>Prionace</i>	177
Globose box crab	155
<i>Glossanodon</i>	255
<i>Glossanodon polli</i>	255

<i>Glossanodon pygmaeus</i>	255	Great barracuda	444
<i>Glyphus</i>	122	Great hammerhead	187
<i>Glyphus marsupialis</i>	122	Great northern tilefish	282
<i>Gnathophis</i>	304	Great white shark	180
Goatfishes	239, 363	Greater amberjack	292
Gobies	245	<i>greeleyi, Sphoeroides</i>	449
GOBIESOCIDAE	222	Greeneyes	220
GOBIESOCIFORMES	222	Green moray	368
GOBIIDAE	245	Green music volute	49
GOBIOIDEI	244	Green puffer	449
Goblin shark	181	Green star-shell	48
Goblin sharks	166, 181	Green weakfish	402
Goldentail moray	369	Grenidiers	220-221
Goldmouth murex	41	Grey conger	303
<i>gomesi, Ophichthus</i>	373	Grey triggerfish	265
<i>Gonioplectrus</i>	430	<i>griffithsiae, Gymnogongrus</i>	25
<i>Gonioplectrus hispanus</i>	430	<i>griseorubra, Sparisoma</i>	397
GONODACTYLIDAE	103	<i>griseus, Hexanchus</i>	179
GONOSTOMATIDAE	219	<i>griseus, Lutjanus</i>	353
<i>goodei, Myliobatis</i>	203	<i>griseus, Stellifer</i>	412
<i>goodei, Trachinotus</i>	295	Grondeur crocro	337
Goosefishes	223, 348	Grondeur gris	336
Gorets	328	Grondeurs	328
Gorette blanche	334	Gronдин aîle-courte	453
Gorette caco	333	Gronдин de Bean	452
Gorette catire	335	Gronдин de lagune	453
Gorette charbonnier	332	Gronдин fil	452
Gorette chercher	335	Gronдин poule	453
Gorette corocoro	336	Gronдинs	451
Gorette grise	332	<i>gronovii, Hepatus</i>	155
Gorette jaune	333	<i>grossidens, Lycengraulis</i>	316
Gorette marchand	334	Ground croaker	398
Gorette margate	331	Ground sharks	167, 169
Gorette mèche	334	Groupers	232, 423
Gorette rayée	335	Grunts	238, 328
Gorette rui	332	<i>guacamaia, Scarus</i>	393
Gorette tibouche	333	<i>guachancho, Sphyaena</i>	444
Gorette tomtate	331	Guacuco de marjal	62
Gorettes	328	Guacuco de marjal esbelto	63
<i>Gracilaria</i>	24	Guacucos de marjal	62
<i>Gracilaria cornea</i>	24	Guaguanche	444
<i>Gracilaria domingensis</i>	24	Guajacones	306
<i>Gracilaria verrucosa</i>	24	<i>guamachensis, Diplobatis</i>	208
<i>Gracilariopsis</i>	25	<i>guanhumi, Cardisoma</i>	156
<i>Gracilariopsis tenuifrons</i>	25	Guaripetes	445
<i>gracilicirrhus, Ctenosciaena</i>	399	Guaseta	425
<i>gracilior, Hildebrandia</i>	304	Guasetas	423
GRAMMICOLEPIDAE	230	Guatacare de charco	435
Grammicolepids	230	Guatacare de hebra	434
GRAMMIDAE	233	Guatacares	423
GRAMMISTIDAE	233	Guayana pike-conger	365
GRAMMISTINAE	433	Guayanesa	201
Grand requin blanc	180	Guayanesa espinosa	200
Grand requin marteau	187	Guiana anchovy	314
Grand tambour	410	Guiana longfin herring	389
Grande aîle d'ange	69	<i>guianensis, Anchoviella</i>	314
<i>grandicassis, Arius</i>	257	Guinée machète	308
<i>grandicornis, Scorpaena</i>	422	Guinées	308
Grasby seabass	426	Guitarfishes	196, 207
Gray angelfish	383	Guitarra chola	208
Gray snapper	353	<i>gula, Eucinostomus</i>	326
Gray stardrum	412	Gulf codling	321

Gulf hake	321	<i>Halichoeres pictus</i>	347
Gulf kingcroaker	406	<i>Halichoeres poeyi</i>	347
Gulf kingfish	406	<i>Halichoeres radiatus</i>	346
<i>gummigutta</i> , <i>Hypoplectrus</i>	435	HALOSAURIDAE	217
<i>gundlachi</i> , <i>Palinurellus</i>	147	Halosaurs	217
<i>gunteri</i> , <i>Syacium</i>	278	<i>Halymenia</i>	26
<i>guntheri</i> , <i>Setarches</i>	423	<i>Halymenia floresia</i>	26
<i>guppyi</i> , <i>Caulolatilus</i>	282	Hamlets	232, 423
<i>guppyi</i> , <i>Hildebrandia</i>	304	Hammerhead sharks	167, 185
<i>guttata</i> , <i>Dasyatis</i>	199	Hardhead silverside	262
<i>guttatus</i> , <i>Epinephelus</i>	428	<i>Harengula</i>	298-299
<i>guttatus</i> , <i>Lampris</i>	348	<i>Harengula clupeola</i>	298
<i>guttatus</i> , <i>Panulirus</i>	144	<i>Harengula humeralis</i>	299
<i>guttavarius</i> , <i>Hypoplectrus</i>	435	<i>Harengula jaguana</i>	299
Guyana swamp mussel	66	Harengule écailleux	298
<i>guyanensis</i> , <i>Mytella</i>	66	Harengule jagane	299
<i>Gymnachirus</i>	439	Harengule joue rouge	299
<i>Gymnachirus nudus</i>	439	Harengule piquitinge	300
<i>Gymnogongrus</i>	25	Harengules	298
<i>Gymnogongrus griffithsiae</i>	25	<i>harringtonensis</i> , <i>Hypoatherina</i>	263
<i>Gymnogongrus tenuis</i>	25	<i>harroweri</i> , <i>Pellona</i>	390
<i>Gymnothorax</i>	367	Harvestfishes	247, 445
<i>Gymnothorax nigromarginatus</i>	367	<i>Haustellum</i>	41
<i>Gymnothorax ocellatus</i>	367	<i>Haustellum chrysostoma</i>	41
<i>Gymnura</i>	200	<i>Haustellum donmoorei</i>	41
<i>Gymnura altavela</i>	200	<i>Haustellum messorius</i>	41
<i>Gymnura micrura</i>	201	<i>havana</i> , <i>Eucinostomus</i>	326
GYMNURIDAE	197, 200-201	Hawkfishes	241

H

<i>haeckelii</i> , <i>Scyliorhinus</i>	185	Helmet shells	36
<i>haemastoma floridana</i> , <i>Thais</i>	42	<i>Hemanthias</i>	424-425
HAEMULIDAE	238, 328-337	<i>Hemanthias aurorubens</i>	424
<i>Haemulon</i>	331-335	<i>Hemanthias leptus</i>	424
<i>Haemulon album</i>	331	<i>Hemanthias vivanus</i>	425
<i>Haemulon aurolineatum</i>	331	<i>Hemicaranx</i>	288
<i>Haemulon bonariense</i>	332	<i>Hemicaranx amblyrhynchus</i>	288
<i>Haemulon boschmae</i>	332	<i>hemiptera</i> , <i>Loligo</i>	89
<i>Haemulon carbonarium</i>	332	<i>Hemipteronotus</i>	347
<i>Haemulon chrysargyreum</i>	333	<i>Hemipteronotus martinicensis</i>	347
<i>Haemulon flavolineatum</i>	333	<i>Hemipteronotus novacula</i>	347
<i>Haemulon macrostomum</i>	333	<i>Hemipteronotus splendens</i>	347
<i>Haemulon melanurum</i>	334	HEMIRAMPHIDAE	225, 337-339
<i>Haemulon parrai</i>	334	<i>Hemiramphus</i>	337-338
<i>Haemulon plumieri</i>	334	<i>Hemiramphus balao</i>	338
<i>Haemulon sciurus</i>	335	<i>Hemiramphus brasiliensis</i>	338
<i>Haemulon steindachneri</i>	335	<i>Hepatus</i>	155
<i>Haemulon striatum</i>	335	<i>Hepatus gronovii</i>	155
Hagfishes	344	<i>Hepatus pudibundus</i>	155
Hairtails	246, 450	<i>hepsetus</i> , <i>Anchoa</i>	311
Hakes	220-221, 358	Herrings	213-214, 298
Half-naked pen shell	70	<i>herzbergii</i> , <i>Arius</i>	257
Halfbeaks	224-225, 337	<i>hesperius</i> , <i>Scyliorhinus</i>	185
<i>Halichoeres</i>	346-347	Heterenchelid eels	216
<i>Halichoeres bathyphilus</i>	347	HETERENCHELYIDAE	216
<i>Halichoeres bivittata</i>	347	<i>Heterocarpus</i>	120
<i>Halichoeres caudalis</i>	347	<i>Heterocarpus ensifer</i>	120
<i>Halichoeres cyanocephalus</i>	347	<i>Heteroconger</i>	304
<i>Halichoeres garnoti</i>	347	<i>Heterodonax</i>	71
<i>Halichoeres maculipinna</i>	347	<i>Heterodonax bimaculatus</i>	71

<i>heterurus, Cypselurus</i>	318	<i>hummelincki, Octopus</i>	99
<i>heudelotii, Aluterus</i>	359	Huso castaña	38
HEXANCHIDAE	165, 179	Huso cebra	38
HEXANCHIFORMES	165	Huso de Philippi	38
<i>Hexanchus</i>	179	Husos	37
<i>Hexanchus griseus</i>	179	<i>Hypnea</i>	26
<i>Hexanchus vitulus</i>	179	<i>Hypnea musciformis</i>	26
<i>hians, Ablennes</i>	269	<i>Hypoatherina</i>	263
High-hat	402	<i>Hypoatherina harringtonensis</i>	263
Highwaterman catfish	341	HYPOPTHALMIDAE	218, 341
<i>higmani, Mustelus</i>	191	<i>Hypophthalmus</i>	341
<i>Hildebrandia</i>	303-304	<i>Hypophthalmus edentatus</i>	341
<i>Hildebrandia flava</i>	303	<i>Hypoplectrus</i>	435
<i>Hildebrandia gracilior</i>	304	<i>Hypoplectrus aberrans</i>	435
<i>Hildebrandia guppyi</i>	304	<i>Hypoplectrus chlorurus</i>	435
<i>Hildebrandichthys setiger</i>	315	<i>Hypoplectrus gemma</i>	435
HIMANTOLOPHIDAE	224	<i>Hypoplectrus gummigutta</i>	435
<i>Himantura</i>	200	<i>Hypoplectrus guttaavarius</i>	435
<i>Himantura schmardae</i>	200	<i>Hypoplectrus indiga</i>	435
Hinds	232, 423	<i>Hypoplectrus nigricans</i>	435
HIPPOLYTIDAE	111, 115	<i>Hypoplectrus puella</i>	435
<i>hippos, Caranx</i>	285	<i>Hypoplectrus unicolor</i>	435
<i>hippurus, Coryphaena</i>	305	<i>Hyporhamphus</i>	338
<i>Hirundichthys</i>	319	<i>Hyporhamphus roberti</i>	338
<i>Hirundichthys affinis</i>	319	<i>Hyporhamphus unifasciatus</i>	339
<i>Hirundichthys speculiger</i>	319	<i>hypostoma, Mobula</i>	202
<i>hispanus, Gonioplectrus</i>	430		
<i>hispidus, Stephanolepis</i>	360		
HISTIOTEUTHIDAE	85		
<i>Histioteuthis corona corona</i>	85		
Hobiches	183	<i>Ichthyapus</i>	372
Hogfish	347	<i>Ichthyapus ophioneus</i>	372
Hogfishes	242, 344	<i>Idiastion</i>	423
<i>Holacanthus</i>	382	<i>illecebrosus coindetii, Illex</i>	90
<i>Holacanthus ciliaris</i>	382	<i>Illex</i>	90
<i>Holacanthus tricolor</i>	382	<i>Illex coindetii</i>	90
<i>Holanthias</i>	425	<i>Illex illecebrosus coindetii</i>	90
<i>Holanthias martinicensis</i>	425	<i>imberbis, Gadella</i>	360
<i>holbrooki, Ophidion</i>	376	<i>imbricata, Arca</i>	60
HOLOCENTRIDAE	227, 339-341	<i>imbricata, Eretmochelis</i>	460
<i>Holocentrus</i>	339-340	<i>imbricata, Pinctada</i>	71
<i>Holocentrus adscensionis</i>	339	Imbricated star-shell	48
<i>Holocentrus bullisi</i>	340	<i>imperialis, Murex</i>	42
<i>Holocentrus coruscus</i>	340	<i>incilis, Mugil</i>	362
<i>Holocentrus marianus</i>	340	INCIRRATA	95
<i>Holocentrus rufus</i>	340	<i>incisor, Kyphosus</i>	344
<i>Holocentrus vexillarius</i>	340	Incongruous ark	61
Honeycomb cowfish	377	<i>indigo, Hypoplectrus</i>	435
Hooked squids	93	<i>Inermia</i>	342
<i>Hoplunnis</i>	365	<i>Inermia vittata</i>	342
<i>horkeli, Rhinobatos</i>	208	INERMIIDAE	237, 342
Horse conchs	37	<i>inermis, Dermatolepis</i>	426
Horse-eye jack	285	<i>inermis, Scorpaena</i>	422
Hospe mullet	362	<i>infundibulum, Latirus</i>	38
<i>hospes, Mugil</i>	362	<i>inscriptus, Trinectes</i>	439
Hound needlefish	270	Inshore lizardfish	446
Houndsharks	167, 190	Inshore squids	87
Huître creuse des Caraïbes	67	<i>insolata, Chromis</i>	385
Huître perlière de l'Atlantique	71	<i>intermedius, Synodus</i>	446
Huîtres	67	<i>interstitialis, Mycteroperca</i>	431
Huîtres perlières	71	<i>intertinctus, Echiophis</i>	372
<i>humeralis, Harengula</i>	299	<i>intestinalis, Enteromorpha</i>	18

<i>Iphigenia</i>	64	<i>Jenkinsia parvula</i>	299
<i>Iphigenia brasiliiana</i>	64	<i>Jenkinsia stolifera</i>	299
Iridescent swimming crab	161	Jenny mojarra	326
Irish mojarra	325	Jewfish	428
<i>irradians amplicostatus</i> , <i>Argopecten</i>	68	Jibias	90
Isabelita medioluto	382	<i>jocu</i> , <i>Lutjanus</i>	353
Isabelita patale	382	Jollthead porgy	441
Isabelitas	382	<i>jonesii</i> , <i>Eucinostomus</i>	327
Island inshore squid	88	Jorobado de penacho	291
<i>isocardia</i> , <i>Trachycardium</i>	62	Jorobado lamparosa	291
<i>Isognomon</i>	64	Jorobado luna	291
<i>Isognomon alatus</i>	64	<i>joubini</i> , <i>Octopus</i>	98
ISOGNOMONIDAE	54, 64	Jurel común	285
<i>Isogomphodon</i>	176	Jurel negro	286
<i>Isogomphodon oxyrhynchus</i>	176	Jurel ojón	285
<i>Isopisthus</i>	404	Jurel volantín	295
<i>Isopisthus parvipinnis</i>	404	Jureles	283
<i>isthmensis</i> , <i>Scorpaena</i>	422	<i>Justitia</i>	142
ISTIOPHORIDAE	247, 342-343	<i>Justitia longimanus</i>	142
<i>Istiophorus</i>	342		
<i>Istiophorus albicans</i>	342	K	
<i>Isurus</i>	180-181	Kangaroo shrimp	122
<i>Isurus oxyrinchus</i>	180	<i>Kathetostoma</i>	454
<i>Isurus paucus</i>	181	<i>Kathetostoma cubana</i>	454
<i>itajara</i> , <i>Epinephelus</i>	428	<i>Katsuwonus</i>	416
<i>itajara</i> , <i>Promicrops</i>	428	<i>Katsuwonus pelamis</i>	416
		Keeltail needlefish	269
		<i>kendalli</i> , <i>Apterichthys</i>	371
J		Key anchovy	310
Jack-knife fish	403	Keyhole limpets	39
Jackknife clams	72	Killifishes	224, 306
Jacks	235, 283	King helmet	36
<i>jacobus</i> , <i>Myripristis</i>	340	King mackerel	417
<i>jaguana</i> , <i>Harengula</i>	299	King venus	74
Jaiba de manchas blancas	162	King weakfish	405
Jaiba de Maracaibo	160	Kingcroakers	239
Jaiba de máscara	160	Kinglet rock shimp	130
Jaiba gris	160	<i>kroyeri</i> , <i>Xiphopenaeus</i>	128
Jaiba iridescente	161	Kukwari sea catfish	258
Jaiba pintada	158	Kumakuma	379
Jaiba roma	158	<i>kumperae</i> , <i>Ancylosetta</i>	272
Jaiba rugosa	159	<i>kymosemeum</i> , <i>Porichthys</i>	268
Jamaica weakfish	400	KYPHOSIDAE	240, 344
<i>jamaicensis</i> , <i>Cynoscion</i>	400	<i>Kyphosus</i>	344
Jambonneau demi-lisse	70	<i>Kyphosus incisor</i>	344
Jambonneau éventail	70	<i>Kyphosus sectatrix</i>	344
Jambonneau raide	69		
Jambonneau royal	70	L	
Jambonneau rude	70	Labre capitaine	347
Jambonneaux	69	Labre rouge	346
<i>januari</i> , <i>Benthoctopus</i>	100	Labres	344
<i>japonicus</i> , <i>Scomber</i>	416	LABRIDAE	242, 344-348
<i>Japonoconger</i>	304	LABROIDEI	242
Jaqueta parda	385	Lachas	298
Jaqueta rabo amarillo	385	<i>Lachnolaimus</i>	347
Jaquetas	384	<i>Lachnolaimus maximus</i>	347
Jaquetón blanco	180	<i>Laciolina laevigata</i>	73
Jaquetones	180	<i>Lactophrys</i>	377-378
Jawfishes	243	<i>Lactophrys bicaudalis</i>	377
<i>Jenkinsia</i>	299		
<i>Jenkinsia lamprotaenia</i>	299		

<i>Lactophrys polygonius</i>	377	Langue joue cendre	306
<i>Lactophrys quadricornis</i>	377	Langues	305
<i>Lactophrys trigonus</i>	378	Lanternfishes	220
<i>Lactophrys triqueteter</i>	378	Lanzón nariz corta	253
<i>lactuca, Ulva</i>	19	Lanzón nariz larga	253
Ladyfish	308	Lanzones	253
Ladyfishes	213, 308	Lapa de Barbados	39
<i>Laevicardium</i>	61	Lapa de Lister	39
<i>Laevicardium laevigatum</i>	61	Lapa radiante	39
<i>laevicauda, Panulirus</i>	144	Lapas	39
<i>laevigata, Laciolina</i>	73	Largehead hairtail	451
<i>laevigata, Tellina</i>	73	Largescale foureyes	254
<i>laevigatum, Laevicardium</i>	61	Largetooth sawfish	204
<i>laevigatus, Lagocephalus</i>	448	<i>Larimus</i>	404
Largarto dientón	446	<i>Larimus breviceps</i>	404
Lagarto mato	446	<i>larvatus, Callinectes</i>	160
Largrto ñato	447	<i>lathami, Trachurus</i>	295
Lagarto playero	446	<i>Latirus</i>	38
Lagartos	445	<i>Latirus infundibulum</i>	38
<i>Lagocephalus</i>	448	<i>latus, Caranx</i>	285
<i>Lagocephalus laevigatus</i>	448	Laulao catfish	379
<i>lalandii, Rhizoprionodon</i>	178	<i>Laurencia</i>	28
Lambe aleta negra	409	<i>Laurencia papillosa</i>	28
Lambe aludo	405	Leatherjacket	290
Lambe caletero	406	Leatherjackets	250
Lambe maríaluisa	409	Leatherjacks	235, 283
Lambe pituco	409	Lebranche	363
Lambe verrugato	406	Lebranche mullet	363
Lambes	397	<i>lefroyi, Eucinostomus</i>	327
LAMNIDAE	166, 180-181	Lefteye flounders	248, 271
LAMNIFORMES	166	<i>leiarchus, Cynoscion</i>	400
LAMPRIDAE	226, 348	Lemon shark	177
LAMPRIDIFORMES	226	Lengua ceniza	306
<i>Lampris</i>	348	Lengua filonegro	305
<i>Lampris guttatus</i>	348	Lenguado aleta manchada	276
<i>lamprotaenia, Anchoa</i>	311	Lenguado boca chica	276
<i>lamprotaenia, Jenkinsia</i>	299	Lenguado bocón	274
<i>lanceolatus, Equetus</i>	403	Lenguado criollo	277
<i>lanceolatus, Lonchurus</i>	405	Lenguado de bajío	278
Lancetfishes	219, 253	Lenguado de canal	278
Lancier à nez court	253	Lenguado de charco	273
Lancier long-nez	253	Lenguado de cuatro manchas	272
Lanciers	253	Lenguado de fondo	277
Lane snapper	354	Lenguado de tres manchas	272
Langosta común	143	Lenguado del Caribe	279
Langosta de muelas	142	Lenguado fusco	279
Langosta moteada	144	Lenguado manchado	273
Langosta ñata	142	Lenguado negro	274
Langosta verde	144	Lenguado ocelado	273
Langosteta	147	Lenguado playero	275
Langostino moruno	113	Lenguado rabo manchado	276
Langouste aliousta	142	Lenguados	271
Langouste blanche	143	Lenguas	305
Langouste brésilienne	144	Lenguetas	305
Langouste des Caribes	142	<i>lepidentostole, Anchoviella</i>	314
Langouste indienne	144	<i>Lepidochelis</i>	460
Langoustine arganelle	137	<i>Lepidochelis olivacea</i>	460
Langoustine de Florida	140	<i>Lepidocybium</i>	322
Langoustine des Caraïbes	139	<i>Lepidocybium flavobrunneum</i>	322
Langoustine épineuse	141	LEPIDOTEUTHIDAE	84, 87
Langoustine rouge	138	<i>Lepophidium</i>	375
Langue fil noir	305	<i>Lepophidium aporrhox</i>	375

<i>Lepophidium brevibarbe</i>	375	<i>Lithopoma tecta</i>	48
<i>Lepophidium pheromystax</i>	375	<i>Lithopoma tuber</i>	48
<i>Lepophidium profundorum</i>	375	<i>litterata, Oliva</i>	43
<i>lepturus, Trichiurus</i>	451	Little anchovy	311
<i>leptus, Hemanthias</i>	424	Little tunny	415
Lesser amberjack	292	Littlescale threadfin	381
Lesser rock shrimp	129	<i>littoralis, Mentidcirrhus</i>	406
Lesser striped shrimp	120	Live-bearing topminnows	225
Lettered olive	43	Live sharksucker	307
<i>leucas, Carcharhinus</i>	172	<i>liza, Mugil</i>	363
<i>leucostictus, Pomacentrus</i>	385	Lizardfishes	219-220, 445
<i>Leucozonia</i>	38	<i>Lobotes surinamensis</i>	348
<i>Leucozonia nassa</i>	38	LOBOTIDAE	238, 348
<i>lewini, Sphyrna</i>	186	LOBSTERS	133
Liches	283	Locha de fondo	321
Lightning venus	76	Lochas	321
Lijas	249, 359	LOLIGINIDAE	82, 87-90
<i>Lile</i>	300	<i>Loligo</i>	88
<i>Lile piquitinga</i>	300	<i>Loligo brasiliensis</i>	87
Lima áspera	64	<i>Loligo brevipinna</i>	89
<i>Lima scabra</i>	64	<i>Loligo brevis</i>	89
Limas	64	<i>Loligo hemiptera</i>	89
<i>limbatus, Carcharhinus</i>	172	<i>Loligo pallida</i>	88
Lime	64	<i>Loligo pealei</i>	88
Lime r�che	64	<i>Loligo plei</i>	87
LIMIDAE	54, 64	<i>Loligo roperi</i>	88
<i>limnichthys, Lycengraulis</i>	316	<i>Loligo surinamensis</i>	89
<i>lineatus, Achirus</i>	438	<i>Lolliguncula</i>	89
Lined sole	438	<i>Lolliguncula brevis</i>	89
Lion's paw	68	<i>Lonchurus</i>	405
<i>Liopropoma</i>	434	<i>Lonchurus lanceolatus</i>	405
<i>Liopropoma aberrans</i>	434	Longarm spiny lobster	142
<i>Liopropoma carmabi</i>	434	Longbill spearfish	343
<i>Liopropoma eukrines</i>	434	Longfin herrings	388
<i>Liopropoma mexicana</i>	434	Longfin inshore squid	88
<i>Liopropoma mowbrayi</i>	434	Longfin mako	181
<i>Liopropoma rosea</i>	434	Longfin scorpionfish	421
<i>Liopropoma rubre</i>	434	Longfinger anchovy	310
Lippu croupia	329	<i>longicauda, Parapandalus</i>	122
Lippu rondeau	329	<i>longicauda, Plesionika</i>	122
Lippu tricroupia	330	<i>longimanus, Carcharhinus</i>	173
Lippus	328	<i>longimanus, Justitia</i>	142
Lisa	363	<i>longimanus, Octopus</i>	98
Lisa amarilla	363	<i>longispinis, Pontinus</i>	421
Lisa criolla	361	Longnose lancetfish	253
Lisa enana	362	Longnose stingray	199
Lisa hospes	362	Longsnout scorpionfish	420
Lisa ojo amarillo	362	Longspine scorpionfish	421
Lisa pardete	361	Longspine snipefish	357
Lisa rayada	362	Longspine squirrelfish	340
Lisas	361	Longtail bass	424
Listado	416	Longtail croaker	405
Listados	414	Longtail shrimp	122
Listao	416	Longtail sole	438
Lister's keyhole limpet	39	Lookdown	291
<i>listeri, Atrina</i>	70	Lookdown catfishes	218, 341
<i>listeri, Diodora</i>	39	LOPHIIDAE	223, 348-350
<i>listeri, Periglypta</i>	75	LOPHIIFORMES	223
<i>listeri, Tellina</i>	73	<i>Lophiodes</i>	349
<i>listeri, Tellinella</i>	73	<i>Lophiodes beroe</i>	349
<i>Lithopoma</i>	47-48	<i>Lophiodes monodi</i>	349
<i>Lithopoma caelata</i>	47	<i>Lophiodes reticulatus</i>	349

<i>Lophius</i>	349	<i>lyolepis, Anchoa</i>	311
<i>Lophius gastrophysus</i>	349	<i>Lyropecten</i>	68
<i>Lopholatilus</i>	282	<i>Lyropecten nodosus</i>	68
<i>Lopholatilus chamaeleonticeps</i>	282	<i>Lysiosquilla</i>	105
LOPHOTIDAE	226	<i>Lysiosquilla scabricauda</i>	105
LORICARIIDAE	218	LYSIOSQUILLIDAE	104-105
Loro aletanegra	396		
Loro azul	392		
Loro basto	396		
Loro dientón	391		
Loro guacamayo	393		
Loro jabonero	391		
Loro listado	394		
Loro manchado	395		
Loro negro	392		
Loro pardo	396		
Loro perico	394		
Loro rayado	393		
Loro verde	395		
Loro viejo	397		
Loros	391		
Loutène commune	87		
Loutenes	87		
Louvar	247		
<i>lowei, Polymixia</i>	380		
Lucina tigre americana	65		
Lucinas	65		
Lucine tigrée américaine	65		
Lucines	65		
LUCINIDAE	55, 65		
<i>lugubris Caranx</i>	286		
<i>lugubris, Chascanopsetta</i>	274		
<i>lunatus, Bothus</i>	273		
Luria escamosa	87		
Luria ganchuda	93		
Lurias escamosas	87		
Lurias	93		
Luriones	93		
<i>luteus, Genyatremus</i>	330		
LUTJANIDAE	237, 350-357		
<i>Lutjanus</i>	351-355		
<i>Lutjanus ambiguus</i>	355		
<i>Lutjanus analis</i>	351		
<i>Lutjanus apodus</i>	352		
<i>Lutjanus buccanella</i>	352		
<i>Lutjanus cyanopterus</i>	352		
<i>Lutjanus griseus</i>	353		
<i>Lutjanus jocu</i>	353		
<i>Lutjanus mahogoni</i>	353		
<i>Lutjanus purpureus</i>	354		
<i>Lutjanus synagris</i>	354		
<i>Lutjanus vivanus</i>	354		
LUVARIDAE	247		
<i>Lycengraulis</i>	316		
<i>Lycengraulis batesii</i>	316		
<i>Lycengraulis grossidens</i>	316		
<i>Lycengraulis limnichthys</i>	316		
<i>Lycodontis</i>	368-369		
<i>Lycodontis funebris</i>	368		
<i>Lycodontis moringa</i>	368		
<i>Lycodontis polygonius</i>	369		
<i>Lycodontis vicinus</i>	368		
		M	
		Macabí	253
		Macabí de hebra	252
		Macabíes	252
		Macarela caballa	287
		Macarela chuparaco	287
		Macarela rabo colorado	288
		Macarela salmón	288
		<i>macarellus, Decapterus</i>	287
		Mâchoiron antenne	260
		Mâchoiron bressou	259
		Mâchoiron coco	260
		Mâchoiron couma	256
		Mâchoiron crucifix	258
		Mâchoiron grondé	257
		Mâchoiron jaune	257
		Mâchoiron kukwari	258
		Mâchoiron mamango	260
		Mâchoiron passany	258
		Mâchoiron pémeçou	257
		Mâchoiron petite-gueule	259
		Mâchoiron requin	256
		Mâchoirons	256
		Machuelo hebra atlántico	300
		Machuelos	298
		Mackerel scad	287
		Mackerel sharks	166, 180
		Mackerels	246, 414
		<i>Macrobrachium</i>	115-118
		<i>Macrobrachium acanthurus</i>	116
		<i>Macrobrachium amazonicum</i>	116
		<i>Macrobrachium carcinus</i>	117
		<i>Macrobrachium oifersii</i>	117
		<i>Macrobrachium surinamicum</i>	118
		<i>Macrocallista</i>	75
		<i>Macrocallista maculata</i>	75
		<i>macrocerus, Cantherhines</i>	359
		Macrociittids	229
		<i>Macrodon</i>	405
		<i>Macrodon ancyllodon</i>	405
		<i>macrophthalmus, Pristipomoides</i>	356
		<i>macropus, Octopus</i>	98
		<i>Macroramphosus</i>	357
		<i>Macroramphosus scolopax</i>	357
		MACRORHAMPHOSIDAE	230, 357
		<i>macrostomum, Haemulon</i>	333
		MACROURIDAE	221
		MACRUROCYTTIDAE	229
		Mactra alada	65
		Mactras	65
		Mactre ailée	65
		<i>Mactrellona</i>	65
		<i>Mactrellona alata</i>	65

Mactres	65	Marao machete	269
MACTRIDAE	55, 65	Marao ojón	270
<i>mactroides, Tivela</i>	76	Maraos	269
<i>maculata, Callista</i>	75	Marbled grouper	426
<i>maculata, Canthidermis</i>	265	Marbled puffer	449
<i>maculata, Macrocallista</i>	75	<i>marcida, Benthobatis</i>	208
<i>maculatus, Aulostomus</i>	264	<i>Margarita murex</i>	42
<i>maculatus, Pseudupeneus</i>	364	<i>marginatus, Callinectes</i>	160
<i>maculatus, Sphoeroides</i>	450	<i>margaritensis, Chicoreus (Phyllonotus)</i>	42
<i>maculiferus, Bothus</i>	273	<i>margaritensis, Phyllonotus</i>	42
<i>maculipinna, Halichoeres</i>	347	Margined flyingfish	318
<i>maculosa, Thalassophryne</i>	268	Margintail conger	304
<i>madagascariensis, Cassis</i>	36	<i>marianus, Holocentrus</i>	340
Madamango sea catfish	260	Marignon coq	339
Mafou	390	Marignon mombin	340
Mafous	390	Marignon soldat	340
Magister fourche	412	Marignons	339
Magister gris	412	<i>marina, Strongylura</i>	269
Magister tiyeux	412	MARINE TURTLES	457
<i>magistralis, Epinnula</i>	324	<i>marinus, Bagre</i>	260
<i>magoi, Stellifer</i>	413	Marlins	247, 342
Mahogany snapper	353	Marrajo carite	181
<i>mahogoni, Lutjanus</i>	353	Marrajo dientuso	180
MAJIDAE	151, 157	Marrajos	180
<i>Makaira</i>	343	Marsh clams	62
<i>Makaira nigricans</i>	343	<i>marsupialis, Glyphus</i>	122
Makaire bécune	343	<i>martinicensis, Holanthias</i>	425
Makaire blanc	343	<i>martinicus, Mulloidichthys</i>	363
Makaire bleu	343	Masked swimcrab	160
Makos	180	Matajuel blanc	358
MALACANTHIDAE	234, 358	Matajuelo	358
<i>Malacanthus</i>	358	Matajuelos	358
<i>Malacanthus plumieri</i>	358	Matajuels	358
Malacho	308	<i>maximus, Lachnolaimus</i>	347
Malachos	308	<i>media, Americardia</i>	61
Malarmados	378	<i>media, Sphyrna</i>	186
Malarmats	378	<i>media, Trigonocardia</i>	61
Mamselle caimuire	398	Medregal coronado	292
Mamselle rouio	398	Medregal guaimeque	293
Mamselles	397	Medregal limon	293
Mancha	204	Medregal listado	292
<i>manglae, Batrachoides</i>	267	<i>megalepis, Doratonotus</i>	346
Mangrove cupped oyster	67	<i>megalepis, Monolene</i>	277
<i>Manta</i>	201	MEGALOPIDAE	213, 358
Manta atlántica	201	Megalops shrimp	123
<i>Manta birostris</i>	201	<i>megalops, Thalassophryne</i>	268
Manta diablo	202	<i>megaptera, Octopoteuthis</i>	83
Manta negra	202	Mejillón barba de hacha	66
Manta rays	197	Mejillón de roca sudamericano	67
Mantas	197, 201	Mejillón escamoso	66
Mante atlantique	201	Mejillón fanguero de Guayana	66
Mantes	201	Mejillón tulipán	66
Manytooth conger	303	Mejillones	66
Manzanillera	299	<i>melanopterus, Eucinostomus</i>	327
Man-of-war fishes	248	<i>Melanorhinus</i>	263
Maquereau espagnol	416	<i>Melanorhinus microps</i>	262
Maquereaux	414	<i>melanurum, Haemulon</i>	334
Maracaibo leatherjack	289	<i>melanurus, Cypselurus</i>	318
Maracaibo swimcrab	160	<i>melasma, Scorpaena</i>	422
<i>maracaiboensis, Callinectes</i>	160	<i>Melichthys</i>	266
Marao de quilla	269	<i>Melichthys niger</i>	266
Marao lisero	270	<i>mellis, Pomacentrus</i>	385

<i>Melongena</i>	40	<i>mexicana</i> , <i>Liopropoma</i>	434
<i>Melongena antillana</i>	40	<i>mexicanus</i> , <i>Centropomus</i>	296
<i>Melongena melongena</i>	40	MICRODESMIDAE	245
<i>melongena</i> , <i>Melongena</i>	40	<i>microdon</i> , <i>Pristis</i>	204
<i>Melongena negra</i>	40	<i>microlepidotus</i> , <i>Cynoscion</i>	401
<i>Melongenas</i>	40	<i>microlepis</i> , <i>Anableps</i>	254
Mélongène des Caraïbes	40	<i>Micropogonias</i>	407
Mélongène noire	40	<i>Micropogonias furnieri</i>	407
Mélongènes	40	<i>Micropogonias undulatus</i>	407
MELONGENIDAE	32, 40	<i>microps</i> , <i>Melanorhinus</i>	262-263
Melva	415	<i>microps</i> , <i>Nebris</i>	408
Melvas	414	<i>microps</i> , <i>Stellifer</i>	411
Melvera	415	<i>Microspathodon</i>	385
<i>menezesi</i> , <i>Anthias</i>	424	<i>Microspathodon chrysurus</i>	385
Menhadens	214, 298	<i>micrura</i> , <i>Gymnura</i>	201
<i>Menticirrhus</i>	406	<i>micrurum</i> , <i>Syacium</i>	278
<i>Menticirrhus americanus</i>	406	Midnight parrotfish	392
<i>Menticirrhus littoralis</i>	406	Midshipmen	223, 266
Méran marbré	426	Migraine bouclée	153
Mérans	423	Migraine flamboyante	153
<i>Meristiella</i>	27	Migraine globuleuse	155
<i>Meristiella gelidium</i>	27	Migraine jaune	154
Merlans	321	Migraine ocellée	154
Merlu argenté du large	359	Migraine ornementée	154
MERLUCCIIDAE	221, 358-359	Migraine pointillée	155
<i>Merluccius</i>	359	<i>miliaris</i> , <i>Muraena</i>	369
<i>Merluccius albidus</i>	221, 359	Milk conch	45
Merlus	358	<i>miniatum</i> , <i>Peristedion</i>	378
Merluza blanca de altura	359	<i>minutus</i> , <i>Citharichthys</i>	275
Merluzas	358	Miracielo espinoso	454
Mero aleta amarilla	427	Miracielo pintado	454
Mero americano	428	Miracielos	454
Mero bandera	430	Mirrowing flyingfish	319
Mero cabrilla	427	Misty grouper	429
Mero colorado	428	<i>Mithrax</i>	157
Mero guasa	428	<i>Mithrax spinosissimus</i>	157
Mero listado	429	<i>Mitsukurina</i>	181
Mero mármol	426	<i>Mitsukurina owstoni</i>	181
Mero negro	429	MITSUKURINIDAE	166, 181
Mero rojo	428	<i>Mobula</i>	202
Mero viejo	435	<i>Mobula hypostoma</i>	202
Meros	423	MOBULIDAE	197, 201-202
Mérou aîle jaune	427	Modiole écailleuse	66
Mérou bandière	430	Modiole tulipe	66
Mérou brouillard	429	Modioles	66
Mérou couronné	428	<i>Modiolus</i>	66
Mérou géant	428	<i>Modiolus americanus</i>	66
Mérou neige	429	<i>Modiolus modiolus</i>	66
Mérou oualicoua	427	<i>modiolus</i> , <i>Modiolus</i>	66
Mérou polonais	429	<i>Modiolus pseudotulipus</i>	66
Mérou rayé	430	<i>Modiolus squamosus</i>	66
Mérou rouge	428	<i>Modiolus tulipa</i>	66
Mérous	423	Mojarra blanca	328
<i>Mesopaeneus</i>	130	Mojarra cagüicha	325
<i>Mesopaeneus tropicalis</i>	130	Mojarra caitipa	325
Messorius murex	41	Mojarra del Brasil	327
<i>messorius</i> , <i>Haustellum</i>	41	Mojarra rayada	328
<i>messorius</i> , <i>Murex</i>	41	Mojarras	237, 324
<i>Metanephrops</i>	139	Mojarrita cubana	326
<i>Metanephrops binghami</i>	139	Mojarrita de ley	327
Mexican flounder	276	Mojarrita española	326
Mexican snook	296	Mojarrita plateada	326

<i>mokarran, Sphyrna</i>	187	<i>Mugil hospes</i>	362
Molas	250	<i>Mugil incilis</i>	362
MOLIDAE	250	<i>Mugil liza</i>	363
Molleras	360	<i>Mugil trichodon</i>	363
<i>mollis, Alloposus</i>	96	MUGILIDAE	241, 361-363
MONACANTHIDAE	250, 359-360	MUGILOIDEI	241
<i>Monocanthus</i>	360	Mulet blanc	361
<i>Monocanthus ciliatus</i>	360	Mulet cabot	361
<i>Monocanthus tuckeri</i>	360	Mulet éventail	363
<i>monodi, Lophiodes</i>	349	Mulet hospe	362
<i>monoceros, Aluterus</i>	359	Mulet lébranche	363
<i>monodi, Erythrocles</i>	309	Mulet mignon	362
<i>Monolene</i>	277	Mulet oeil rouge	362
<i>Monolene antillarum</i>	277	Mulet parassi	362
<i>Monolene atrimana</i>	277	Mulets	361
Monolène du large	277	Mullets	241, 361
<i>Monolene megalepis</i>	277	MULLIDAE	239, 363-364
<i>Monolene sessilicauda</i>	277	<i>Mulloidichthys</i>	363
Monolènes	271	<i>Mulloidichthys martinicus</i>	363
<i>Monostroma oxysperma</i>	19	<i>Mullus</i>	364
Moras	220-221, 360	<i>Mullus auratus</i>	364
Morays	214-215, 366	<i>multilineata, Chromis</i>	385
<i>mordax, Echiopsis</i>	372	Muñamas	324
Morena amarilla	368	<i>Muraena</i>	369
Morena cadeneta	366	<i>Muraena miliaris</i>	369
Morena congrio	368	<i>Muraena robusta</i>	369
Morena dorada	369	MURAENESOCIDAE	215, 365
Morena franjeada	366	MURAENIDAE	215, 366-370
Morena negra	367	Murène anneau	366
Morena pintada	368	Murène dorée	369
Morena rayada	366	Murène enchainée	366
Morena robusta	369	Murène jaune	368
Morenas	366	Murène noire	367
Morénésoce congré	365	Murène robuste	369
Morénésoces	365	Murène tachetée	368
Morenocio guayanés	365	Murène verte	368
Morenocios	365	Murènes	366
<i>moricandi, Anisotremus</i>	330	Murex	40,
MORIDAE	221, 360	<i>Murex bellus</i>	41
<i>moringa, Lycodontis</i>	368	Murex bouche blanche	41
MORINGUIDAE	215	Murex bouche d'or	41
<i>morio, Epinephelus</i>	428	<i>Murex brevifrons</i>	40
<i>morio, Pugilina</i>	40	<i>Murex chrysostoma</i>	41
Moro imberbe	360	Murex de Moore	41
Moros	360	<i>Murex donmoorei</i>	41
Morrues	321	<i>Murex imperialis</i>	42
Mossy ark	60	Murex marguérite	42
Mottled flounder	273	<i>Murex messorius</i>	41
Moule de Guyane	66	<i>Murex pomum</i>	42
Moule de roche sudaméricaine	67	Murex shells	40
Moule hachette	66	<i>muricatum, Trachycardium</i>	62
Moules	66	<i>muricatum, Vasum</i>	47
Mourine américaine	204	MURICIDAE	32, 40-42
Mourines	202	<i>murrayi, Cirrothauma</i>	94
Mouse cone	37	<i>mus, Conus</i>	37
<i>mowbrayi, Liopropoma</i>	434	<i>muscifformis, Hypnea</i>	26
<i>mucronatus, Odontognathus</i>	389	<i>musica, Voluta</i>	49
<i>Mugil</i>	361-363	Musola dientuda	191
<i>Mugil cephalus</i>	361	Musola viuda	192
<i>Mugil curema</i>	361-362	Musolas	190
<i>Mugil curvidens</i>	362	Mussels	66
<i>Mugil gaimardianus</i>	362	Musso atlantique	291

Musso lune	291	<i>naucrates, Echeneis</i>	307
Musso panache	291	Navaja antillana	72
<i>Mustelus</i>	190-192	Navajas	72
<i>Mustelus canis</i>	191	Navajón azul	252
<i>Mustelus higmani</i>	191	Navajón cirujano	251
<i>Mustelus norrisi</i>	192	Navajón pardo	251
Mutton hamlet	425	Navajones	251
Mutton snapper	351	<i>Nealotus</i>	324
<i>Mycteroperca</i>	430-433	<i>Nealotus tripes</i>	324
<i>Mycteroperca bonaci</i>	431	<i>Nebriis</i>	408
<i>Mycteroperca cidi</i>	431	<i>Nebriis microps</i>	408
<i>Mycteroperca interstitialis</i>	431	<i>nebulosus, Conus</i>	37
<i>Mycteroperca phenax</i>	432	<i>necopina, Solenocera</i>	131
<i>Mycteroperca rubra</i>	432	<i>Nectoteuthis pourtalesi</i>	80
<i>Mycteroperca tigris</i>	432	Needlefishes	224-225, 269
<i>Mycteroperca venenosa</i>	433	<i>Negaprion</i>	177
MYCTOPHIDAE	220	<i>Negaprion brevirostris</i>	177
MYCTOPHIFORMES	220	<i>neglecta, Nephropsis</i>	141
<i>mydas mydas, Chelonia</i>	459	<i>Nematopalaemon</i>	118
<i>mydas, Chelonia mydas</i>	459	<i>Nematopalaemon schmitti</i>	118
MYLIOBATIDAE	197, 202-204	<i>nematophthalmus, Pontinus</i>	421
<i>Myliobatis</i>	203	<i>nemoptera, Albula</i>	252
<i>Myliobatis freminvillei</i>	203	<i>Neoepinnula</i>	323
<i>Myliobatis goodei</i>	203	<i>Neoepinnula orientalis</i>	323
MYLIOBATOIDEI	196	<i>Neomerinthe</i>	423
<i>myops, Trachinocephalus</i>	447	Neon flying squid	91
MYOPSIDA	82	NEOSCOPELIDAE	220
<i>Myrichthys</i>	372-373	Neoscopelids	220
<i>Myrichthys acuminatus</i>	373	<i>nephelus, Sphoeroides</i>	450
<i>Myrichthys oculatus</i>	373	NEPHROPIDAE	134, 137-141
<i>Myripristis</i>	340	<i>Nephropides</i>	139
<i>Myripristis jacobus</i>	340	<i>Nephropides caribaeus</i>	139
MYROPHINAE	370	<i>Nephropsis</i>	140-141
<i>Myrophis</i>	370	<i>Nephropsis aculeata</i>	140
<i>Myrophis platyrhynchus</i>	370	<i>Nephropsis agassizii</i>	141
<i>Myrophis punctatus</i>	370	<i>Nephropsis neglecta</i>	141
<i>mystacinus, Epinephelus</i>	429	<i>Nephropsis rosea</i>	141
<i>Mytella</i>	66	Nerita	43
<i>Mytella charruana</i>	66	Nerita diente sangrante	43
<i>Mytella falcata</i>	66	Nerita peloronta	43
<i>Mytella guyanensis</i>	66	Neritas	43
<i>Mytella strigata</i>	66	Nérite dent saignante	43
MYTILIDAE	55, 66-67	Nérites	43
		NERITIDAE	32, 43
		Netted olive	43
		<i>neucratoides, Echeneis</i>	308
		New Granada sea catfish	256
		New Grenade drum	411
		<i>nicholsi, Anthias</i>	424
		<i>Nicholsina</i>	391
		<i>Nicholsina usta</i>	391
		<i>niger, Melichthys</i>	266
		Night sergeant	384
		Night shark	175
		<i>nigricans, Enchelycore</i>	367
		<i>nigricans, Hypoplectrus</i>	435
		<i>nigricans, Makaira</i>	343
		<i>nigritus, Epinephelus</i>	429
		<i>nigromarginatus, Gymnothorax</i>	367
		<i>nimbosa, Fissurella</i>	39
		<i>nimius, Pseudomyrophis</i>	370
		<i>nitens, Ceramium</i>	27
N			
Naked sole	439		
<i>Nanichthys</i>	414		
<i>Nanichthys simulans</i>	414		
<i>Narcine</i>	208		
<i>Narcine brasiliensis</i>	208		
NARCININAE	195		
<i>narinari, Aetobatus</i>	202		
Narrow-striped anchovy	310		
Narrowfin smooth-hound	192		
<i>naso, Stellifer</i>	413		
<i>nassa, Leucozonia</i>	38		
Nassau grouper	430		
<i>nattereri, Thalassophryne</i>	268		
<i>Naucrates</i>	289		
<i>Naucrates ductor</i>	289		

<i>nitida</i> , <i>Calappa</i>	154	<i>Octopus defilippi</i>	99
<i>niveatus</i> , <i>Epinephelus</i>	429	<i>Octopus hummelincki</i>	99
<i>nobiliana</i> , <i>Torpedo</i>	208	<i>Octopus joubini</i>	98
<i>nobilis</i> , <i>Charonia</i>	44	<i>Octopus longimanus</i>	98
<i>nobilis</i> , <i>Conodon</i>	330	<i>Octopus macropus</i>	98
<i>nobilis</i> , <i>Polymixia</i>	380	<i>Octopus vincenti</i>	97
Nodose box crab	153	<i>Octopus vulgaris</i>	98
<i>nodosus</i> , <i>Lyropecten</i>	68	<i>Octopus zonatus</i>	99
<i>nodosus</i> , <i>Pseudauchenipterus</i>	264	Octopuses	94, 97
NOMEIDAE	248	<i>oculatus</i> , <i>Etelis</i>	351
<i>normani</i> , <i>Saurida</i>	446	<i>oculatus</i> , <i>Myrichthys</i>	373
<i>norrisi</i> , <i>Mustelus</i>	192	<i>oculellus</i> , <i>Symphurus</i>	306
Northern bluefin tuna	419	<i>oculofrenum</i> , <i>Porichthys</i>	268
<i>northropi</i> , <i>Palaemon</i>	119	OCYPODIDAE	152, 157
<i>notabilis</i> , <i>Anadara</i>	60	<i>Ocyurus</i>	355
NOTACANTHIDAE	216	<i>Ocyurus chrysurus</i>	355
NOTACANTHIFORMES	216	<i>Odontognathus</i>	389
<i>notialis</i> , <i>Penaeus (Farfantepenaeus)</i>	125	<i>Odontognathus compressus</i>	389
<i>notospilus</i> , <i>Serranus</i>	436	<i>Odontognathus mucronatus</i>	389
<i>novacula</i> , <i>Hemipteronotus</i>	347	<i>Odontoscion</i>	397, 402, 408
<i>novacula</i> , <i>Xirichthys</i>	347	<i>Odontoscion dentex</i>	408
<i>nuchalis</i> , <i>Thysanoteuthis</i>	93	OEGOPSIDA	83
<i>nudus</i> , <i>Gymnachirus</i>	439	Offshore silver hake	359
Nurse shark	182	OGCOEPHALIDAE	224
Nurse sharks	166, 182	<i>oglinum</i> , <i>Opisthonema</i>	300
		Oilfish	323
		Oilfishes	246, 322
O		<i>offersii</i> , <i>Macrobrachium</i>	117
Oarfishes	226	<i>oligodon</i> , <i>Polydactylus</i>	381
<i>obesus</i> , <i>Thunnus</i>	419	<i>Oligoplites</i>	289-290
Obispo	402	<i>Oligoplites saliens</i>	289
Obispo coronado	403	<i>Oligoplites palometa</i>	289
Obispo estrellado	403	<i>Oligoplites saurus</i>	290
Obispo lucio	403	<i>olisthostomus</i> , <i>Diapterus</i>	325
Obispos	397	<i>Oliva</i>	43
<i>obliquus</i> , <i>Solen</i>	72	<i>Oliva escribana</i>	43
<i>obscurus</i> , <i>Carcharhinus</i>	173	<i>Oliva litterata</i>	43
<i>obscurus</i> , <i>Scymnodon</i>	189	<i>Oliva reticulada</i>	43
<i>obtusirostris</i> , <i>Exocoetus</i>	319	<i>Oliva reticularis</i>	43
Ocean surgeon	251	<i>Oliva sayana</i>	43
Oceanic two-wing flyingfish	319	<i>olivacea</i> , <i>Lepidochelis</i>	460
Oceanic whitetip shark	173	Olivas	43
<i>ocellata</i> , <i>Calappa</i>	154	Olive écriture	43
<i>ocellata</i> , <i>Zenopsis</i>	456	Olive réticulée	43
Ocellated box crab	154	Olive shells	43
<i>ocellatus</i> , <i>Bothus</i>	273	Olives	43
<i>ocellatus</i> , <i>Gymnothorax</i>	367	OLIVIDAE	33, 43
<i>ocellatus</i> , <i>Ophichthus</i>	373	Ombrine pétote	413
Ochavo	283	Ombrine rayé	413
Ochavo redondo	283	Ommastrephes	91-92
Ochavos	229, 282	<i>Ommastrephes bartrami</i>	91
<i>octonemus</i> , <i>Polydactylus</i>	380-381	<i>Ommastrephes pteropus</i>	92
OCTOPODA	94	OMMASTREPHIDAE	86, 90
OCTOPODIDAE	95, 97-101	<i>omostigmum</i> , <i>Otophidium</i>	376
OCTOPOTEUTHIDAE	83	ONYCHOTEUTHIDAE	84, 93
<i>Octopoteuthis megaptera</i>	83	<i>Onychoteuthis</i>	84, 93
<i>Octopus</i>	97-99	<i>Onychoteuthis banksi</i>	84, 93
<i>Octopus bermudensis</i>	98	Opa	348
<i>Octopus briareus</i>	97	Opah	348
<i>Octopus burryi</i>	97	Opahs	226, 348
<i>Octopus chromatus</i>	98	Opas	348
		OPHICHTHIDAE	215, 370-374

OPHICHTHINAE	371	<i>Oxynotus caribbaeus</i>	182
<i>Ophichthus</i>	373-374	<i>oxyrhynchus, Isogomphodon</i>	176
<i>Ophichthus gomesi</i>	373	<i>oxyrinchus, Isurus</i>	180
<i>Ophichthus ocellatus</i>	373	<i>oxysperma, Gayralia</i>	19
<i>Ophichthus ophis</i>	373	<i>oxysperma, Monostroma</i>	19
<i>Ophichthus parilus</i>	374	<i>oxysperma, Ulvaria</i>	19
<i>Ophichthus spinicauda</i>	374	Oysters	67
OPHIDIIDAE	222, 374-376		
OPHIDIIFORMES	222	P	
<i>Ophidion</i>	376	<i>pachigaster, Sphoeroides</i>	450
<i>Ophidion holbrooki</i>	376	Pacific ridley turtle	460
<i>ophioneus, Ichthyapus</i>	372	Pacuma toadfish	267
<i>Ophioscion</i>	408	Pagre comun	443
<i>Ophioscion punctatissimus</i>	408	Pagres	440
<i>Ophioscion</i> sp.	408	<i>Pagrus</i>	443
<i>ophis, Ophichthus</i>	373	<i>Pagrus pagrus</i>	443
<i>ophryas, Prionotus</i>	452	<i>pagrus, Pagrus</i>	443
<i>Opisthonema</i>	300	Paguara	317
<i>Opisthonema oglinum</i>	300	Paguaras	317
OPISTHOTEUTHIDAE	95	Painted river prawn	117
<i>Opisthoteuthis agassizi</i>	95	<i>Palaemon</i>	119
OPISTOGNATHIDAE	243	<i>Palaemon northropi</i>	119
<i>oplophoroides, Exhippolysmata</i>	115	<i>Palaemon pandaliformis</i>	119
Orangeback flying squid	92	PALAEEMONIDAE	112, 115-119
Orangespot sardine	301	Palespotted eel	373
<i>orbicularis, Codakia</i>	65	Paletas	280, 358
<i>orbisulcus, Trichopsetta</i>	280	<i>Palinurellus</i>	147
ORECTOLOBIDAE	166, 182	<i>Palinurellus gundlachi</i>	147
ORECTOLOBIFORMES	166	PALINURIDAE	135, 142
<i>oregonae, Benthoctopus</i>	100	<i>Palinustus</i>	142
<i>orientalis, Neoepinnula</i>	323	<i>Palinustus truncatus</i>	142
Ornamented boxcrab	154	<i>pallida, Loligo</i>	88
<i>ornatus, Callinectes</i>	160	Palometa	295
<i>Ornithoteuthis</i>	92	Palometa mono	445
<i>Ornithoteuthis antillarum</i>	92	Palometa pámpano	445
Orphie carénée	269	Palometa pompano	295
Orphie plate	269	<i>palometa, Oligoplites</i>	289
Orphies	269	Palometas	445
<i>Orthopristis</i>	336	Palomines	283
<i>Orthopristis ruber</i>	336	Pámpano amarillo	294
<i>Ostichthys</i>	341	Pámpano de hebra	284
<i>Ostichthys trachypoma</i>	341	Pámpano listado	295
Ostión de mangle	67	Pámpano palometa	294
Ostiones	67	Pámpano zapatero	294
Ostra espinosa Atlántica	72	Pámpanos	283
Ostra perlífera Atlántica	71	Panchito alargado	356
OSTRACIIDAE	377-378	Panchito menudo	356
Ostras	67	Panchito ojón	356
Ostras espinosas	72	Panchito voraz	355
Ostras perlíferas	71	Panchitos	350
Ostrege plate	64	PANDALIDAE	112, 120-122
Ostrèges	64	<i>pandaliformis, Palaemon</i>	119
OSTREIDAE	56	<i>Panulirus</i>	143-144
<i>Otophidium</i>	376	<i>Panulirus argus</i>	143
<i>Otophidium omostigmum</i>	376	<i>Panulirus guttatus</i>	144
<i>otophorus, Pomacentrus</i>	385	<i>Panulirus laevicauda</i>	144
Ovarque de Floride	42	Papardas	414
<i>owstoni, Mitsukurina</i>	181	Paper moon scallop	67
Oxynote des Caraibes	182	<i>paphia, Chione</i>	74
Oxynotes	182	<i>papillosa, Laurencia</i>	28
OXYNOTIDAE	165-182		
<i>Oxynotus</i>	182		

<i>papillosum, Syacium</i>	279	Pastenague americana	198
<i>papyraceum, Amusium</i>	67	Pastenague becune	199
<i>Parabathymyrus</i>	304	Pastenague chupare	200
<i>Paraconger</i>	304	Pastenague des iles	198
<i>Paraconger caudilimbatis</i>	304	Pastenague longnez	199
<i>Paralabrax</i>	435	Pastenagues	198
<i>Paralabrax dewegeri</i>	435	<i>patagonica, Atrina</i>	70
PARALEPIDIDAE	219	Patudo	419
<i>Paralichthys</i>	277	Patudos	414
<i>Paralichthys tropicus</i>	277	<i>pauciradiatus, Porichthys</i>	268
<i>parallelus, Centropomus</i>	297	<i>paucus, Isurus</i>	181
<i>Paralonchurus</i>	409	<i>paulistanus, Trinectes</i>	439
<i>Paralonchurus brasiliensis</i>	409	Peacock flounder	273
<i>Paralonchurus elegans</i>	409	<i>pealei, Loligo</i>	88
<i>Paranthias</i>	433	Pearlfishes	222
<i>Paranthias furcifer</i>	433	Pearl oysters	71
<i>Parapandalus longicauda</i>	122	Pearly razorfish	347
<i>Parapenaeus</i>	123	Peau bleue	177
<i>Parapenaeus politus</i>	123	Peces aceitosos	322
Parassi mullet	362	Peces espada	454
<i>Paraxenomystax</i>	365	Peces guitarra	207
<i>Paraxenomystax bidentatus</i>	365	Peces sable	450
<i>Pareques acuminatus</i>	402	Peces sierra	204
<i>Parexcoetus</i>	320	Peces vela	342
<i>Parexocoetus brachypterus</i>	320	Peces zorro	168
<i>Parexocoetus gibbifrons</i>	320	Pecten	69
Pargo	443	<i>Pecten ziczac</i>	69
Pargo amarillo	352	<i>pectinata, Pristis</i>	205
Pargo bijajaiba	354	<i>pectinatus, Centropomus</i>	297
Pargo cachucho	351	PECTINIDAE	56, 67-69
Pargo colorado	354	Pega aletablanca	308
Pargo criollo	351	Pegas	307
Pargo cubera	352	Pegatimón	307
Pargo cunaro	356	Peigne baie de l'Atlantique	68
Pargo de lo alto	354	Peigne calicot	68
Pargo jocú	353	Peigne papyrus	67
Pargo mulato	350	Peigne zigzag	69
Pargo ojón	353	Peignes	67
Pargo prieto	353	Peine caletero atlántico	68
Pargo sesí	352	Peine caletero radiante	68
Pargos	350, 440	Peine percal	68
Parguito	357	Peines	67
<i>parilus, Ophichthus</i>	374	Pejegatos	183
<i>parkeri, Arius</i>	257	Pejepeine	205
<i>Parophidion</i>	376	Pejepeines	204
<i>Parophidion schmidti</i>	376	Pejepuerco blanco	265
<i>parrai, Clepticus</i>	345	Pejepuerco cachuo	265
<i>parrai, Haemulon</i>	334	Pejepuercos	264
<i>Parribacus</i>	145	Pejerreyes	262
<i>Parribacus antarcticus</i>	145	Pejesierra	204
Parrotfishes	243, 391	Pejesierras	204
<i>parthenopeum, Cymatium</i>	44	Pélamides	414
<i>partitus, Pomacentrus</i>	385	<i>pelamis, Katsuwonus</i>	416
<i>paru, Pomacanthus</i>	383	Pelican flounder	274
<i>parva, Anchoa</i>	311	<i>pelicanus, Symphurus</i>	306
<i>parvipinnis, Apristurus</i>	183	<i>Pellona</i>	389-390
<i>parvipinnis, Isopisthus</i>	404	<i>Pellona flavipinnis</i>	390
<i>parvula, Jenkinsia</i>	299	<i>Pellona harroweri</i>	390
<i>parvus, Upeneus</i>	364	Pellonas	213-214, 388
PASIPHAEIDAE	112, 122	<i>peloronta, Nerita</i>	43
Passany sea catfish	258	Pemecou sea catfish	257
<i>passany, Arius</i>	258	PEMPHERIDIDAE	240

<i>Pempheris schomburgki</i>	240	Peto	414
Pen shells	69	Pétoncle calicot	68
PENAEIDAE	109, 123	Pétoncle patte de lion	68
PENAEIDEA	109	Pétoncle rayonnant	68
<i>Penaeopsis</i>	123	Pétoncles	67
<i>Penaeopsis serrata</i>	123	Petos	414
<i>Penaeus</i>	124-126	Petota	306
<i>Penaeus (Farfantepenaeus) brasiliensis</i>	124	Petotas	306
<i>Penaeus (Farfantepenaeus) notialis</i>	125	Pétote	306
<i>Penaeus (Farfantepenaeus) subtilis</i>	126	Pétotes	306
<i>Penaeus (Litopenaeus) schmitti</i>	125	<i>petricola, Scorpaena</i>	422
<i>penna, Calamus</i>	442	<i>peulla, Hypoplectrus</i>	435
<i>pennatula, Calamus</i>	442	Pez espada	455
<i>Peprilus</i>	445	Pez piloto	289
<i>percellens, Rhinobatos</i>	208	Pez sable	451
<i>Peprilus paru</i>	445	Pez vela del Atlántico	342
PERCIFORMES	232	<i>pfluegeri, Tetrapturus</i>	343
PERCOIDEI	232	PHAEOPHYTA	21-22
PERCOPHIDAE	243	<i>Phenacoscorpius</i>	423
<i>perezi, Carcharhinus</i>	174	<i>phenax, Mycteroperca</i>	432
<i>perfasciata, Anchoviella</i>	315	<i>pheromystax, Lepophidium</i>	375
<i>Periglypta</i>	75	Philippi's spindle	38
<i>Periglypta listeri</i>	75	<i>phoebe, Serranus</i>	436
PERISTEDIIDAE	232, 378	PHOLADIDAE	56, 69
<i>Peristedion</i>	378	<i>Pholidoteuthis</i>	84, 87
<i>Peristedion miniatum</i>	378	<i>Pholidoteuthis adami</i>	84, 87
Perla aleta negra	375	<i>phrygiatus, Arius</i>	258
Perla barbacorta	375	<i>Phtheirichthys</i>	308
Perla de banco	376	Phycis	321
Perla lucia	375	Phycis du Golfe	321
Perla pintada	375	<i>Phyllonotus</i>	42
Perlas	374	<i>Phyllonotus margaritensis</i>	42
Permit	294	<i>Phyllonotus pomum</i>	42
<i>Perna</i>	67	<i>pica, Cittarium</i>	46
<i>Perna perna</i>	67	PICKFORDIATEUTHIDAE	82
<i>perna, Perna</i>	67	<i>Pickfordiateuthis pulchella</i>	82
<i>pernula, Pinna</i>	70	<i>pictus, Diplobatis</i>	208
<i>perotteti, Pristis</i>	204	<i>pictus, Halichoeres</i>	347
Perpeire	276	<i>pictus, Pomacentrus</i>	385
Perpeire à queue tachetée	276	Picuda barracuda	444
Perpeire des Caraïbes	279	Picuda china	444
Perpeires	271	Picuda guachanche	444
Perroquet à lèvres bleue	391	Picudas	443
Perroquet aile-noire	396	<i>picudilla, Sphyaena</i>	444
Perroquet arc-en ciel	393	Pieuvre	98
Perroquet basto	396	Pieuvres	97
Perroquet bleue	392	Pigmy octopus	98
Perroquet émeraude	391	Pike congers	214, 365
Perroquet feu	397	<i>pillsburyae, Euaxoctopus</i>	100
Perroquet noir	392	Pilotfish	289
Perroquet périco	394	Pilotfishes	235, 283
Perroquet princesse	394	Pimelodid catfishes	217, 379
Perroquet rayé	393	PIMELODIDAE	217, 379
Perroquet tacheté	395	<i>Pimelodus</i>	379
Perroquet vert	395	<i>Pimelodus blochii</i>	379
Perroquets	391	Pina ámbar	70
Pescadilla real	405	Pina áspera	70
Pescadillas	397	Pina reina	70
Petaca rayada	384	Pina semilisa	70
Petaca rezobada	384	Pina tiesa	69
Petacas	384	Pinas	69
<i>petimba, Fistularia</i>	321	<i>Pinctada</i>	71

<i>Pinctada imbricata</i>	71	<i>plumieri, Eugerres</i>	328
Pink conch	45	<i>plumieri, Haemulon</i>	334
Pinkspeckled shrimp	123	<i>plumieri, Malacanthus</i>	358
Pinkspotted shrimp	124	<i>plumieri, Scorpaena</i>	422
<i>Pinna</i>	70	<i>plumosa, Bryopsis</i>	20
<i>Pinna carnea</i>	70	POECILIIDAE	225
<i>Pinna ferruginosa</i>	70	Poey's anchovy	315
<i>Pinna pernula</i>	70	<i>poeyi, Cruriraja</i>	207
<i>Pinna rudis</i>	70	<i>poeyi, Halichoeres</i>	347
Pinne demi-lisse	70	<i>poeyi, Synodus</i>	447
Pinne raide	69	<i>Pogonias</i>	410
PINNIDAE	57, 69-70	<i>Pogonias cromis</i>	410
Pintarroja rabolija	184	Poisson chèvre	380
Pintarrojas	183	Poisson chèvre robuste	380
Pipefishes	230-231	Poisson pilote	289
Pipones	306	Poisson rubis	309
<i>piquitinga, Lile</i>	300	Poisson sabre commun	451
Piquitingas	298	Poisson-papier dentu	388
<i>Pitar</i>	75	Poisson-papier guyanais	389
<i>Pitar dione</i>	75	Poisson-papier vénézuélien	389
Pitar éclair	76	Poisson-sabre de canal	451
<i>Pitar fulminatus</i>	76	Poisson-scie grand-dent	204
Pitar royal	75	Poisson-scie tident	205
Pitars	74	Poisson-violon	208
<i>Plagioscion</i>	410	Poissons à barbe	380
<i>Plagioscion squamosissimus</i>	410	Poissons renard	168
<i>plagusia, Symphurus</i>	306	Poissons rubis	309
<i>planifrons, Pomacentrus</i>	385	Poissons sabre	450
<i>planorbis, Scyllarus</i>	147	Poissons-guitarre	207
<i>Platybelone</i>	269	Poissons-papier	298, 388
<i>Platybelone argalus argalus</i>	269	Poissons-pilote	283
<i>platyrhynchus, Myrophis</i>	370	Poissons-scie	204
<i>Platystacus</i>	262	Poissons-violon	207
<i>Platystacus cotylephorus</i>	262	<i>politus, Parapenaeus</i>	123
<i>platyventris, Aprognathodon</i>	371	POLYCHELIDAE	135
<i>plebeius, Tagelus</i>	72	<i>Polychelis</i>	135
<i>plectrodon, Porichthys</i>	268	<i>Polychelis typhlops</i>	135
<i>Plectrypops</i>	341	<i>Polydactylus</i>	381
<i>Plectrypops retrospinis</i>	341	<i>Polydactylus octonemus</i>	380-381
Plegoneros	321	<i>Polydactylus oligodon</i>	381
<i>plei, Doryteuthis</i>	87	<i>Polydactylus virginicus</i>	381
<i>plei, Loligo</i>	87	<i>polygonius, Lactophrys</i>	377
<i>Pleoticus</i>	131	<i>polygonius, Lycodontis</i>	369
<i>Pleoticus robustus</i>	131	<i>Polymesoda</i>	62-63
<i>Plesionika</i>	120	<i>Polymesoda aequilatera</i>	62
<i>Plesionika acanthonotus</i>	120	<i>Polymesoda arctata</i>	63
<i>Plesionika edwardsii</i>	121	<i>Polymesoda triangula</i>	63
<i>Plesionika ensis</i>	121	<i>Polymixia</i>	380
<i>Plesionika longicauda</i>	122	<i>Polymixia lowei</i>	380
<i>Plesiopenacus</i>	114	<i>Polymixia nobilis</i>	380
<i>Plesiopenaeus edwardsianus</i>	114	POLYMIXIIDAE	228, 380
PLEURONECTIDAE	248	POLYNEMIDAE	242, 380-381
PLEURONECTIFORMES	248	POLYNEMOIDEI	242
Pluma aleta negra	442	POMACANTHIDAE	241, 382-383
Pluma bajonado	441	<i>Pomacanthus</i>	382-383
Pluma cachicato	442	<i>Pomacanthus arcuatus</i>	383
Pluma cálamo	441	<i>Pomacanthus paru</i>	383
Pluma de charco	442	POMACENTRIDAE	241, 384-385
Pluma plumilla	442	<i>Pomacentrus</i>	385
Pluma porgy	442	<i>Pomacentrus dienaecus</i>	385
Plumas	440	<i>Pomacentrus dorsopunicans</i>	385
<i>plumbeus, Carcharhinus</i>	174	<i>Pomacentrus fuscus</i>	385

<i>Pomacentrus leucostictus</i>	385	Poulpe ris	97
<i>Pomacentrus mellis</i>	385	Poulpe tacheté	98
<i>Pomacentrus otophorus</i>	385	Poulpes	97
<i>Pomacentrus partitus</i>	385	Pourceau dos noir	345
<i>Pomacentrus pictus</i>	385	Pourceau espagnol	345
<i>Pomacentrus planifrons</i>	385	Pourceaux	344
<i>Pomacentrus rocasensis</i>	385	Pourpre deltoïde	42
<i>Pomacentrus variabilis</i>	385	Pourpres	40
<i>Pomadasy</i>	336-337	<i>pourtalesi, Nectoteuthis</i>	80
<i>Pomadasy corvinaeformis</i>	336	Praire calico	75
<i>Pomadasy croco</i>	337	Praire princesse	75
POMATOMIDAE	235, 386	Praire rigide	76
<i>Pomatomus</i>	386	Praires	74
<i>Pomatomus saltatrix</i>	386	<i>pretiosus, Ruvettus</i>	323
Pomfrets	236	PRIACANTHIDAE	234, 386-388
Pompaneau cordonnier	294	<i>Priacanthus</i>	387
Pompaneau guatie	295	<i>Priacanthus arenatus</i>	387
Pompaneau plume	294	<i>Priacanthus cruentatus</i>	387
Pompaneau sole	294	Prickly brown ray	206
Pompaneaux	283	Prickly lobsterette	141
Pompano dolphinfish	304	Princess parrotfish	394
Pompanos	235, 283	Princess venus	75
<i>pomum, Chicoreus (Phyllonotus)</i>	42	<i>Prionace</i>	177
<i>pomum, Murex</i>	42	<i>Prionace glauca</i>	177
<i>pomum, Phyllonotus</i>	42	<i>Prionotus</i>	452-453
Pond perch	435	<i>Prionotus beani</i>	452
<i>Pontinus</i>	420-421	<i>Prionotus ophryas</i>	452
<i>Pontinus castor</i>	420	<i>Prionotus punctatus</i>	453
<i>Pontinus corallinus</i>	421	<i>Prionotus roseus</i>	453
<i>Pontinus helena</i>	421	<i>Prionotus rubio</i>	453
<i>Pontinus longispinis</i>	421	<i>Prionotus stearnsi</i>	453
<i>Pontinus nematophthalmus</i>	421	PRISTIDAE	195, 204-205
<i>Pontinus rathbuni</i>	421	PRISTIGASTERIDAE	214, 388-390
Porbeagles	166, 180	<i>Pristipomoides</i>	355-356
Porcupinefishes	250	<i>Pristipomoides aquilonaris</i>	355
Porgies	238, 440	<i>Pristipomoides freemani</i>	356
<i>Porichthys</i>	267-268	<i>Pristipomoides macrophthalmus</i>	356
<i>Porichthys bathoiketes</i>	268	<i>Pristis</i>	204-205
<i>Porichthys kymosemeum</i>	268	<i>Pristis microdon</i>	204
<i>Porichthys oculofrenum</i>	268	<i>Pristis pectinata</i>	205
<i>Porichthys pauciradiatus</i>	268	<i>Pristis perotteti</i>	204
<i>Porichthys plectrodon</i>	267-268	PRISTOIDEI	195
Porkfish	329	<i>Pristygenys</i>	388
<i>porosus, Carcharhinus</i>	175	<i>Pristygenys alta</i>	388
<i>porosus, Rhizoprionodon</i>	178	<i>probatocephalus, Archosargus</i>	440
<i>Porphyra</i>	22	<i>profundorum, Lepophidium</i>	375
<i>Porphyra amplifolia</i>	22	<i>Prognichthys</i>	320
<i>Porphyra spiralis</i>	22	<i>Prognichthys gibbifrons</i>	320
PORTUNIDAE	151, 158-162	<i>proliger, Chascanopsetta</i>	274
<i>Portunus</i>	161-162	<i>prometeus, Prometichthys</i>	323
<i>Portunus gibbesii</i>	161	Promethean escolar	323
<i>Portunus spinimanus</i>	162	<i>Prometichthys</i>	323
Pota naranja	92	<i>Prometichthys prometeus</i>	323
Pota pájaro	92	<i>Promicrops itajara</i>	428
Pota saltadora	91	<i>proops, Arius</i>	258
Pota voladora	90	PSAMMOBIIDAE	57, 71
Potas	90	<i>Pseudauchenipterus</i>	264
Potitinga prawn	119	<i>Pseudauchenipterus nodosus</i>	264
Poule de mer	307	<i>Pseudomyrophis</i>	370
Poules de mer	307	<i>Pseudomyrophis nimius</i>	370
Poulpe a rayures bleues	97	<i>Pseudophichthys</i>	304
Poulpe pygmé	98	PSEUDOSQUILLIDAE	104

<i>pseudotulipus, Modiolus</i>	66
<i>Pseudupeneus</i>	364
<i>Pseudupeneus maculatus</i>	364
<i>psittacus, Colomesus</i>	448
<i>Pterengraulis</i>	316
<i>Pterengraulis atherinoides</i>	316
PTERIIDA	57, 71
<i>Pterocladia</i>	23
<i>Pterocladia capillacea</i>	23
<i>Pteroctopus</i>	101
<i>Pteroctopus tetracirrhus</i>	101
<i>pteropus, Ommastrephes</i>	92
Puddingwife wrasse	346
<i>pubibundus, Hepatus</i>	155
<i>puella, Hypoplectrus</i>	435
<i>puellaris, Decodon</i>	346
Pufferfishes	447
Puffers	249
<i>Pugilina</i>	40
<i>Pugilina morio</i>	40
<i>pugilis, Strombus</i>	46
<i>pulchella, Pickfordiateuthis</i>	82
<i>pulchellus, Bodianus</i>	345
<i>pullus, Cantherhines</i>	359
Pulpitos	97
Pulpo común	98
Pulpo de arrecife	97
Pulpo granuloso	97
Pulpo manchado	98
Pulpo pigmeo	98
Pulpos	97
<i>punctatissimus, Ophioscion</i>	408
<i>punctatus, Decapterus</i>	287
<i>punctatus, Equetus</i>	403
<i>punctatus, Myrophis</i>	370
<i>punctatus, Prionotus</i>	453
<i>punctifer, Echiophis</i>	372
Purplehead gamba prawn	113
Purplemouth moray	368
Púrpura de Florida	42
Púrpura deltoide	42
Púrpuras	40
<i>purpureus, Lutjanus</i>	354
<i>purpuriventralis, Raja</i>	206

Q

<i>quadricornis, Lactophrys</i>	377
<i>quadriscutis, Arius</i>	259
Quatre-yeux	254
Quatre-yeux à grandes écailles	254
Queen angelfish	382
Queen parrotfish	394
Queen snapper	351
Queen triggerfish	265
<i>quinquedens, Geryon</i>	156

R

Rabil	418
Rabiles	414
Rabirubia	355
Rabirubias	350
<i>racemosa, Caulerpa</i>	20
RACHYCENTRIDAE	235, 390
<i>Rachycentron</i>	390
<i>Rachycentron canadum</i>	390
<i>radiale, Diplectrum</i>	435
<i>radians Sparisoma</i>	396
<i>radiata, Tellina</i>	74
<i>radiatus, Halichoeres</i>	346
Raie de Bullis	205
Raie électrique brésilienne	208
Raie rugueuse	206
Raie yeux noirs	206
Raie-papillon épineuse	200
Raie-papillon guianaise	201
Raies	205
Raies électriques	208
Raies-papillons	200
Rainbow parrotfish	393
Rainbow runner	288
<i>Raja</i>	205-206
<i>Raja bullisi</i>	205
<i>Raja cervigoni</i>	206
<i>Raja clarki</i>	206
<i>Raja cyclophora</i>	206
<i>Raja fuliginea</i>	206
<i>Raja purpuriventralis</i>	206
<i>Raja teevani</i>	206
Rajalátigo picúa	199
RAJIDAE	196, 205-207
RAJIFORMES	195
RAJOIDEI	196
Rake stardrum	412
RANELLIDAE	33, 44
<i>Rangia</i>	65
<i>Rangia americana</i>	65
<i>Rangia cuneata</i>	65
Rangias	65
Rangie américaine	65
Rangies	65
<i>raninus, Strombus</i>	46
Rape chato	349
Rape pescador	349
Rapes	348
Rascacio acanalado	423
Rascacio chasnete de fondo	421
Rascacio chasnete rojo	422
Rascacio de fondo	420
Rascacio espinoso	421
Rascacio negro	422
Rascacio rubio	420
Rascacios	419
Rascasse aîle-longe	421
Rascasse brésilien	422
Rascasse épineux	421
Rascasse longnez	420

Rascasse noir	422	Requiem sharks	167, 169
Rascasse sillonné	423	Réquiem soie	171
Rascasses	419	Réquiem taureau	172
<i>rastrifer, Stellifer</i>	411-412	Réquiem tiqueue	175
<i>rathbuni, Pontinus</i>	421	Réquiem tisserand	170
Ratones	252	Réquiems	169
Raya de Bullis	205	Requin aiguille antillais	178
Raya espinosa	206	Requin aiguille brésilien	178
Raya piel de lija	206	Requin baleine	183
Raya-látigo americana	198	Requin bécune	176
Raya-látigo hocicona	199	Requin des Galapagos	171
Raya-látigo isleña	198	Requin grisét	179
Raya-látigo picúa	199	Requin limon	177
Rayas	205	Requin lutin	181
Rayas-látigo	198	Requin nourrice	182
Rayas-mariposas	200	Requin tigre commun	176
Rayed keyhole limpet	39	Requin vache	179
Rays	195-196	Requin-marteau à petits yeux	188
Razor clams	72	Requin-marteau commun	188
Razorfishes	242, 344	Requin-marteau écope	186
Red cornetfish	321	Requin-marteau halicorne	186
Red dory	455	Requin-marteau tiburo	187
Red goatfish	364	Requins	169
Red grouper	428	Requins baleine	183
Red hind	428	Requins grisets	179
Red hogfish	346	Requins lutin	181
Red lobsterette	138	Requins marteau	185
Red porgy	443	Requins nourrices	182
Redband parrotfish	395	Requins perlon	179
Redear herring	299	Requins taupe	180
Redear sardine	299	<i>reticularis, Oliva</i>	43
<i>rederi, Cymatium</i>	44	Reticulated goosefish	349
Redeye mullet	362	Reticulated tilefish	282
Redeye sponge crab	155	<i>reticulatus, Lophiodes</i>	349
<i>redfieldi, Abralia</i>	83	<i>retrospinis, Plectrypops</i>	341
Redfin parrotfish	396	<i>Rhechias</i>	304
Redleg humpback shrimp	115	<i>Rhincodon</i>	183
Redspotted shrimp	124	<i>Rhincodon typus</i>	183
Redtail parrotfish	395	RHINCODONTIDAE	166, 183
Redtail scad	288	RHINIODONTIDAE	166, 183
Reef croaker	408	RHINOBATIDAE	196, 207-208
Reef shark	174	<i>Rhinobatos</i>	208
Reef silverside	263	<i>Rhinobatos horkeli</i>	208
REGALECIDAE	226	<i>Rhinobatos percellens</i>	208
<i>regalis, Scomberomorus</i>	417	<i>Rhinoptera</i>	204
<i>regius, Conus</i>	37	<i>Rhinoptera bonasus</i>	204
<i>Remora</i>	308	<i>Rhinoptera brasiliensis</i>	204
Rémora blanche	308	<i>Rhinosardinia</i>	301
Rémora commun	307	<i>Rhinosardinia amazonica</i>	301
Remoras	235	<i>Rhinosardinia baiensis</i>	301
Rémoras	307	<i>rhizophorae, Crassostrea</i>	67
<i>Remorina</i>	308	<i>Rhizoprionodon</i>	178
Renard	168	<i>Rhizoprionodon lalandii</i>	178
Renard gros yeux	168	<i>Rhizoprionodon porosus</i>	178
Réquiem babosse	170	RHODOPHYTA	22-28
Réquiem de nuit	175	<i>rhombus, Diapterus</i>	325
Réquiem de récif	174	Rhomboid squids	93
Réquiem de sable	173	<i>rhomboidalis, Archosargus</i>	440
Réquiem macuire	172	<i>Rhomboplites</i>	356
Réquiem nez noir	169	<i>Rhomboplites aurorubens</i>	356
Réquiem océanique	173	<i>rhombus, Thysanoteuthis</i>	86, 93
Réquiem plombe	174	<i>rhonchus, Bairdiella</i>	398

<i>riberoi</i> , <i>Bellator</i>	452	Rondeaux	440
Righteye flounders	248	<i>roperi</i> , <i>Loligo</i>	88
Rigid venus	76	Rose shrimp	123
<i>rigida</i> , <i>Atrina</i>	69	<i>rosea</i> , <i>Liopropoma</i>	434
<i>rigida</i> , <i>Ventricolaria</i>	76	<i>rosea</i> , <i>Nephropsis</i>	141
<i>rigida</i> , <i>Venus</i>	76	Rosefishes	231, 419
<i>riisei</i> , <i>Brachioteuthis</i>	85	<i>roseus</i> , <i>Cryptotomus</i>	391
<i>ringens</i> , <i>Xanthichthys</i>	266	<i>roseus</i> , <i>Cyttopsis</i>	455
<i>riveri</i> , <i>Apristurus</i>	183	<i>roseus</i> , <i>Prionotus</i>	453
<i>rivoliana</i> , <i>Seriola</i>	293	<i>Rossia</i>	79
Robalo blanco	297	<i>Rossia antillensis</i>	80
Robalo chucumite	297	Roster-tail conch	45
Robalo constantino	297	<i>rostrata</i> , <i>Anguilla</i>	254
Robalo maqueque	296	<i>rostrata</i> , <i>Canthigaster</i>	448
Robalo mexicano	296	Rouget-barbet doré	364
Róbalos	296	Rouget-barbet tacheté	364
<i>roberti</i> , <i>Hyporhamphus</i>	338	Rouget-barbets	363
<i>robertsi</i> , <i>Ceratobatis</i>	202	Rouget-souris mignon	364
<i>robinsi</i> , <i>Bothus</i>	274	Rough lima	64
<i>robusta</i> , <i>Muraena</i>	369	Rough mantis shrimp	105
<i>robustus</i> , <i>Pleoticus</i>	131	Rough pen shell	70
<i>rocasensis</i> , <i>Pomacentrus</i>	385	Rough scad	295
<i>rochei</i> , <i>Auxis</i>	415	Rough sharks	182
Rocher antillais	40	Roughback shrimp	127
Rocher pomme	42	Roughneck grunt	336
Rochers	40	Roughneck shrimp	127
Rock beauty	382	Roughtail catshark	184
Rock hind	427	Roughtail stingray	198
Rock shells	40	Roughtongue bass	425
Rockfishes	231, 419	Round herring	298
Rombou à quatre yeux	272	Round sardinella	301
Rombou cyclope	272	Round scad	287
Rombou de canal	278	Roussette boa	185
Rombou de plage	275	Roussette selle blanche	185
Rombou lune	273	Roussette taches de son	185
Rombou noir	274	Roussettes	183
Rombou ocellé	273	Rouvet	323
Rombou pélican	274	Rouvets	322
Rombou petite gueule	276	Rovers	236, 309
Rombou tacheté	273	Royal comb venus	75
Romboux	271	Royal red shrimp	131
Ronco amarillo	333	<i>ruber</i> , <i>Caranx</i> (<i>Carangoides</i>)	286
Ronco blanco	331	<i>ruber</i> , <i>Orthopristis</i>	336
Ronco bocachica	333	<i>rubio</i> , <i>Prionotus</i>	453
Ronco bocón	333	Rubios	451
Ronco boquilla	333	<i>rubra</i> , <i>Mycteroperca</i>	432
Ronco caco	333	<i>rubre</i> , <i>Liopropoma</i>	434
Ronco canario	330	<i>rubripinne</i> , <i>Sparisoma</i>	396
Ronco carbonero	332	Rubyfishes	236, 309
Ronco catire	335	<i>rudis</i> , <i>Pinna</i>	70
Ronco chere-chere	335	<i>rufus</i> , <i>Bodianus</i>	345
Ronco jenuano	331	<i>rufus</i> , <i>Holocentrus</i>	340
Ronco listado	335	<i>rugispinis</i> , <i>Arius</i>	259
Ronco mapurite	334	<i>rugosa</i> , <i>Cruriraja</i>	207
Ronco margariteño	334	Rugose swimcrab	159
Ronco plateado	334	Runners	235, 283
Ronco rayado	332	<i>Ruvettus</i>	323
Ronco ruyi	332	<i>Ruvettus pretiosus</i>	323
Ronco torroto	330		
Roncos	328		
Rondeau brème	440		
Rondeau mouton	440		

S

Sábalos	298	Sardinela atlántica	301
Sackfish	323	Sardinela brasileña	301
Sailfin flyingfish	320	Sardinelas	298
Sailfish	342	<i>Sardinella</i>	300-301
Sailfishes	247, 342	<i>Sardinella aurita</i>	301
Sailor's grunt	334	<i>Sardinella brasiliensis</i>	301
Saint-Pierre argenté	456	Sardinelle brésilienne	301
Saint-Pierre rouge	455	Sardineta canalera	298
Saint-Pierres	455	Sardineta escarnuda	298
Salicoque royale rouge	131	Sardineta jaguana	299
<i>saliens, Oligoplites</i>	289	Sardineta piquitinga	300
Salmon shrimp	130	Sardinetas	298
Salmones de lo alto	380	<i>Sargassum</i>	21
Salmonete amarillo	363	<i>Sargassum filipendula</i>	21
Salmonete colorado	364	<i>Sargassum vulgare</i>	21
Salmonete manchado	364	Sargo amarillo	440
Salmonete rayuelo	364	Sargo chopá	440
Salmonetes	363	Sargo fino	443
SALMONIFORMES	218	Sargos	440
Salmons	218	Sars	440
Saltarelle camacuto	114	Saucereye porgy	441
<i>saltatrix, Pomatomus</i>	386	<i>Saurida</i>	445-446
San Pedro colorado	455	<i>Saurida brasiliensis</i>	446
San Pedro plateado	456	<i>Saurida normani</i>	446
San Pedros	455	<i>Saurida caribbea</i>	446
<i>sanctaeluciaae, Bairdiella</i>	398	<i>Saurida suspicio</i>	446
Sand devil	190	Sauries	226, 414
Sand diver	446	<i>saurus, Elops</i>	308
Sand drum	413	<i>saurus, Oligoplites</i>	290
Sand seabass	434	<i>saurus, Synodus</i>	447
Sand stargazers	244	Sauteur castin	289
Sand tilefish	358	Sauteur cuir	290
Sand tilefishes	234, 358	Sauteur palomette	289
Sand-perches	232, 423	<i>savanna, Cynoponticus</i>	365
Sandbar shark	174	Sawfishes	195, 204
Sangler chevette	283	Sawtoothed pen shell	70
Sangler rond	283	<i>saxatilis, Abudedefduf</i>	384
Sangliers	282	<i>sayana, Oliva</i>	43
Sangradores	251	<i>sayi, Dasyatis</i>	199
Sanguinolatre ridée	71	<i>scabra, Atya</i>	114
Sanguinolaires	71	<i>scabra, Ctenoides</i>	64
Sanguin clams	71	<i>scabra, Lima</i>	64
Sapater	286	<i>scabricauda, Lysiosquilla</i>	105
<i>sapidus, Callinectes</i>	161	Scads	235, 283
Sapo bocón	266	<i>Scaergus</i>	101
Sapo cadena	268	<i>Scaergus unicolor</i>	101
Sapo cano	268	Scaled herring	299
Sapo guayanés	267	Scaled sardine	299
Sapo lagunero	267	Scaled squid	87
Sapos	266, 419	Scaled squids	87
Sapos chasnetes	231	Scalloped hammerhead	186
Sar argenté	443	Scallops	67
<i>Sarda</i>	416	Scamp	432
<i>Sarda sarda</i>	416	<i>Scapharca</i>	61
<i>sarda, Sarda</i>	416	<i>Scapharca brasiliensis</i>	61
Sardinas	298	SCARIDAE	243, 391-397
Sardinata de río	390	Scarlet shrimp	114
Sardinata marina	390	<i>Scarus</i>	392-394
Sardinatas	388	<i>Scarus coelestinus</i>	392
		<i>Scarus coeruleus</i>	392
		<i>Scarus croicensis</i>	393
		<i>Scarus guacamaia</i>	393

<i>Scarus taeniopterus</i>	394	<i>Scyllarides delfosi</i>	146
<i>Scarus vetula</i>	394	<i>Scyllarus</i>	147
<i>schmarda</i> , <i>Himantura</i>	200	<i>Scyllarus americanus</i>	147
<i>schmidti</i> , <i>Danoctopus</i>	100	<i>Scyllarus chacei</i>	147
<i>schmidti</i> , <i>Parophidion</i>	376	<i>Scyllarus depressus</i>	147
<i>schmitti</i> , <i>Nematopalaemon</i>	118	<i>Scyllarus faxoni</i>	147
<i>schmitti</i> , <i>Penaeus (Litopenaeus)</i>	125	<i>Scyllarus planorbis</i>	147
<i>schoepfi</i> , <i>Aluterus</i>	359	<i>Scymnodon</i>	189
<i>schomburgki</i> , <i>Pempheris</i>	240	<i>Scymnodon obscurus</i>	189
Schoolmaster	352	Sea catfishes	217, 256
<i>Schroederichthys</i>	184	Sea chubs	240, 344
<i>Schroederichthys tenuis</i>	184	Sea-basses	232, 423
<i>Schultzea</i>	437	Seabob	128
<i>Sciaena</i>	410-411	Seabream	440
<i>Sciaena bathytatos</i>	411	Seabreams	238, 440
<i>Sciaena trewavasae</i>	411	<i>seaforthii</i> , <i>Bryothamnion</i>	28
SCIAENIDAE	239, 397	Searobins	231-232, 451
<i>sciurus</i> , <i>Haemulon</i>	335	SEAWEEDES	17
<i>scolopax</i> , <i>Macroramphosus</i>	357	Sébaste chèvre	420
<i>Scomber</i>	416	Sébastes	419
<i>Scomber japonicus</i>	416	<i>sectatrix</i> , <i>Kyphosus</i>	344
SCOMBERESOCIDAE	226, 414	<i>secunda</i> , <i>Uraspis</i>	295
<i>Scomberomorus</i>	417	<i>Selar</i>	290
<i>Scomberomorus brasiliensis</i>	417	Sélar coulisou	290
<i>Scomberomorus cavalla</i>	417	<i>Selar crumenophthalmus</i>	290
<i>Scomberomorus regalis</i>	417	Sélars	283
SCOMBRIDAE	246, 414-419	<i>Selene</i>	290-291
SCOMBROIDEI	246	<i>Selene brownii</i>	291
Scoop-head	186	<i>Selene setapinnis</i>	291
<i>Scorpaena</i>	421-422	<i>Selene spixii</i>	291
<i>Scorpaena agassizi</i>	421	<i>Selene vomer</i>	291
<i>Scorpaena bergi</i>	422	<i>selenops</i> , <i>Ariosoma</i>	302
<i>Scorpaena brachyptera</i>	422	<i>seminuda</i> , <i>Atrina</i>	70
<i>Scorpaena brasiliensis</i>	422	<i>Semirossia</i>	79
<i>Scorpaena calcarata</i>	422	<i>Semirossia tenera</i>	80
<i>Scorpaena dispar</i>	422	Sennets	242, 443
<i>Scorpaena elachys</i>	422	<i>sent</i> , <i>Engiophrys</i>	280
<i>Scorpaena grandicornis</i>	422	SEPIOIDEA	79
<i>Scorpaena inermis</i>	422	<i>sepioidea</i> , <i>Sepioteuthis</i>	90
<i>Scorpaena isthmensis</i>	422	SEPIOLIDAE	80
<i>Scorpaena melasma</i>	422	<i>Sepioteuthis</i>	90
<i>Scorpaena petricola</i>	422	<i>Sepioteuthis sepioidea</i>	90
<i>Scorpaena plumieri</i>	422	Sergeant cromis	385
SCORPAENIDAE	231, 419-423	Sergeant major	384
SCORPAENIFORMES	231	Sergeant majors	384
<i>Scorpaenodes</i>	422	Sergeantfishes	241
<i>Scorpaenodes caribbaeus</i>	422	Sergeants	384
<i>Scorpaenodes tredecimspinosus</i>	422	<i>Seriola</i>	292-293
Scorpionfishes	231, 419	<i>Seriola dumerili</i>	292
Scrawled cowfish	377	<i>Seriola fasciata</i>	292
Scrawled sole	439	<i>Seriola rivoliana</i>	293
<i>scriptus</i> , <i>Aluterus</i>	359	<i>Seriola zonata</i>	293
<i>sculpta</i> , <i>Stereomastis</i>	135	Sériole babiane	292
Sculptured slipper lobster	145	Sériole couronnée	292
SCYLIORHINIDAE	167, 183-185	Sériole guaimeque	293
<i>Scyliorhinus</i>	184-185	Sériole limon	293
<i>Scyliorhinus boa</i>	185	Sérioles	283
<i>Scyliorhinus haeckelii</i>	185	<i>serpens</i> , <i>Gempylus</i>	322
<i>Scyliorhinus hesperius</i>	185	Serpenton à grandes taches	372
SCYLLARIDAE	136, 145	Serpenton antillais	374
<i>Scyllarides</i>	145-146	Serpenton blanc	373
<i>Scyllarides aequinoctialis</i>	146	Serpenton chevrette	373

Serpenton dentu	371	Shortjaw lizardfish	446
Serpenton pointillé	372	Shortnose lancetfish	253
Serpenton sombre	374	Shortspine boarfish	283
Serpenton tacheté	373	Shortwing searobin	453
Serpentons	370	SHRIMP	107
Serra	417	Shrimp eel	373
Serra spanish mackerel	417	SICYONIIDAE	110, 128
Serran de sable	434	<i>Sicyonia</i>	<i>128-130</i>
Serran des lagunes	435	<i>Sicyonia burkenroadi</i>	<i>129</i>
Serran fil	434	<i>Sicyonia dorsalis</i>	<i>129</i>
Serran tabac	436	<i>Sicyonia stimpsoni</i>	<i>130</i>
Serran taller	436	<i>Sicyonia typica</i>	<i>130</i>
Serran vieux	435	<i>signatus, Carcharhinus</i>	<i>175</i>
<i>Serraniculus</i>	<i>437</i>	Silk snapper	354
SERRANIDAE	232, 423-437	Silky shark	171
SERRANINAE	434	SILURIFORMES	217
Serrano arenero	434	Silver anchovy	315
Serrano de canto	436	Silver porgy	443
Serrano de charco	436	Silversides	226, 262
Serranos	423	<i>similis, Cynoscion</i>	<i>401</i>
Serrans	423	<i>similis, Trachypenaeus</i>	<i>127</i>
<i>Serranus</i>	<i>435-437</i>	<i>simulans, Nanichthys</i>	<i>414</i>
<i>Serranus atrobranchus</i>	<i>436</i>	Sixgill shark	179
<i>Serranus baldwini</i>	<i>436</i>	Sixgill sharks	179
<i>Serranus dewegeri</i>	<i>435</i>	Skates	195, 205
<i>Serranus flaviventris</i>	<i>436-437</i>	Skipjack tuna	416
<i>Serranus notospilus</i>	<i>436</i>	<i>Sladenia</i>	<i>350</i>
<i>Serranus phoebe</i>	<i>436</i>	<i>Sladenia shaeferi</i>	<i>350</i>
<i>Serranus tabacarius</i>	<i>436</i>	Sleepers	245
<i>Serranus tigrinus</i>	<i>436-437</i>	Slender halfbeak	338
<i>Serranus tortugarum</i>	<i>436-437</i>	Slender inshore squid	87
<i>serrata, Atrina</i>	<i>70</i>	Slender marsh clam	63
<i>serrata, Penaeopsis</i>	<i>123</i>	Slender wenchman	356
<i>serrulatum, Gelidium</i>	<i>23</i>	Slickheads	218
<i>sertularioides, Caulerpa</i>	<i>21</i>	Slimeheads	228
<i>sessilicauda, Monolene</i>	<i>277</i>	Slipper sole	439
<i>setapinnis, Selene</i>	<i>291</i>	Small false donax	71
<i>Setarches</i>	<i>423</i>	Smalleye croaker	408
<i>Setarches guntheri</i>	<i>423</i>	Smalleye hammerhead	188
<i>setifer, Stephanolepis</i>	<i>360</i>	Smalleye smooth-hound	191
<i>setiger, Hildebrandichthys</i>	<i>315</i>	Smalleye stardrum	412
Sevenbarbed banjo	261	Smallmouth grunt	333
Shadine ronde	298	Smallmouth velvet dogfish	189
Shadines	298	Smallscale weakfish	401
Shads	214, 298	Smalltail shark	175
<i>shaeferi, Sladenia</i>	<i>350</i>	Smalltooth sawfish	205
SHARKS	173	Smalltooth weakfish	401
Sharksucker	307	Smooth butterfly ray	201
Sharksuckers	235, 307	Smooth dogfish	191
Sharpnose sharks	169	Smooth hammerhead	188
Sharpsnout stingray	199	Smooth-hounds	190
Sheepshead	440	Smooth mantis shrimp	105
Sheepshead minnow	306	Smooth puffer	448
Sheepshead porgy	442	Smooth tellin	73
Shelligs crab	160	Smooth trunkfish	378
Shoal flounder	278	Smooth weakfish	400
Short bigeye	388	Smoothtail spiny lobster	144
Shortbeard cusk-eel	375	Snake eels	215, 370
Shortfin corvina	404	Snake mackerel	322
Shortfin mako	180	Snake mackerels	246, 322
Shortfinger anchovy	311	Snakefish	447
Shorthead drum	404	Snappers	237, 350

Snipefishes	230, 357	<i>spengleri</i> , <i>Sphoeroides</i>	449
Snooks	232, 296	<i>Sphoeroides</i>	449-450
Snowy grouper	429	<i>Sphoeroides dorsalis</i>	449
Snubnose anchovy	313	<i>Sphoeroides greeleyi</i>	449
Soapfishes	233	<i>Sphoeroides maculatus</i>	450
Softhead sea catfish	259	<i>Sphoeroides nephelus</i>	450
<i>solandri</i> , <i>Acanthocybium</i>	414	<i>Sphoeroides pachigaster</i>	450
Soldier striped shrimp	121	<i>Sphoeroides spengleri</i>	449
Soldierfishes	227, 339	<i>Sphoeroides testudineus</i>	450
Sole achire	438	<i>Sphoeroides tyleri</i>	450
Sole nue	439	<i>Sphoeroides yergeri</i>	450
Sole pantoufle	439	<i>Sphyræna</i>	443-444
Sole queue longue	438	<i>Sphyræna barracuda</i>	444
Sole réticulée	439	<i>Sphyræna guachancho</i>	444
Sole sombre	438	<i>Sphyræna picudilla</i>	444
SOLECURTIDAE	58, 72	SPHYRAENIDAE	242, 443-444
SOLEIDAE	249, 437-439	SPHYRAENOIDEI	242
<i>Solen</i>	72	<i>Sphyrna</i>	185-188
<i>Solen obliquus</i>	72	<i>Sphyrna lewini</i>	186
SOLENIDAE	58, 72	<i>Sphyrna media</i>	186
<i>Solenocera</i>	131	<i>Sphyrna mokarran</i>	187
<i>Solenocera acuminata</i>	131	<i>Sphyrna tiburo</i>	187
<i>Solenocera atlantidis</i>	131	<i>Sphyrna tudes</i>	188
<i>Solenocera geijskesi</i>	131	<i>Sphyrna zygaena</i>	188
<i>Solenocera necopina</i>	131	SPHYRNIDAE	167, 185-188
SOLENCERIDAE	110, 130-131	<i>spicifera</i> , <i>Acanthophora</i>	28
Soles	249, 437	Spicule anchovy	312
<i>Solieria</i>	27	Spikefishes	249
<i>Solieria filiformis</i>	27	<i>spilopterus</i> , <i>Citharichthys</i>	275
<i>Solieria tenera</i>	27	Spindle conchs	37
<i>sordidus</i> , <i>Verilus</i>	357	<i>spinicauda</i> , <i>Ophichthus</i>	374
South American rock mussel	67	<i>spincirrus</i> , <i>Tetracheledone</i>	101
Southern brown shrimp	126	<i>spinifer</i> , <i>Anchoa</i>	312
Southern eagle ray	203	<i>spinimanus</i> , <i>Portunus</i>	162
Southern kingcroaker	406	Spinner shark	170
Southern kingfish	406	<i>spinosissimus</i> , <i>Mithrax</i>	157
Southern pink shrimp	125	Spiny butterfly ray	200
Southern red snapper	354	Spiny eels	216
Southern sennet	444	Spiny oysters	72
Southern stingray	198	Spiny stargazer	454
Southern stragazer	454	Spiny vase	47
Southern white shrimp	125	<i>spiralis</i> , <i>Porphyra</i>	22
Spadefishes	240, 317	<i>Spirula</i>	79
Spaghetti eels	215	<i>Spirula spirula</i>	79
Spanish flag	430	<i>spirula</i> , <i>Spirula</i>	79
Spanish grunt	333	SPIRULIDAE	79
Spanish hogfish	345	<i>spixii</i> , <i>Selene</i>	291
Spanish sardine	301	<i>spixii</i> , <i>Cathorops</i>	260
Spanish slipper lobster	146	<i>splendens</i> , <i>Hemipteronotus</i>	347
SPARIDAE	238, 440-443	Spondyle américain	72
<i>Sparisoma</i>	395-397	Spondyles	72
<i>Sparisoma atomarium</i>	397	SPONDYLIDAE	58, 72
<i>Sparisoma aurofrenatum</i>	395	<i>Spondylus</i>	72
<i>Sparisoma chrysopterus</i>	395	<i>Spondylus americanus</i>	72
<i>Sparisoma griseorubra</i>	397	Spotfin flounder	276
<i>Sparisoma radians</i>	396	Spotfin flyingfish	318
<i>Sparisoma rubripinne</i>	396	Spotfin hogfish	345
<i>Sparisoma viride</i>	397	Spotfin mojarra	326
Spearfishes	247, 342	Spotfin porgy	442
Speckled swimcrab	158	Spotted croaker	408
Speckled tellin	73	Spotted drum	403
<i>speculiger</i> , <i>Hirundichthys</i>	319	Spotted eagle ray	202

Spotted goatfish	364	STOMIIFORMES	218
Spotted moray	368	Stoplight parrotfish	397
Spotted scorpionfish	422	Stout beardfish	380
Spotted snake eel	373	Stout moray	369
Spotted spiny lobster	144	Stout tagelus	72
Spotted spoon-nose eel	372	Streamer bass	424
Spotted trunkfish	377	<i>striata, Argentina</i>	255
Spottedfin tonguefish	305	Striate donax	63
Squale-grogneur à queue échançrée	189	Striated argentine	255
Squales	189	<i>striatum, Haemulon</i>	335
SQUALIDAE	165, 189	<i>striatus, Donax</i>	63
SQUALIFORMES	165	<i>striatus, Epinephelus</i>	430
<i>Squalus</i>	189	<i>strigata, Mytella</i>	66
<i>Squalus cubensis</i>	189	Strigate mangrove mussel	66
<i>squamosissium, Plagioscion</i>	410	Striped croaker	398
<i>squamosus Modiolus</i>	66	Striped drum	413
<i>Squatina</i>	190	Striped gladiator shrimp	121
<i>Squatina dumeril</i>	190	Striped grunt	335
SQUATINIDAE	165, 190	Striped mojarra	328
SQUATINIFORMES	165	Striped mullet	361
SQUIDS	81	Striped parrotfish	393
Squilla	105	Striped shrimp	120
Squilla empusa	105	Striped soldier shrimp	121
Squille douce	105	Stromaté lune	445
Squille rugueuse	105	STROMATEIDAE	247, 445
SQUILLIDAE	104-105	STROMATEOIDEI	247
Squirrelfish	339	Stromb conchs	45
Squirrelfishes	227, 339	Strombe aile-de-faucon	46
Sromatés	445	Strombe combattant	46
Star-shells	47	Strombe laiteux	45
Stardrums	239	Strombe queue-de-coq	45
Stargazers	243, 454	Strombe rose	45
<i>stearnsi, Prionotus</i>	453	Strombes	45
<i>steindachneri, Cynoscion</i>	401	STROMBIDAE	33, 45-46
<i>steindachneri, Haemulon</i>	335	<i>Strombus</i>	45-46
<i>Steindachneria</i>	359	<i>Strombus costatus</i>	45
<i>Steindachneria argentea</i>	359	<i>Strombus gallus</i>	45
<i>Stellifer</i>	411-414	<i>Strombus gigas</i>	45
<i>Stellifer brasiliensis</i>	413	<i>Strombus pugilis</i>	46
<i>Stellifer chaoi</i>	413	<i>Strombus raninus</i>	46
<i>Stellifer colonensis</i>	413	<i>Strongylura</i>	269-270
<i>Stellifer griseus</i>	412	<i>Strongylura marina</i>	269
<i>Stellifer magoi</i>	413	<i>Strongylura timucu</i>	270
<i>Stellifer microps</i>	411-412	<i>subtilis, Penaeus (Farfantepenaeus)</i>	126
<i>Stellifer naso</i>	413	Suela chancleta	439
<i>Stellifer rastrifer</i>	411-412	Suela colalarga	438
<i>Stellifer</i> sp.	413	Suela desnuda	439
<i>Stellifer stellifer</i>	413	Suela lucia	438
<i>stellifer, Stellifer</i>	413	Suela pintada	438
<i>Stellifer venezuelae</i>	413	Suela reticulada	439
<i>Stephanolepis</i>	360	Suelas	437
<i>Stephanolepis hispidus</i>	360	<i>sufflamen, Canthidermis</i>	265
<i>Stephanolepis setifer</i>	360	<i>sulcata, Calappa</i>	154
<i>Stereomastis</i>	135	Sunfishes	250
<i>Stereomastis sculpta</i>	135	Sunrise tellin	74
Stiff pen shell	69	<i>superciliosus, Alopias</i>	168
<i>stimpsoni, Sycyonia</i>	130	Surgeonfishes	245, 251
Stingrays	196, 198	Suriname anchovy	313
<i>stipes, Atherinomorus</i>	262	Suriname river prawn	118
Stippled spoon-nose eel	372	Suriname squid	89
<i>stolifera, Jenkinsia</i>	299	<i>surinamensis, Anchovia</i>	313
STOMATOPODS	97	<i>surinamensis, Anisotremus</i>	329

<i>surinamensis, Batrachoides</i>	267	<i>Tarpon</i>	358
<i>surinamensis, Lobotes</i>	348	Tarpon argenté	358
<i>surinamensis, Loligo</i>	89	<i>Tarpon atlanticus</i>	358
<i>surinamicum, Macrobrachium</i>	118	Tarpon snook	297
<i>suspicio, Saurida</i>	446	Tarpones	358
Sweepers	240	Tarpons	213, 358
Swordfish	455	Tassergal	386
Swordfishes	247, 454	Tassergals	386
Swordspine snook	296	Tatleys	232, 423
<i>Syacium</i>	278-279	Tattler	436
<i>Syacium gunteri</i>	278	Taupe bleu	180
<i>Syacium micrurum</i>	278	Taupe longue-aile	181
<i>Syacium papillosum</i>	279	<i>taurus, Abudedefduf</i>	384
<i>Symphurus</i>	305-306	<i>tecta, Astraea</i>	48
<i>Symphurus arawak</i>	306	<i>tecta, Lithopoma</i>	48
<i>Symphurus caribbeanus</i>	306	<i>teevani, Raja</i>	206
<i>Symphurus diomedianus</i>	305	Telina aurora	74
<i>Symphurus oculellus</i>	306	Telina fausta	73
<i>Symphurus pelicanus</i>	306	Telina lisa	73
<i>Symphurus plagusia</i>	306	Telina manchada	73
<i>Symphurus tessellatus</i>	305	Telinas	73
<i>Symphysanodon</i>	357	<i>Tellina</i>	73-74
<i>Symphysanodon berryi</i>	357	<i>Tellina fausta</i>	73
<i>synagris, Lutjanus</i>	354	<i>Tellina laevigata</i>	73
SYNAXIDAE	136, 147	<i>Tellina listeri</i>	73
SYNGNATHIDAE	231	<i>Tellina radiata</i>	74
SYNGNATHIFORMES	230	Telline aurore	74
SYNODONTIDAE	220, 445-447	Telline fauste	73
<i>Synodus</i>	446-447	Telline lisse	73
<i>Synodus foetens</i>	446	Telline mouchetée	73
<i>Synodus intermedius</i>	446	<i>Tellinella listeri</i>	73
<i>Synodus poeyi</i>	447	Tellines	73
<i>Synodus saurus</i>	447	TELLINIDAE	59, 73-74
<i>Synodus synodus</i>	447	Tellins	73
<i>synodus, Synodus</i>	447	Tembladera brasileña	208
T			
<i>tabacaria, Fistularia</i>	321	Tembladeras	208
<i>tabacarius, Serranus</i>	436	Tenbarbed banjo	261
<i>tabl, Decapterus</i>	288	<i>tenera, Agardhiella</i>	27
Tacauds	321	<i>tenera, Semirossia</i>	80
<i>taeniatus, Evoxymetopon</i>	451	<i>tenera, Soliera</i>	27
<i>taeniopterus, Scarus</i>	394	<i>tenuifrons, Gracilariopsis</i>	25
Tagai corpulent	72	<i>tenuis, Anthias</i>	424
Tagals	72	<i>tenuis, Gymnogongrus</i>	25
Tagelo plebeyo	72	<i>tenuis, Schroederichthys</i>	184
Tagelos	72	<i>tessellatus, Symphurus</i>	305
<i>Tagelus</i>	72	<i>teres, Etrumeus</i>	298
Tagelus clams	72	Testolín azul	453
Tagelus corpulent	72	Testolines	451
<i>Tagelus plebeius</i>	72	<i>testudineus, Sphoeroides</i>	450
Tajalí de canal	451	<i>Tetracheledone</i>	101
Tajalíes	450	<i>Tetracheledone spinicirrhus</i>	101
Tamboril collarete	449	<i>tetracirrhus, Pteroctopus</i>	101
Tamboril corrotucho	450	TETRAODONTIDAE	249, 447-450
Tamboril mondeque	448	TETRAODONTIFORMES	249
Tamboriles	447	<i>Tetrapturus</i>	343
Tambour brésilien	407	<i>Tetrapturus albidus</i>	343
Tambour rayé	407	<i>Tetrapturus pfluegeri</i>	343
Tambours	397	TEUTHOIDEA	81
		<i>Thais</i>	42
		<i>Thais deltoidea</i>	42
		<i>Thais haemastoma floridana</i>	42
		<i>Thalassia</i>	355, 364, 391-393

<i>Thalassoma</i>	348	Tiburones ángeles	190
<i>Thalassoma bifasciatum</i>	348	Tiburones ballenas	183
<i>Thalassophryne</i>	268	Tiburones carites	180
<i>Thalassophryne maculosa</i>	268	Tiburones duende	181
<i>Thalassophryne megalops</i>	268	Tiburones gata	182
<i>Thalassophryne nattereri</i>	268	Tiburones martillo	185
<i>Thaumastocheles zaleucus</i>	134	Tiburones ojinotos	182
THAUMASTOCHELIDAE	134	Tiburones vaca	179
Thazard franc	417	Tieso antillano	374
Thazard serra	417	Tieso blanco	373
Thazard tacheté du sud	417	Tieso de dientes	371
<i>thazard, Auxis</i>	415	Tieso lucio	374
Thazard-bâtard	414	Tieso manchado	372
Thazards	414	Tieso moteado	372
Thomas sea catfish	257	Tieso negro	373
Thon à nageoires noires	419	Tieso pintado	373
Thon obese	419	Tiesos	215, 370
Thon rouge	419	Tiger grouper	432
Thonine	415	Tiger shark	176
Thonines	414	<i>tigrinus, Serranus</i>	436
Thons	414	<i>tigris, Mycteroperca</i>	432
Threadfin bonefish	252	Tile à raie noire	281
Threadfins	242, 380	Tile chameau	282
Three-spot slipper lobster	146	Tile oeil doré	281
Thresher shark	168	Tile réticulé	282
Thresher sharks	166, 168	Tilefishes	234, 280
Thumbstall squid	89	Tiles	280
<i>Thunnus</i>	418-419	Timucu	270
<i>Thunnus alalunga</i>	418	<i>timucu, Strongylura</i>	270
<i>Thunnus albacares</i>	418	Tinicalo cabezón	262
<i>Thunnus atlanticus</i>	419	Tinicalo común	263
<i>Thunnus obesus</i>	419	Tinicalo de arrecife	263
<i>Thunnus thynnus thynnus</i>	419	Tinicalo lagunar	262
<i>thynnus thynnus, Thunnus</i>	419	Tinicalo playón	263
<i>thynnus, Thunnus thynnus</i>	419	Tinicalos	262
THYSANOTEUTHIDAE	86, 93	Tintorera	176
<i>Thysanoteuthis</i>	86, 93	Tintoreras	169
<i>Thysanoteuthis nuchalis</i>	93	Tivel trigone	76
<i>Thysanoteuthis rhombus</i>	86, 93	<i>Tivela</i>	76
<i>tibicen, Aspredinichthys</i>	261	<i>Tivela mactroides</i>	76
<i>tiburo, Sphyrna</i>	187	Tivela triangular	76
Tiburón aleta negra	170	Tivelas	74
Tiburón amarillo	169	Tivelas clams	74
Tiburón angel	190	Tivels	74
Tiburón arenero	173	Toadfishes	222-223, 266
Tiburón azul	177	Tobaccofish	436
Tiburón baboso	170	Tombourou matoutou	156
Tiburón ballena	183	Tomtate grunt	331
Tiburón coralino	174	Tongue soles	249, 305
Tiburón de Galápagos	171	Tonkin weakfish	401
Tiburón de noche	175	Top shells	46
Tiburón duende	181	Torito	377
Tiburón galano	177	Torito azul	377
Tiburón jaquetón	171	Toritos	377
Tiburón macuira	172	Toros	189
Tiburón nocturno	175	TORPEDINIDAE	195, 208
Tiburón oceánico	173	TORPEDININAE	195
Tiburón ojinoto	182	TORPEDINOIDEI	195
Tiburón poroso	175	<i>Torpedo</i>	208
Tiburón sarda	172	<i>Torpedo nobiliana</i>	208
Tiburón trozo	174	Torroto grunt	330
Tiburones	169	Tortue caoune de l'Atlantique	459

Tortue caret de l'Atlantique	460	Triton anguleux	44
Tortue luth de l'Atlantique	461	Tritón anguloso	44
Tortue ridley du Pacifique	460	Tritón Atlántico	44
Tortue verte de l'Atlantique	459	Triton de l'Atlantique	44
Tortuga cahuama del Atlántico	459	Triton émaillé	44
Tortuga de carey del Atlántico	460	Triton géant velu	44
Tortuga golfina	460	Tritón gigante peludo	44
Tortuga laúd del Atlántico	461	Triton shells	44
Tortuga verde del Atlántico	459	Tritones	44
<i>tortugarum, Serranus</i>	436-437	<i>tritonis variegata, Charonia</i>	44
TRACHICHTHYIDAE	228	Tritons	44
<i>Trachinocephalus</i>	447	TROCHIDAE	34, 46
<i>Trachinocephalus myops</i>	447	Trompeta pintada	264
TRACHINOIDEI	243	Trompetas	264
<i>Trachinotus</i>	293-295	Trompetero	357
<i>Trachinotus carolinus</i>	294	Trompeteros	357
<i>Trachinotus cayennensis</i>	294	Trompette tachetée	264
<i>Trachinotus falcatus</i>	294	Trompettes	264
<i>Trachinotus goodei</i>	295	Tropical flounder	277
<i>Trachurus</i>	295	Tropical two-wing flyingfish	319
<i>Trachurus lathamii</i>	295	<i>tropicalis, Mesopaeus</i>	130
<i>Trachycardium</i>	62	<i>tropicus, Paralichthys</i>	277
<i>Trachycardium isocardia</i>	62	Troque des Antilles	46
<i>Trachycardium muricatum</i>	62	Troques	46
<i>Trachypenaeus</i>	126-127	Trough shells	65
<i>Trachypenaeus constrictus</i>	127	True tulip	37
<i>Trachypenaeus similis</i>	127	Trumpetfish	264
<i>trachypoma, Ostichthys</i>	341	Trumpetfishes	230, 264
<i>tredecimspinosus, Scorpaenodes</i>	422	<i>truncatus, Palinustus</i>	142
Tree oysters	64	Trunkfish	378
TREMCTOPODIDAE	96	Trunkfishes	250, 377
<i>Tremoctopus</i>	96	<i>tuber, Lithopoma</i>	48
<i>Tremoctopus violaceus</i>	96	<i>tuberosa, Cassis</i>	36
<i>trewavasae, Sciaena</i>	411	<i>tuckeri, Monacanthus</i>	360
TRIACANTHODIDAE	249	<i>tudes, Sphyrna</i>	188
TRIAKIDAE	167, 190-192	Tulip mussel	66
<i>triangula, Polymesoda</i>	63	<i>tulipa, Fasciolaria</i>	37
TRICHIURIDAE	246, 450-451	<i>tulipa, Modiolus</i>	66
<i>Trichiurus</i>	451	Tulipán verdadero	37
<i>Trichiurus lepturus</i>	451	Tulipanes	37
<i>trichodon, Mugil</i>	363	Tulips	37
<i>Trichopsetta</i>	279-280	Tunas	246, 414
<i>Trichopsetta caribbaea</i>	279	Turban canaliculé	48
<i>Trichopsetta orbisulcus</i>	280	Turban imbriqué	48
<i>tricolor, Holacanthus</i>	382	Turban incisé	47
<i>tricostata, Turbinaria</i>	22	Turban marron	49
Triggerfishes	250, 264	Turban top shells	47
TRIGLIDAE	232, 451-453	Turban vert	48
Trigonal tivela	76	Turbans	47
<i>Trigoniocardia media</i>	61	Turbante acanalado	48
<i>trigonus, Lactophrys</i>	378	Turbante castaña	49
<i>trigrinus, Serranus</i>	437	Turbante imbricado	48
<i>Trinectes</i>	439	Turbante tallado	47
<i>Trinectes inscriptus</i>	439	Turbante verde	48
<i>Trinectes paulistanus</i>	439	Turbantes	47
Trinidad anchovy	312	<i>Turbinaria</i>	22
<i>trinitatis, Anchoa</i>	312	<i>Turbinaria tricostata</i>	22
<i>tripes, Nealotus</i>	324	<i>Turbinaria turbinata</i>	22
Tripletail	348	<i>turbinata, Turbinaria</i>	22
Tripletails	238, 348	Turbinelle des Caraïbes	47
<i>triporiceps, Conger</i>	303	Turbinelle épineuse	47
<i>triqueter, Lactophrys</i>	378	Turbinelles	47

TURBINELLIDAE	34, 47	Vase shells	47
TURBINIDAE	35, 47-49	VASIDAE	34, 47-49
<i>Turbo</i>	48-49	Vaso del Caribe	47
<i>Turbo canaliculatus</i>	48	Vaso espinoso	47
<i>Turbo castanea</i>	49	Vasos	47
Turkey wing	60	Vasum	47
Twospot flounder	274	<i>Vasum capitellum</i>	47
<i>tyleri, Sphoeroides</i>	451	<i>Vasum muricatum</i>	47
<i>Tylosurus</i>	270	<i>velox, Euleptorhamphus</i>	337
<i>Tylosurus acus acus</i>	270	<i>venenosa, Myciroperca</i>	433
<i>Tylosurus crocodilus crocodilus</i>	270	VENERIDAE	59, 74-76
<i>typhlops, Polychelis</i>	135	<i>venezuelae, Stellifer</i>	413
<i>typica, Sycyonia</i>	130	Venezuelan grouper	431
<i>typus, Rhincodon</i>	183	<i>Ventricolaria</i>	76
		<i>Ventricolaria rigida</i>	76
		Vénus	74
		Venus	74
		Venus clams	74
		Venus cuadrilla	74
		Venus princesa	75
		Vénus quadrillée	74
		Venus real	74
		<i>Venus rigida</i>	76
		Vénus royale	74
		<i>veranyi, Abralia</i>	83
		Verilo negro	357
		<i>Verilus</i>	357
		<i>Verilus sordidus</i>	357
		Vermilion snapper	356
		Vernis	74
		<i>Vernis calicot</i>	75
		<i>verrucosa, Gracilaria</i>	24
		Verrue de roche	408
		Verrue titête	404
		Verrues	397
		Verrugato maroto	399
		Verrugato petota	413
		Verrugato rayado	413
		Verrugatos	397
		<i>vetula, Balistes</i>	265
		<i>vetula, Scarus</i>	394
		<i>vexillarius, olocentrus</i>	340
		<i>vicinus, Lycodontis</i>	368
		Vieira lonjúa	68
		Vieira papiro	67
		Vieira zigzag	69
		Vieiras	67
		Vieja	435
		Vieja colorada	345
		Vieja lomonegro	345
		Viejas	344
		<i>vincenti, Octopus</i>	97
		<i>violaceus, Tremoctopus</i>	96
		Viper moray	367
		<i>virescens, Cynoscion</i>	402
		<i>virescens, Voluta</i>	49
		<i>virginicus, Anisotremus</i>	329
		<i>virginicus, Polydactylus</i>	381
		<i>viride, Sparisoma</i>	397
		<i>vittata, Channomuraena</i>	366
		<i>vittata, Inermia</i>	342
		<i>vitulus, Hexanchus</i>	179
U			
<i>Ucides</i>	157		
<i>Ucides cordatus</i>	157		
<i>Ulaema</i>	327		
<i>Ulva</i>	19		
<i>Ulva fasciata</i>	19		
<i>Ulva lactuca</i>	19		
<i>Ulvaria oxysperma</i>	19		
<i>Umbrina</i>	413		
<i>Umbrina broussonnetii</i>	413		
<i>Umbrina coroides</i>	413		
<i>umbrosus, Equetus</i>	403		
<i>undecimalis, Centropomus</i>	297		
<i>undulatus, Micropogonias</i>	407		
<i>unicirrhus, Scaergus</i>	101		
<i>unicolor, Hypoplectrus</i>	435		
Unicornfishes	226		
<i>unifasciatus, Hyporhamphus</i>	339		
<i>Upeneus</i>	364		
<i>Upeneus parvus</i>	364		
Uranoscope épineux	454		
Uranoscope tâcheté	454		
Uranoscopes	454		
URANOSCOPIDAE	243, 454		
<i>Uraspis</i>	295		
<i>Uraspis secunda</i>	295		
<i>Uroconger</i>	304		
<i>Urophycis</i>	321		
<i>Urophycis cirrata</i>	321		
<i>Uropterygius</i>	370		
<i>Uropterygius diopus</i>	370		
<i>usta, Nicholsina</i>	391		
V			
<i>vaillantii, Brachyplatystoma</i>	379		
<i>valdezi, Citharichthys</i>	275		
Valentón	379		
Valentones	379		
Varèche	425		
Varêches	423		
<i>variabilis, Pomacentrus</i>	385		
<i>variegata, Charonia tritonis</i>	44		
<i>variegatus, Cyprinodon</i>	306		

Viuda amarilla	191
Viudas	190
Vivaneau chien	353
Vivaneau cubéra	352
Vivaneau dentchien	352
Vivaneau gazou	354
Vivaneau noir	350
Vivaneau oreille noire	352
Vivaneau queue jaune	355
Vivaneau rouge	354
Vivaneau royal	351
Vivaneau sarde gris	353
Vivaneau soie	354
Vivaneau sorbe	351
Vivaneau ti-yeux	356
Vivaneau voyeur	353
Vivaneaux	350
<i>vivanus, Hemanthias</i>	425
<i>vivanus, Lutjanus</i>	354
Voilier de l'Atlantique	342
Voiliers	342
Volador	319
Volador aletón	320
Volador atlántico	318
Volador bandiblanco	318
Volador bordiblanco	318
Volador espejo	319
Volador golondrina	319
Volador holandés	318
Volador jorobado	320
Volador manchado	318
Volador ñato	319
Voladores	317
<i>volitans, Dactylopterus</i>	307
<i>volitans, Exocoetus</i>	319
<i>Voluta</i>	49
<i>Voluta musica</i>	49
Voluta musical	49
Voluta verde	49
<i>Voluta virescens</i>	49
Volutas	49
Volute musique	49
Volute verte	49
Volutes	49
VOLUTIDAE	35, 49
<i>vomer, Selene</i>	291
<i>vulgare, Sargassum</i>	21
<i>vulgaris, Octopus</i>	98
<i>vulpes, Albula</i>	253
<i>vulpinus, Alopias</i>	168

W

Wahoo	414
Wahoos	246, 414
Warsaw grouper	429
Weakfishes	239, 397
Wedge clams	63
Wenchman	355
West Indian crown conch	40

West Indian murex	40
West Indian top shell	46
Western Atlantic seabream	440
Whale shark	183
Whale sharks	166, 183
Wheelks	40
Whiprays	196, 198
White grunt	334
White margate	331
White marlin	343
White mullet	361
White shark	180
White sharks	166, 180
White-saddled catshark	185
White-spotted octopus	98
Whitebelly prawn	118
Whitfin sharksucker	308
Whitemouth croaker	407
Wingfin anchovy	316
Wormfishes	245
Wrasses	242, 344

X

<i>Xanthichthys</i>	266
<i>Xanthichthys ringens</i>	266
XANTHIDAE	152, 162
XENOCONGRIDAE	216
<i>Xenomelaniris</i>	263
<i>Xenomelaniris brasiliensis</i>	263
<i>Xiphias</i>	455
<i>Xiphias gladius</i>	455
XIPHIIDAE	247, 454-455
<i>Xiphopenaeus</i>	128
<i>Xiphopenaeus kroyeri</i>	128
<i>Xirichthys novacula</i>	347

Y

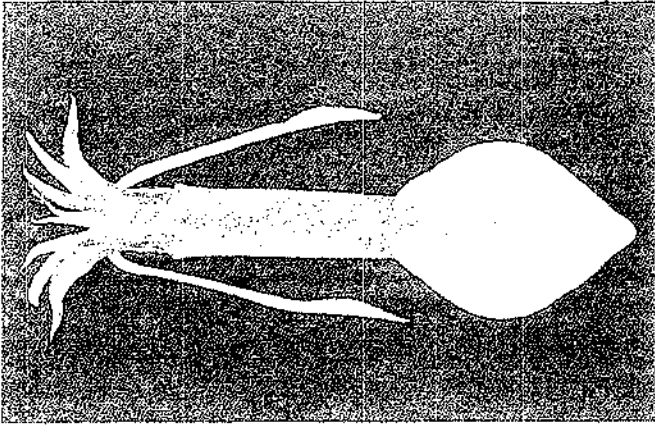
<i>y-graecum, Astroscopus</i>	454
Yellow box crab	154
Yellow cockle	62
Yellow conger	303
Yellow goatfish	363
Yellow jack	284
Yellow roughneck shrimp	127
Yellow sea chub	344
Yellowedge grouper	427
Yellowfin grouper	433
Yellowfin mojarra	328
Yellowfin river pellona	390
Yellowfin tuna	418
Yellowmouth grouper	431
Yellowtail damselfish	385
Yellowtail snapper	355
<i>yegeri, Sphoeroides</i>	450
<i>yoshiae, Anarchias</i>	366

Z

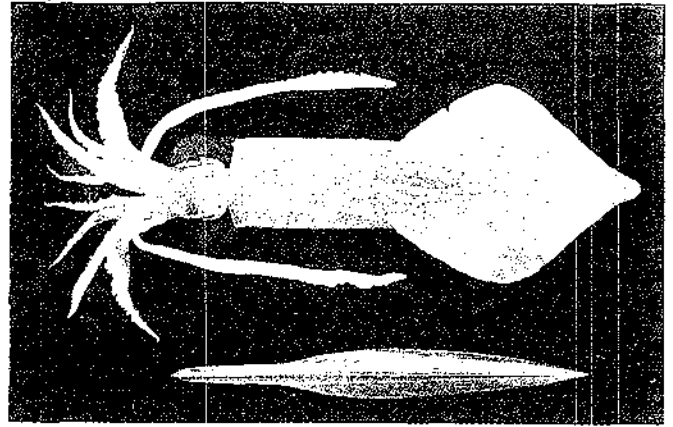
Zabaleta anchovy	313
<i>zaleucus</i> , <i>Thaumastocheles</i>	134
Zapatero castin	289
Zapatero palometa	289
Zapatero sietecueros	290
Zapateros	283
<i>zebra</i> , <i>Arca</i>	60
ZEIDAE	229, 455-456
ZEIFORMES	228
<i>Zenopsis</i>	456
<i>Zenopsis conchifer</i>	456
<i>Zenopsis ocellata</i>	456
<i>ziczac</i> , <i>Pecten</i>	69
Zigzag scallop	69
<i>zonata</i> , <i>Seriola</i>	293
<i>zonatus</i> , <i>Octopus</i>	99
Zorro	168
Zorro ojón	168
<i>zygaena</i> , <i>Sphyrna</i>	188

COLOUR PLATES

PLATE I
CEPHALOPODS

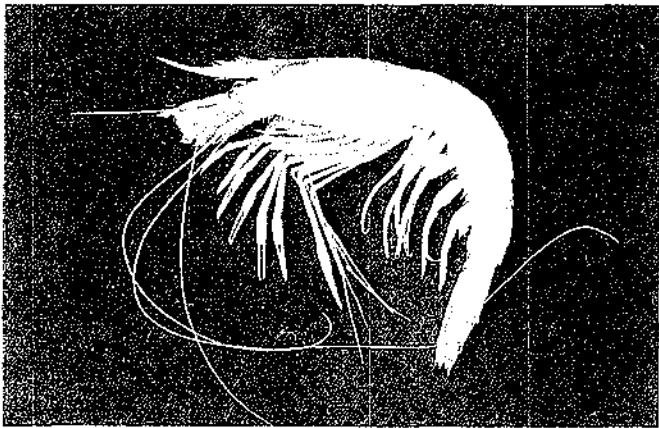


1. LOLIGINIDAE: *Doryteuthis plei*
(photo by J. Kolding)

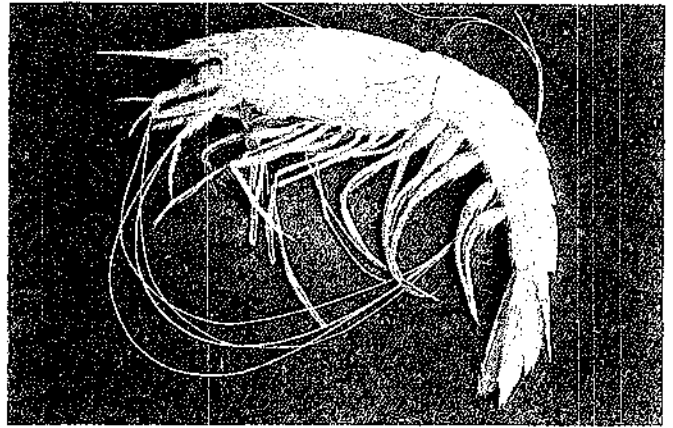


2. LOLIGINIDAE: *Loligo pealei*
(photo by J. Kolding)

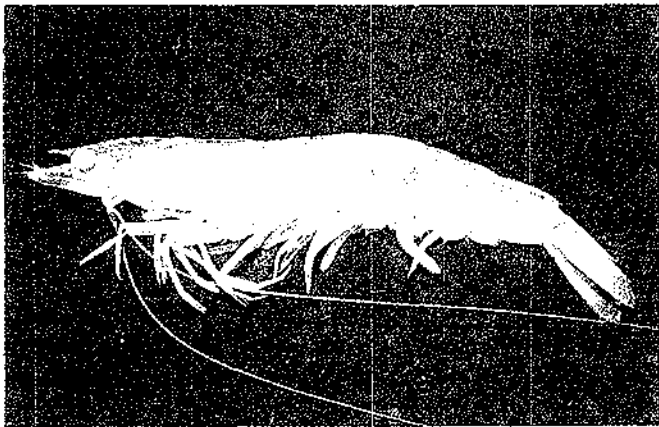
SHRIMPS



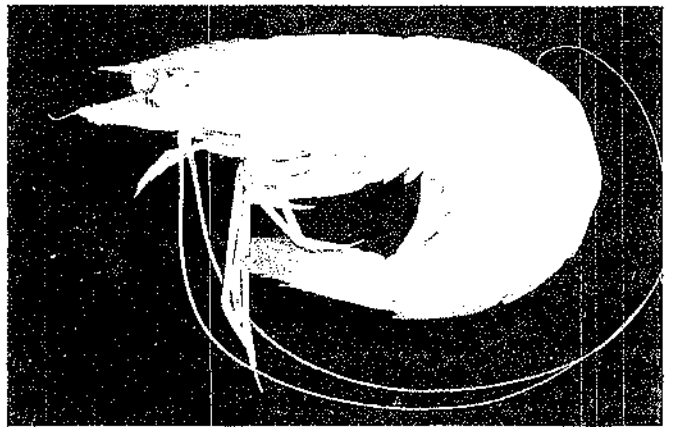
3. ARISTEIDAE: *Aristeus antillensis*
(photo by J. Kolding)



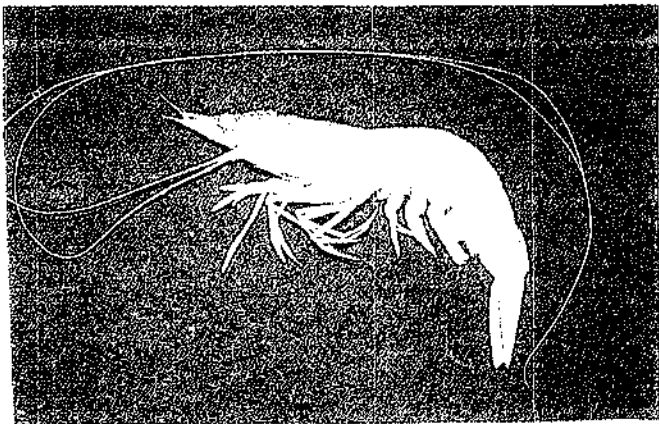
4. ARISTEIDAE: *Plesiopenaeus edwardsianus*
(photo by J. Kolding)



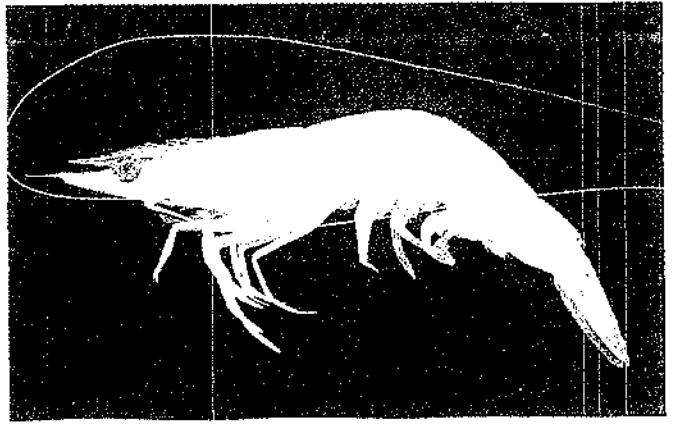
5. PENAEIDAE: *Penaeus brasiliensis*
(photo by J. Kolding)



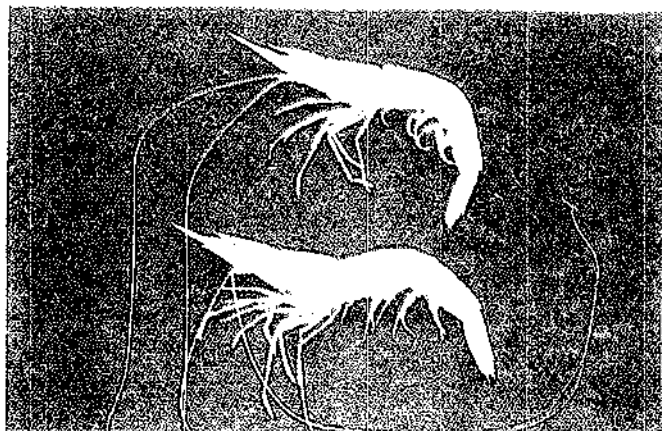
6. PENAEIDAE: *Penaeus notialis*
(photo by J. Kolding)



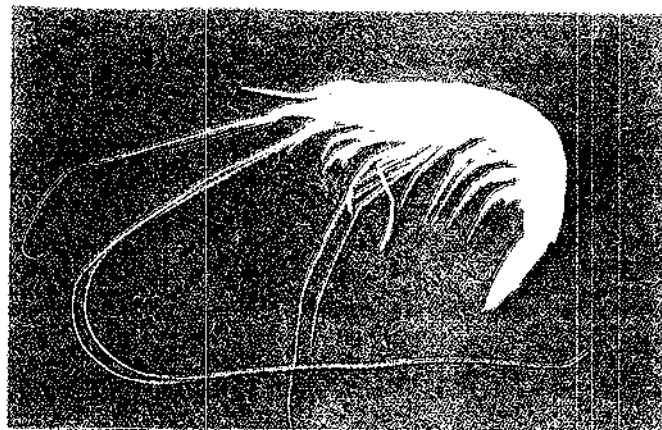
7. PENAEIDAE: *Penaeus schmitti*
(photo by J. Kolding)



8. PENAEIDAE: *Penaeus subtilis*
(photo by J. Kolding)

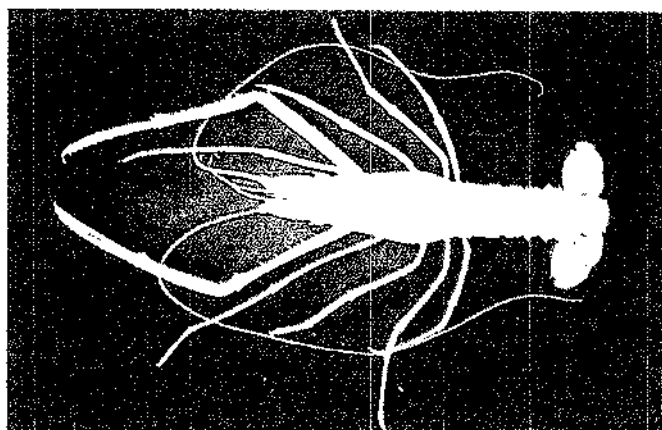


9. PENAEIDAE: *Trachypenaeus similis*
(photo by J. Kolding)

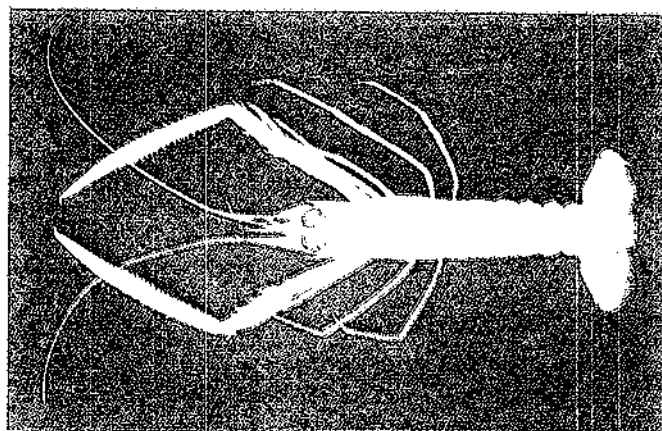


10. PENAEIDAE: *Xiphopenaeus kroyeri*
(photo by J. Kolding)

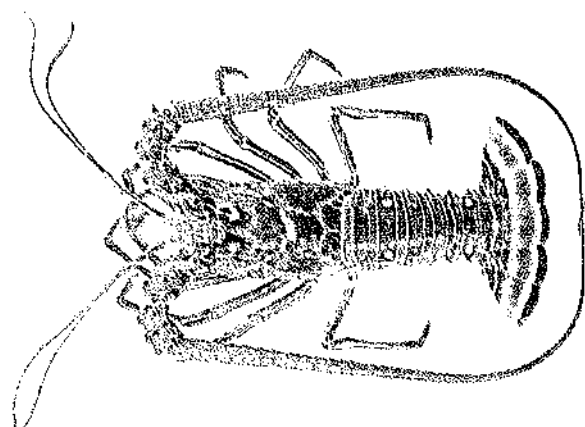
LOBSTERS



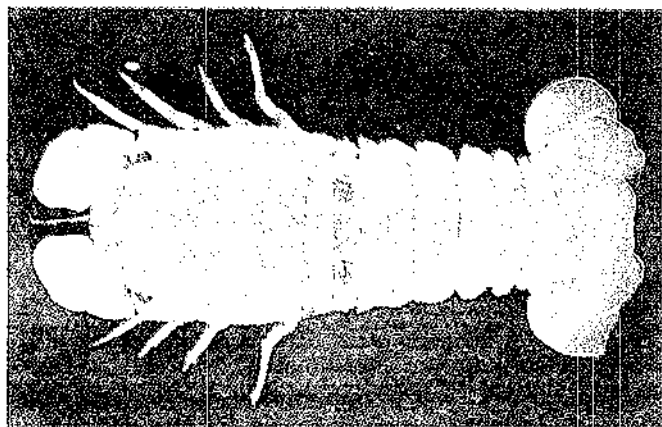
11. NEPHROPIDAE: *Acanthacaris caeca*
(photo by J. Kolding)



12. NEPHROPIDAE: *Metanephrops binghami*
(photo by J. Kolding)

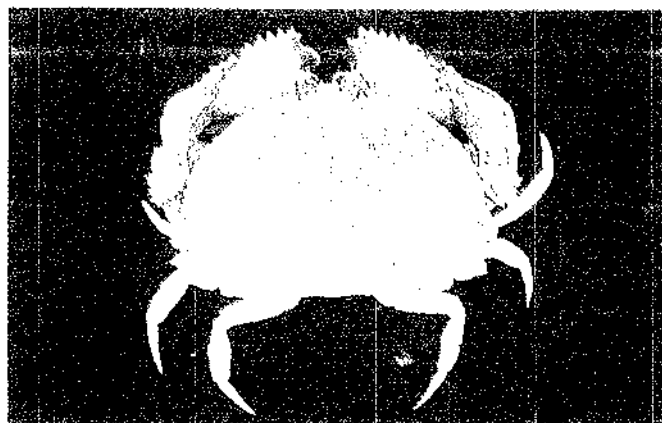


13. PALINURIDAE: *Panulirus argus*
(photo by J. Kolding)

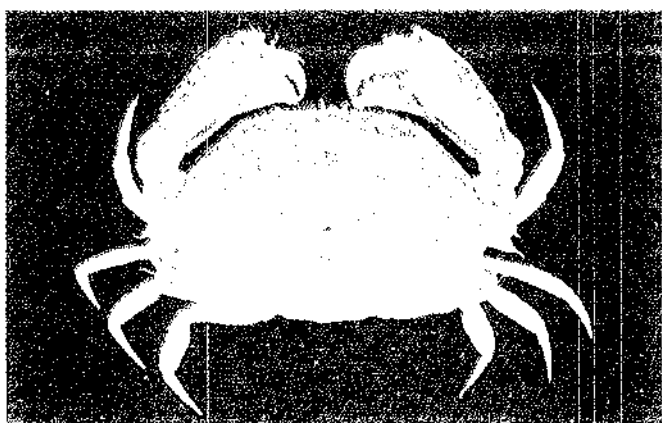


14. SCYLLARIDAE: *Scyllarides delfosi*
(photo by J. Kolding)

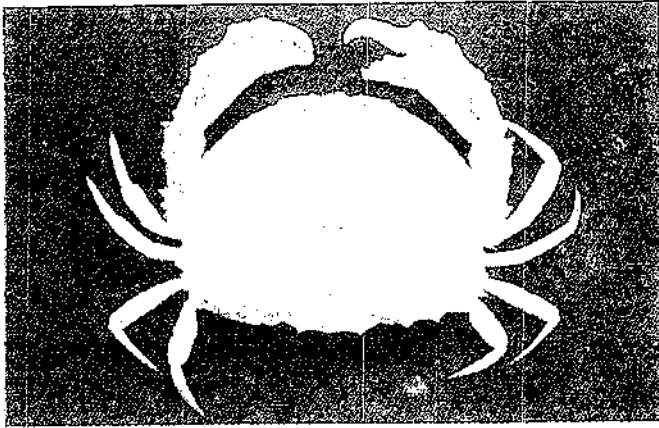
CRABS



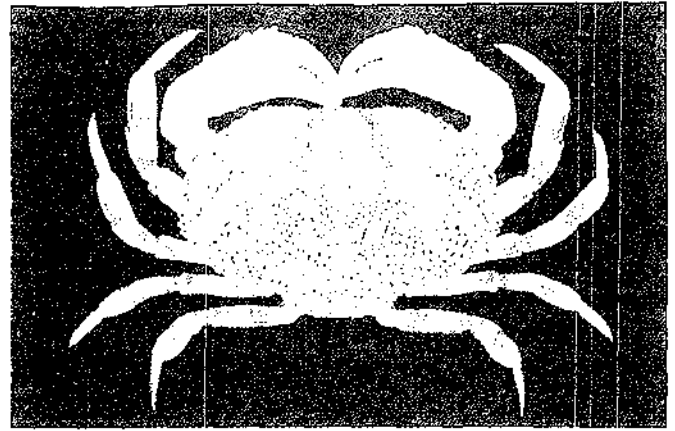
15. CALAPPIDAE: *Calappa flammea*
(photo by J. Kolding)



16. CALAPPIDAE: *Calappa nitida*
(photo by J. Kolding)

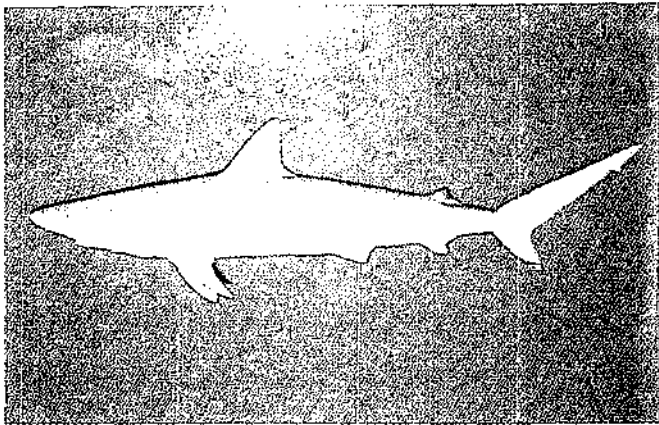


17. CALAPPIDAE: *Calappa sulcata*
(photo by J. Kolding)

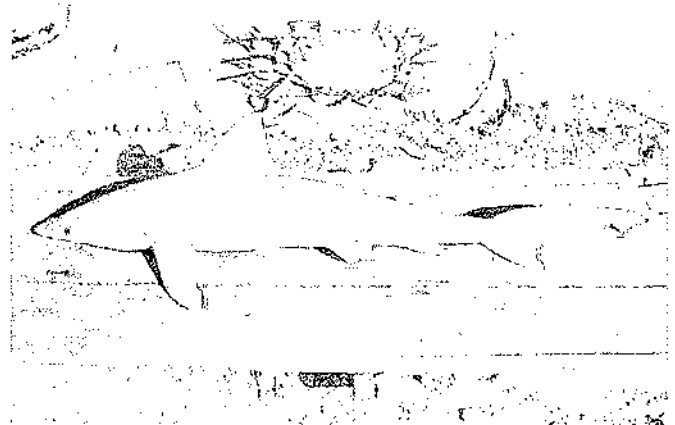


18. CALAPPIDAE: *Hepatus pudibundus*
(photo by J. Kolding)

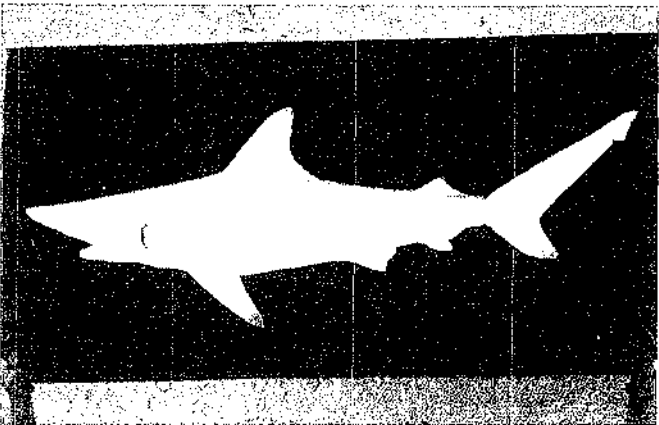
SHARKS



19. CARCHARHINIDAE: *Carcharhinus acronotus*
(photo by J. Kolding)



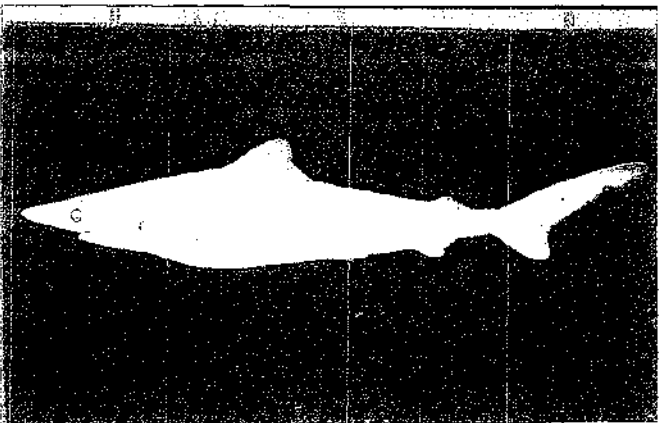
20. CARCHARHINIDAE: *Carcharhinus leucas*
(photo by F. Cervigón)



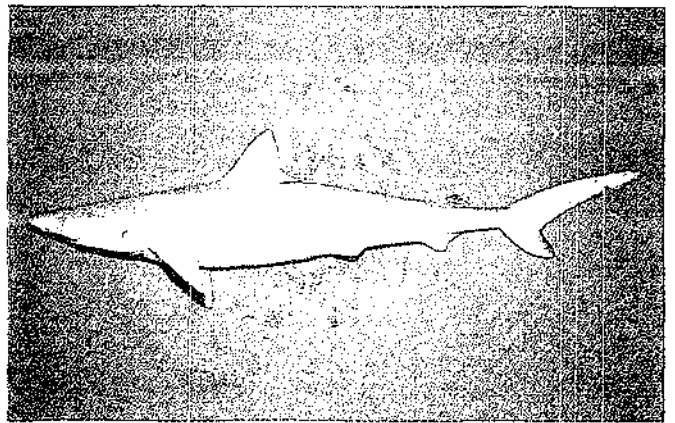
21. CARCHARHINIDAE: *Carcharhinus limbatus*
(photo by J. Kolding)



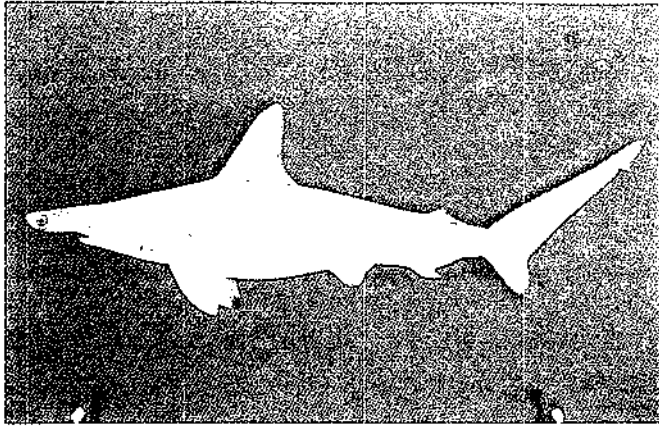
22. CARCHARHINIDAE: *Carcharhinus perezii*
(photo by F. Cervigón)



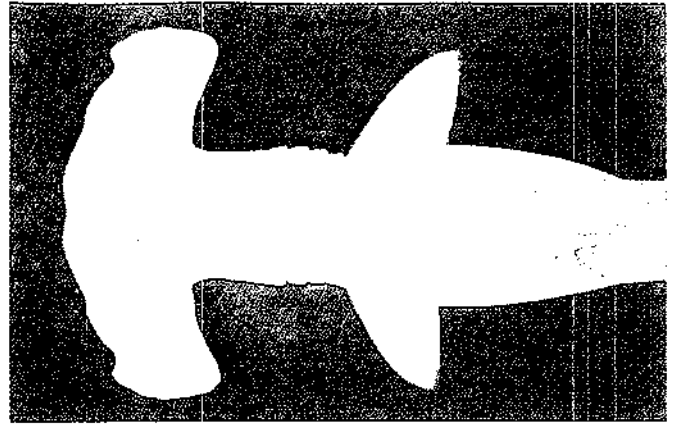
23. CARCHARHINIDAE: *Carcharhinus porosus*
(photo by J. Kolding)



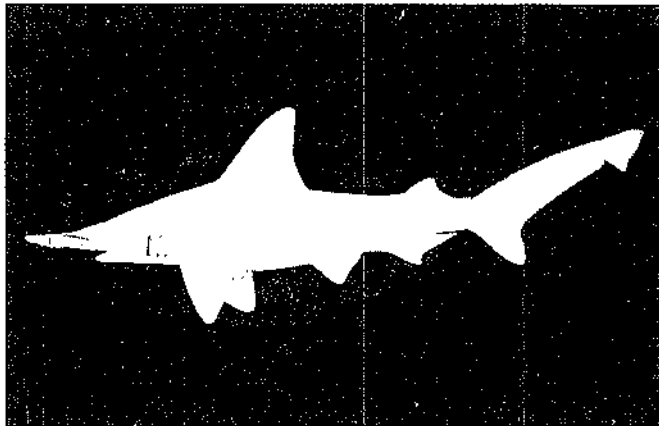
24. CARCHARHINIDAE: *Rhizoprionodon porosus*
(photo by J. Kolding)



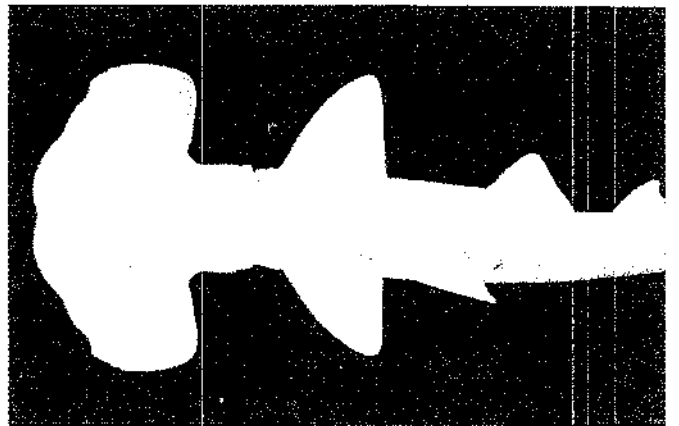
25. SPHYRNIDAE: *Sphyrna lewini*
(photo by J. Kolding)



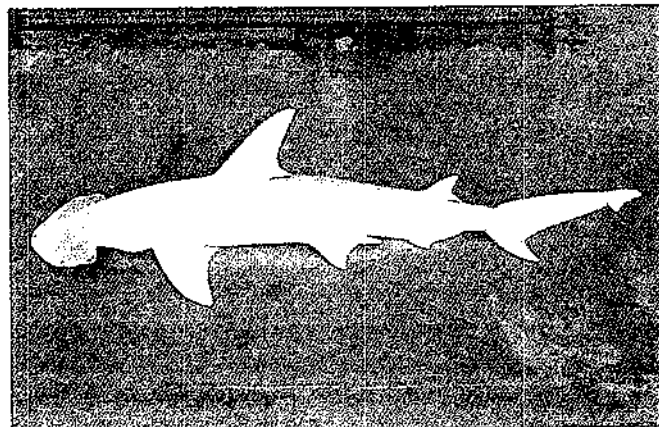
26. SPHYRNIDAE: *Sphyrna lewini* (head)
(photo by J. Kolding)



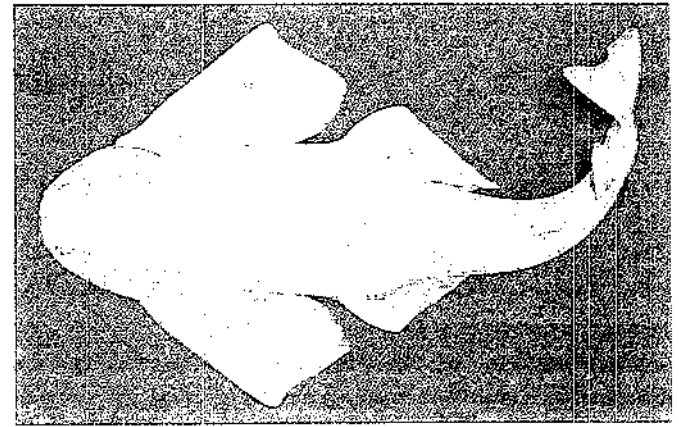
27. SPHYRNIDAE: *Sphyrna tudes*
(photo by J. Kolding)



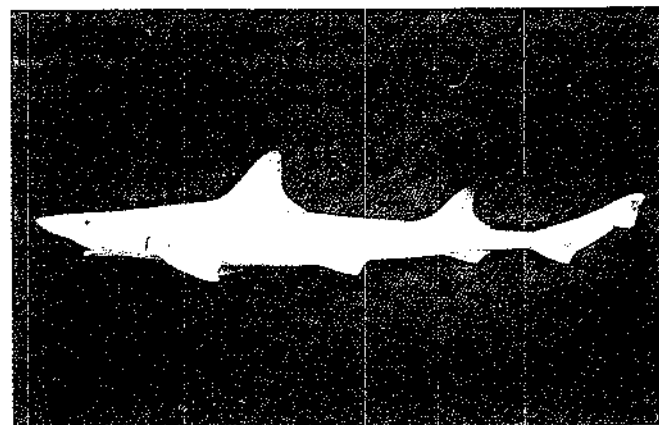
28. SPHYRNIDAE: *Sphyrna tudes* (head)
(photo by J. Kolding)



29. SPHYRNIDAE: *Sphyrna tiburo*
(photo by J. Kolding)



30. SQUATINIDAE: *Squatina dumeril*
(photo by J. Kolding)



31. TRIAKIDAE: *Mustelus canis*
(photo by J. Kolding)

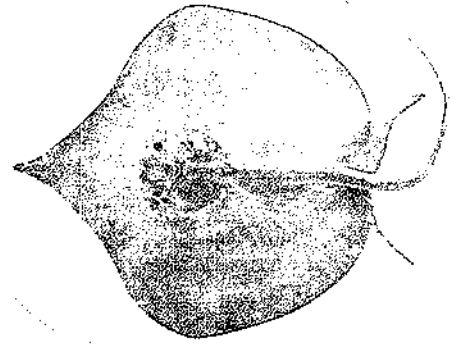


32. TRIAKIDAE: *Mustelus higmani*
(photo by F. Cervigón)

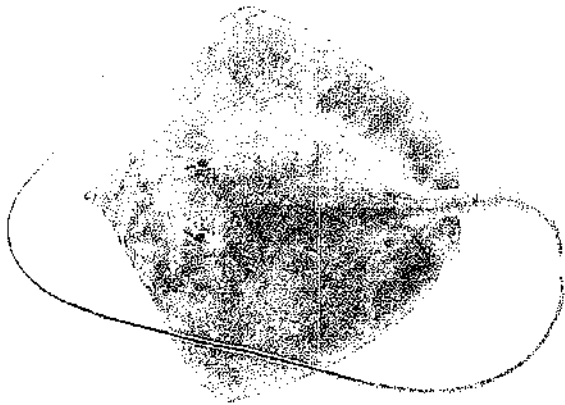
PLATE V
BATOID FISHES



33. DASYATIDAE: *Dasyatis americana*
(photo by F. Cervigón)



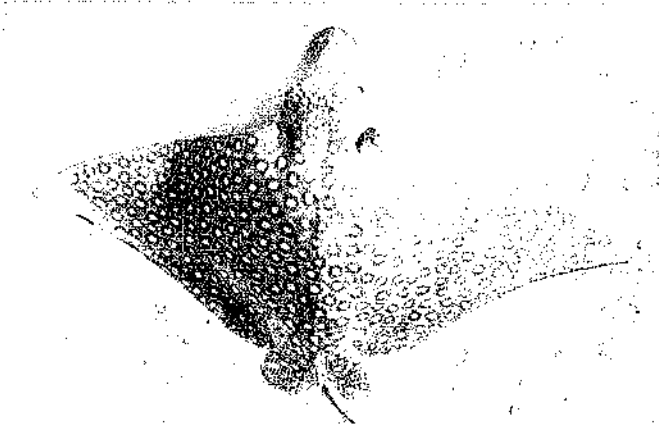
34. DASYATIDAE: *Dasyatis geijkesi*
(photo by J. Kolding)



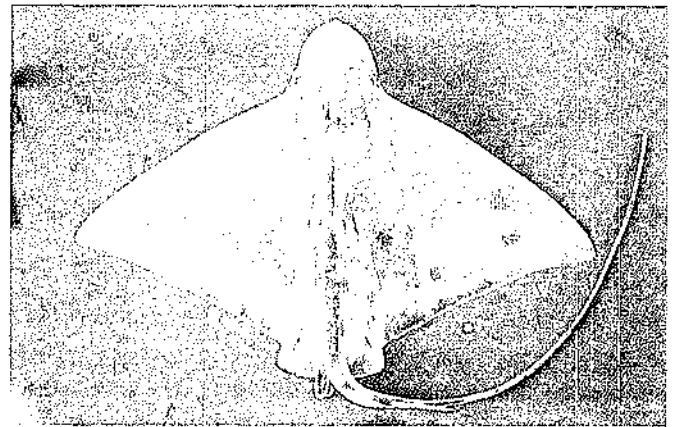
35. DASYATIDAE: *Dasyatis guttata*
(photo by J. Kolding)



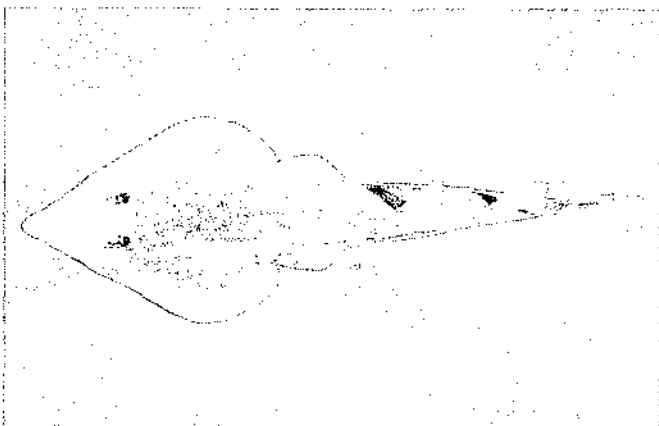
36. GYMNURIDAE: *Gymnura micrura*
(photo by J. Kolding)



37. MYLIOBATIDAE: *Aetobatus narinari*
(photo by F. Cervigón)



38. MYLIOBATIDAE: *Myliobatis freminvillei*
(photo by J. Kolding)

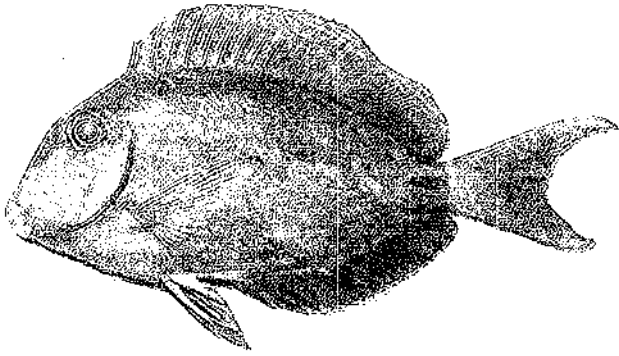


39. RHINOBATIDAE: *Rhinobatos percellens*
(photo by F. Cervigón)

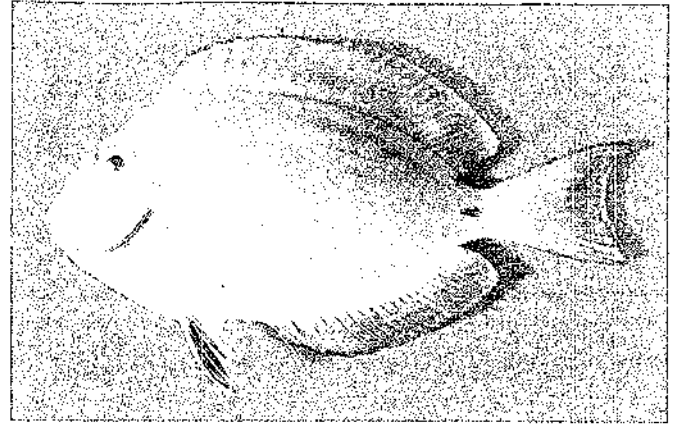


40. TORPEDINIDAE: *Narcine brasiliensis*
(photo by F. Cervigón)

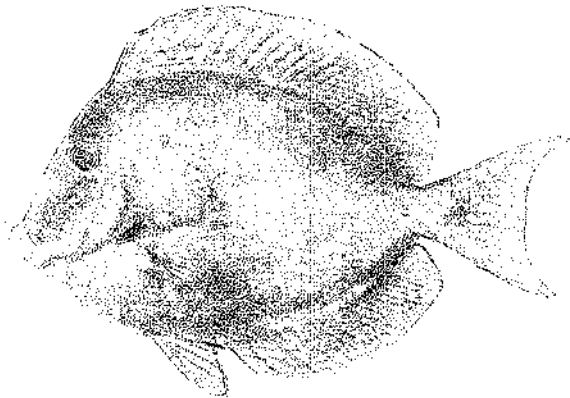
PLATE VI
BONY FISHES



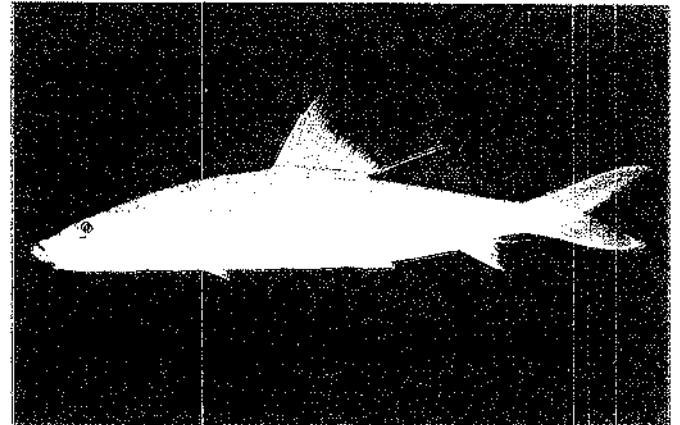
41. ACANTHURIDAE: *Acanthurus bahianus*
(photo by F. Cervigón)



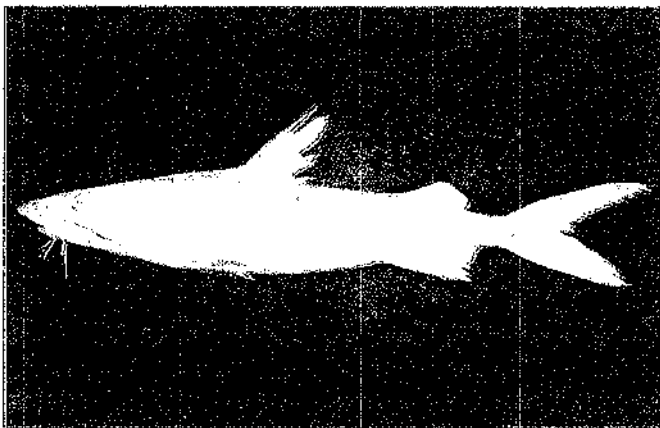
42. ACANTHURIDAE: *Acanthurus chirurgus*
(photo by F. Cervigón)



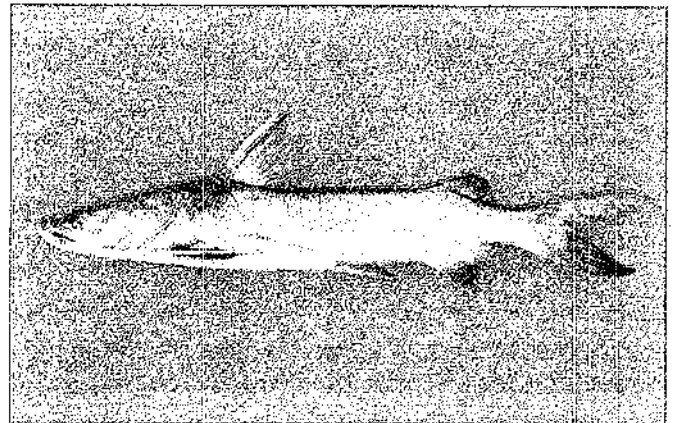
43. ACANTHURIDAE: *Acanthurus coeruleus*
(photo by F. Cervigón)



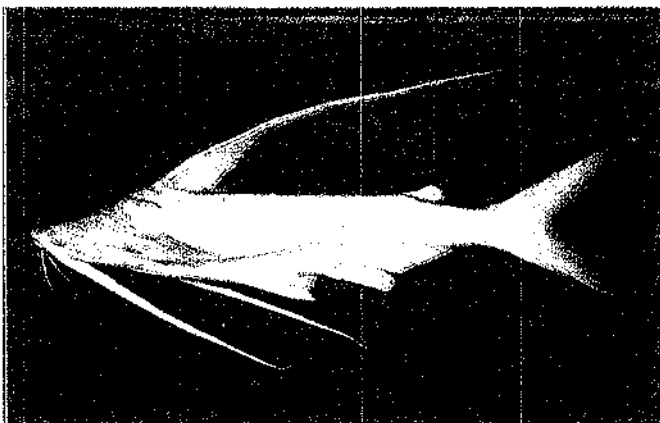
44. ALBULIDAE: *Albula nemoptera*
(photo by J. Kolding)



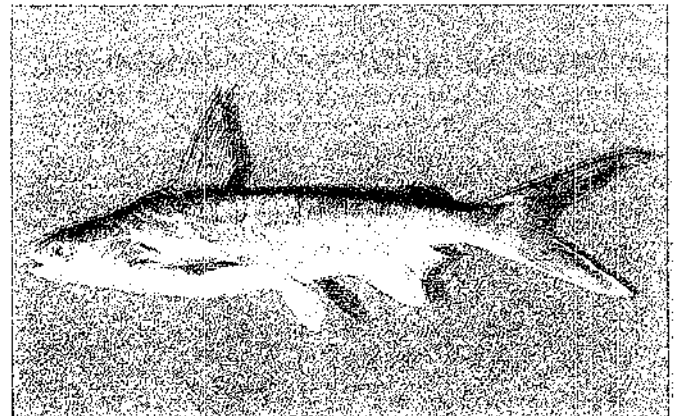
45. ARIIDAE: *Arius grandicassis*
(photo by J. Kolding)



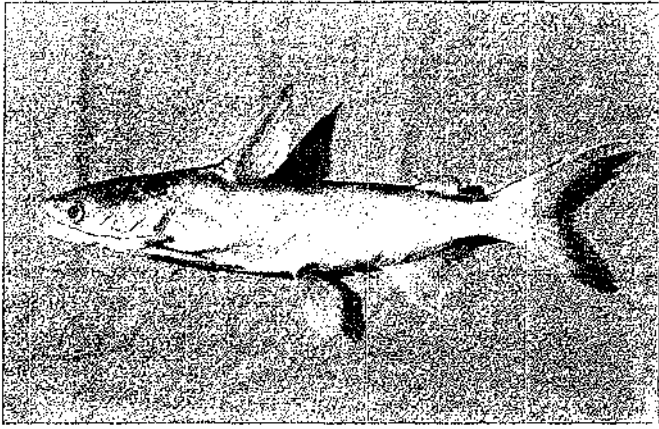
46. ARIIDAE: *Arius proops*
(photo by F. Cervigón)



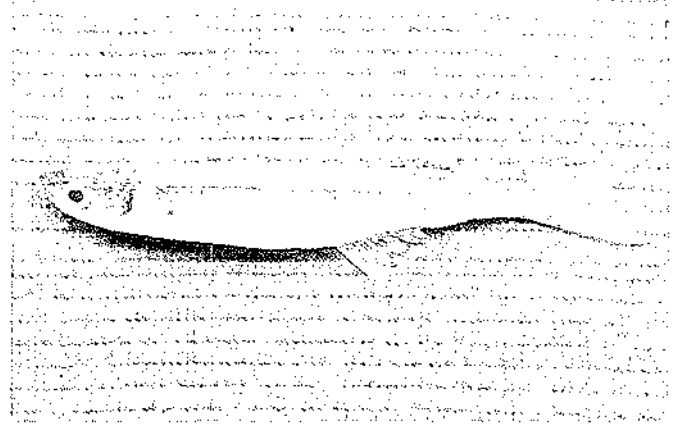
47. ARIIDAE: *Bagre bagre*
(photo by J. Kolding)



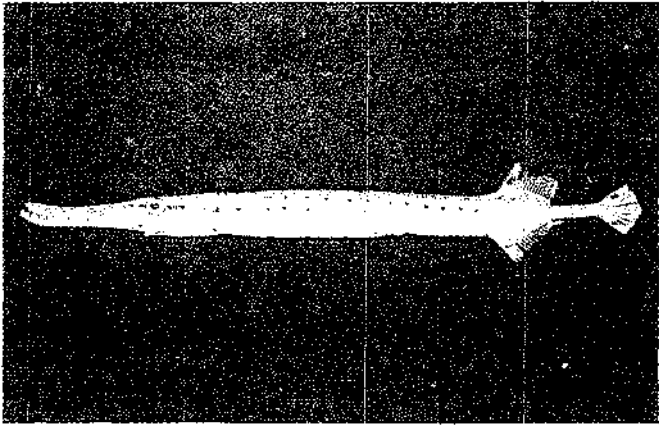
48. ARIIDAE: *Bagre marinus*
(photo by F. Cervigón)



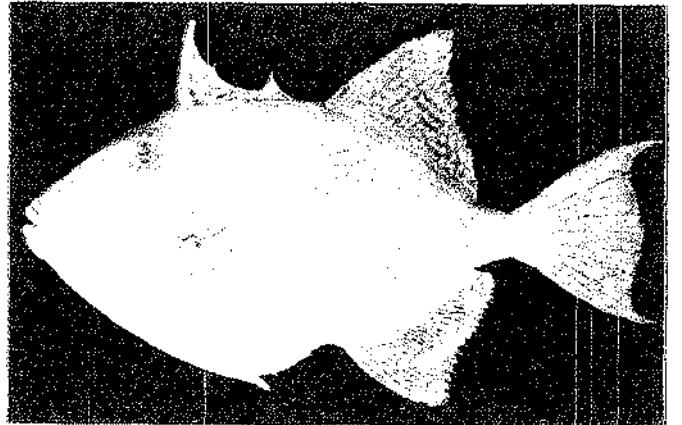
49. ARIIDAE: *Cathorops spixii*
(photo by F. Cervigón)



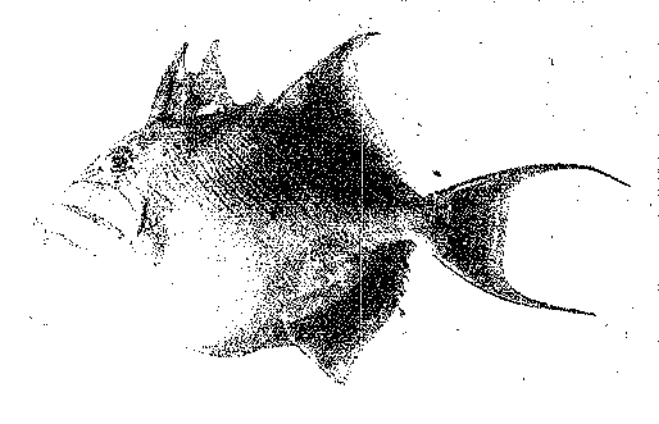
50. ATHERINIDAE: *Xenomelaniris brasiliensis*
(photo by F. Cervigón)



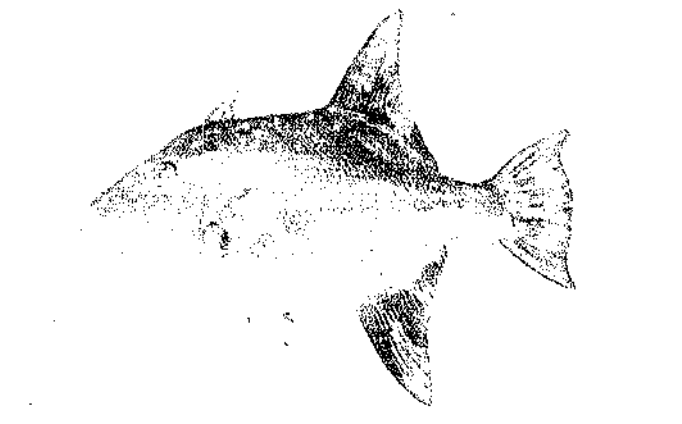
51. AULOSTOMIDAE: *Aulostomus maculatus*
(photo by J. Kolding)



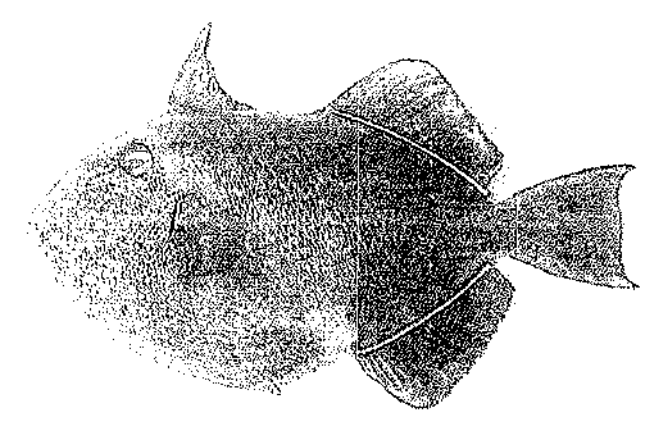
52. BALISTIDAE: *Balistes capriscus*
(photo by J. Kolding)



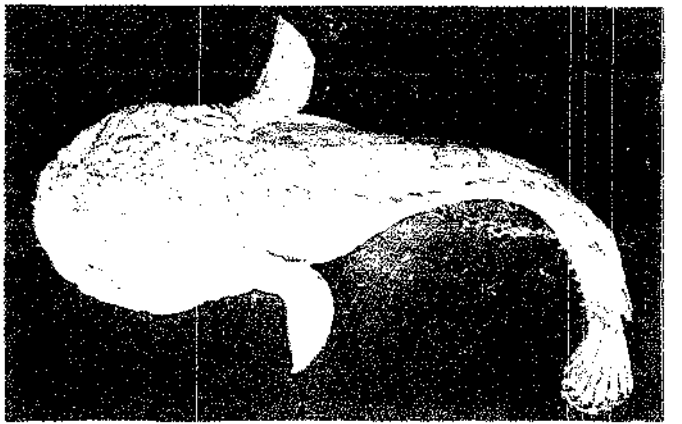
53. BALISTIDAE: *Balistes vetula*
(photo by F. Cervigón)



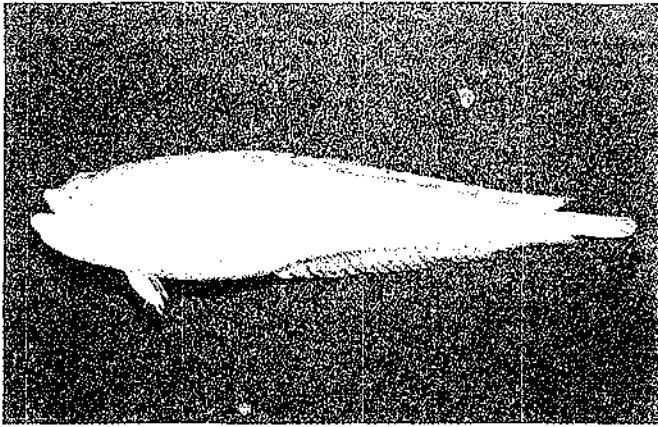
54. BALISTIDAE: *Canthidermis maculata*
(photo by F. Cervigón)



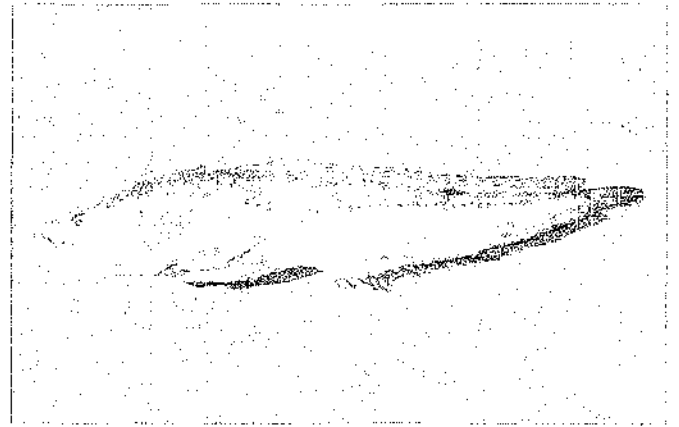
55. BALISTIDAE: *Melichthys niger*
(photo by F. Cervigón)



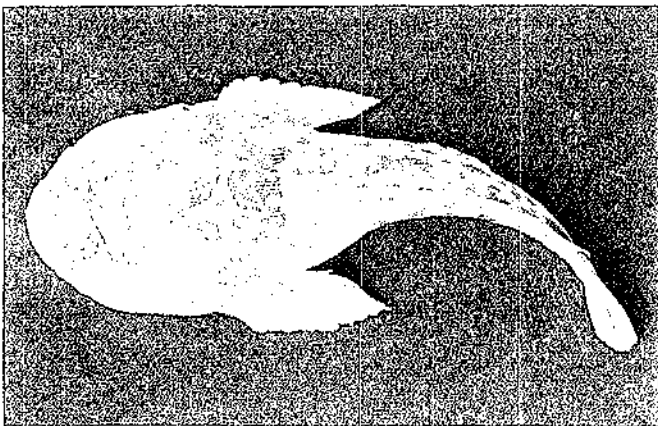
56. BATRACHOIDIDAE: *Batrachoides surinamensis*
(photo by J. Kolding)



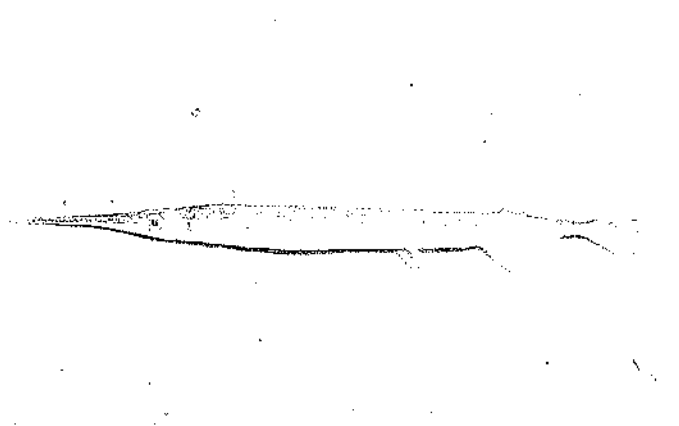
57. BATRACHOIDIDAE: *Porichthys pauciradiatus*
(photo by J. Kolding)



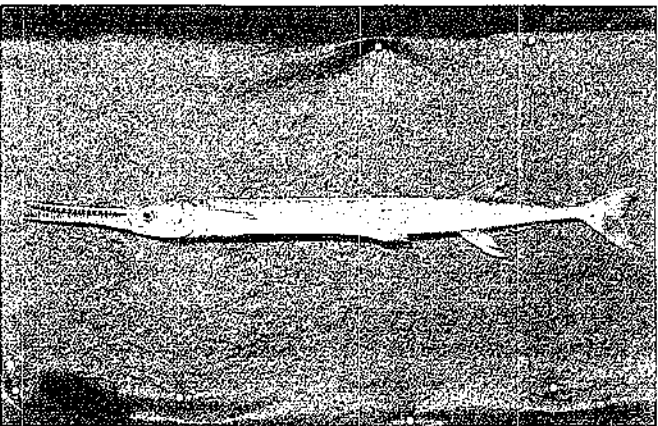
58. BATRACHOIDIDAE: *Porichthys plectrodon*
(photo by J. Kolding)



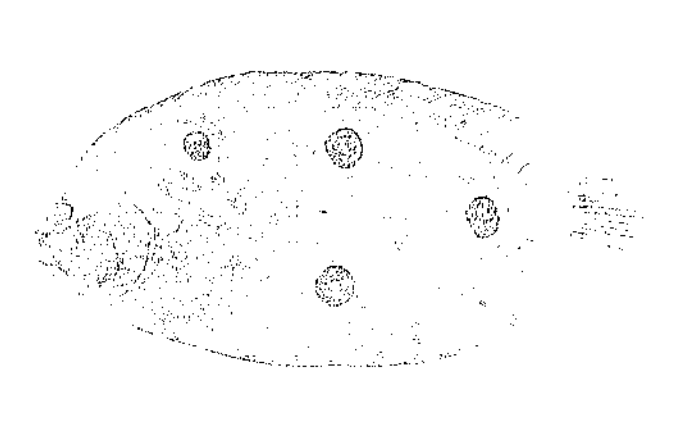
59. BATRACHOIDIDAE: *Thalassophryne maculosa*
(photo by J. Kolding)



60. BELONIDAE: *Strongylura marina*
(photo by F. Cervigón)



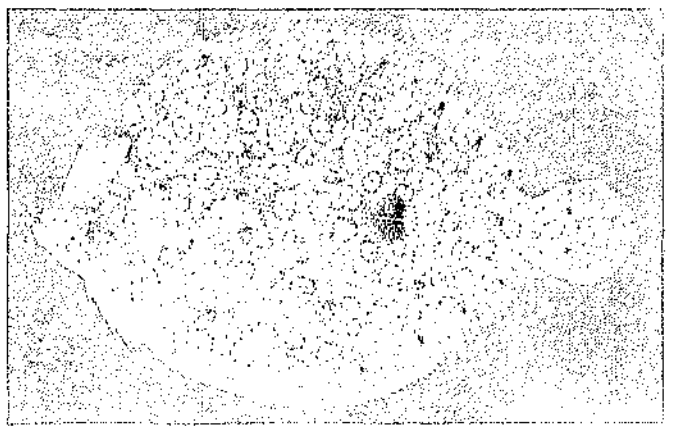
61. BELONIDAE: *Tylosurus crocodilus*
(photo by F. Cervigón)



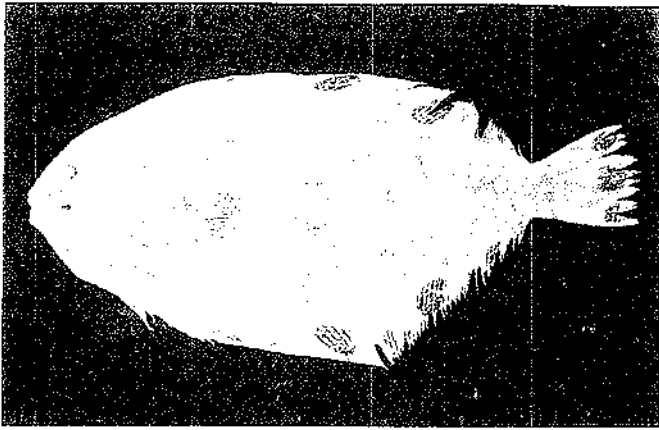
62. BOTHIDAE: *Ancylosetta kumerae*
(photo by F. Cervigón)



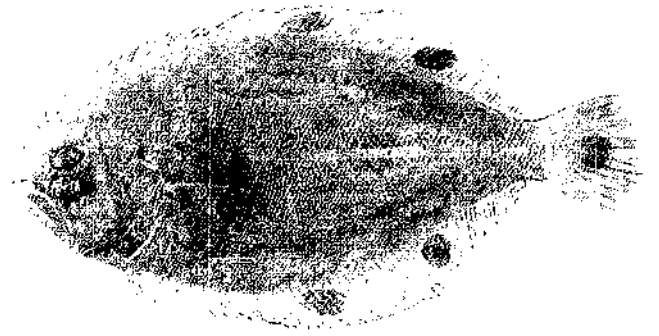
63. BOTHIDAE: *Bothus lunatus*
(photo by F. Cervigón)



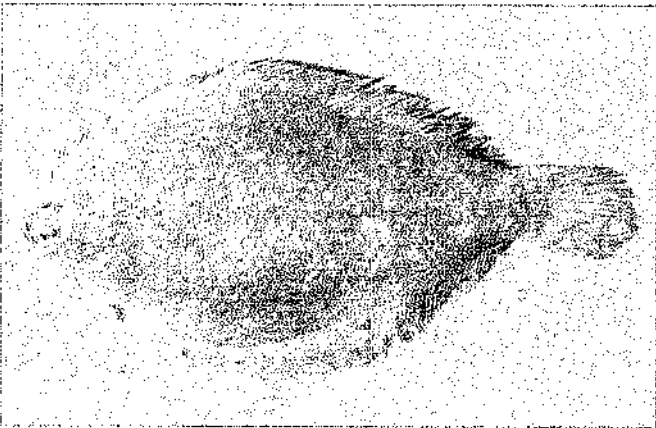
64. BOTHIDAE: *Bothus ocellatus*
(photo by F. Cervigón)



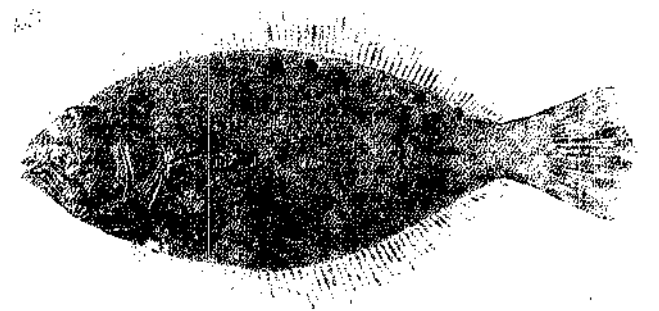
65. BOTHIDAE: *Cyclopsetta chittendeni*
(photo by J. Kolding)



66. BOTHIDAE: *Cyclopsetta fimbriata*
(photo by F. Cervigón)



67. BOTHIDAE: *Etropus crossotus*
(photo by F. Cervigón)



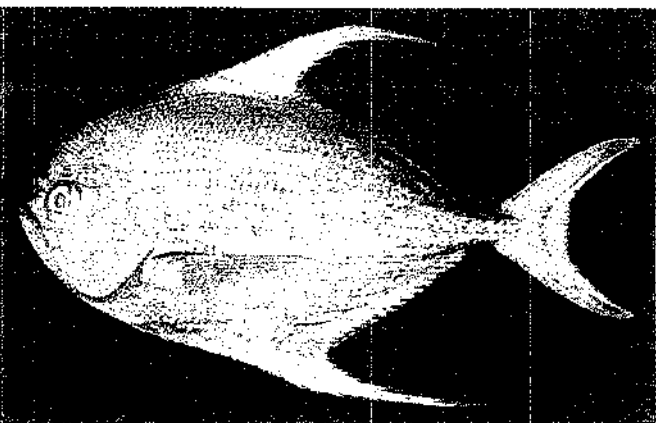
68. BOTHIDAE: *Paralichthys tropicus*
(photo by F. Cervigón)



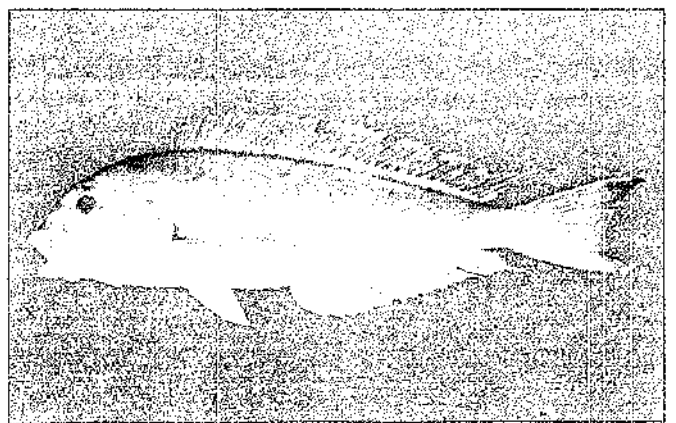
69. BOTHIDAE: *Syacium papillosum* (female)
(photo by F. Cervigón)



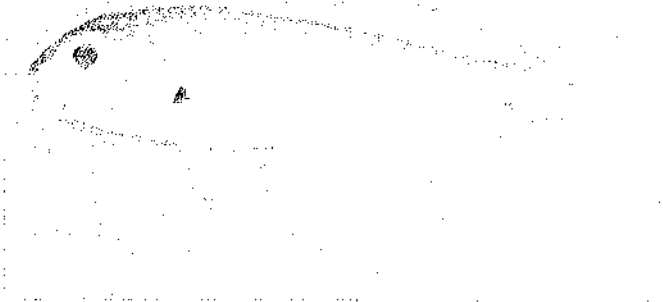
70. BOTHIDAE: *Syacium papillosum* (male)
(photo by F. Cervigón)



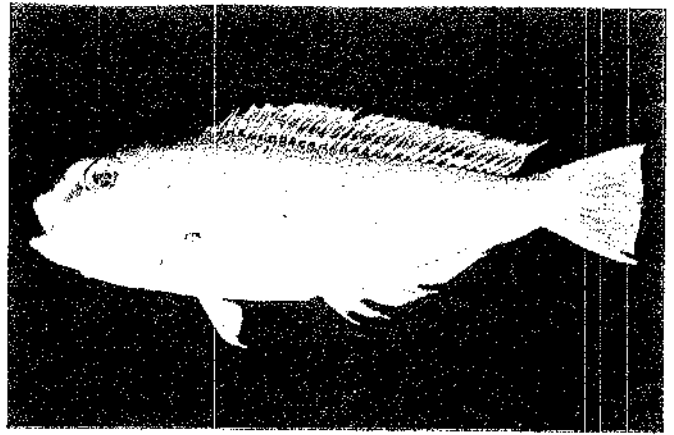
71. BRAMIDAE: *Taractichthys longispinnis*
(photo by J. Kolding)



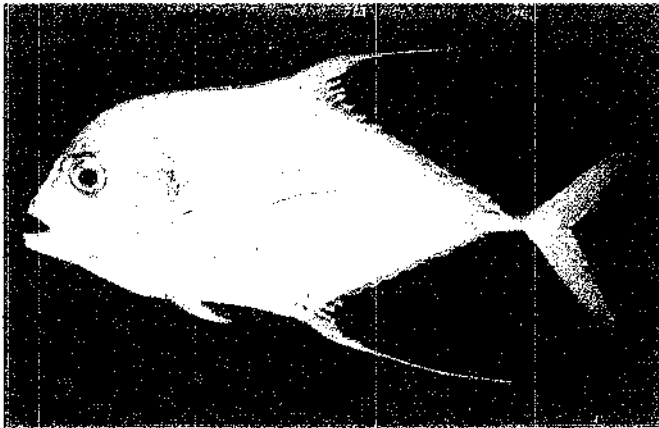
72. BRANCHIOSTEGIDAE: *Caulolatilus chrysops*
(photo by F. Cervigón)



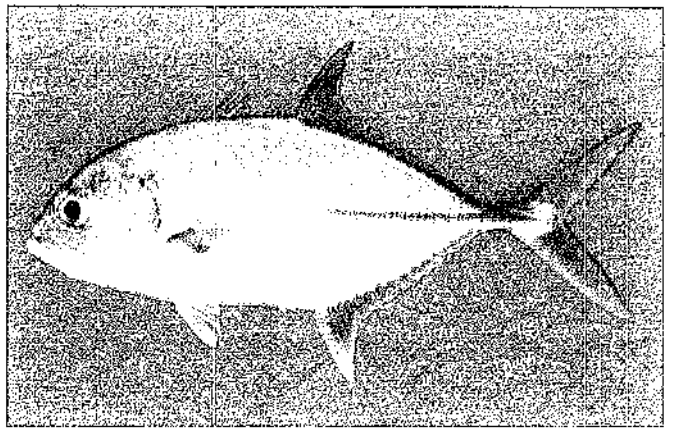
73. BRANCHIOSTEGIDAE: *Caulolatilus cyanops*
(photo by F. Cervigón)



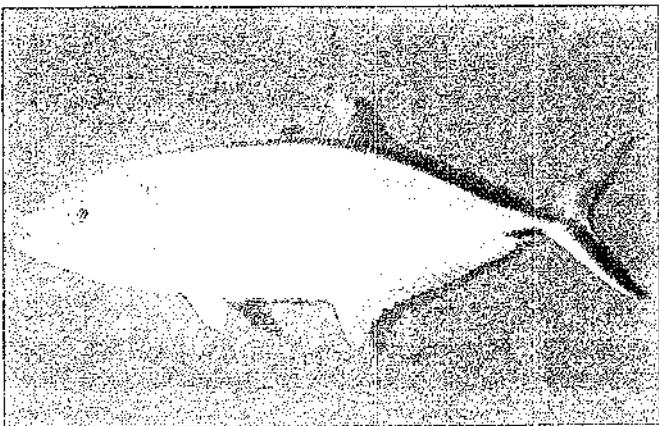
74. BRANCHIOSTEGIDAE: *Caulolatilus guppyi*
(photo by J. Kolding)



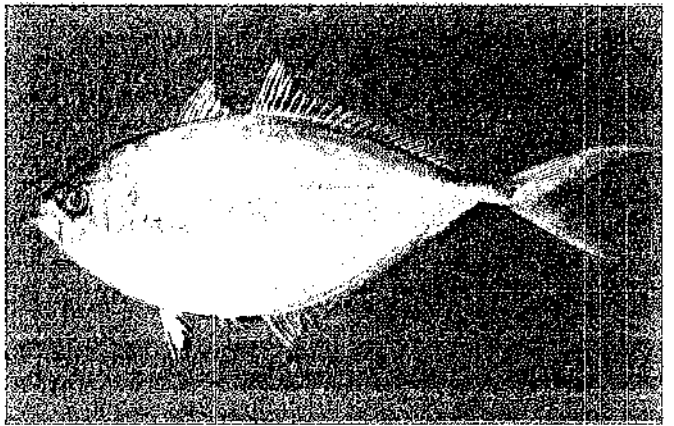
75. CARANGIDAE: *Alectis ciliaris*
(photo by J. Kolding)



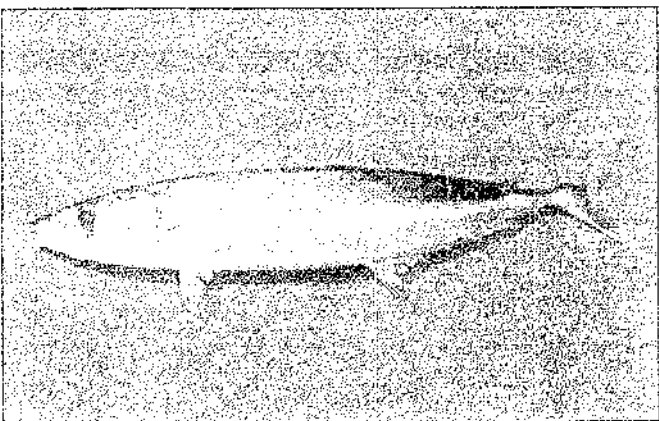
76. CARANGIDAE: *Caranx latus*
(photo by F. Cervigón)



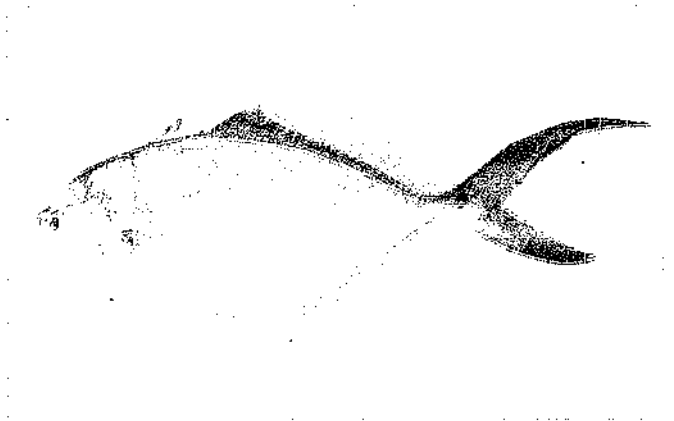
77. CARANGIDAE: *Caranx (Carangoides) ruber*
(photo by F. Cervigón)



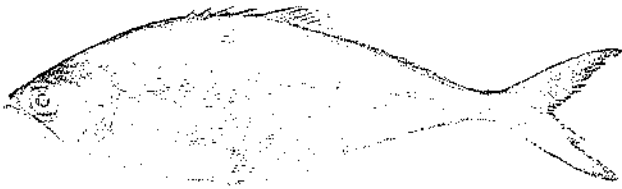
78. CARANGIDAE: *Chloroscombrus chrysurus*
(photo by F. Cervigón)



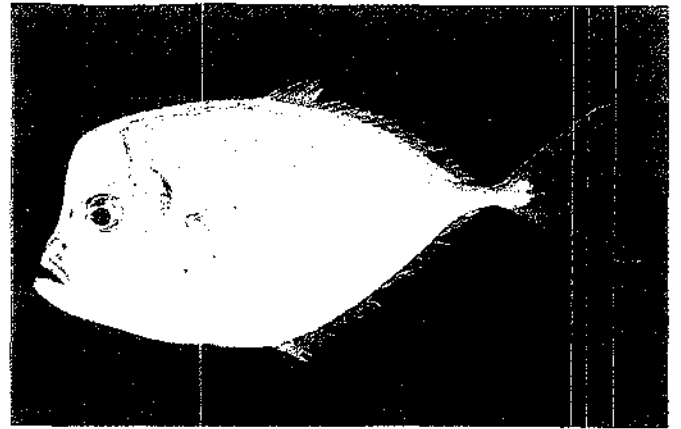
79. CARANGIDAE: *Decapterus macarellus*
(photo by F. Cervigón)



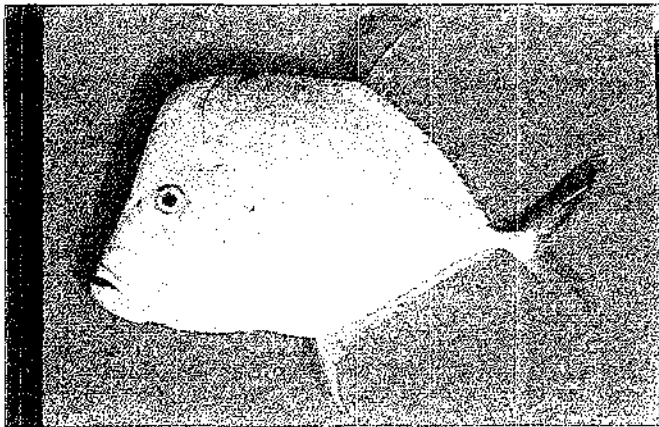
80. CARANGIDAE: *Hemicaranx amblyrhyncus*
(photo by F. Cervigón)



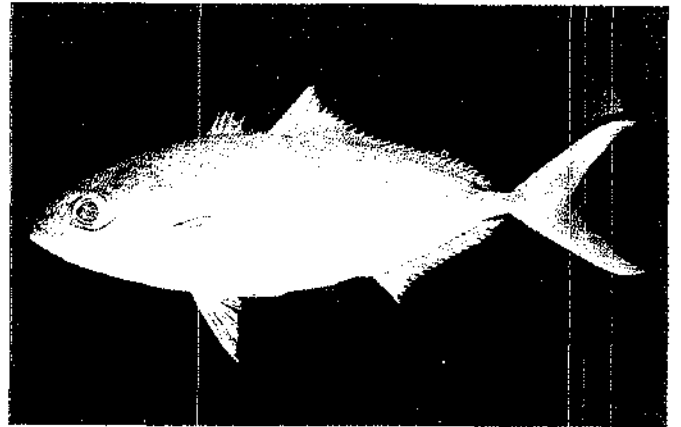
81. CARANGIDAE: *Oligoplites saurus*
(photo by F. Cervigón)



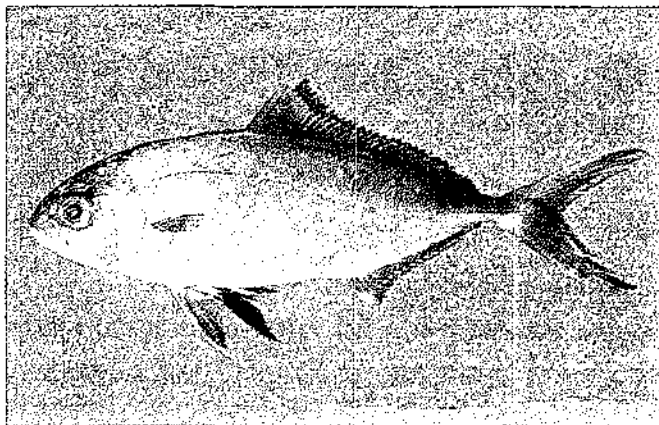
82. CARANGIDAE: *Selene setapinnis*
(photo by J. Kolding)



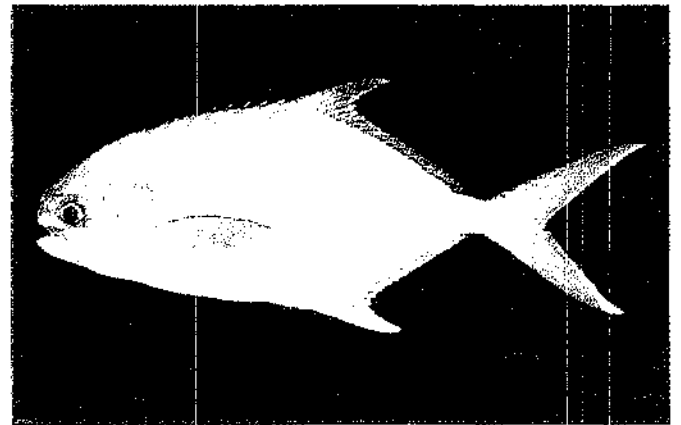
83. CARANGIDAE: *Selene vomer*
(photo by F. Cervigón)



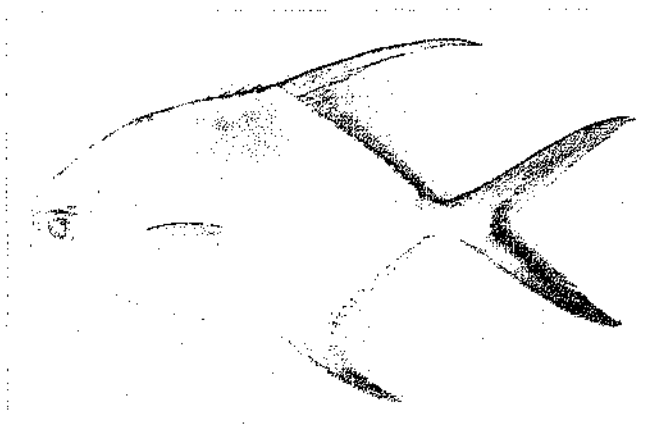
84. CARANGIDAE: *Seriola dumerili*
(photo by J. Kolding)



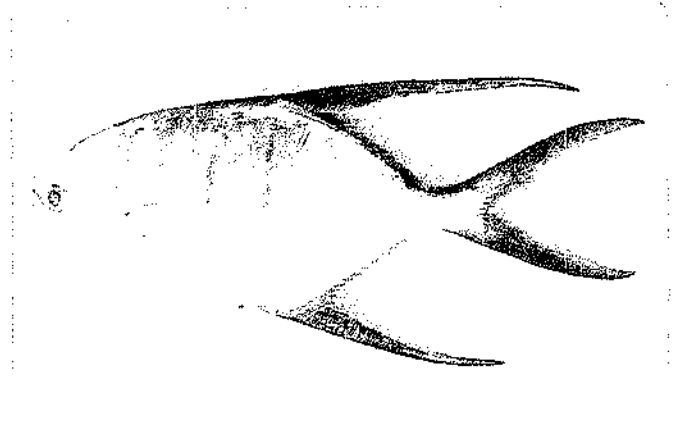
85. CARANGIDAE: *Seriola fasciata*
(photo by F. Cervigón)



86. CARANGIDAE: *Trachinotus carolinus*
(photo by J. Kolding)



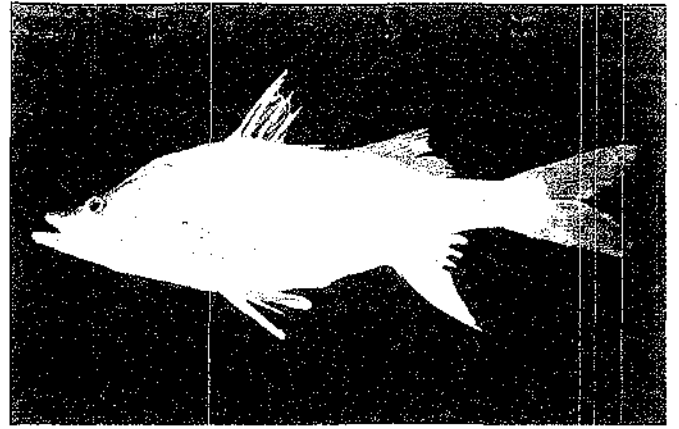
87. CARANGIDAE: *Trachinotus falcatus*
(photo by F. Cervigón)



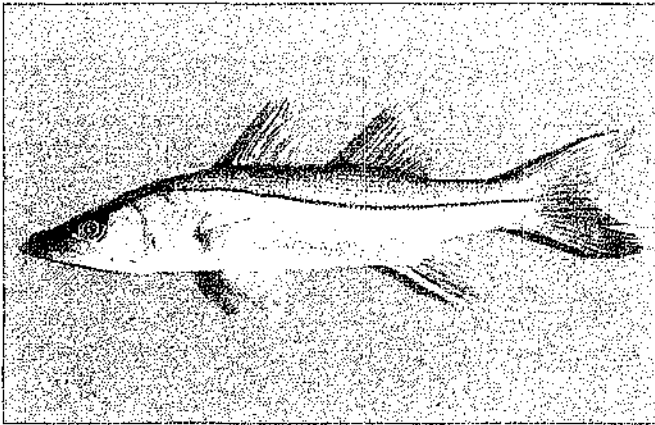
88. CARANGIDAE: *Trachinotus goodei*
(photo by F. Cervigón)



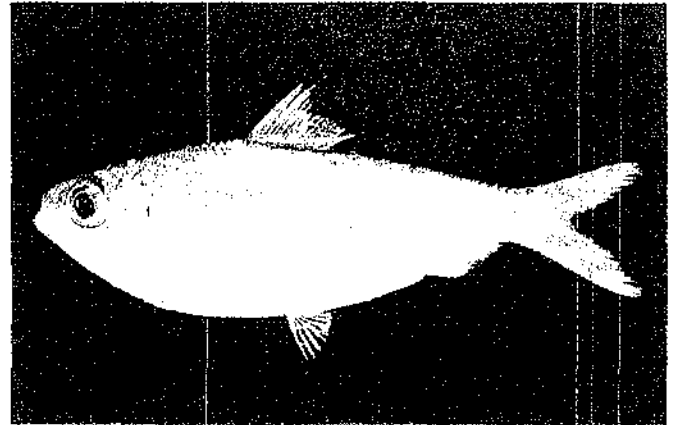
89. CARANGIDAE: *Uraspis secunda*
(photo by F. Cervigón)



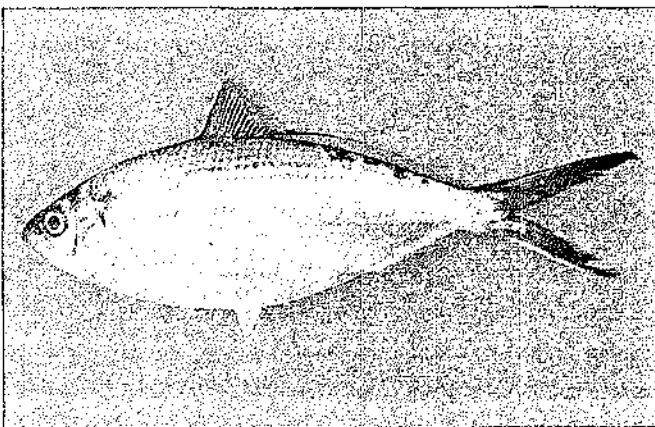
90. CENTROPOMIDAE: *Centropomus pectinatus*
(photo by J. Kolding)



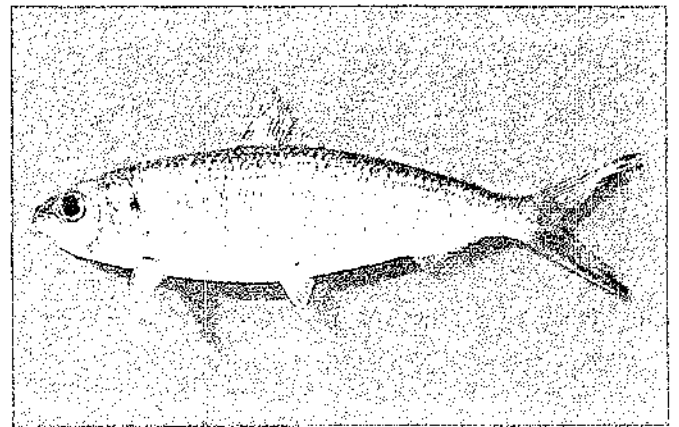
91. CENTROPOMIDAE: *Centropomus undecimalis*
(photo by F. Cervigón)



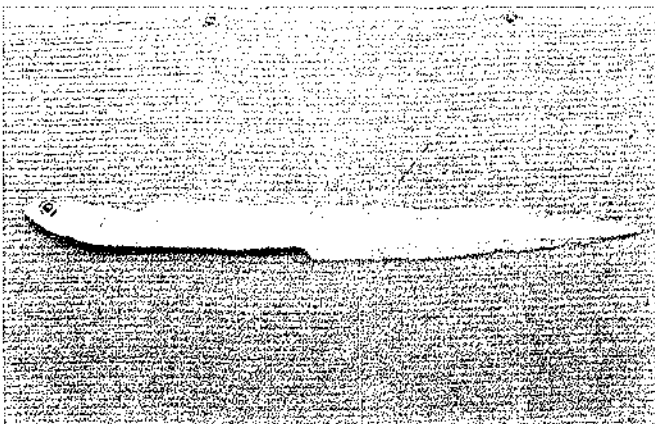
92. CLUPEIDAE: *Harengula jaguana*
(photo by J. Kolding)



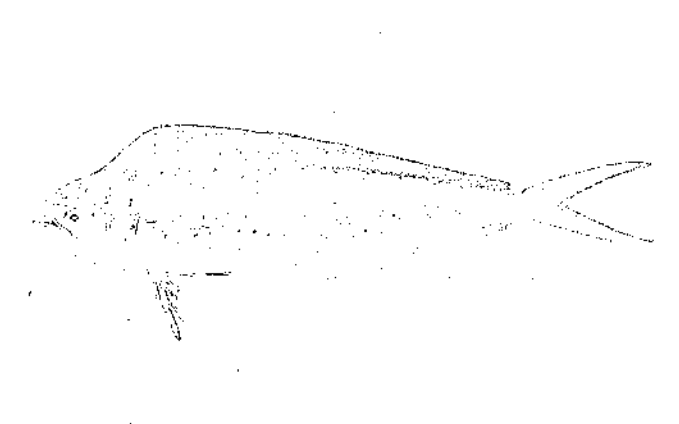
93. CLUPEIDAE: *Opisthonema oglinum*
(photo by F. Cervigón)



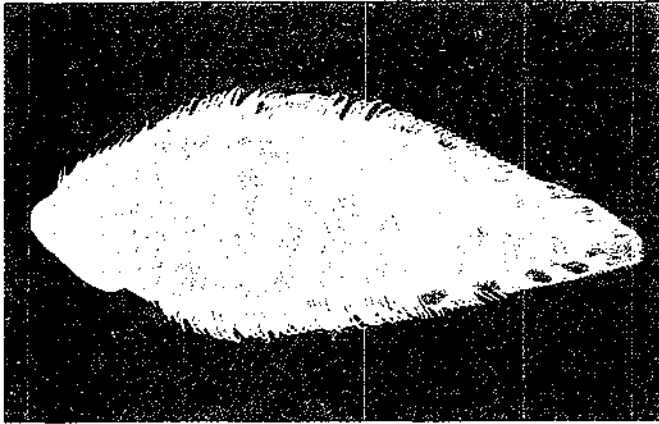
94. CLUPEIDAE: *Sardinella aurita*
(photo by F. Cervigón)



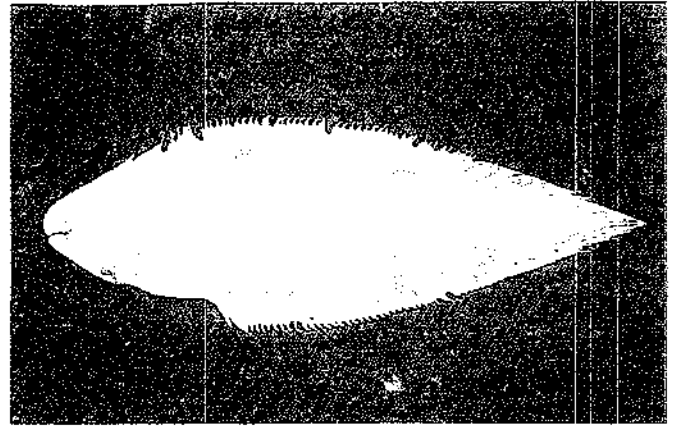
95. CONGRIDAE: *Paraconger caudilimbatus*
(photo by F. Cervigón)



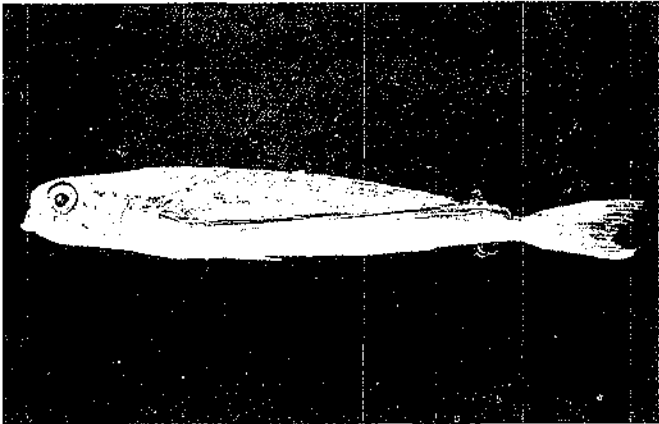
96. CORYPHAENIDAE: *Coryphaena hippurus*
(photo by F. Cervigón)



97. CYNOGLOSSIDAE: *Symphurus diomedianus*
(photo by J. Kolding)



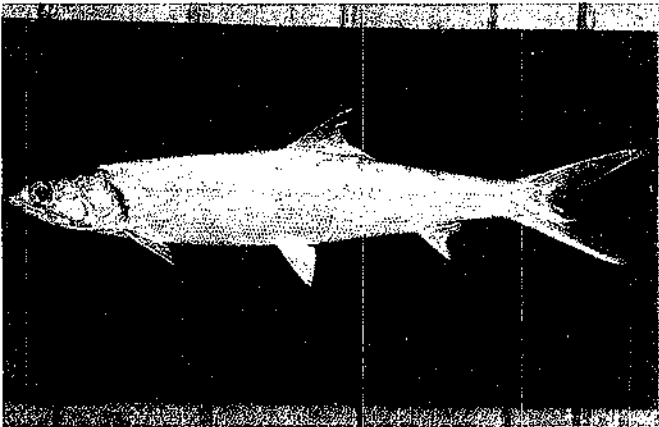
98. CYNOGLOSSIDAE: *Symphurus plagusia*
(photo by J. Kolding) (see note on p. 305)



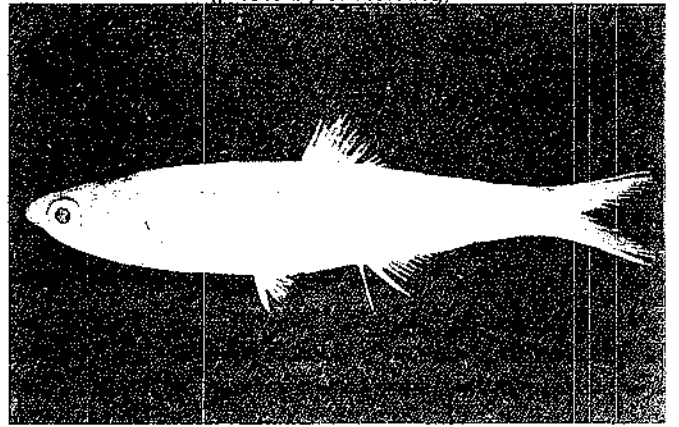
99. DACTYLOPTERIDAE: *Dactylopterus volitans*
(photo by J. Kolding)



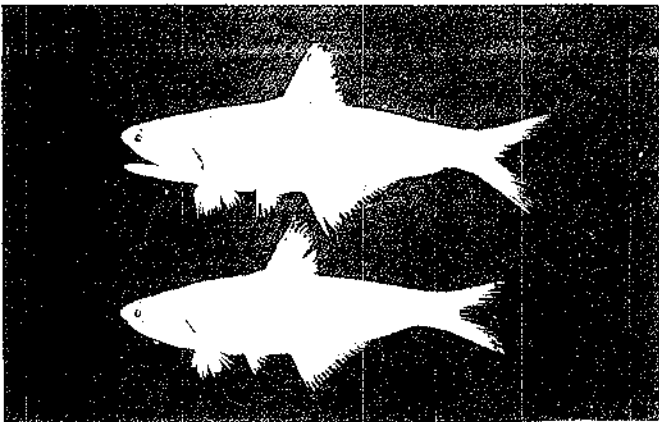
100. DACTYLOPTERIDAE: *Dactylopterus volitans*
(dorsal view)
(photo by J. Kolding)



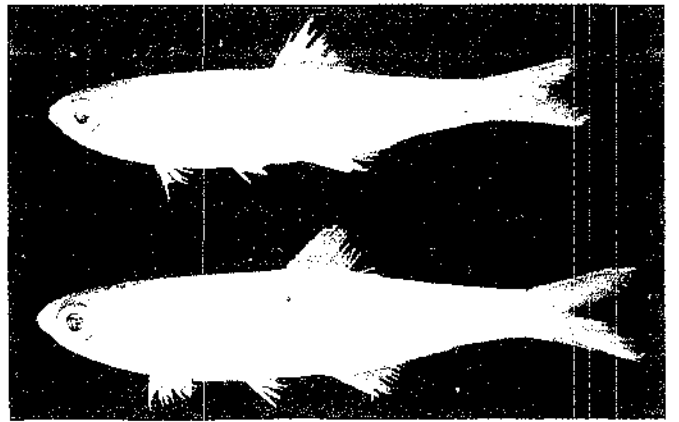
101. ELOPIDAE: *Elops saurus*
(photo by J. Kolding)



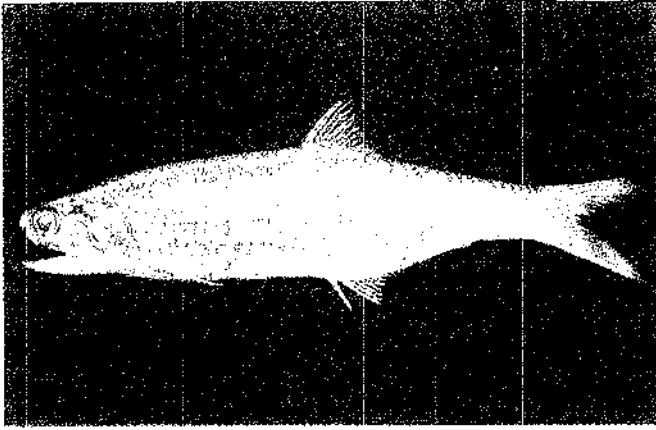
102. ENGRAULIDIDAE: *Anchoa hepsetus*
(photo by J. Kolding)



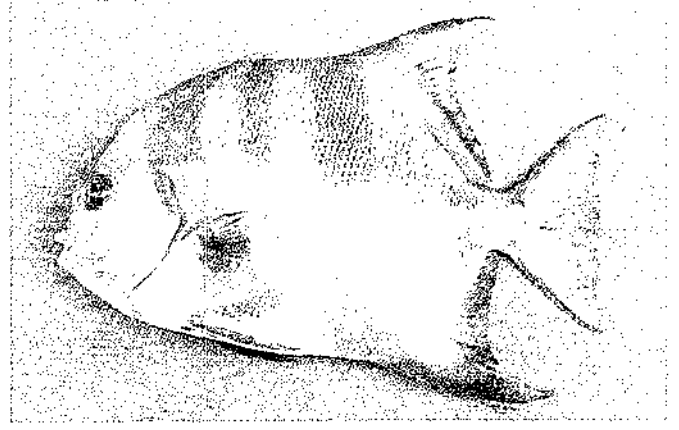
103. ENGRAULIDIDAE: *Anchoa spínifer*
(photo by J. Kolding)



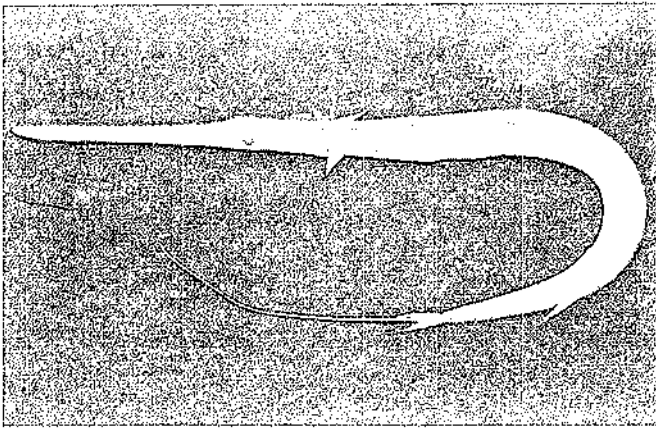
104. ENGRAULIDIDAE: *Anchoviella lepidentostole*
(photo by J. Kolding)



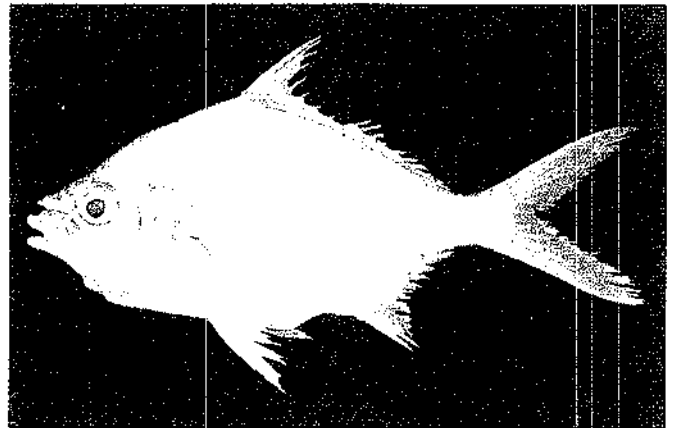
105. ENGRAULIDIDAE: *Lycengraulis grossidens*
(photo by J. Kolding)



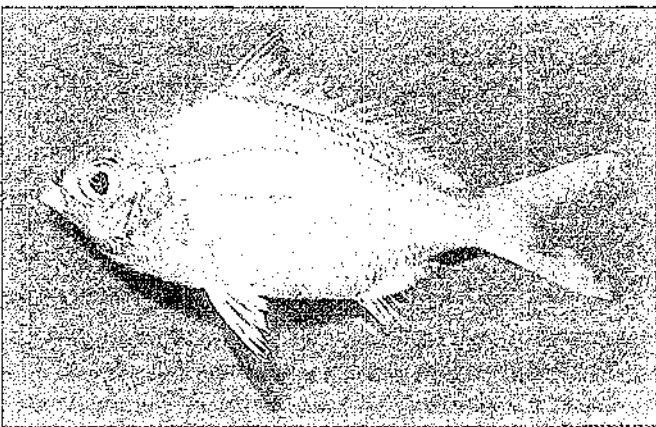
106. EPHIPPIDAE: *Chaetodipterus faber*
(photo by F. Cervigón)



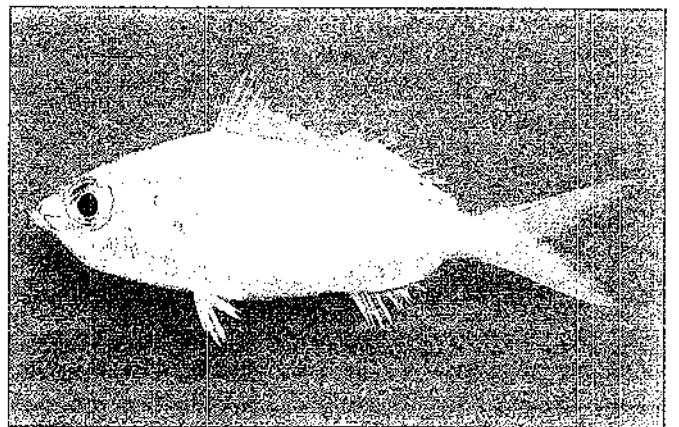
107. FISTULARIDAE: *Fistularia tabacaria*
(photo by J. Kolding)



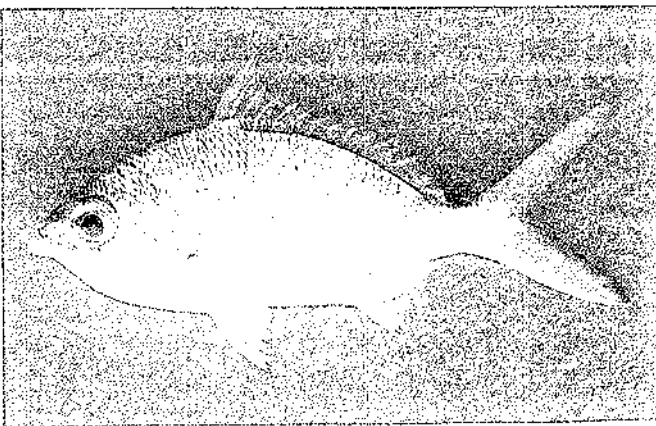
108. GERREIDAE: *Diapterus auratus*
(photo by J. Kolding)



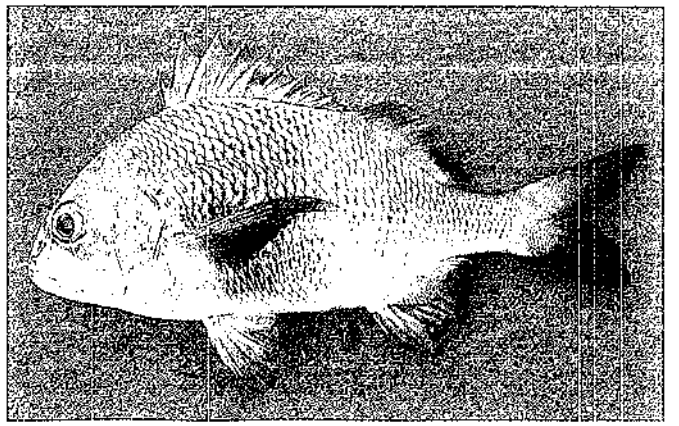
109. GERREIDAE: *Diapterus rhombeus*
(photo by F. Cervigón)



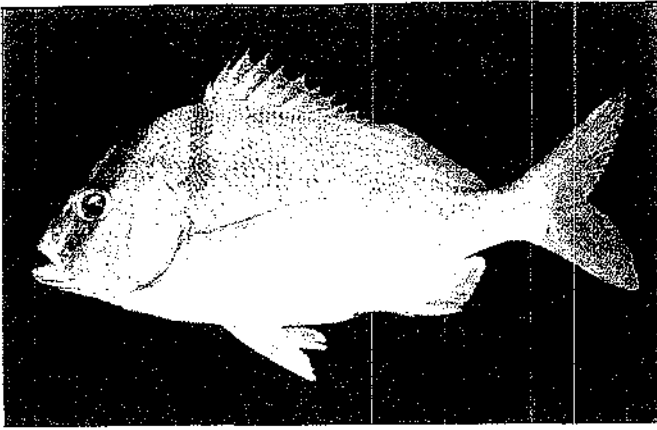
110. GERREIDAE: *Eucinostomus gula*
(photo by F. Cervigón)



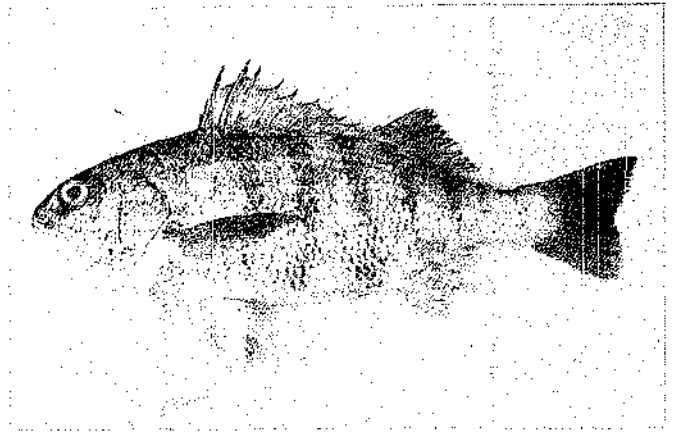
111. GERREIDAE: *Gerres cinereus*
(photo by F. Cervigón)



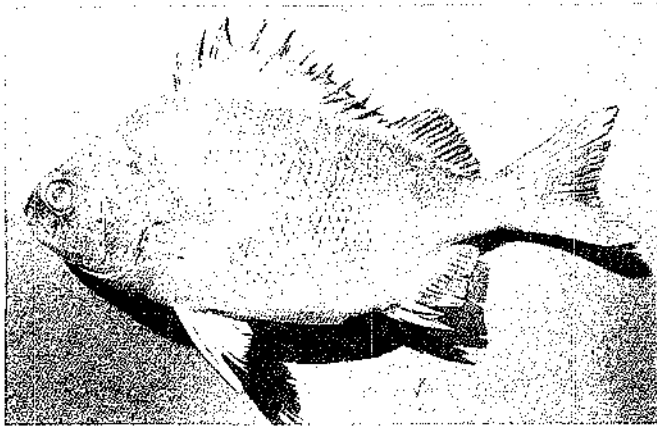
112. HAEMULIDAE: *Anisotremus surinamensis*
(photo by F. Cervigón)



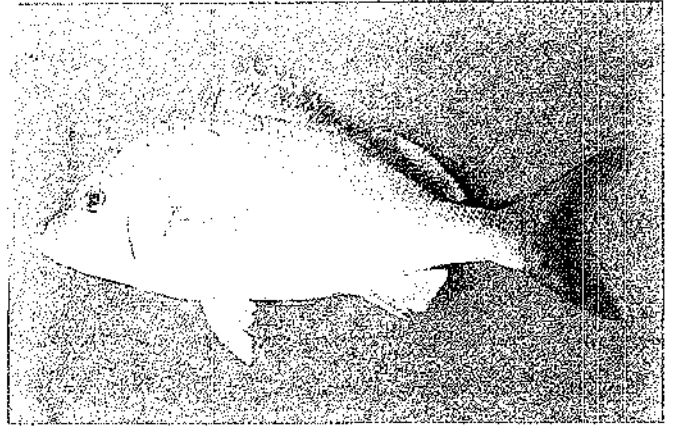
113. HAEMULIDAE: *Anisotremus virginicus*
(photo by J. Kolding)



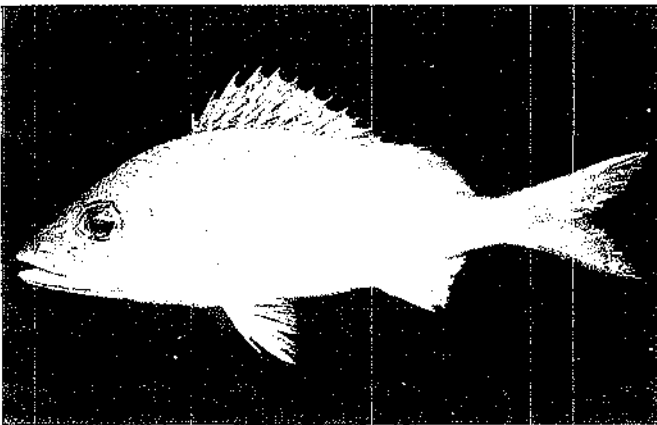
114. HAEMULIDAE: *Conodon nobilis*
(photo by F. Cervigón)



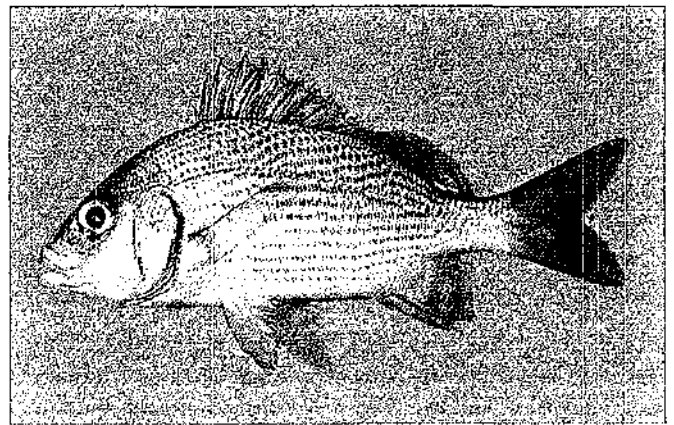
115. HAEMULIDAE: *Genyatremus luteus*
(photo by F. Cervigón)



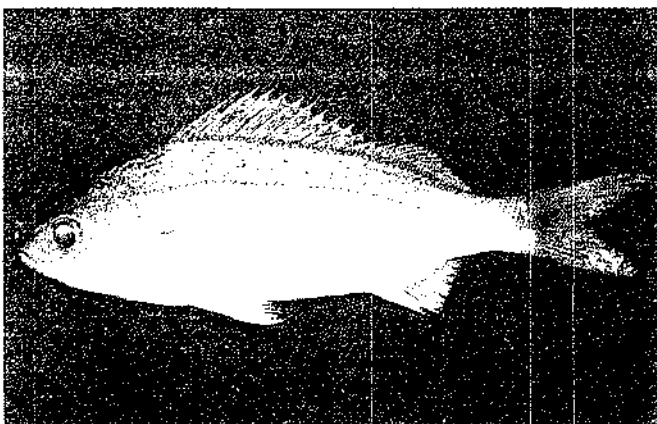
116. HAEMULIDAE: *Haemulon album*
(photo by F. Cervigón)



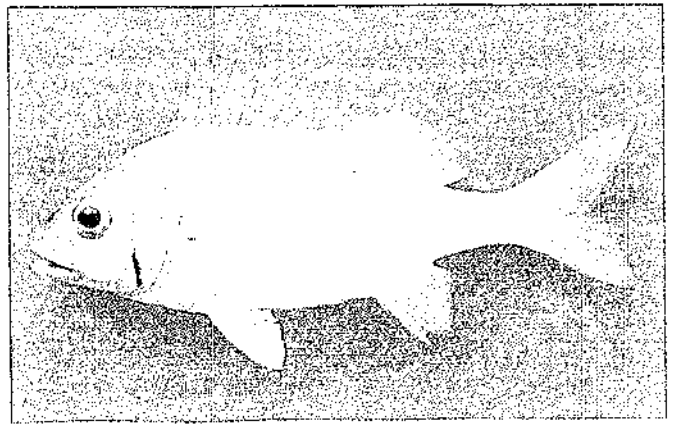
117. HAEMULIDAE: *Haemulon aurolineatum*
(photo by J. Kolding)



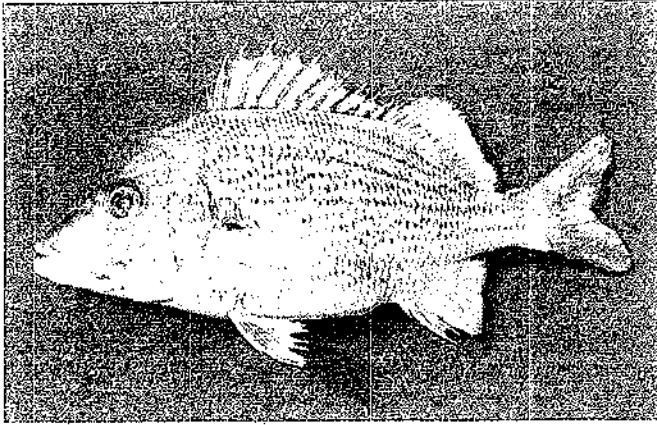
118. HAEMULIDAE: *Haemulon bonariense*
(photo by F. Cervigón)



119. HAEMULIDAE: *Haemulon boschmae*
(photo by J. Kolding)



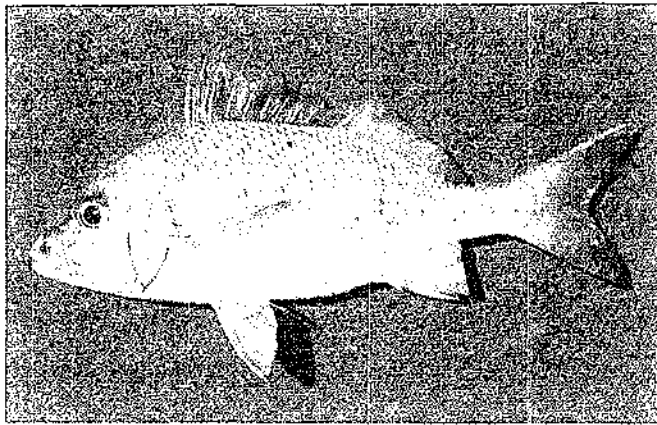
120. HAEMULIDAE: *Haemulon flavolineatum*
(photo by F. Cervigón)



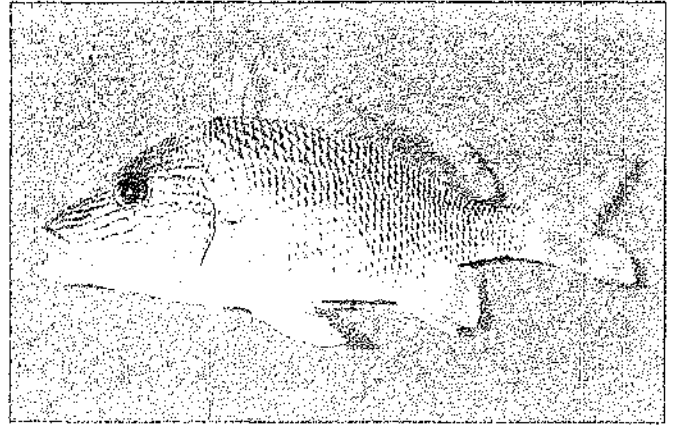
121. HAEMULIDAE: *Haemulon macrostomum*
(photo by F. Cervigón)



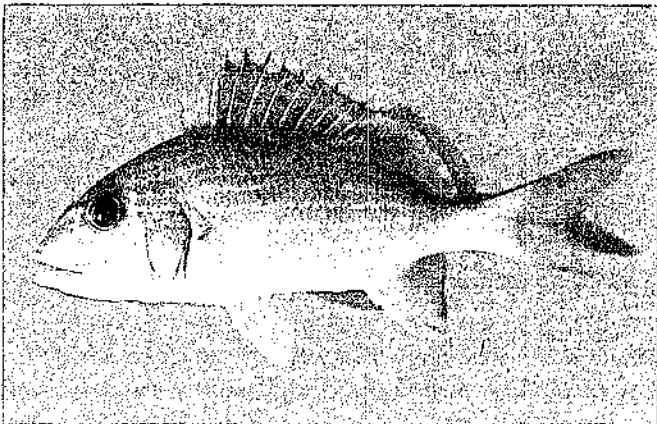
22. HAEMULIDAE: *Haemulon melanurum*
(photo by F. Cervigón)



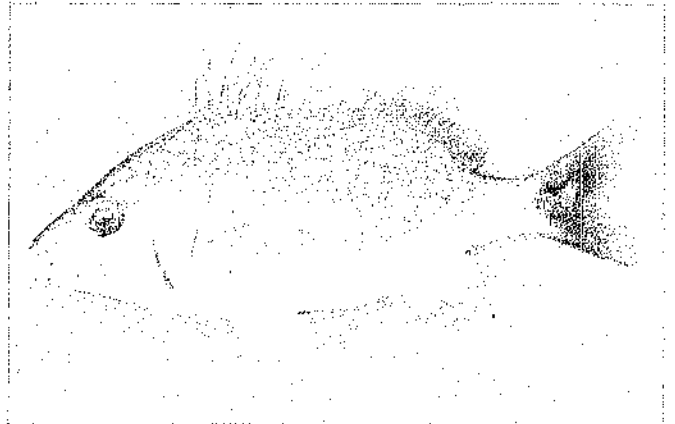
123. HAEMULIDAE: *Haemulon parrai*
(photo by F. Cervigón)



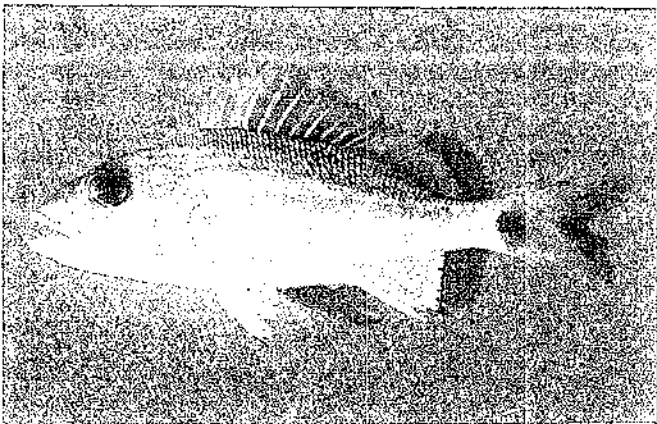
124. HAEMULIDAE: *Haemulon plumieri*
(photo by F. Cervigón)



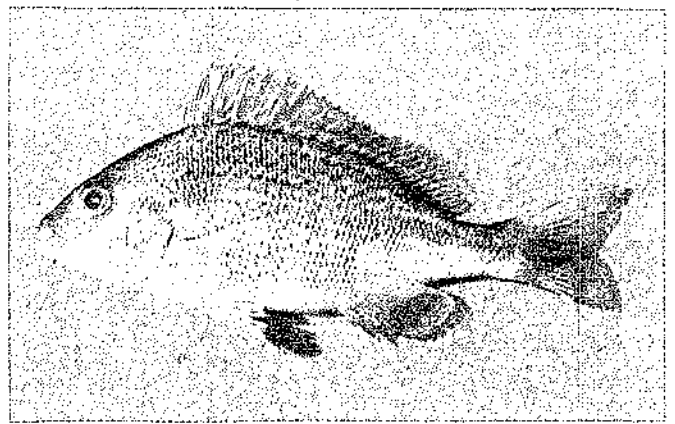
125. HAEMULIDAE: *Haemulon sciurus*
(photo by F. Cervigón)



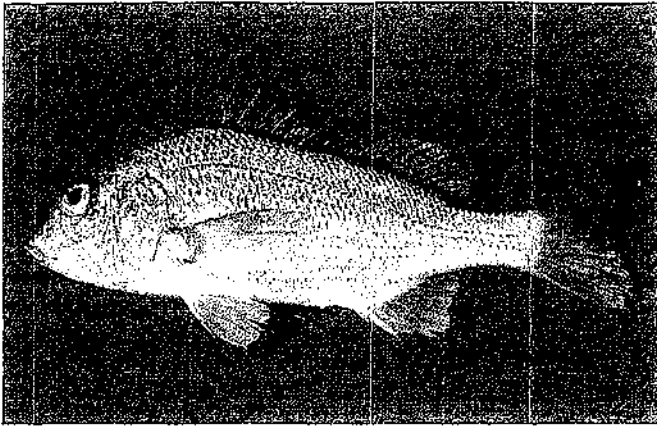
126. HAEMULIDAE: *Haemulon steindachneri*
(photo by F. Cervigón)



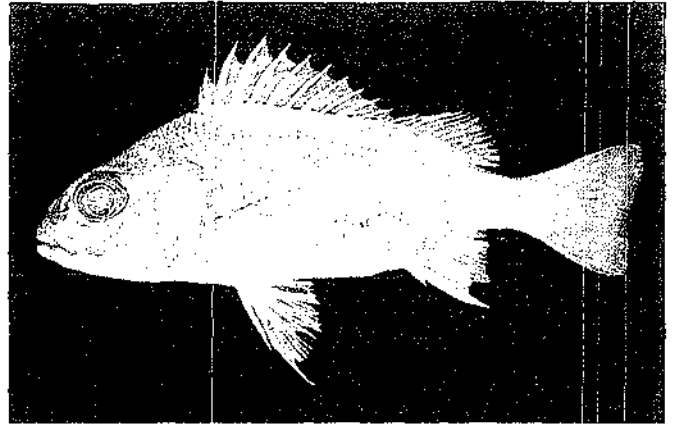
127. HAEMULIDAE: *Haemulon striatum*
(photo by F. Cervigón)



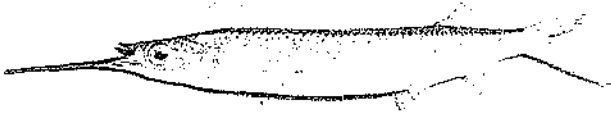
128. HAEMULIDAE: *Orthopristis ruber*
(photo by F. Cervigón)



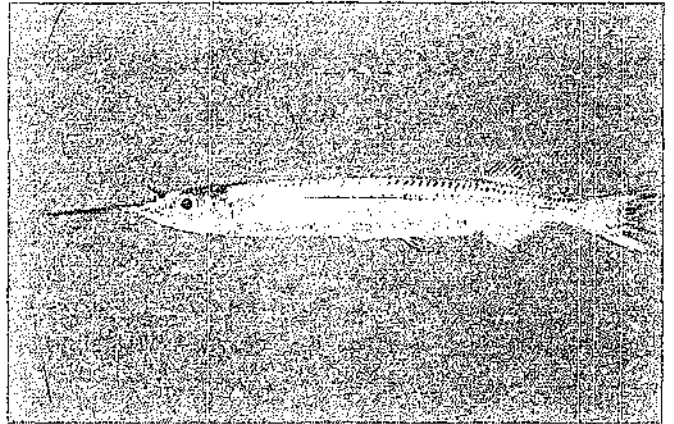
129. HAEMULIDAE: *Pomadasys corvinaeformis*
(photo by F. Cervigón)



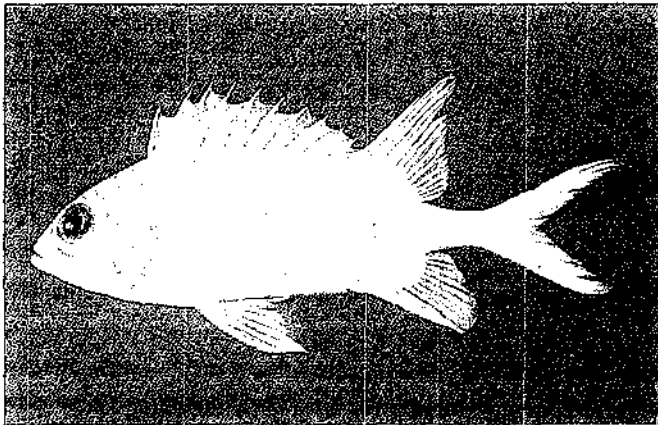
130. HAEMULIDAE: *Pomadasys croco*
(photo by J. Kolding)



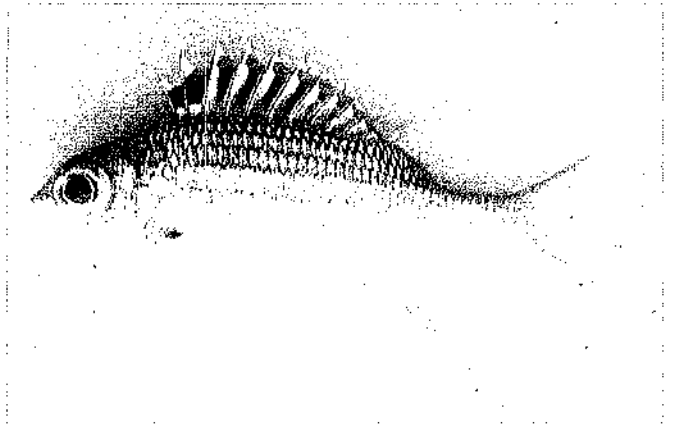
131. HEMIRAMPHIDAE: *Hemiramphus brasiliensis*
(photo by F. Cervigón)



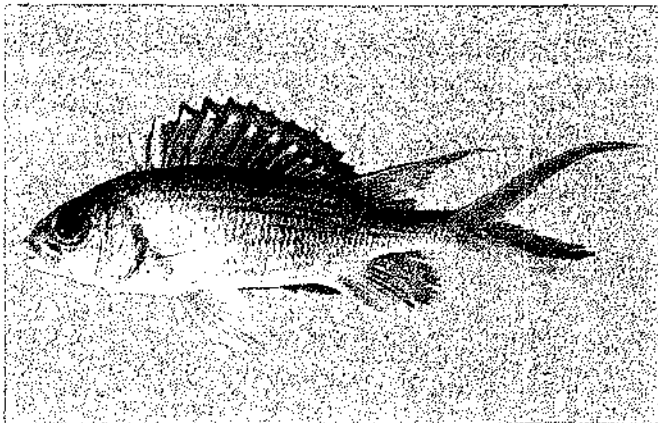
132. HEMIRAMPHIDAE: *Hyporhamphus unifasciatus*
(photo by F. Cervigón)



133. HOLOCENTRIDAE: *Holocentrus adscensionis*
(photo by F. Cervigón)



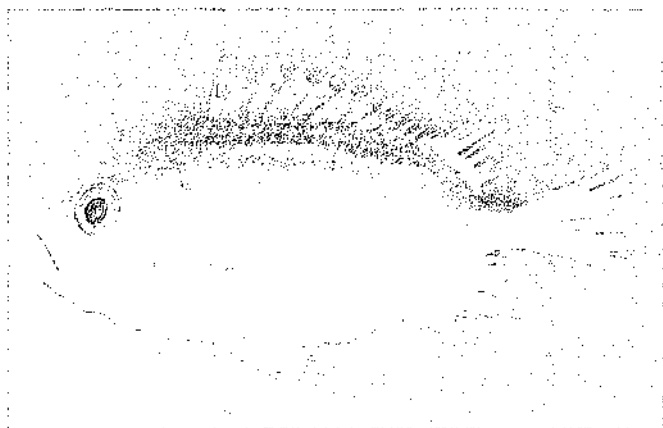
134. HOLOCENTRIDAE: *Holocentrus bullisi*
(photo by F. Cervigón)



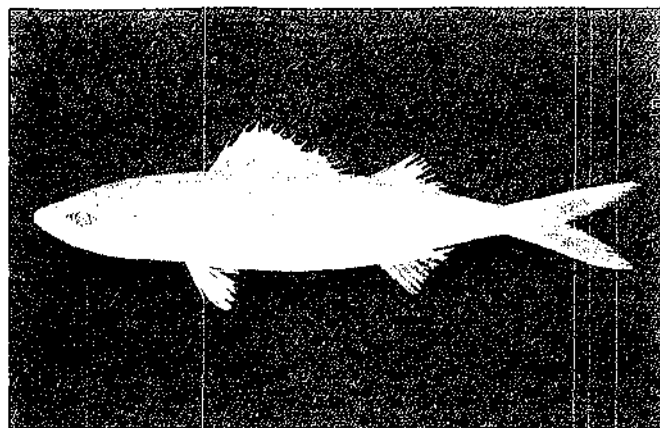
135. HOLOCENTRIDAE: *Holocentrus rufus*
(photo by F. Cervigón)



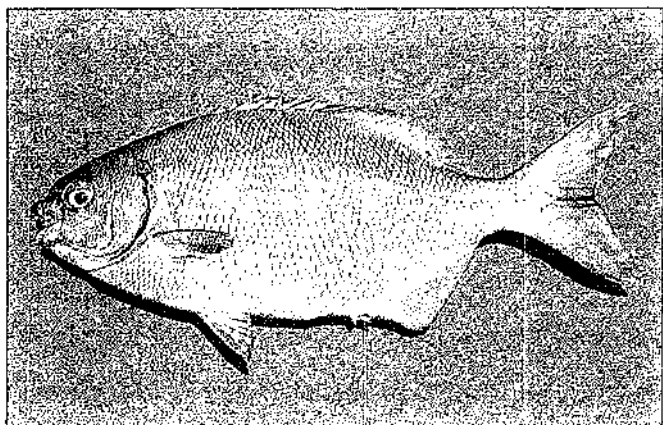
136. HOLOCENTRIDAE: *Myripristis jacobus*
(photo by F. Cervigón)



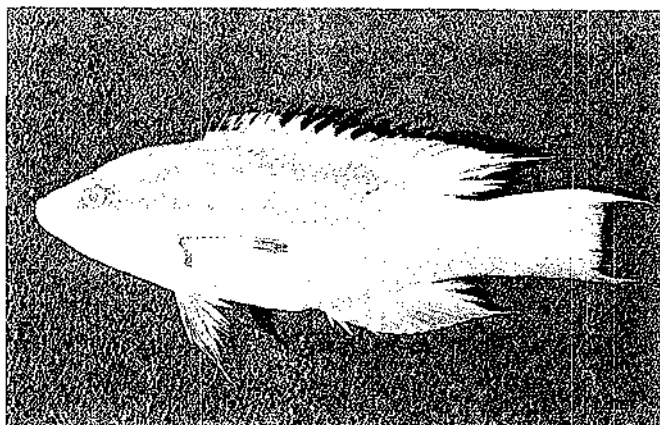
137. HOLOCENTRIDAE: *Ostichthys trachypoma*
(photo by F. Cervigón)



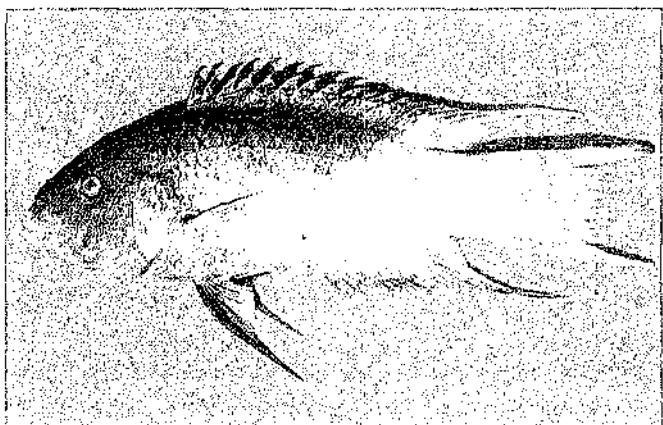
138. INERMIIDAE: *Inermia vittata*
(photo by J. Kolding)



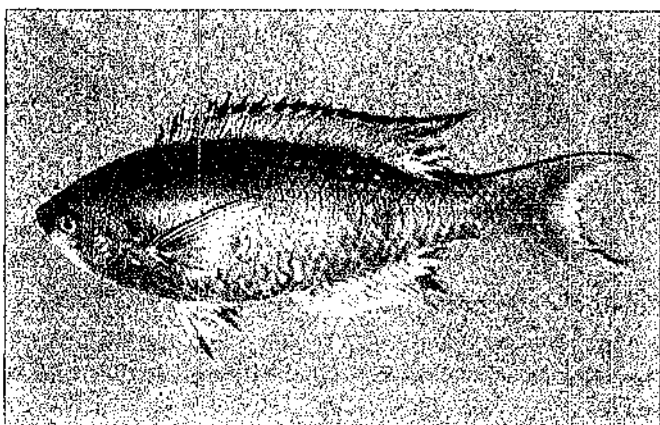
139. KYPHOSIDAE: *Kyphosus sectatrix*
(photo by F. Cervigón)



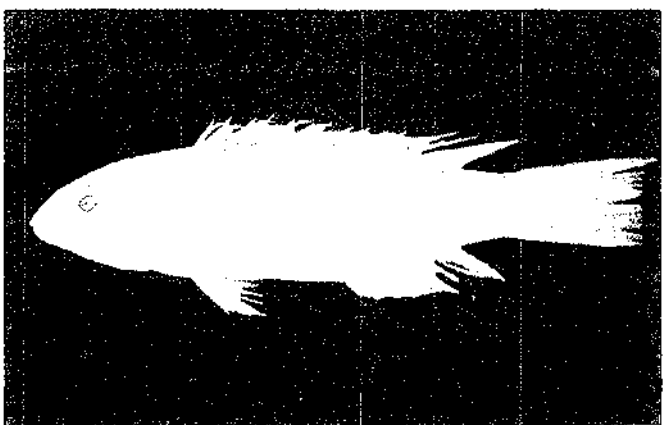
140. LABRIDAE: *Bodianus pulchellus*
(photo by F. Cervigón)



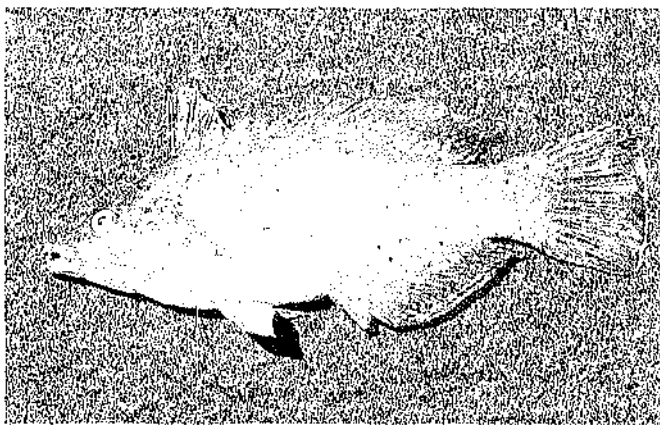
141. LABRIDAE: *Bodianus rufus*
(photo by F. Cervigón)



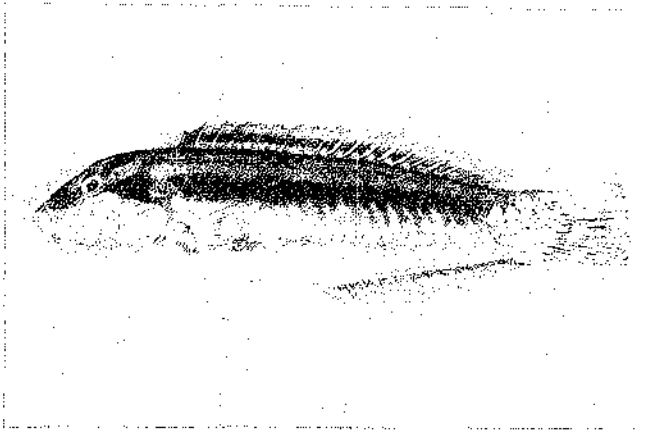
142. LABRIDAE: *Clepticus parrai*
(photo by F. Cervigón)



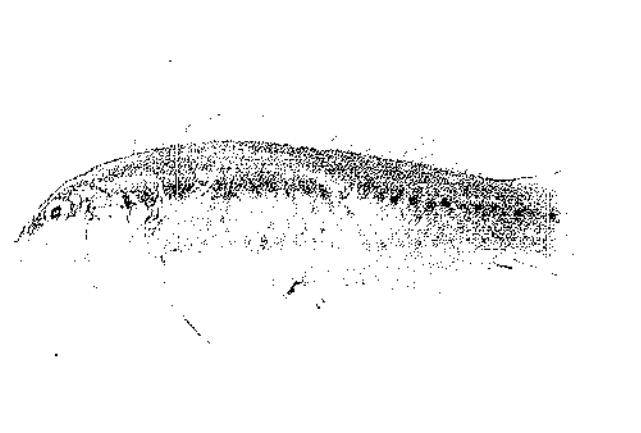
143. LABRIDAE: *Decodon puellaris*
(photo by J. Kolding)



144. LABRIDAE: *Doratonotus megalepis*
(photo by F. Cervigón)



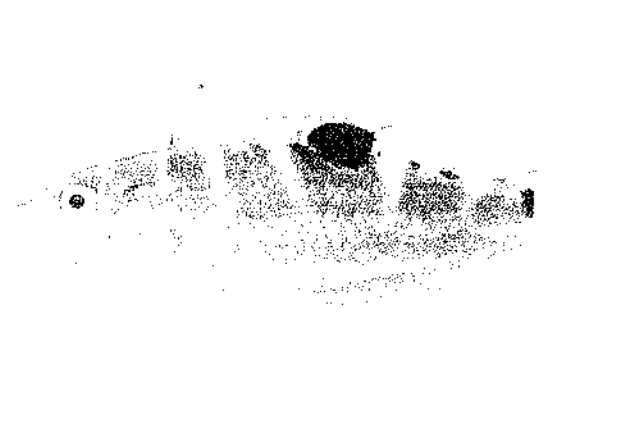
145. LABRIDAE: *Halichoeres bivittatus*
(photo by F. Cervigón)



146. LABRIDAE: *Halichoeres bivittatus*
(photo by F. Cervigón)



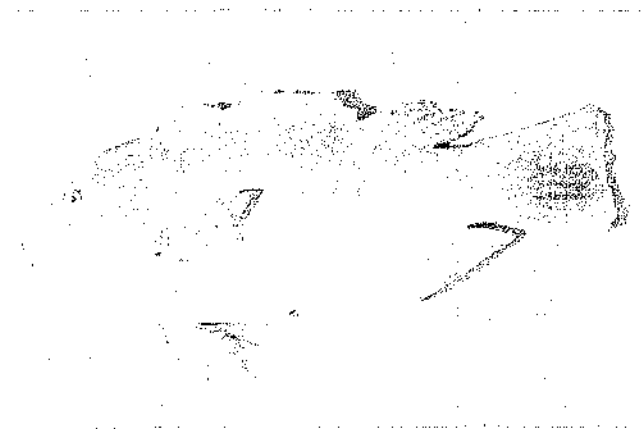
147. LABRIDAE: *Halichoeres caudalis*
(photo by J. Kolding)



148. LABRIDAE: *Halichoeres radiatus* (juvenile)
(photo by F. Cervigón)



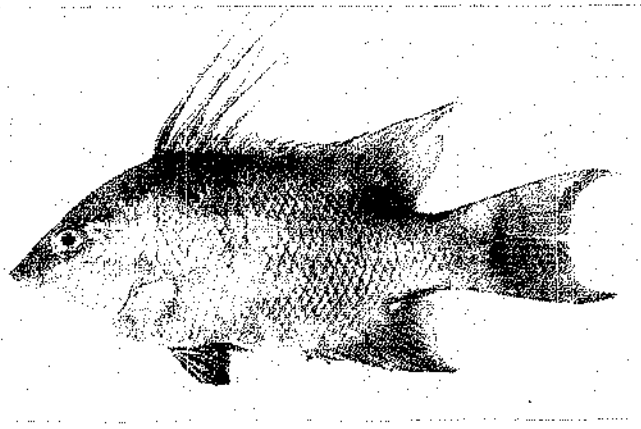
149. LABRIDAE: *Halichoeres radiatus* (adult)
(photo by F. Cervigón)



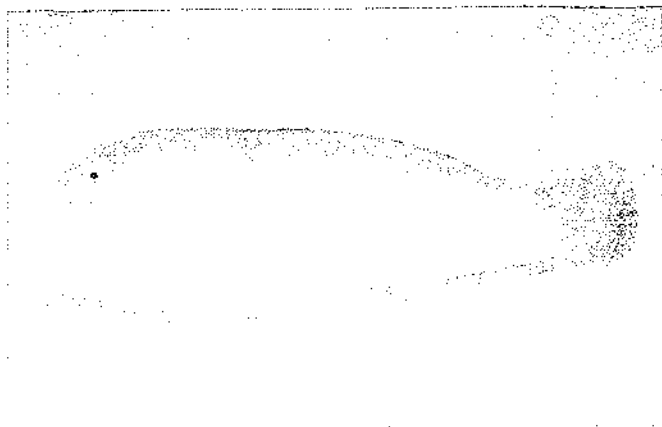
150. LABRIDAE: *Halichoeres radiatus* (adult)
(photo by F. Cervigón)



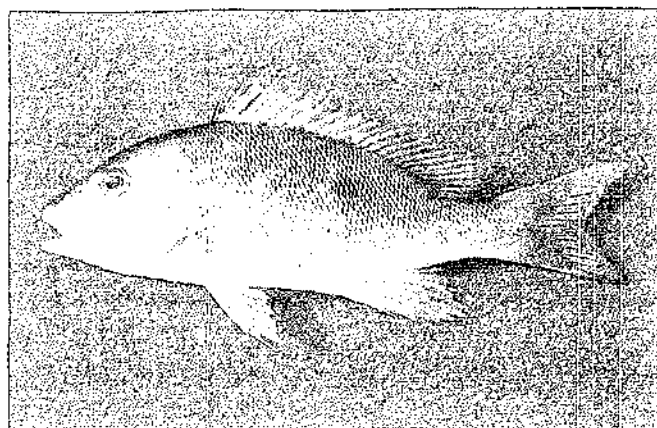
151. LABRIDAE: *Lachnolaimus maximus*
(photo by J. Kolding)



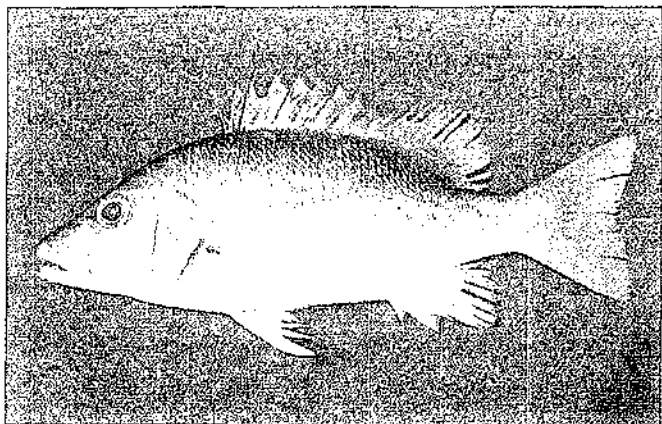
152. LABRIDAE: *Lachnolaimus maximus*
(photo by J. Kolding)



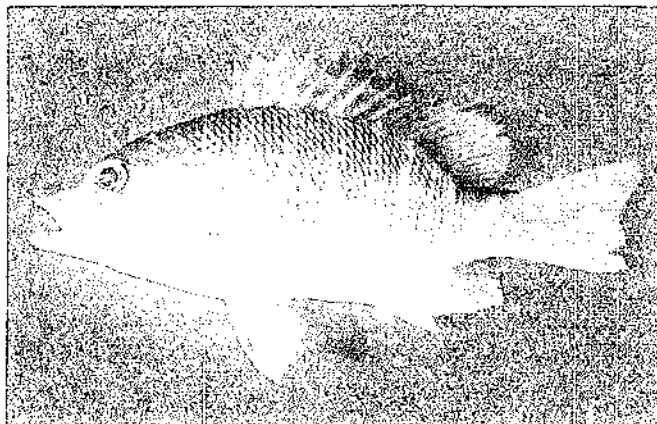
153. LABRIDAE: *Hemipteronotus novacula*
(photo by F. Cervigón)



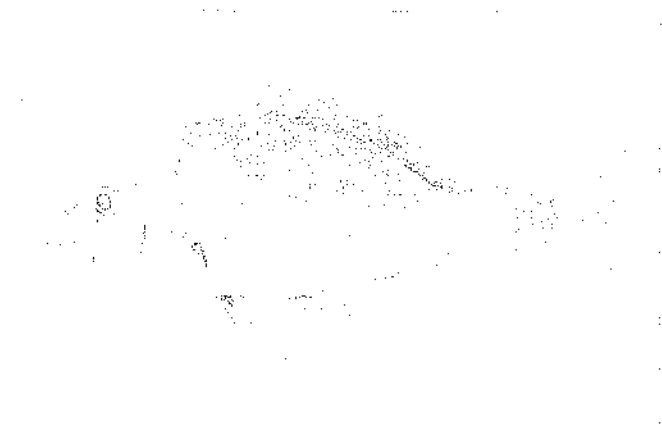
154. LUTJANIDAE: *Lutjanus analis*
(photo by F. Cervigón)



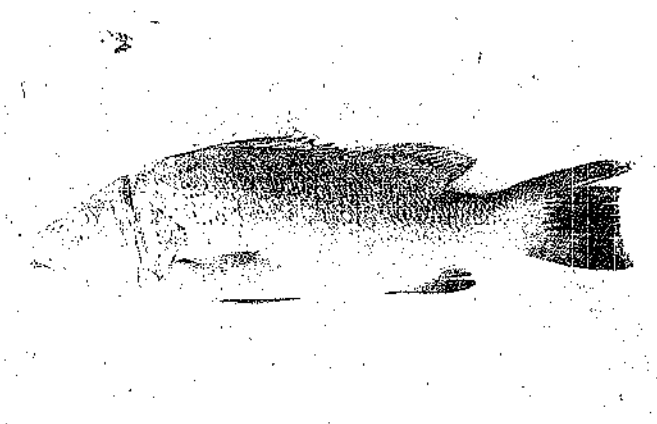
155. LUTJANIDAE: *Lutjanus apodus* (adult)
(photo by F. Cervigón)



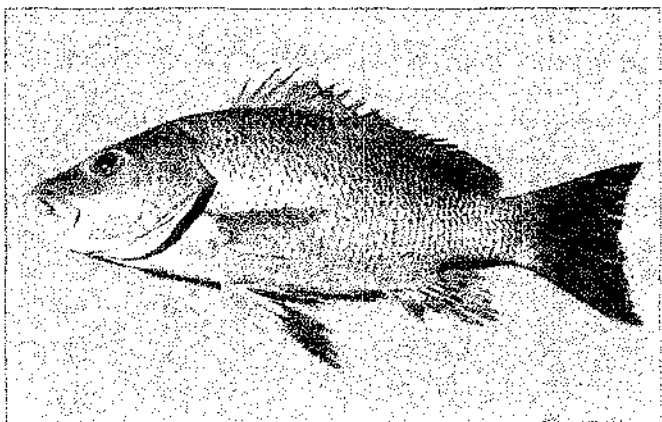
156. LUTJANIDAE: *Lutjanus apodus* (juvenile)
(photo by F. Cervigón)



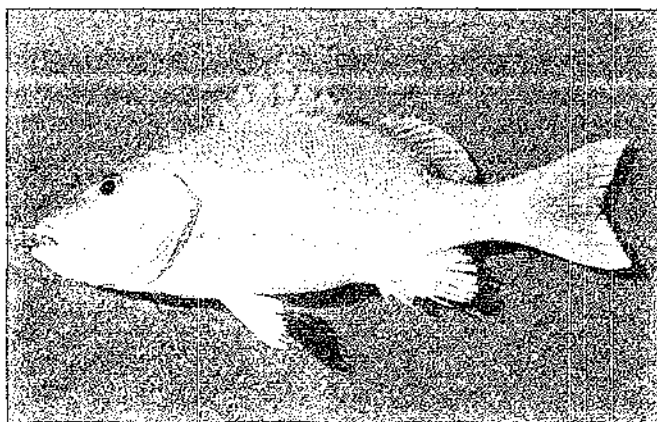
157. LUTJANIDAE: *Lutjanus buccanella*
(photo by F. Cervigón)



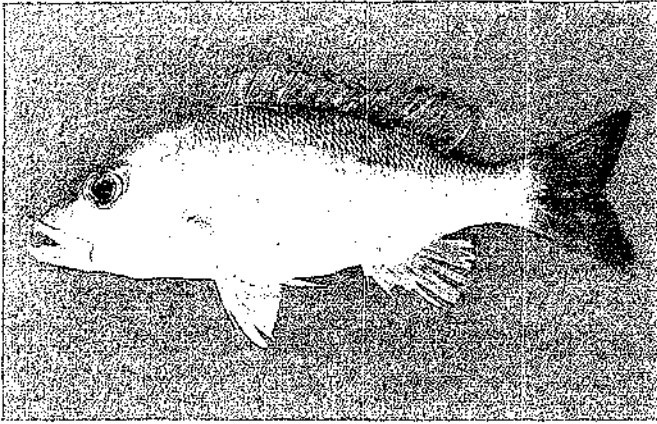
158. LUTJANIDAE: *Lutjanus cyanopterus*
(photo by F. Cervigón)



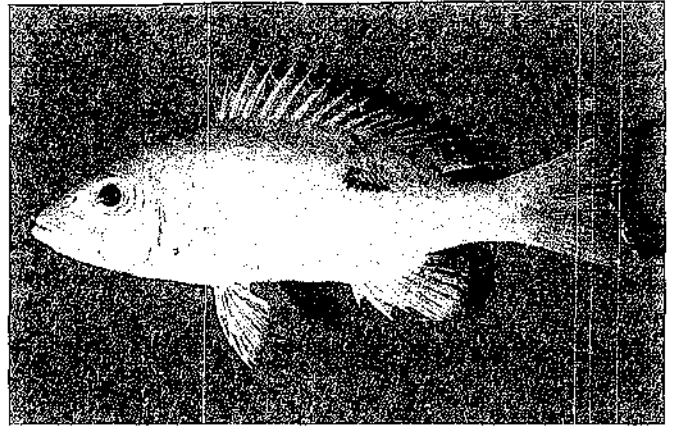
159. LUTJANIDAE: *Lutjanus griseus*
(photo by F. Cervigón)



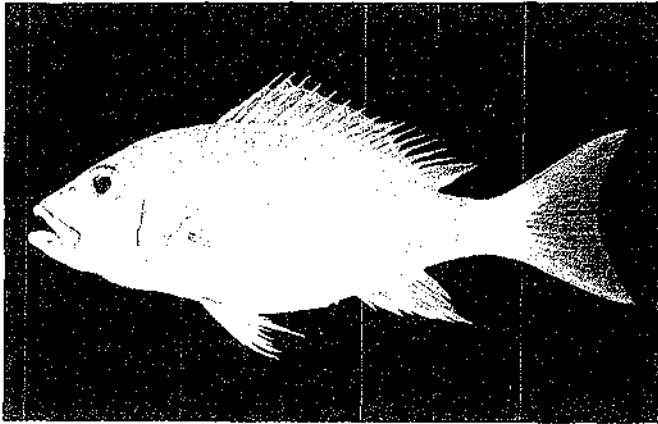
160. LUTJANIDAE: *Lutjanus jocu*
(photo by F. Cervigón)



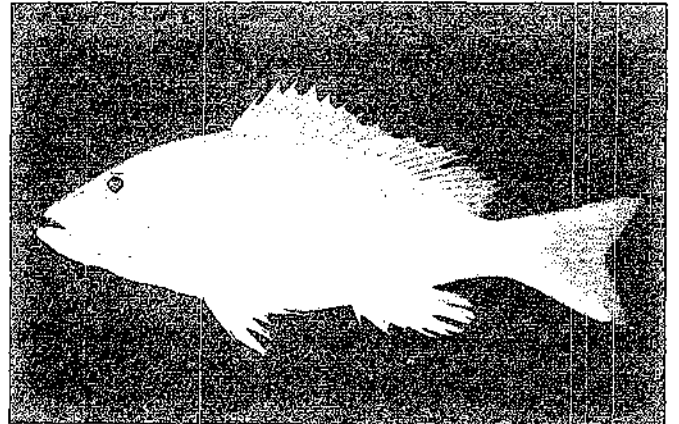
161. LUTJANIDAE: *Lutjanus mahogoni* (adult)
(photo by F. Cervigón)



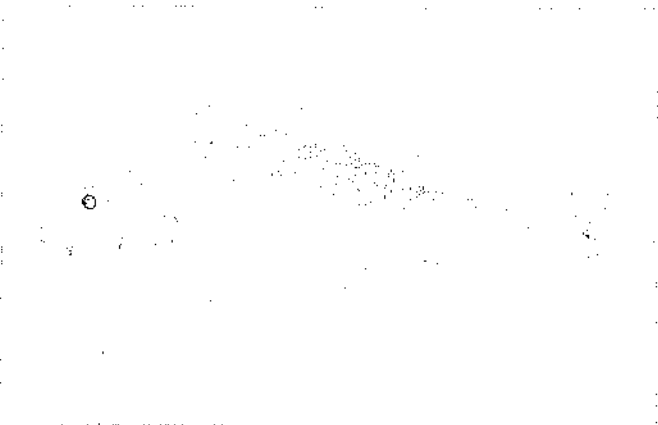
162. LUTJANIDAE: *Lutjanus mahogoni* (juvenile)
(photo by F. Cervigón)



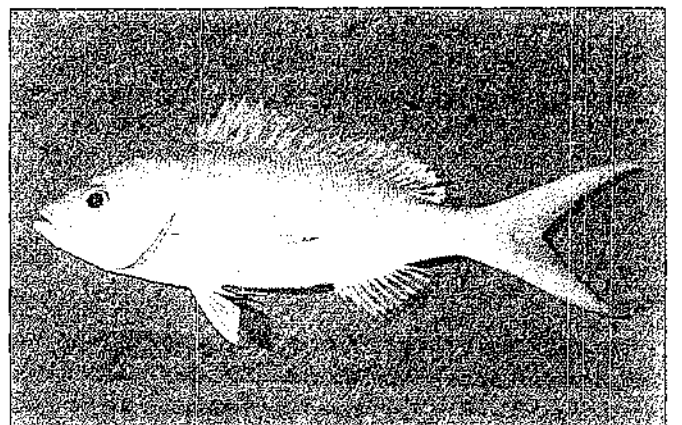
163. LUTJANIDAE: *Lutjanus purpureus*
(photo by J. Kolding)



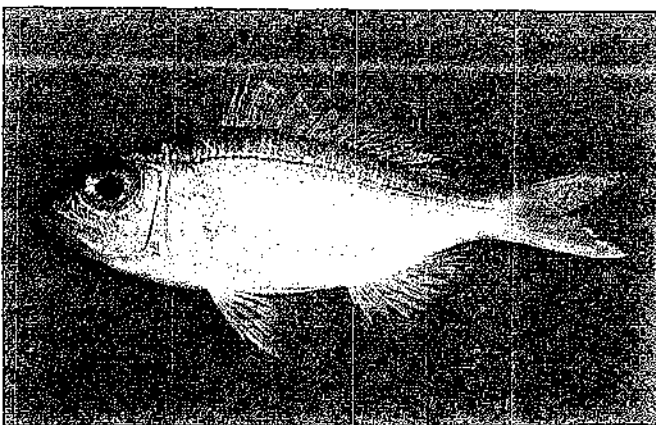
164. LUTJANIDAE: *Lutjanus synagris*
(photo by F. Cervigón)



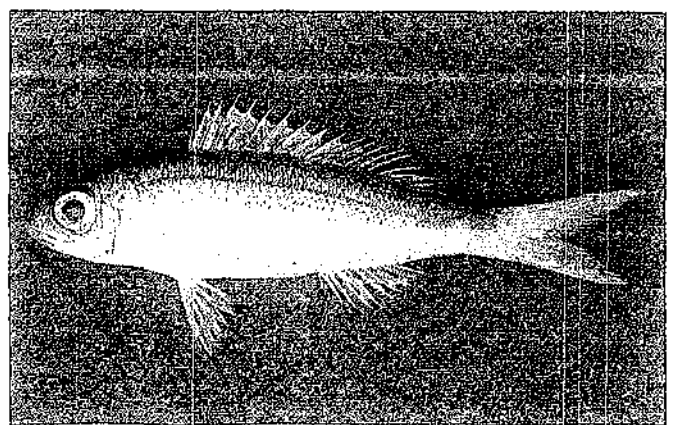
165. LUTJANIDAE: *Lutjanus vivanus*
(photo by F. Cervigón)



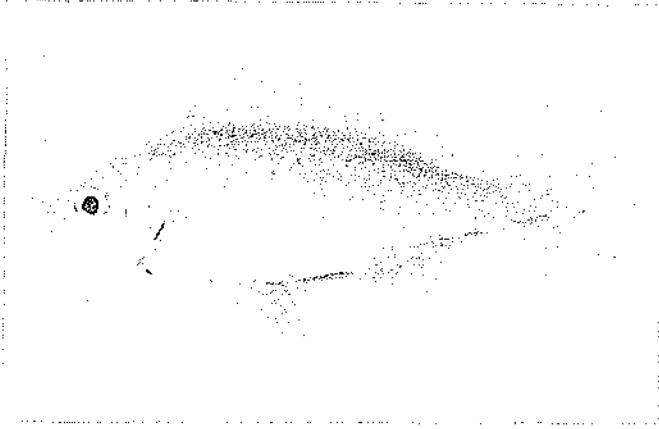
166. LUTJANIDAE: *Ocyurus chrysurus*
(photo by F. Cervigón)



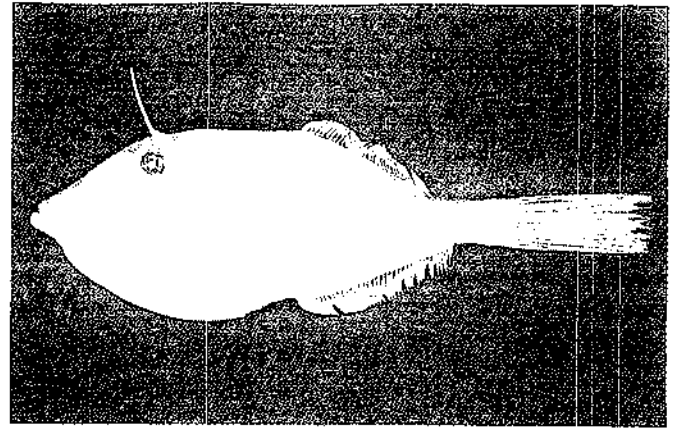
167. LUTJANIDAE: *Pristipomoides aquilonaris*
(photo by F. Cervigón)



168. LUTJANIDAE: *Pristipomoides freemani*
(photo by F. Cervigón)



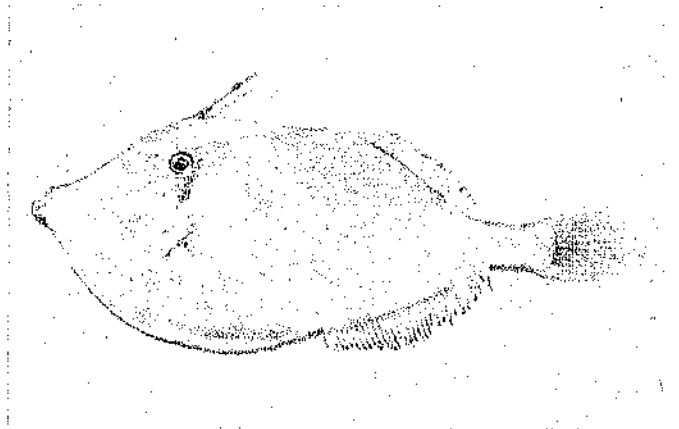
169. LUTJANIDAE: *Rhomboplites aurorubens*
(photo by F. Cervigón)



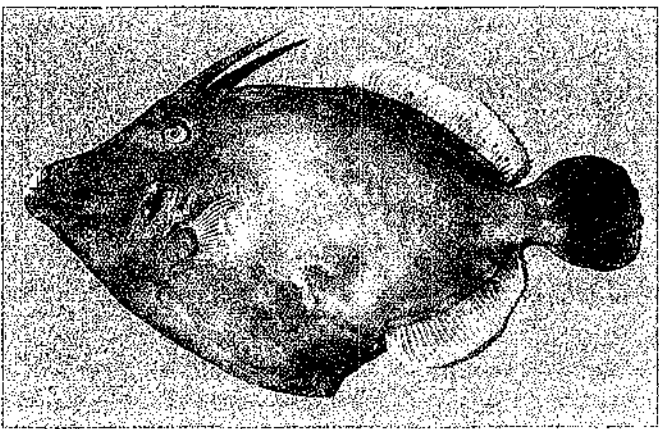
170. MONACANTHIDAE: *Aluterus heudelotii*
(photo by J. Kolding)



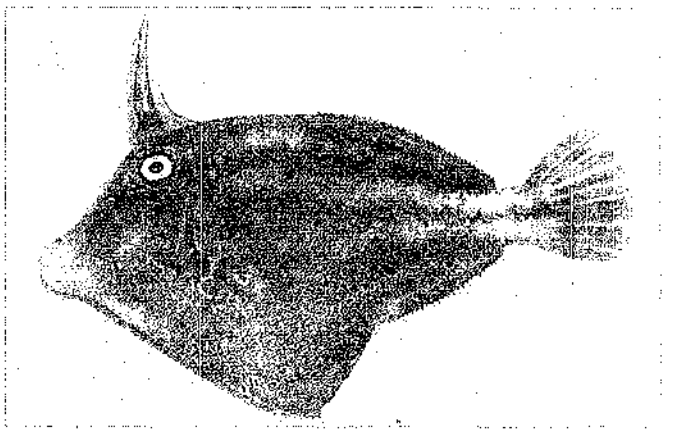
171. MONACANTHIDAE: *Aluterus monoceros*
(photo by F. Cervigón)



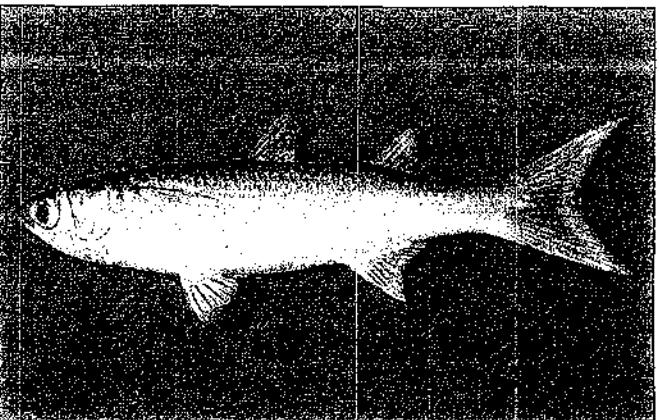
172. MONACANTHIDAE: *Aluterus schoepfii*
(photo by F. Cervigón)



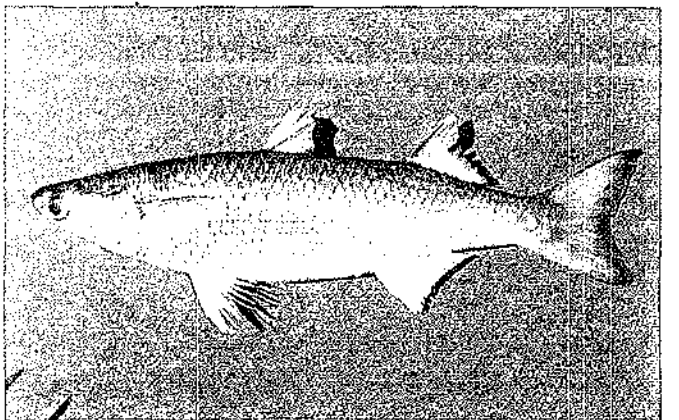
173. MONACANTHIDAE: *Cantherhines macroceros*
(photo by F. Cervigón)



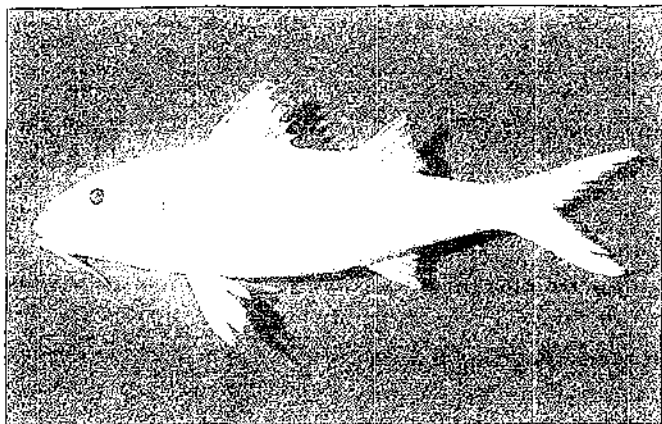
174. MONACANTHIDAE: *Cantherhines pulrus*
(photo by F. Cervigón)



175. MUGILIDAE: *Mugil curema*
(photo by F. Cervigón)



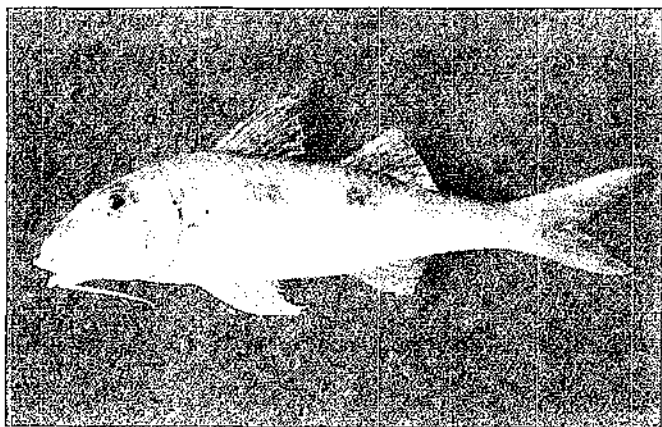
176. MUGILIDAE: *Mugil incilis*
(photo by F. Cervigón)



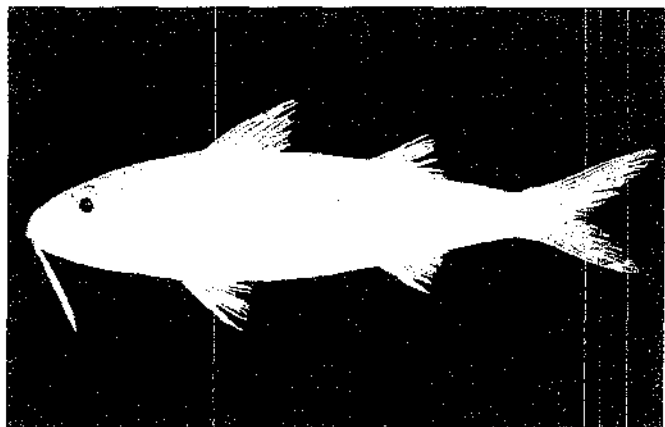
177. MULLIDAE: *Mulloidichthys martinicus*
(photo by F. Cervigón)



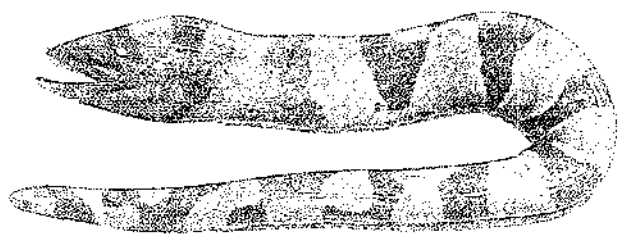
178. MULLIDAE: *Mullus auratus*
(photo by F. Cervigón)



179. MULLIDAE: *Pseudupeneus maculatus*
(photo by F. Cervigón)



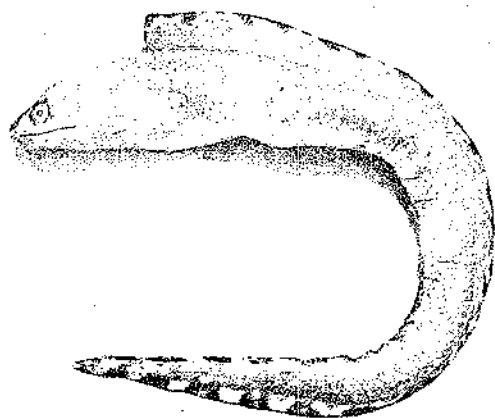
180. MULLIDAE: *Upeneus parvus*
(photo by J. Kolding)



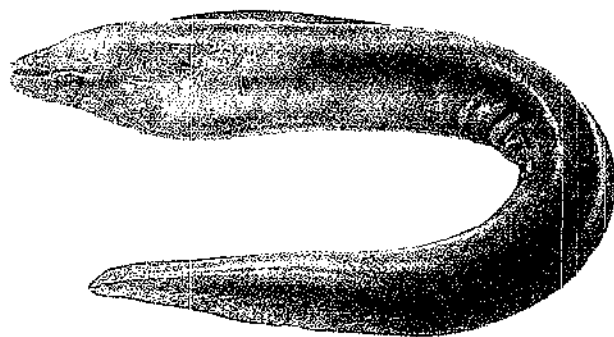
181. MURAENIDAE: *Channomuraena vittata*
(photo by F. Cervigón)



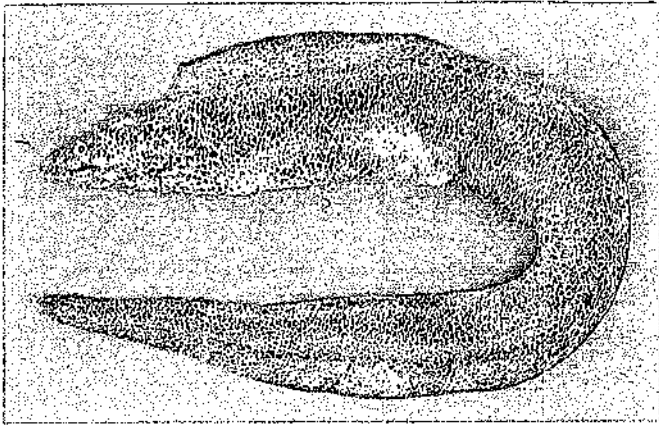
182. MURAENIDAE: *Enchelycore nigricans* (head)
(photo by F. Cervigón)



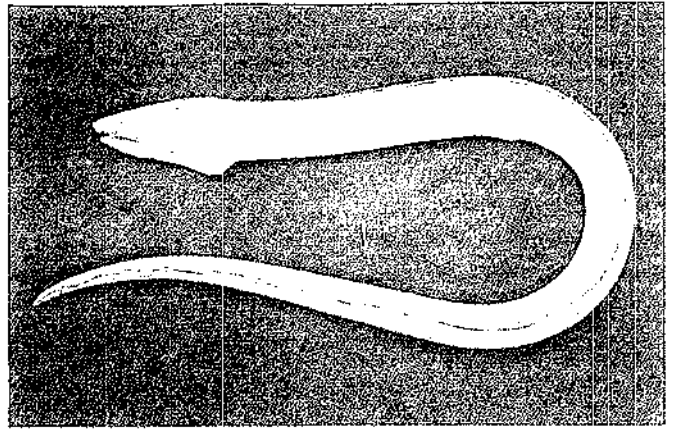
183. MURAENIDAE: *Gymnothorax ocellatus*
(photo by F. Cervigón)



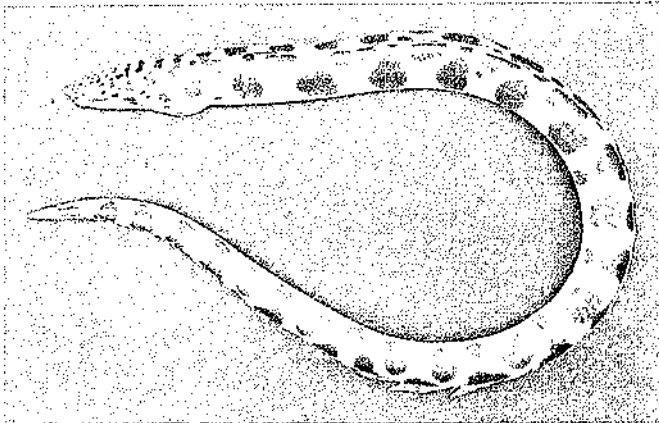
184. MURAENIDAE: *Lycodontis funebris*
(photo by F. Cervigón)



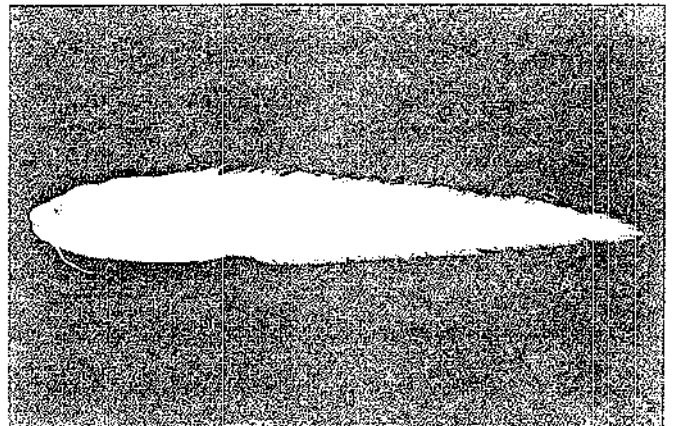
185. MURAENIDAE: *Lycodontis moringa*
(photo by F. Cervigón)



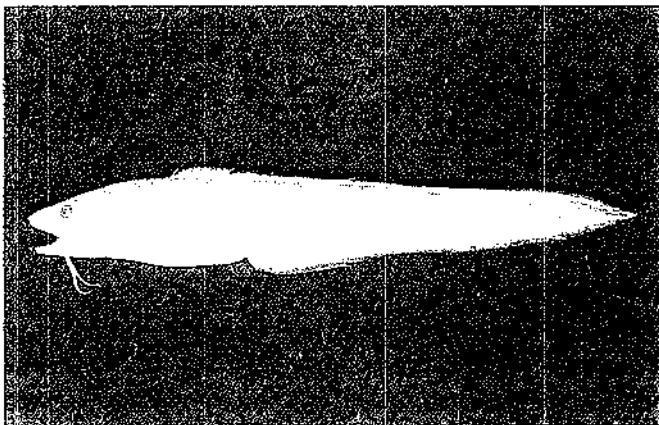
186. OPHICHTHIDAE: *Ophichthus gomesi*
(photo by J. Kolding)



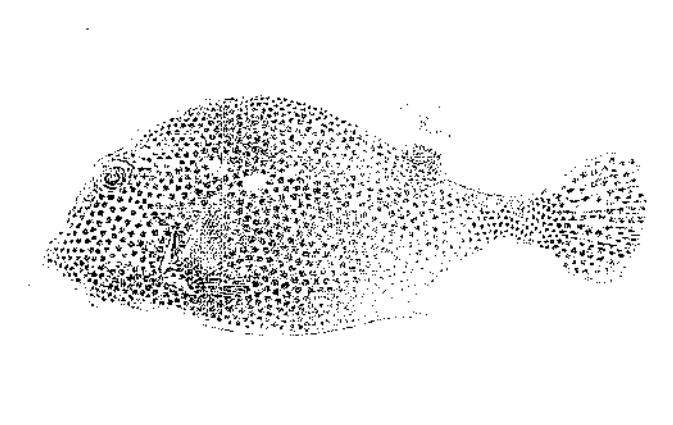
187. OPHICHTHIDAE: *Ophichthus ophis*
(photo by J. Kolding)



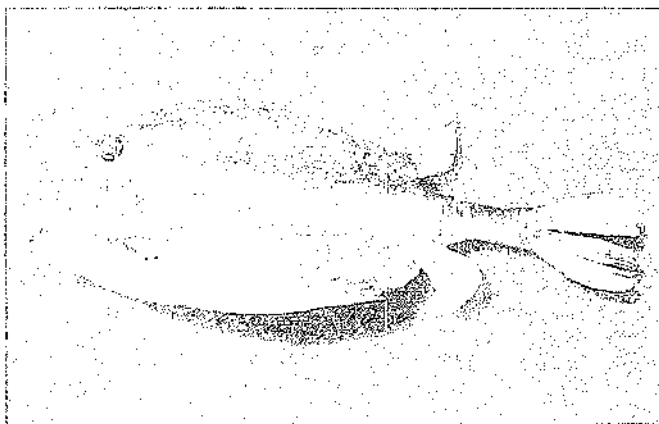
188. OPHIDIIDAE: *Lepophidium pheromystax*
(photo by J. Kolding)



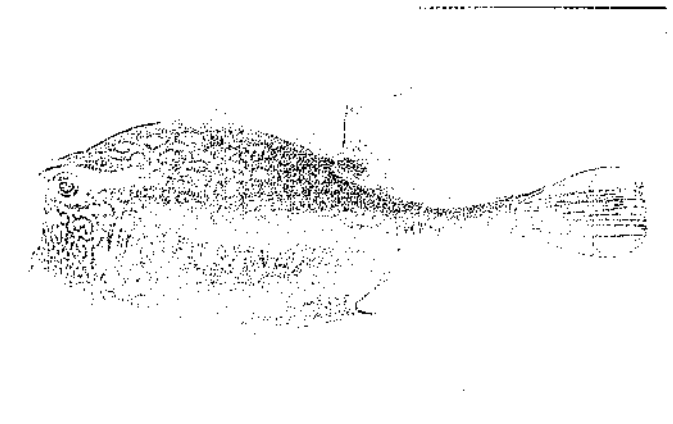
189. OPHIDIIDAE: *Lepophidium profundorum*
(photo by J. Kolding)



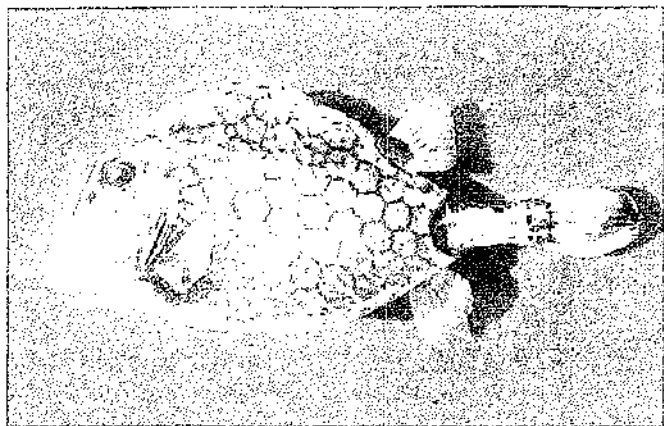
190. OSTRACIIDAE: *Lactophrys bicaudalis*
(photo by F. Cervigón)



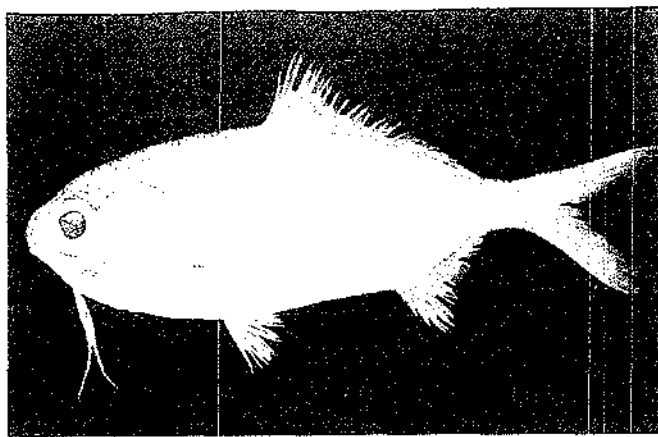
191. OSTRACIIDAE: *Lactophrys polygonius*
(photo by F. Cervigón)



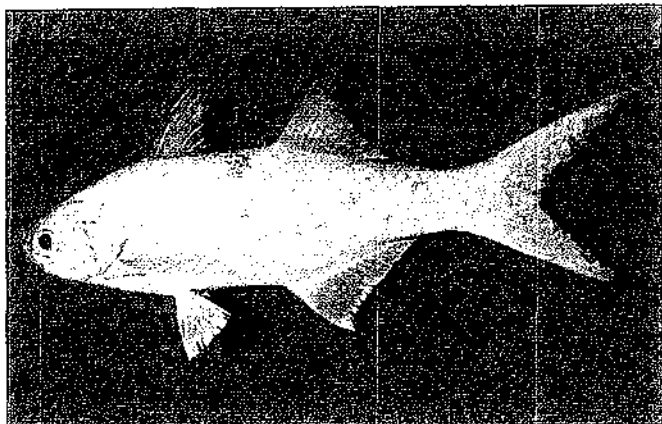
192. OSTRACIIDAE: *Lactophrys quadricornis*
(photo by F. Cervigón)



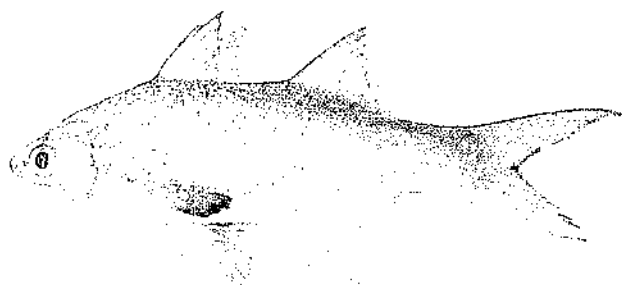
193. OSTRACIIDAE: *Lactophrys triqueter*
(photo by F. Cervigón)



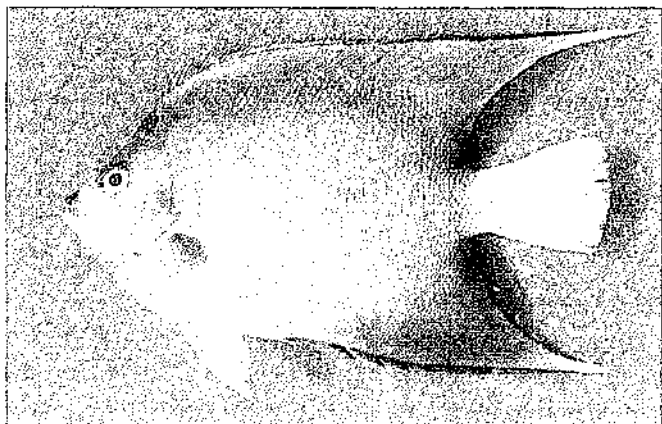
194. POLYMIXIIDAE: *Polimixia lowei*
(photo by J. Kolding)



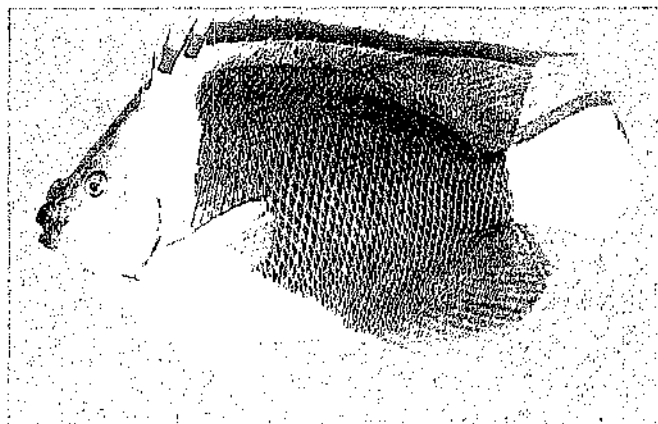
195. POLYNEMIIDAE: *Polydactylus oligodon*
(photo by F. Cervigón)



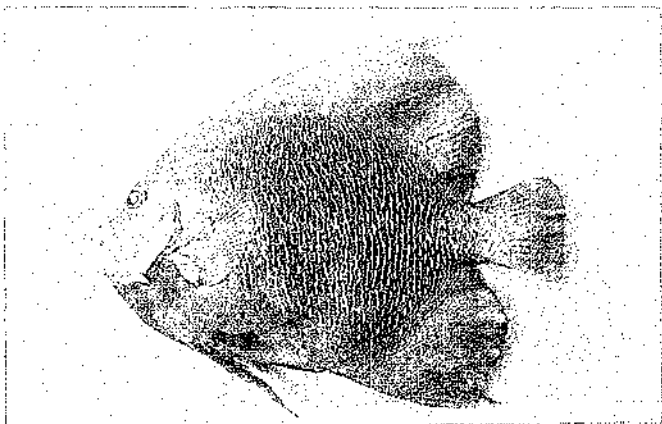
196. POLYNEMIIDAE: *Polydactylus virginicus*
(photo by F. Cervigón)



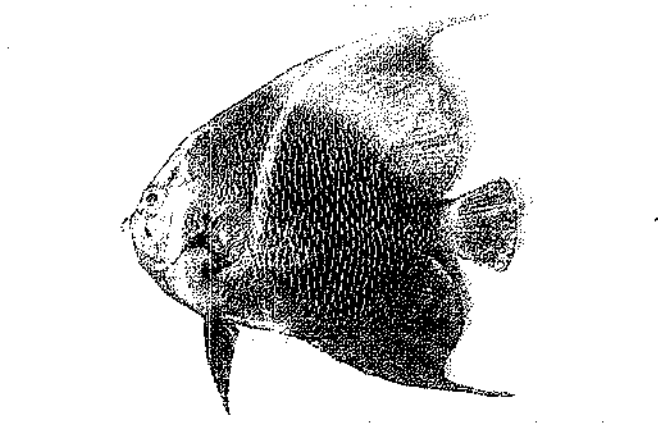
197. POMACANTHIDAE: *Holacanthus ciliaris*
(photo by F. Cervigón)



198. POMACANTHIDAE: *Holacanthus tricolor*
(photo by F. Cervigón)



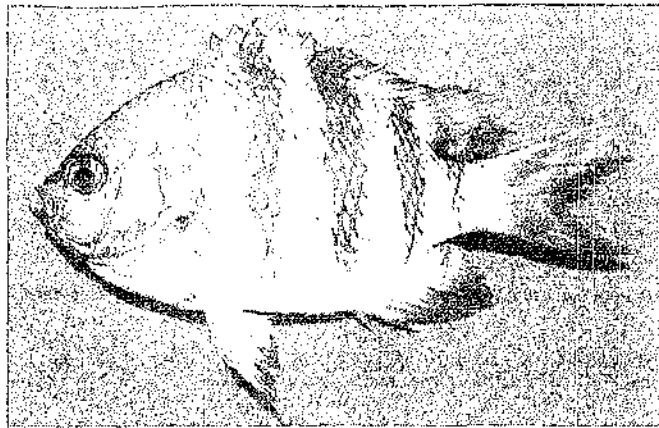
199. POMACANTHIDAE: *Pomacanthus paru* (adult)
(photo by F. Cervigón)



200. POMACANTHIDAE: *Pomacanthus paru* (juvenile)
(photo by F. Cervigón)



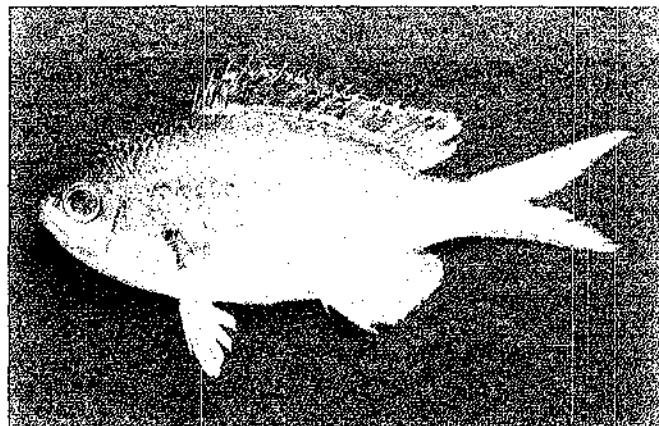
201. POMACANTHIDAE: *Pomacanthus arcuatus*
(photo by F. Cervigón)



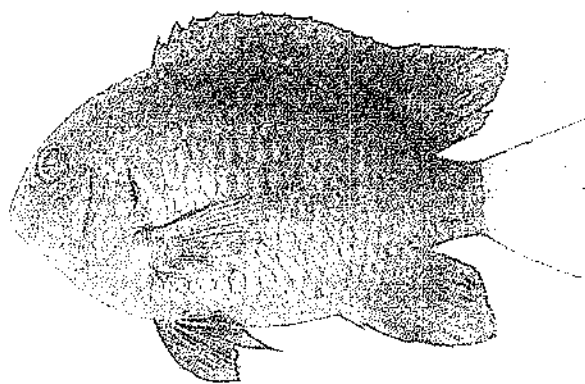
202. POMACENTRIDAE: *Abudesduf saxatilis*
(photo by F. Cervigón)



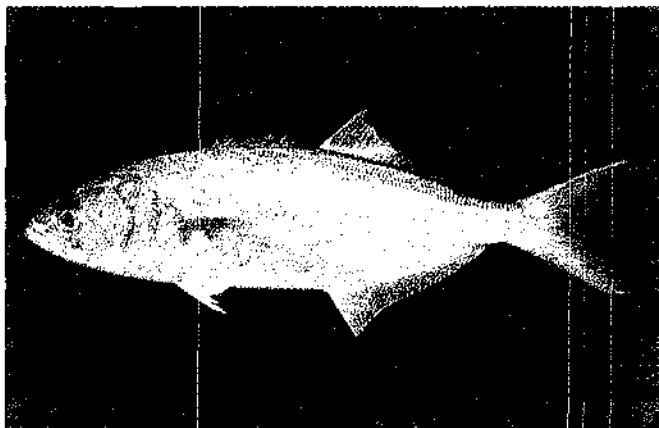
203. POMACENTRIDAE: *Abudesduf taurus*
(photo by F. Cervigón)



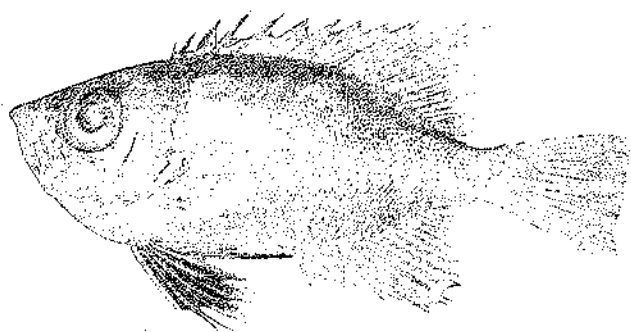
204. POMACENTRIDAE: *Chromis multilineata*
(photo by F. Cervigón)



205. POMACENTRIDAE: *Microspathodon chrysurus*
(photo by F. Cervigón)



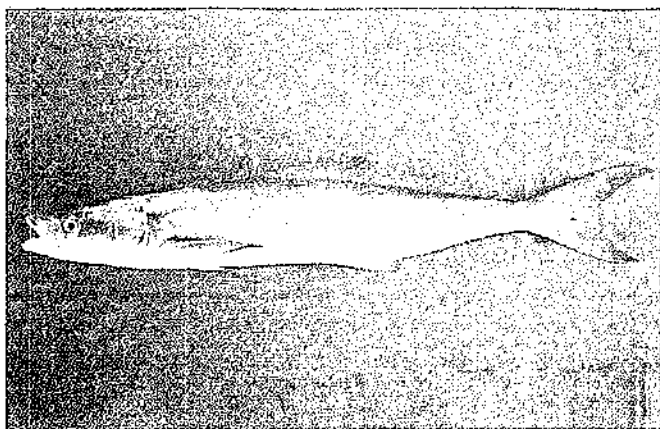
206. POMATOMIDAE: *Pomatomus saltatrix*
(photo by J. Kolding)



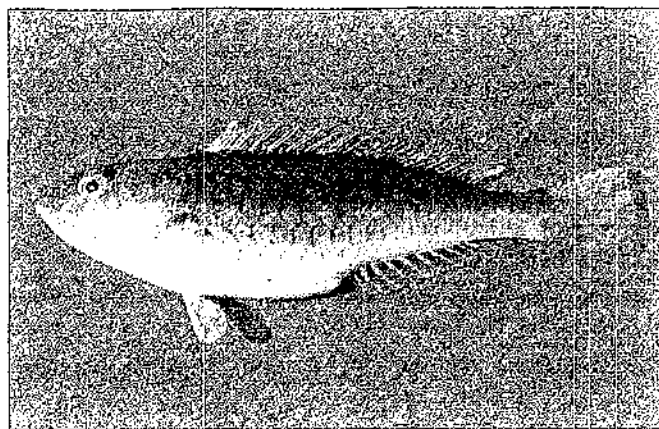
207. PRIACANTHIDAE: *Cookeolus boops*
(photo by F. Cervigón)



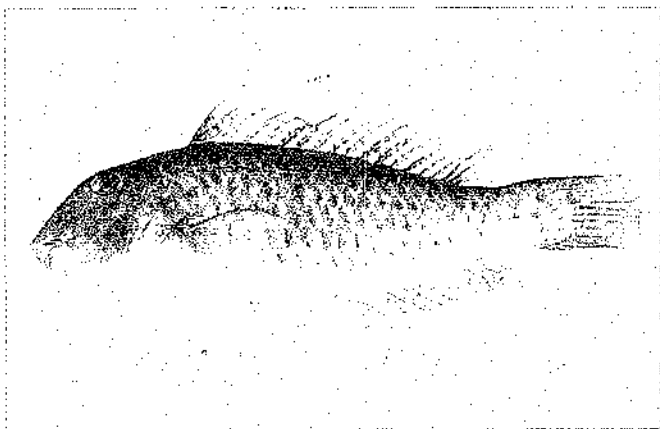
208. PRIACANTHIDAE: *Priacanthus arenatus*
(photo by F. Cervigón)



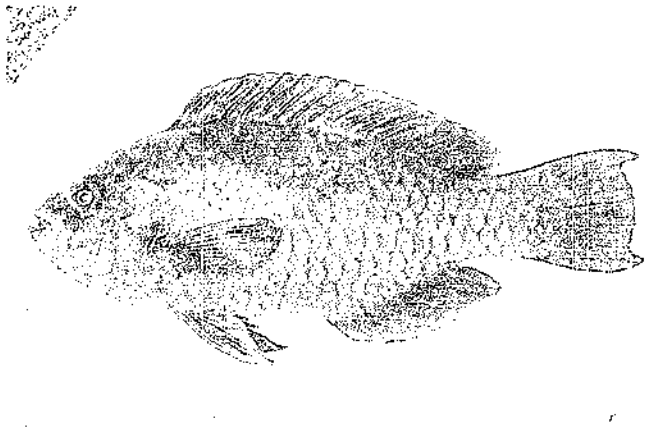
209. RACHICENTRIDAE: *Rachycentron canadum*
(photo by J. Kolding)



210. SCARIDAE: *Cryptotomus roseus*
(photo by F. Cervigón)



211. SCARIDAE: *Nicholsina usata*
(photo by F. Cervigón)



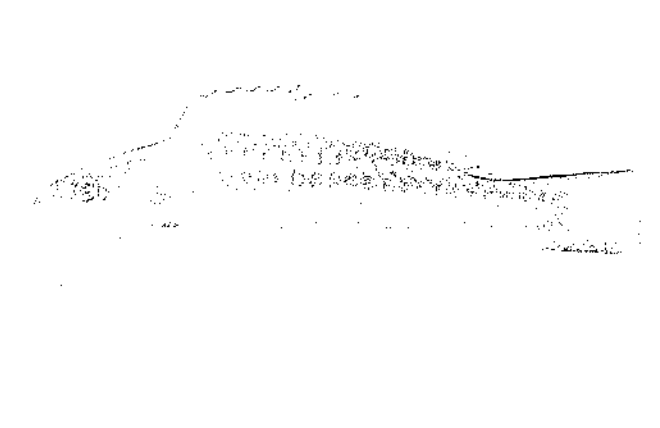
212. SCARIDAE: *Scarus coelestinus*
(photo by F. Cervigón)



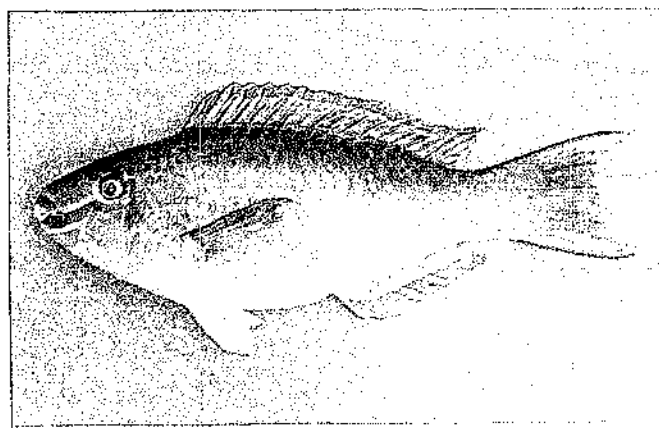
213. SCARIDAE: *Scarus coeruleus*
(photo by F. Cervigón)



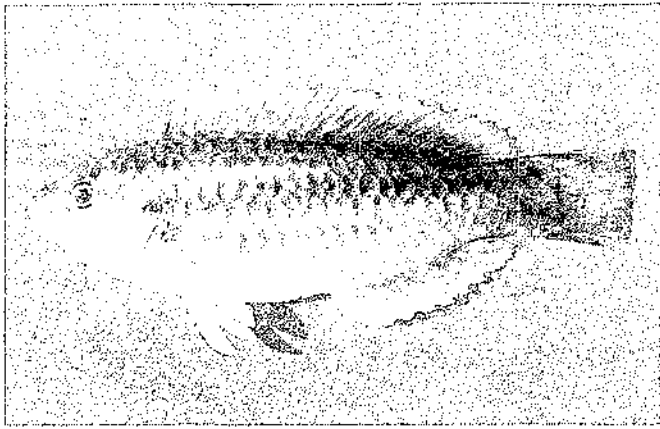
214. SCARIDAE: *Scarus guacamaia*
(photo by F. Cervigón)



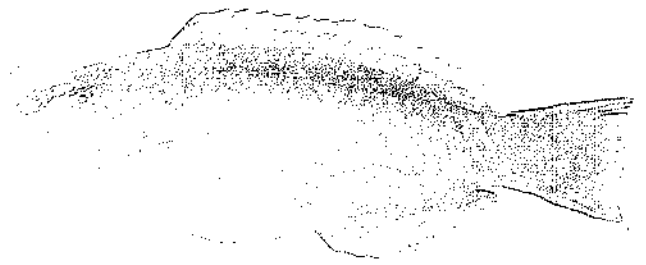
215. SCARIDAE: *Scarus croicensis* (primary phase)
(photo by F. Cervigón)



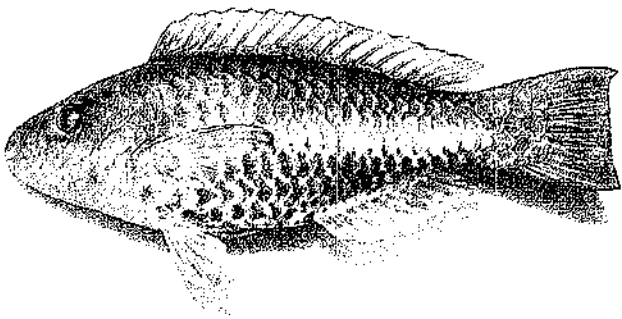
216. SCARIDAE: *Scarus vetula* (terminal male)
(photo by F. Cervigón)



217. SCARIDAE: *Scarus taeniopterus* (primary phase)
(photo by F. Cervigón)



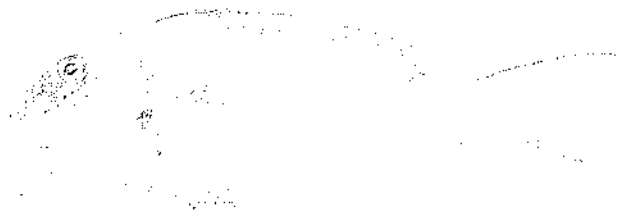
218. SCARIDAE: *Scarus taeniopterus* (terminal male)
(photo by F. Cervigón)



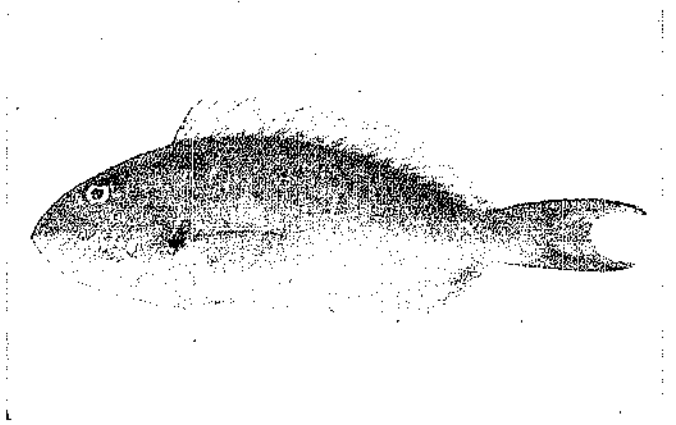
219. SCARIDAE: *Scarus vetula* (primary phase)
(photo by F. Cervigón)



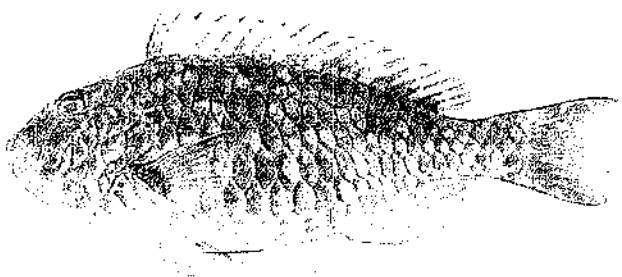
220. SCARIDAE: *Sparisoma aurofrenatum* (terminal male)
(photo by F. Cervigón)



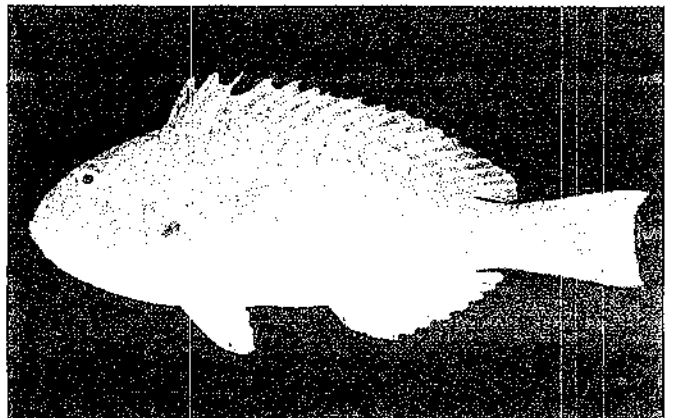
221. SCARIDAE: *Sparisoma chrysopterym* (primary phase)
(photo by F. Cervigón)



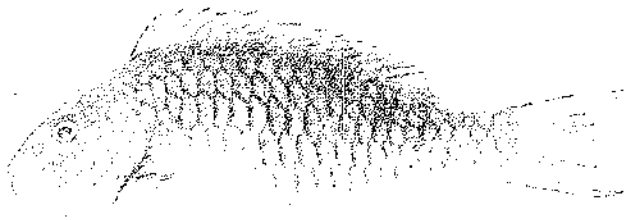
222. SCARIDAE: *Sparisoma chrysopterym* (terminal male)
(photo by F. Cervigón)



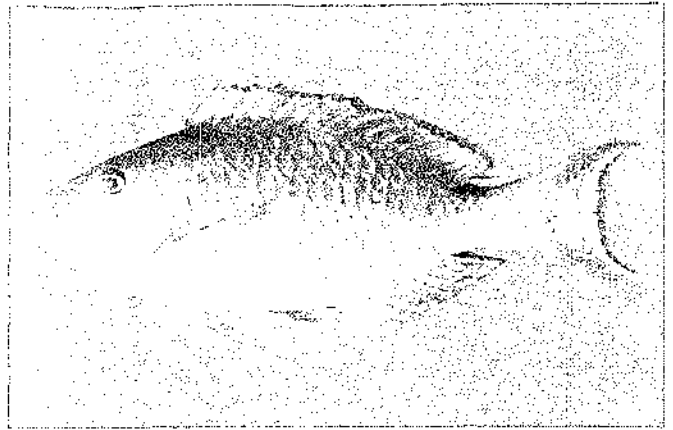
223. SCARIDAE: *Sparisoma rubripinne* (primary phase)
(photo by F. Cervigón)



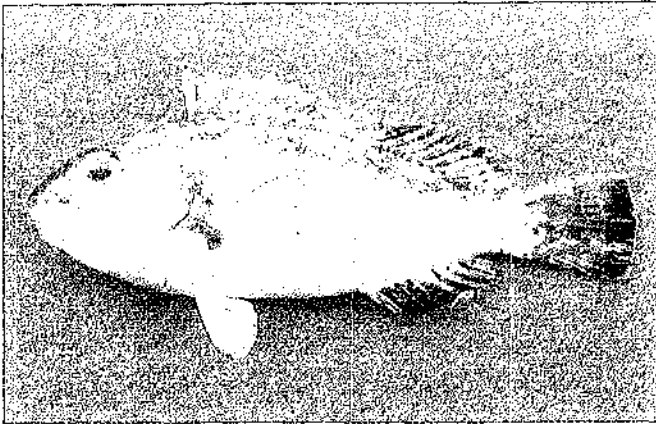
224. SCARIDAE: *Sparisoma rubripinne* (terminal male)
(photo by F. Cervigón)



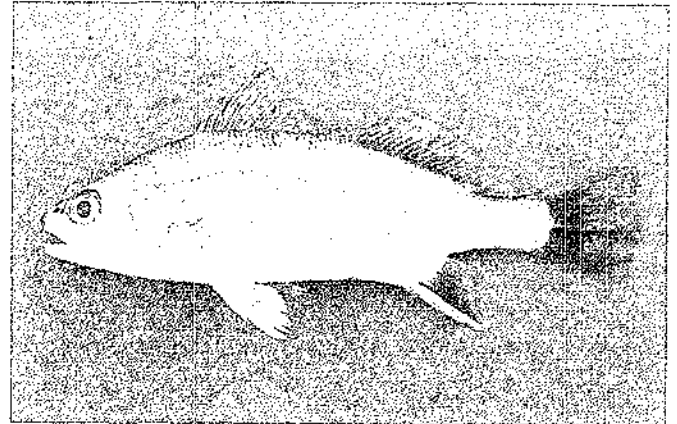
225. SCARIDAE: *Sparisoma viride* (primary phase)
(photo by F. Cervigón)



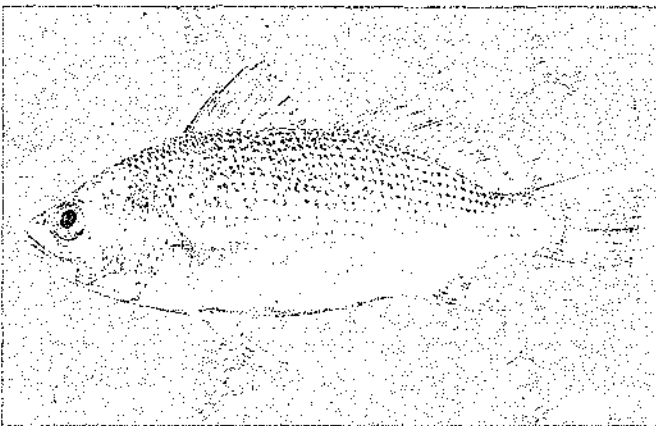
226. SCARIDAE: *Sparisoma viride* (terminal male)
(photo by F. Cervigón)



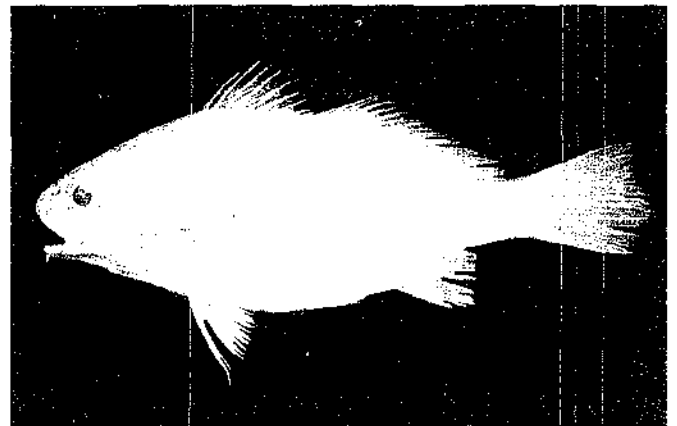
227. SCARIDAE: *Sparisoma radians* (terminal male)
(photo by F. Cervigón)



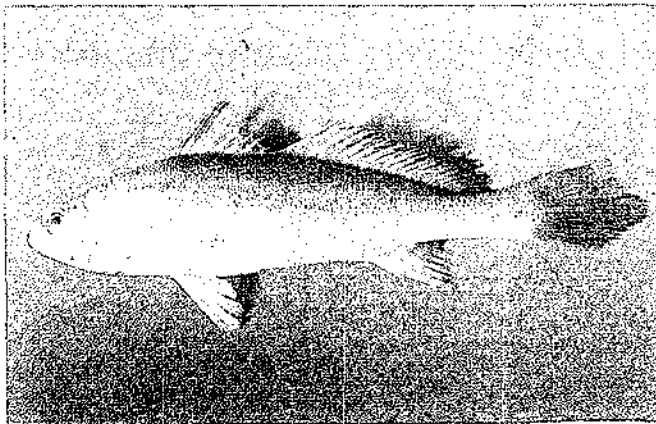
228. SCIAENIDAE: *Bairdiella rhonchus*
(photo by F. Cervigón)



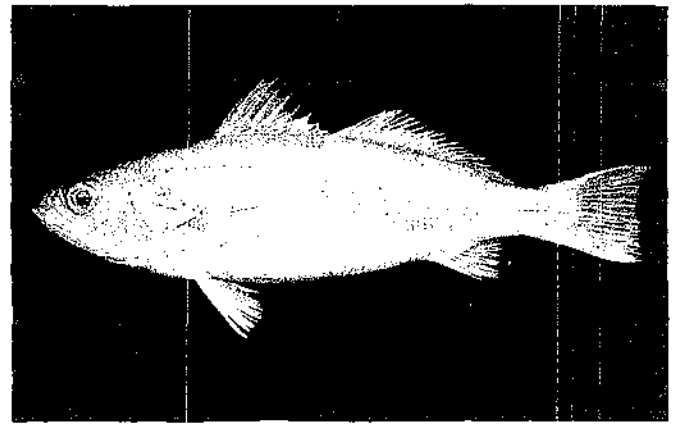
229. SCIAENIDAE: *Bairdiella sanctaeluciae*
(photo by F. Cervigón)



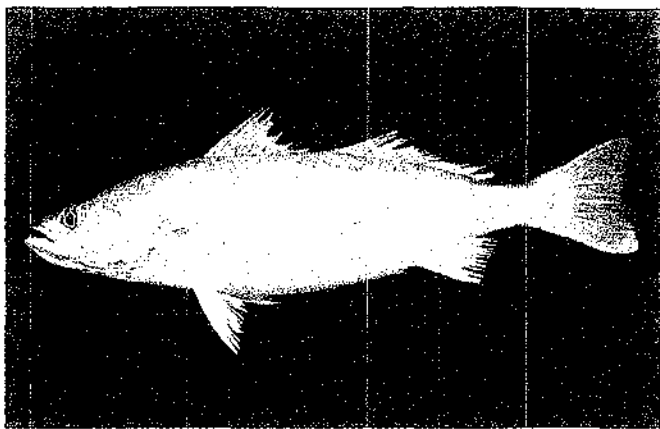
230. SCIAENIDAE: *Ctenosciaena gracilicirrus*
(photo by J. Kolding)



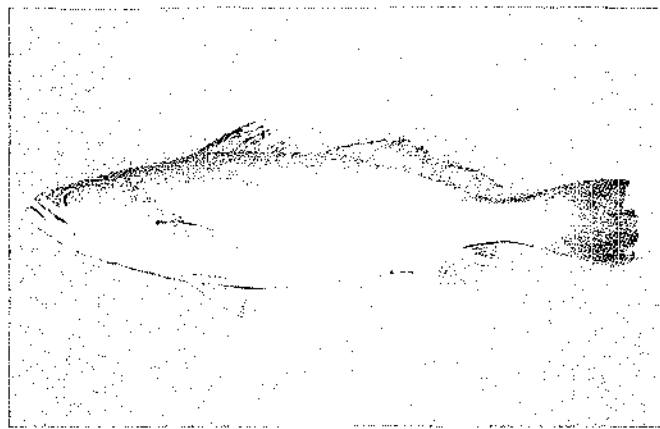
231. SCIAENIDAE: *Cynoscion acoupa*
(photo by F. Cervigón)



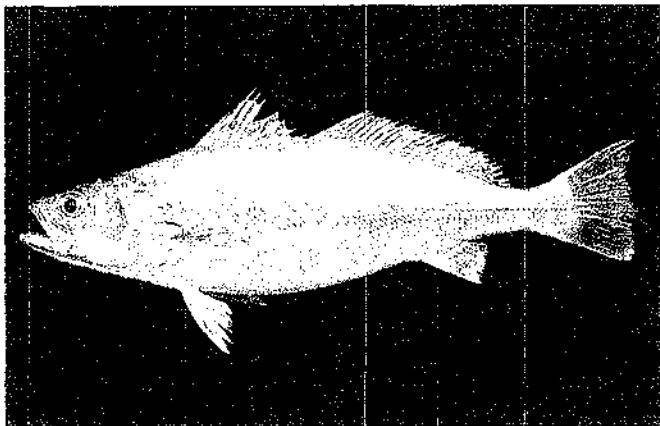
232. SCIAENIDAE: *Cynoscion jamaicensis*
(photo by J. Kolding)



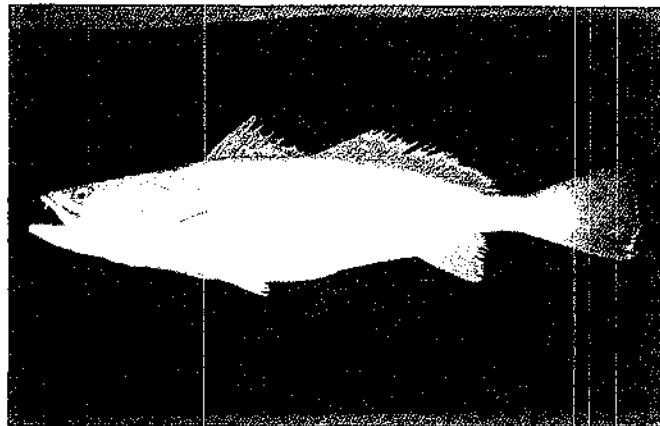
233. SCIAENIDAE: *Cynoscion leiarchus*
(photo by J. Kolding)



234. SCIAENIDAE: *Cynoscion microlepidotus*
(photo by F. Cervigón)



235. SCIAENIDAE: *Cynoscion similis*
(photo by J. Kolding)



236. SCIAENIDAE: *Cynoscion virescens*
(photo by J. Kolding)



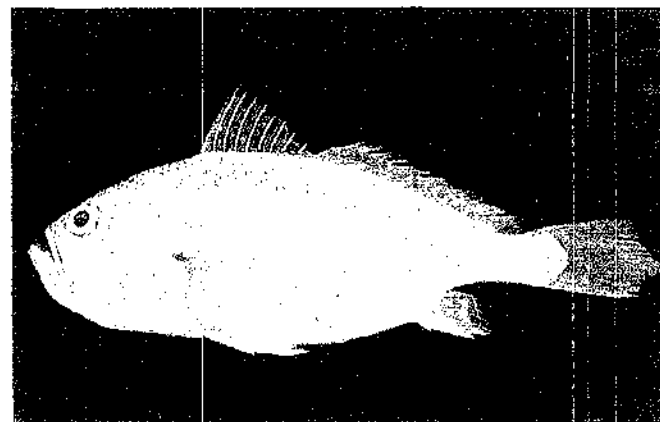
237. SCIAENIDAE: *Equetus acuminatus*
(photo by F. Cervigón)



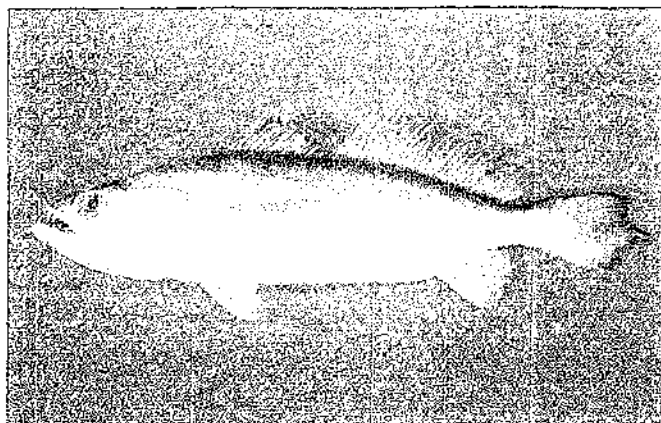
238. SCIAENIDAE: *Equetus lanceolatus*
(photo by F. Cervigón)



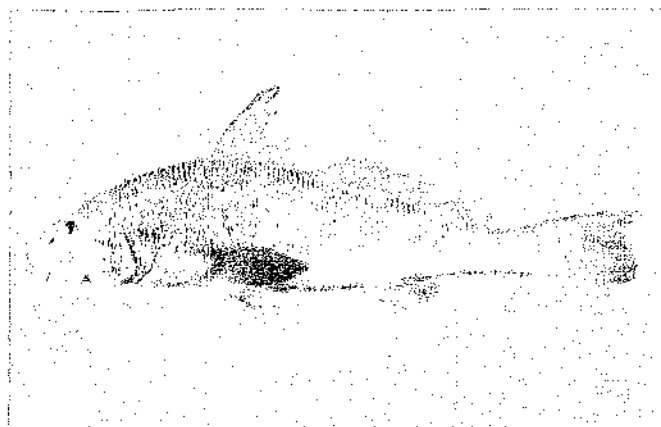
239. SCIAENIDAE: *Equetus punctatus*
(photo by F. Cervigón)



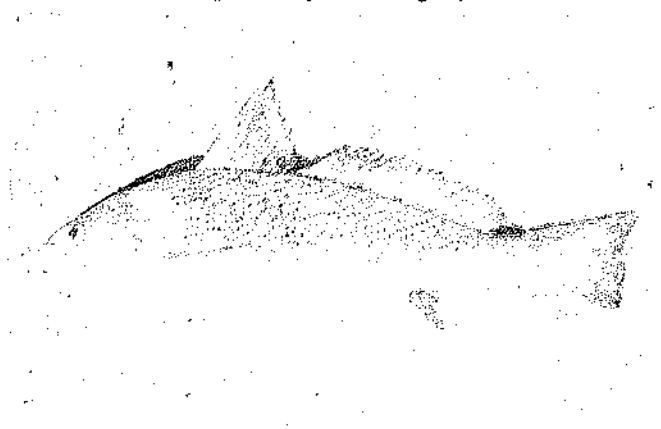
240. SCIAENIDAE: *Larimus breviceps*
(photo by J. Kolding)



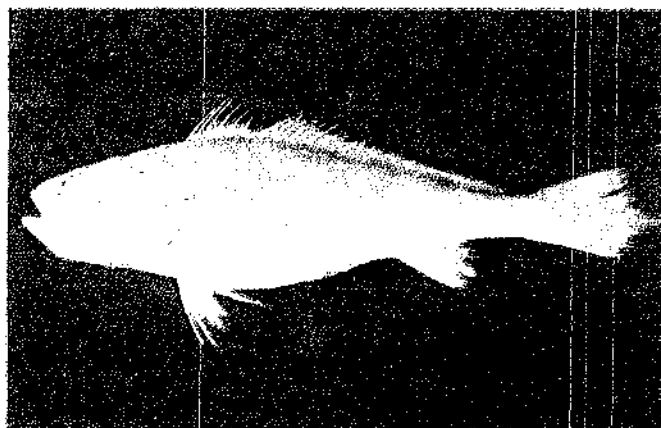
241. SCIAENIDAE: *Macrodon ancylodon*
(photo by F. Cervigón)



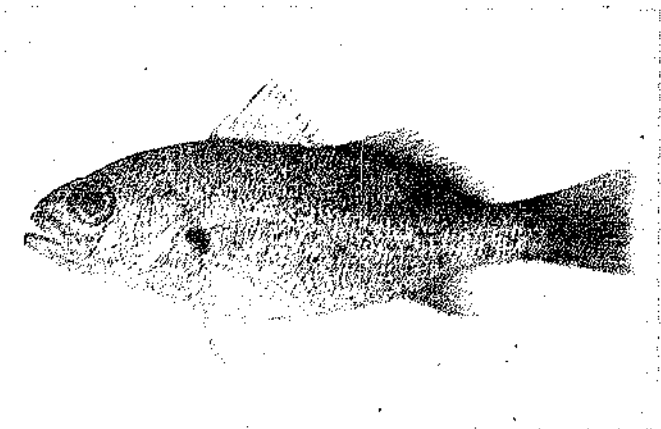
242. SCIAENIDAE: *Menticirrhus americanus*
(photo by F. Cervigón)



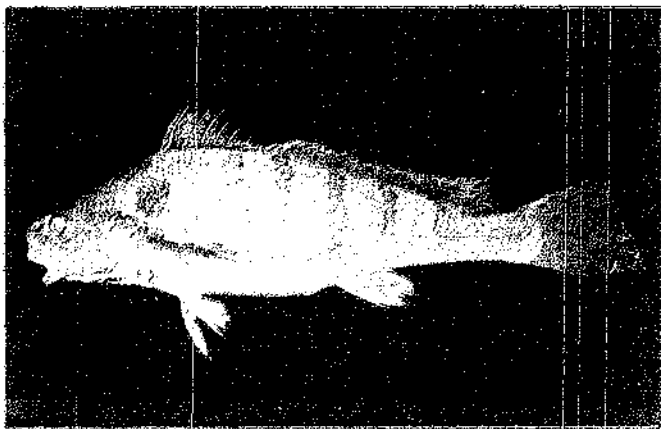
243. SCIAENIDAE: *Micropogonias furnieri*
(photo by F. Cervigón)



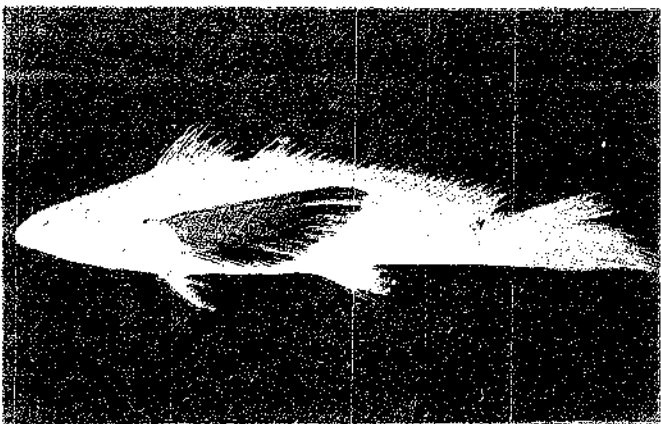
244. SCIAENIDAE: *Nebris microps*
(photo by J. Kolding)



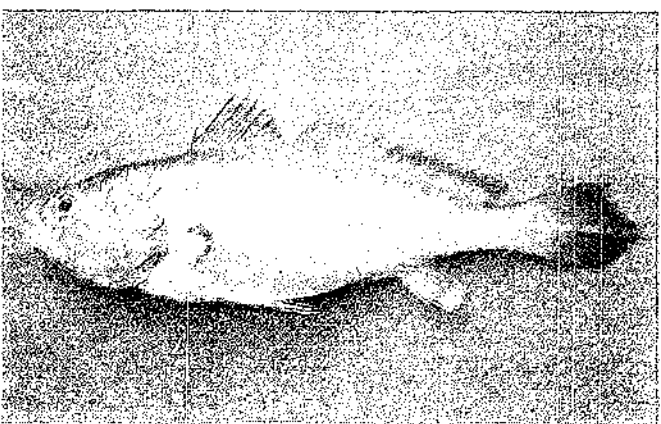
245. SCIAENIDAE: *Odontoscion dentex*
(photo by F. Cervigón)



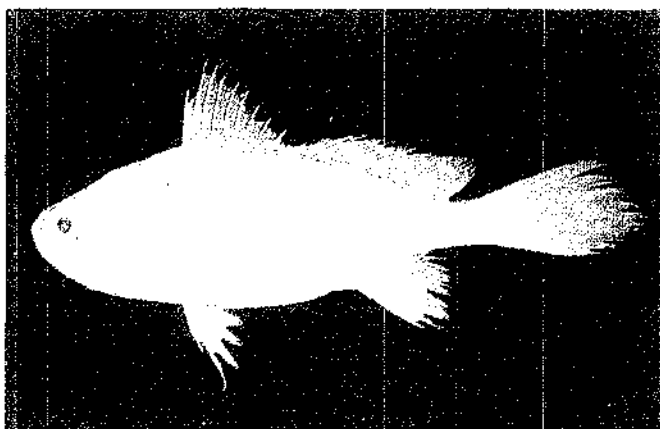
246. SCIAENIDAE: *Paralonchurus brasiliensis*
(photo by J. Kolding)



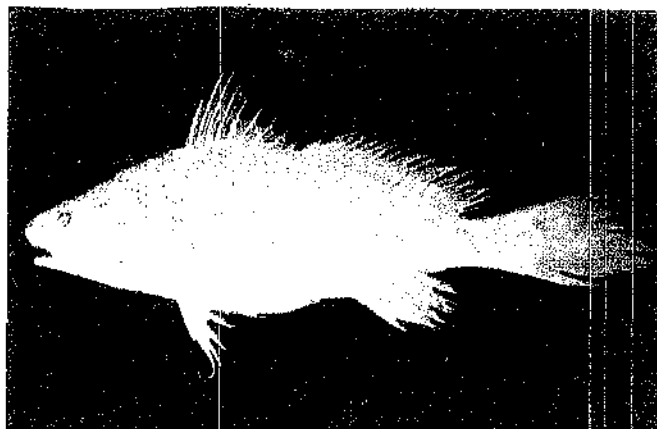
247. SCIAENIDAE: *Paralonchurus elegans*
(photo by J. Kolding)



248. SCIAENIDAE: *Plagioscion squamosissimus*
(photo by F. Cervigón)



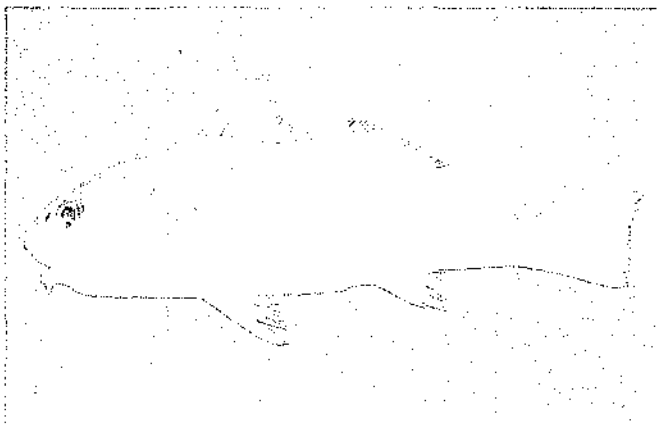
249. SCIAENIDAE: *Stellifer griseus*
(photo by J. Kolding)



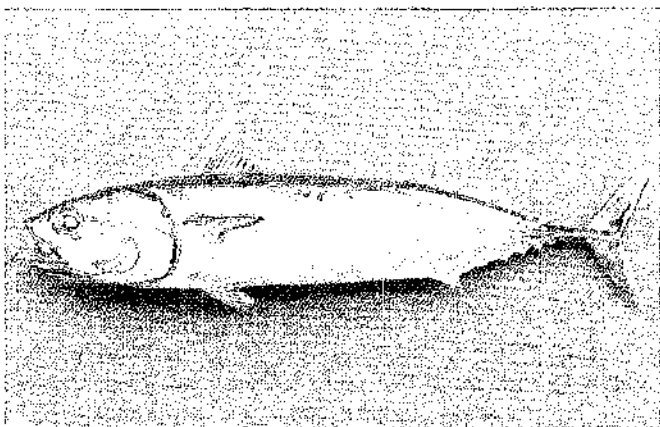
250. SCIAENIDAE: *Stellifer microps*
(photo by J. Kolding)



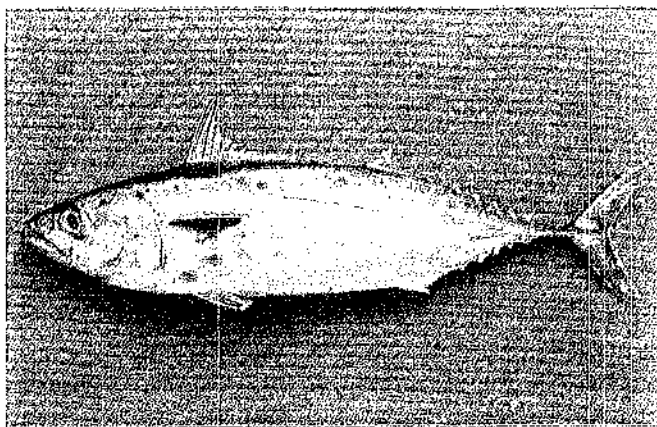
251. SCIAENIDAE: *Stellifer rastrifer*
(photo by F. Cervigón)



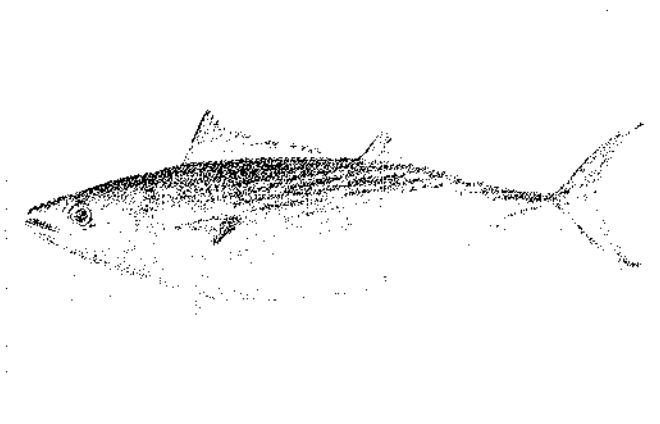
252. SCIAENIDAE: *Umbrina coroides*
(photo by F. Cervigón)



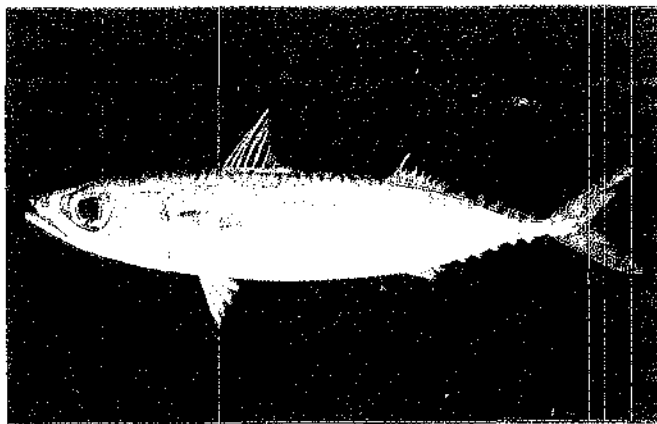
253. SCOMBRIDAE: *Auxis thazard*
(photo by F. Cervigón)



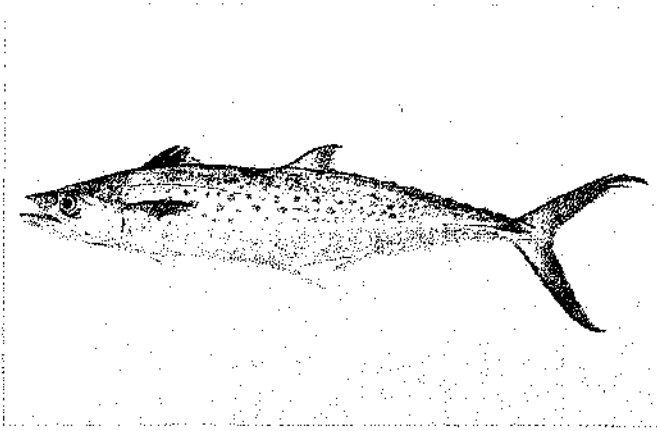
254. SCOMBRIDAE: *Euthymus alletteratus*
(photo by F. Cervigón)



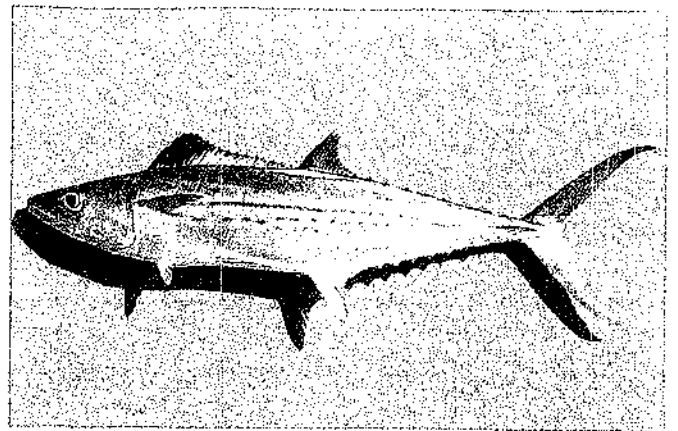
255. SCOMBRIDAE: *Sarda sarda*
(photo by F. Cervigón)



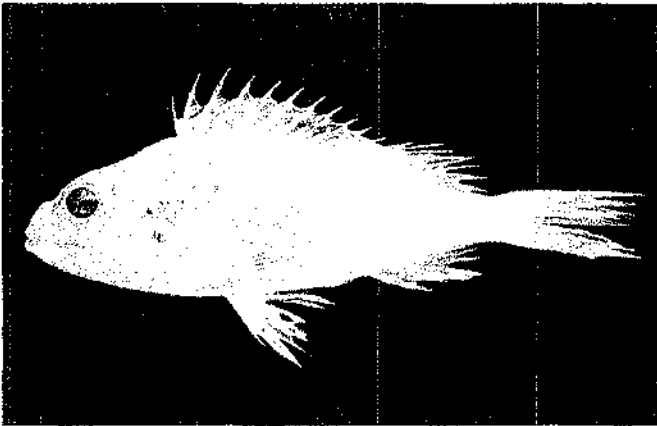
256. SCOMBRIDAE: *Scomber japonicus*
(photo by J. Kolding)



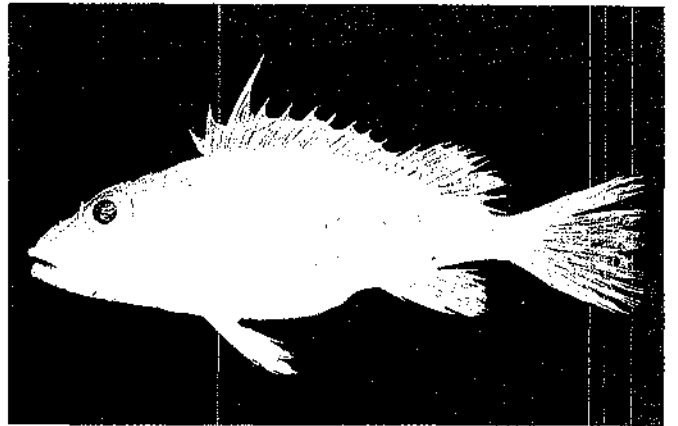
257. SCOMBRIDAE: *Scomberomorus brasiliensis*
(photo by J. Kolding)



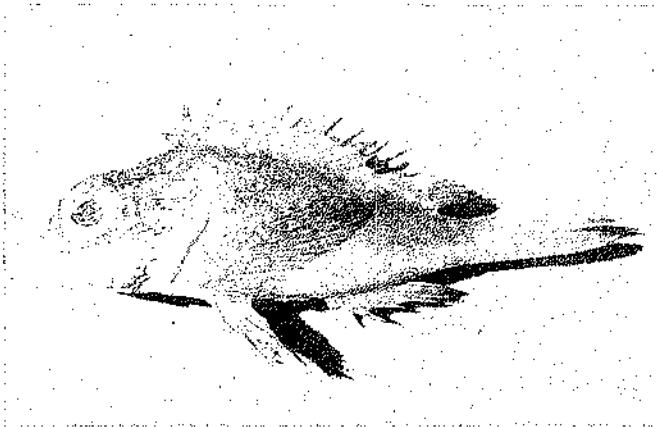
258. SCOMBRIDAE: *Scomberomorus regalis*
(photo by F. Cervigón)



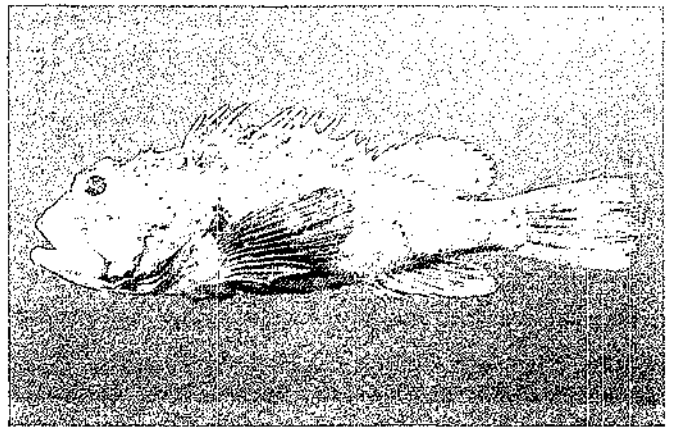
259. SCORPAENIDAE: *Helicolenus dactylopterus*
(photo by J. Kolding)



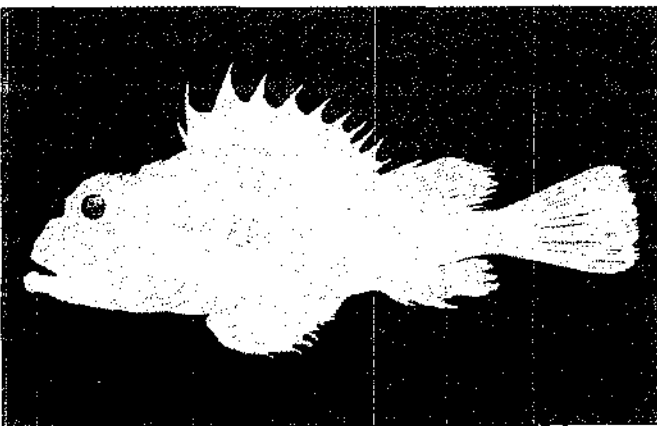
260. SCORPAENIDAE: *Pontinus longispinis*
(photo by J. Kolding)



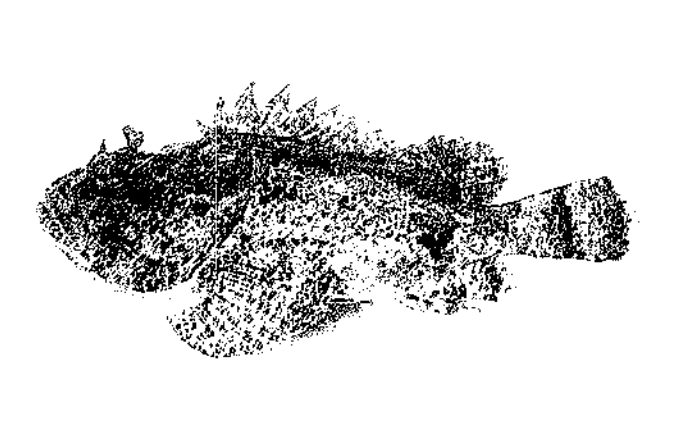
261. SCORPAENIDAE: *Scorpaena agassizi*
(photo by F. Cervigón)



262. SCORPAENIDAE: *Scorpaena brasiliensis*
(photo by F. Cervigón)



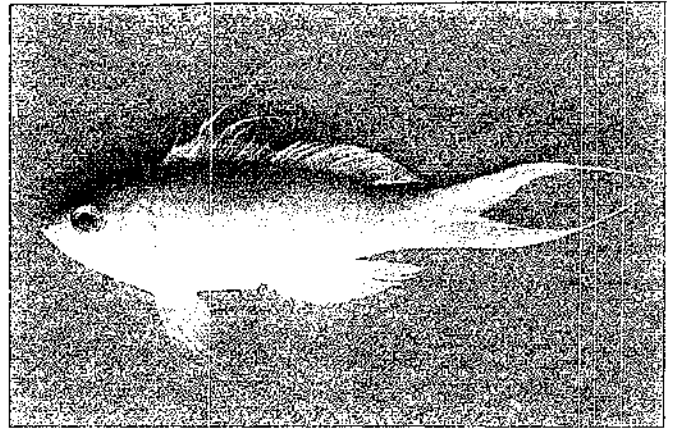
263. SCORPAENIDAE: *Scorpaena dispar*
(photo by J. Kolding)



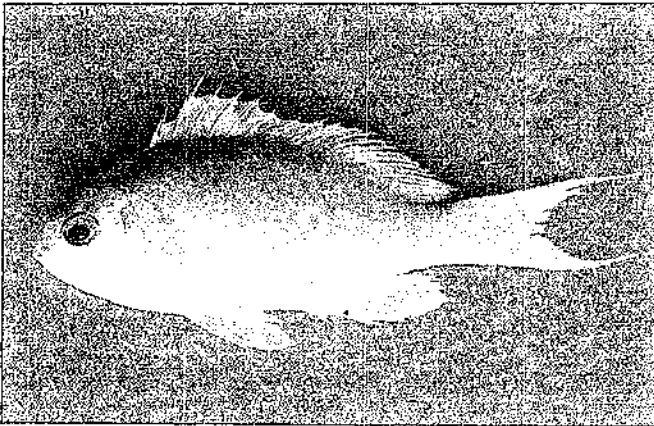
264. SCORPAENIDAE: *Scorpaena plumieri*
(photo by F. Cervigón)



265. SERRANIDAE: *Hemanthias leptus*
(photo by F. Cervigón)



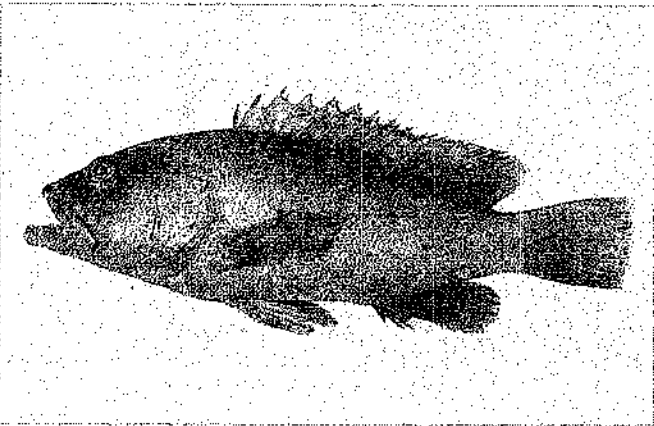
266. SERRANIDAE: *Hemanthias vivanus*
(photo by F. Cervigón)



267. SERRANIDAE: *Holanthias martinicensis*
(photo by F. Cervigón)



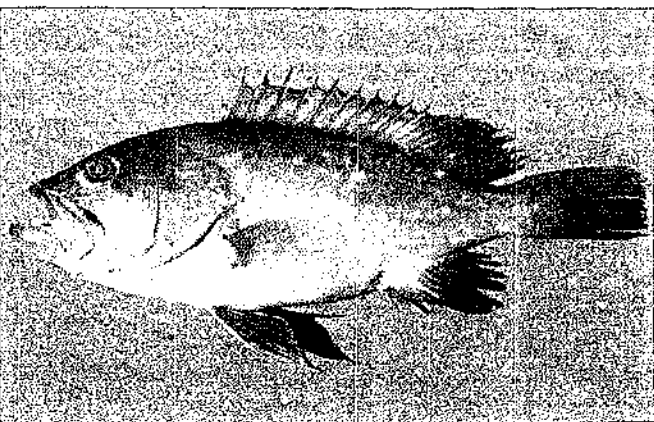
268. SERRANIDAE: *Cephalopholis cruentata*
(photo by F. Cervigón)



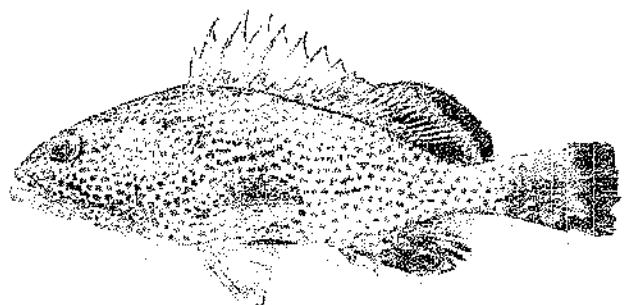
269. SERRANIDAE: *Cephalopholis fulva*
(photo by F. Cervigón)



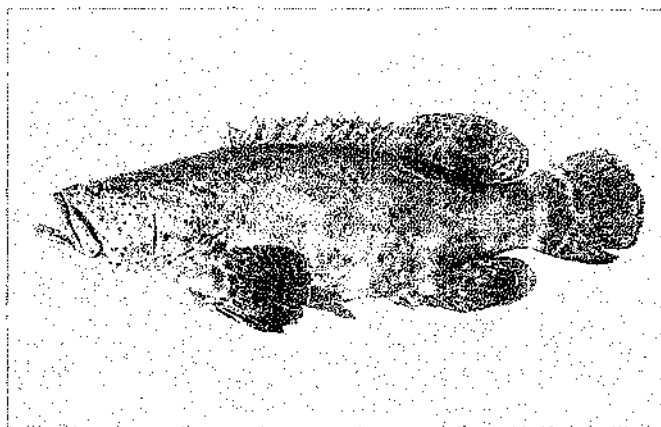
270. SERRANIDAE: *Epinephelus adscensionis*
(photo by F. Cervigón)



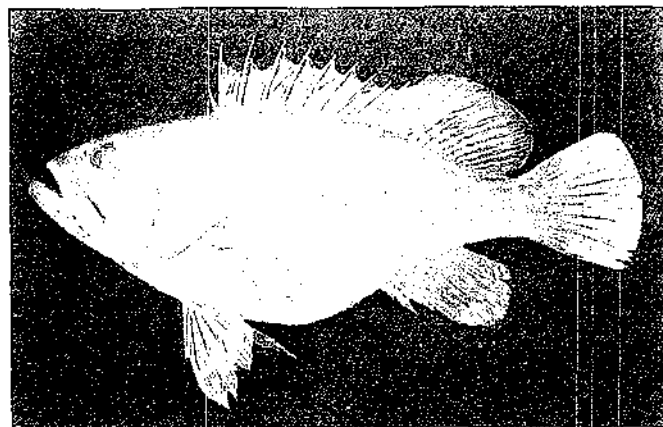
271. SERRANIDAE: *Epinephelus flavolimbatus*
(photo by F. Cervigón)



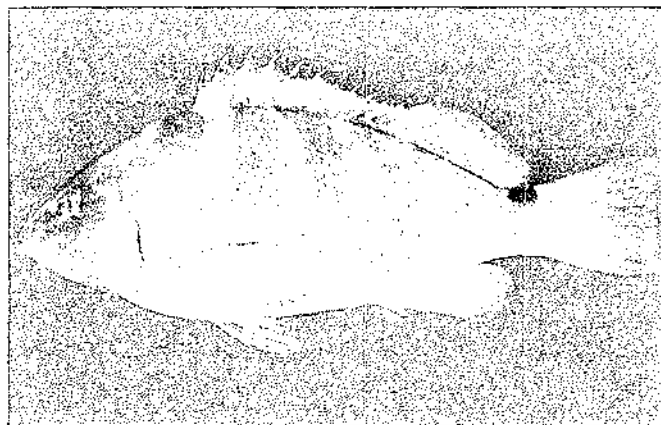
272. SERRANIDAE: *Epinephelus guttatus*
(photo by F. Cervigón)



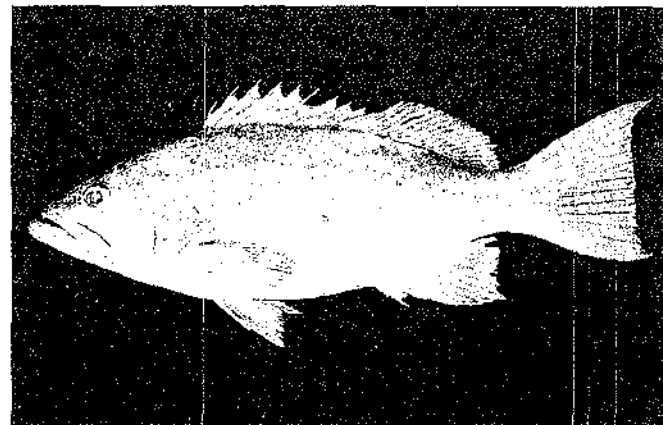
273. SERRANIDAE: *Epinephelus itajara*
(photo by F. Cervigón)



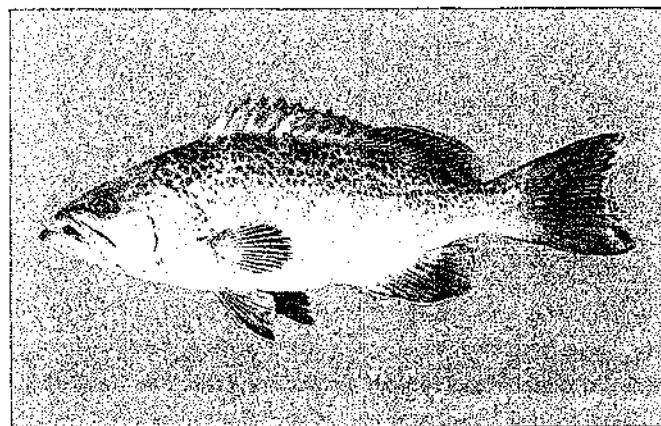
274. SERRANIDAE: *Epinephelus nigritus*
(photo by J. Kolding)



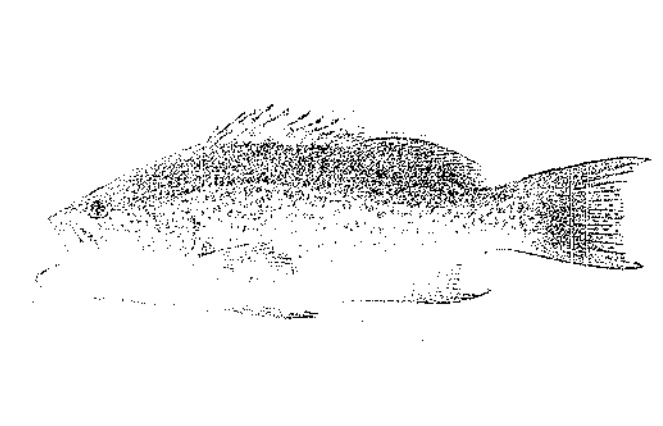
275. SERRANIDAE: *Epinephelus striatus*
(photo by F. Cervigón)



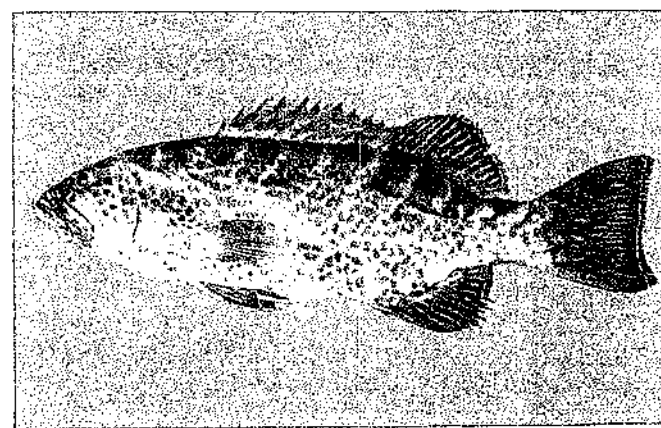
276. SERRANIDAE: *Mycteroperca cidi*
(photo by J. Kolding)



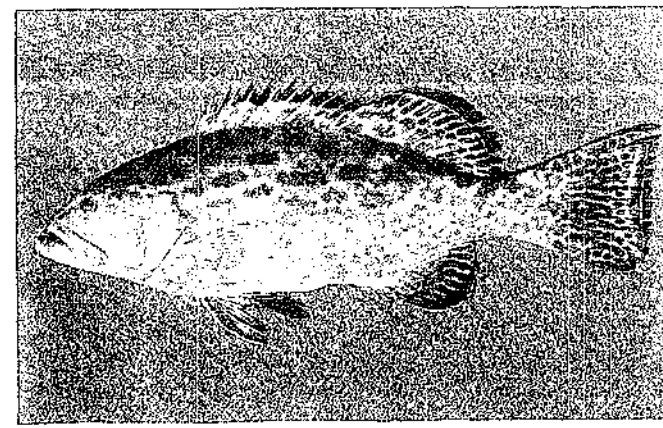
277. SERRANIDAE: *Mycteroperca interstitialis*
(photo by F. Cervigón)



278. SERRANIDAE: *Mycteroperca phenax*
(photo by F. Cervigón)



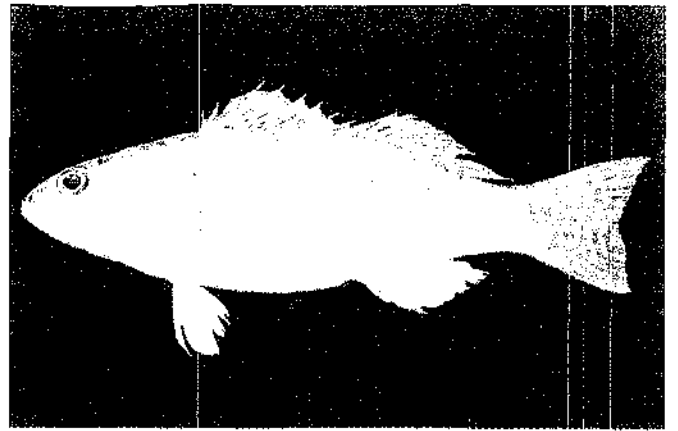
279. SERRANIDAE: *Mycteroperca tigris*
(photo by F. Cervigón)



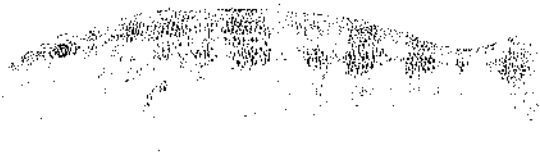
280. SERRANIDAE: *Mycteroperca venenosa*
(photo by F. Cervigón)



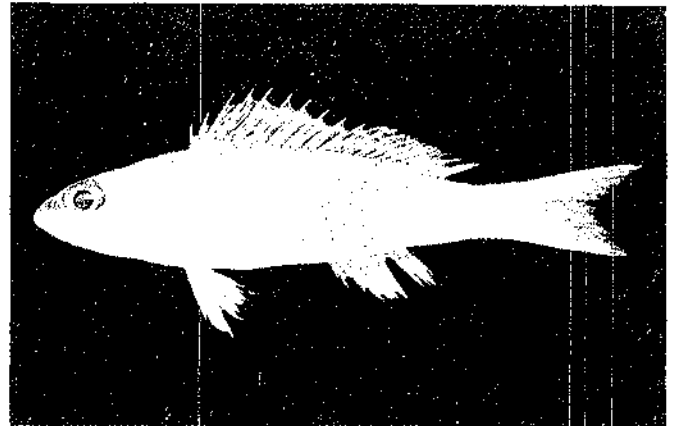
281. SERRANIDAE: *Paranthias furcifer*
(photo by F. Cervigón)



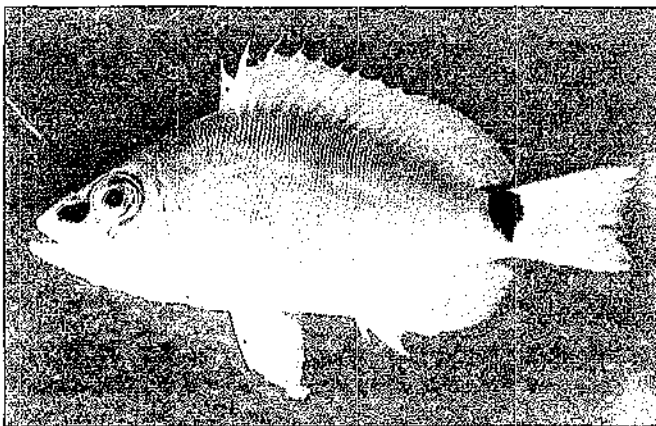
282. SERRANIDAE: *Diplectrum bivittatum*
(photo by J. Kolding)



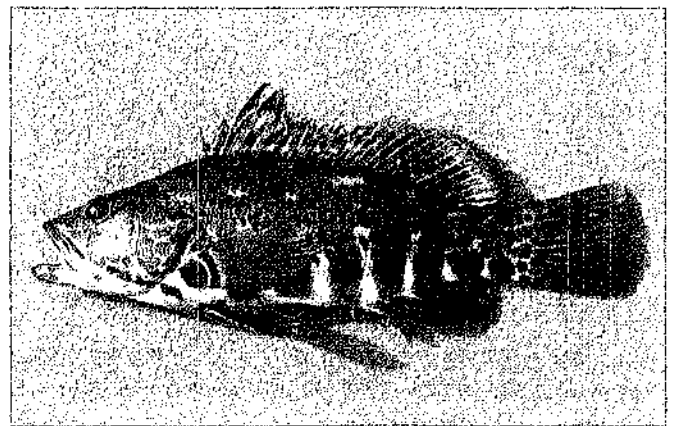
283. SERRANIDAE: *Diplectrum formosum*
(photo by F. Cervigón)



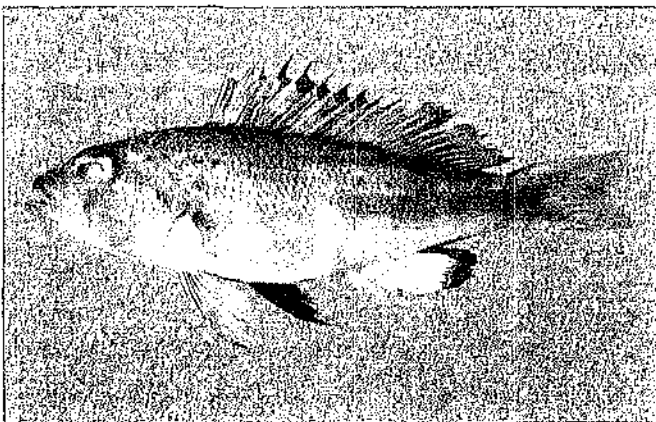
284. SERRANIDAE: *Diplectrum radiale*
(photo by J. Kolding)



285. SERRANIDAE: *Hypoplectrus unicolor*
(photo by F. Cervigón)



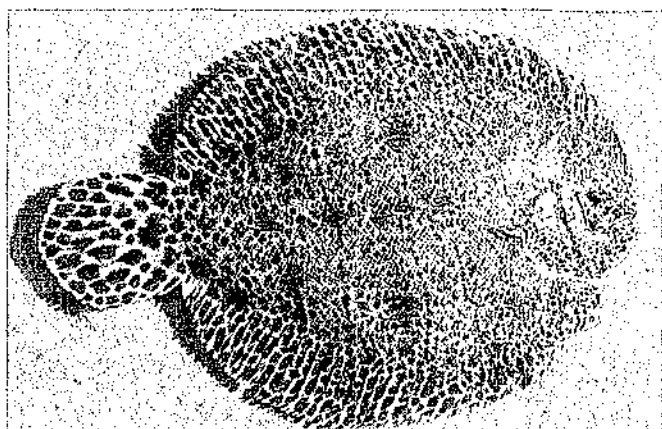
286. SERRANIDAE: *Paralabrax degeweri*
(photo by F. Cervigón)



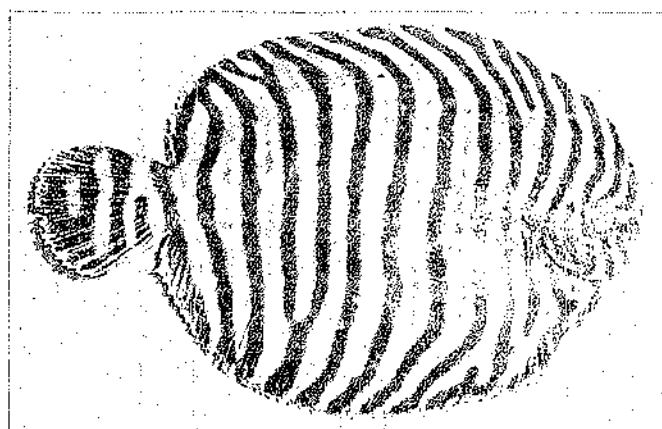
287. SERRANIDAE: *Serranus phoebe*
(photo by F. Cervigón)



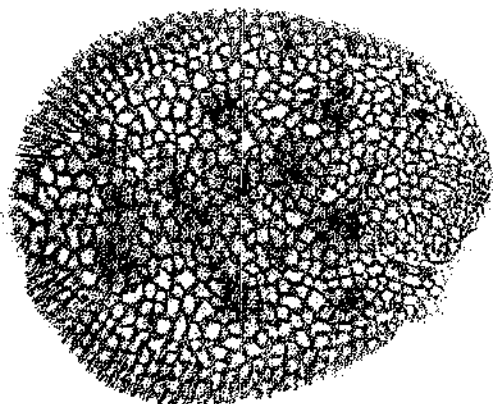
288. SOLEIDAE: *Achirus achirus*
(photo by F. Cervigón)



289. SOLEIDAE: *Achirus lineatus*
(photo by F. Cervigón)



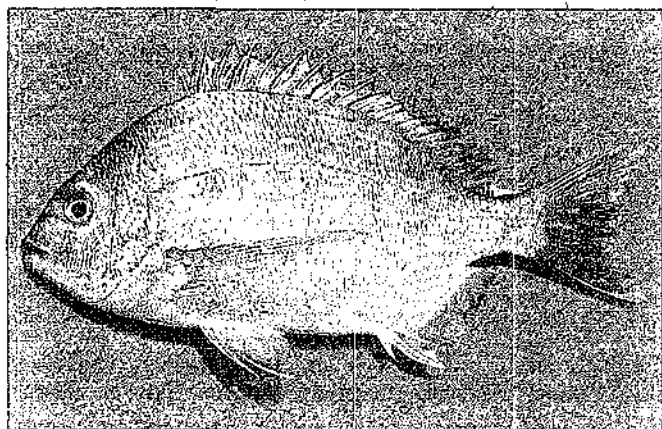
290. SOLEIDAE: *Gymnachirus nudus*
(photo by F. Cervigón)



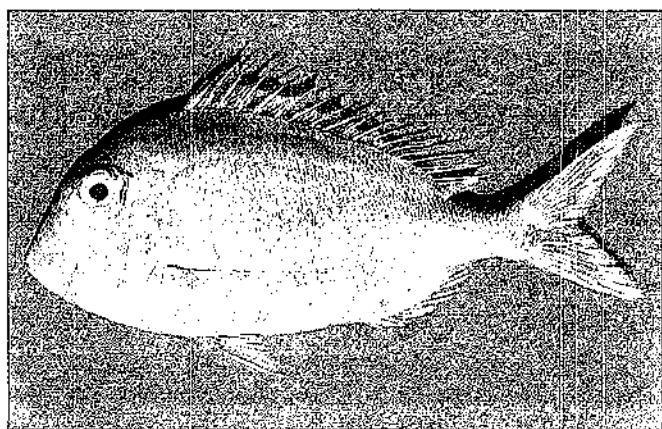
291. SOLEIDAE: *Trinectes inscriptus*
(photo by F. Cervigón)



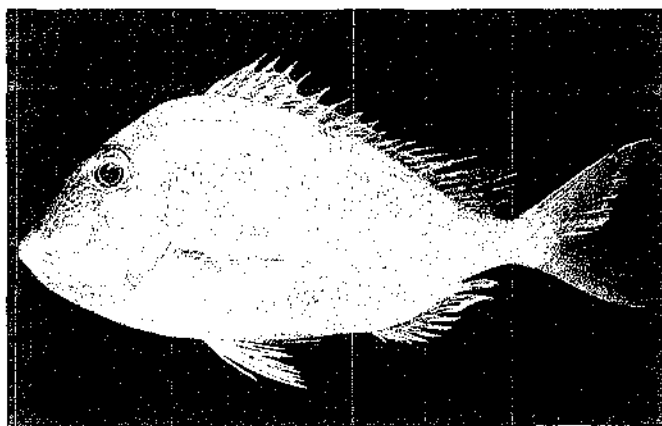
292. SOLEIDAE: *Trinectes paulistanus*
(photo by F. Cervigón)



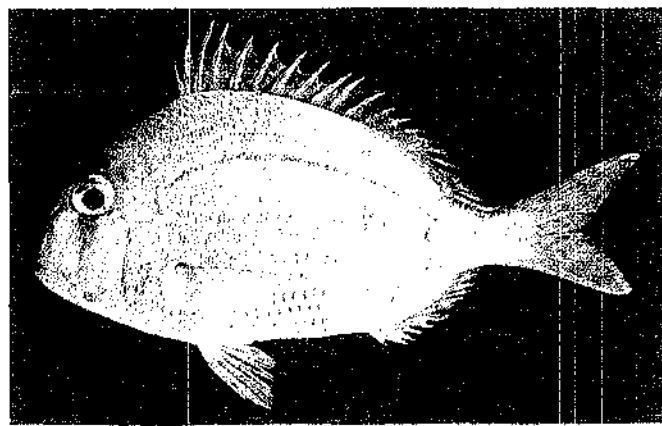
293. SPARIDAE: *Archosargus rhomboidalis*
(photo by F. Cervigón)



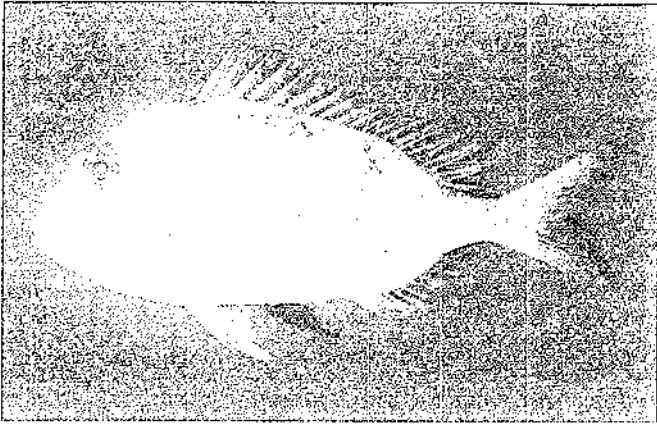
294. SPARIDAE: *Calamus bajonado*
(photo by F. Cervigón)



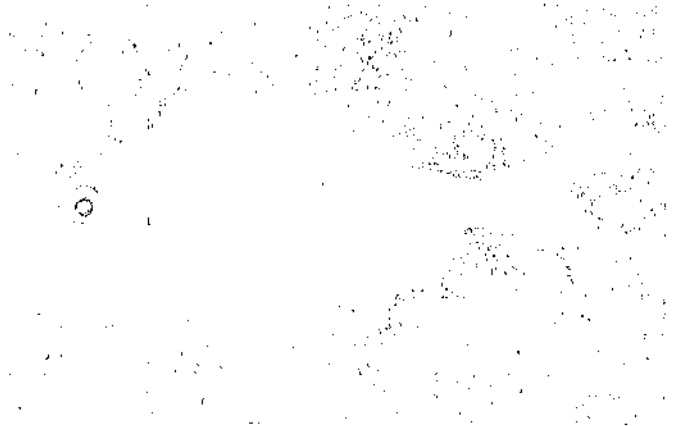
295. SPARIDAE: *Calamus calamus*
(photo by J. Kolding)



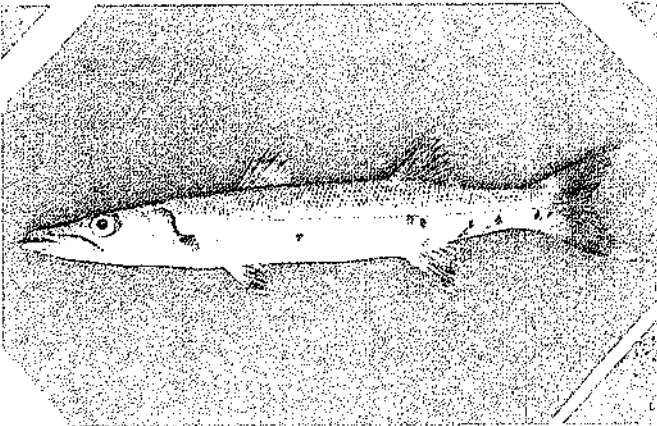
296. SPARIDAE: *Calamus cervigoni*
(photo by J. Kolding)



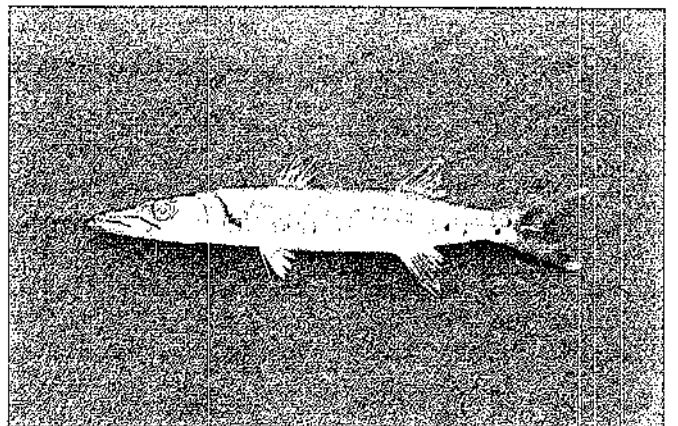
297. SPARIDAE: *Calamus pennatula*
(photo by F. Cervigón)



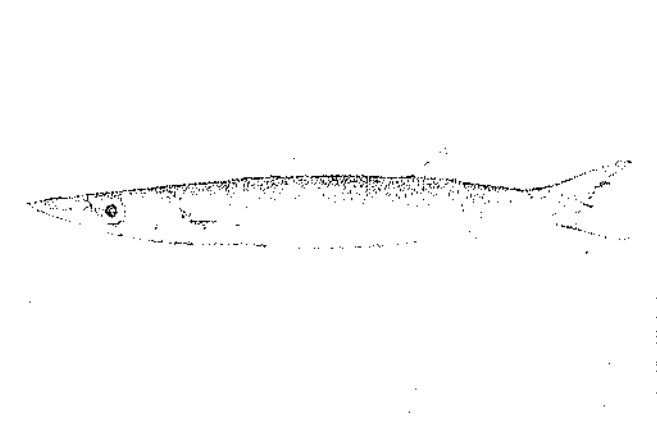
298. SPARIDAE: *Pagrus pagrus*
(photo by F. Cervigón)



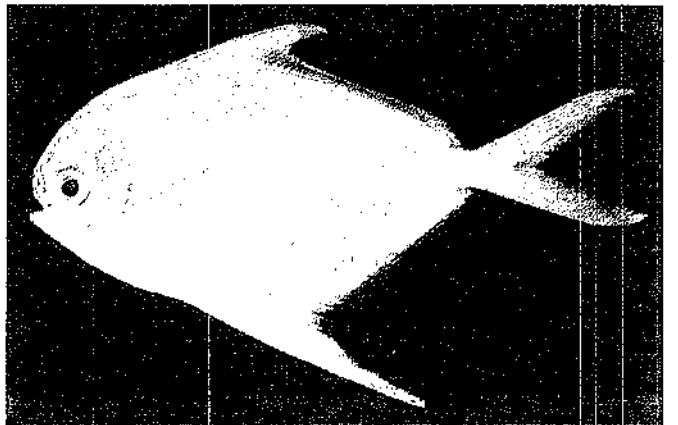
299. SPHYRAENIDAE: *Sphyraena barracuda* (adult)
(photo by F. Cervigón)



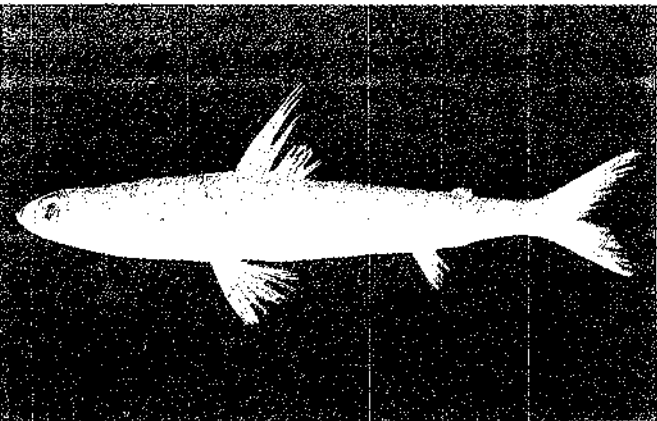
300. SPHYRAENIDAE: *Sphyraena barracuda* (juvenile)
(photo by F. Cervigón)



301. SPHYRAENIDAE: *Sphyraena guachancho*
(photo by F. Cervigón)



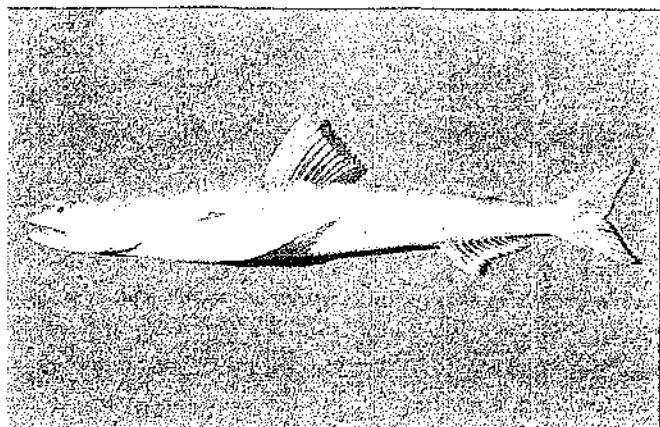
302. STROMATEIDAE: *Peprilus paru*
(photo by J. Kolding)



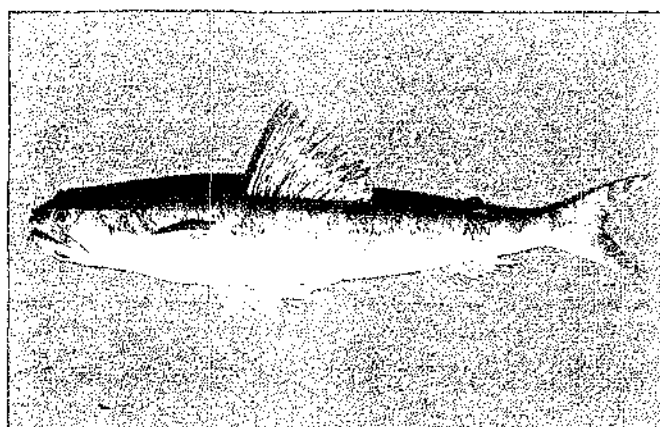
303. SYNODONTIDAE: *Saurida brasiliensis*
(photo by J. Kolding)



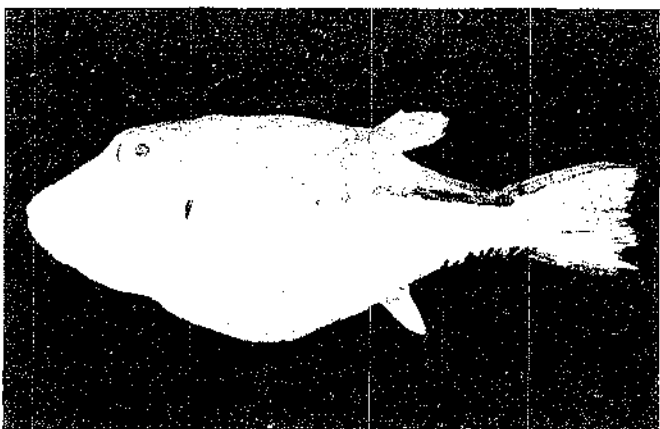
304. SYNODONTIDAE: *Saurida normani*
(photo by F. Cervigón)



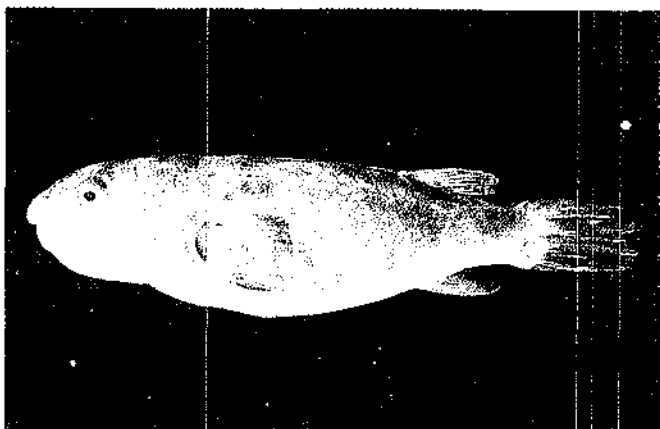
305. SYNODONTIDAE: *Synodus foetus*
(photo by F. Cervigón)



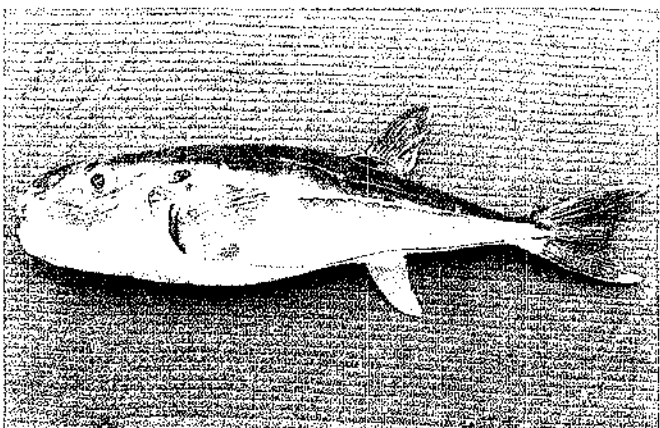
306. SYNODONTIDAE: *Trachinocephalus myops*
(photo by F. Cervigón)



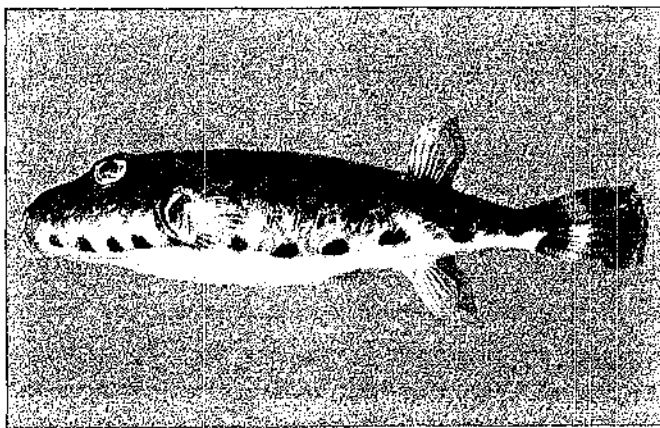
307. TETRAODONTIDAE: *Canthigaster rostrata*
(photo by J. Kolding)



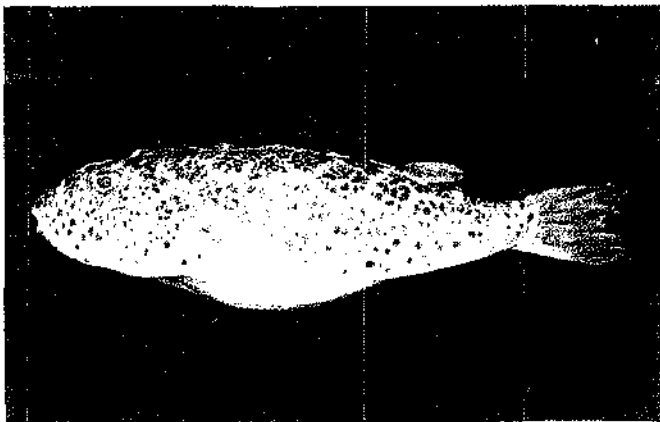
308. TETRAODONTIDAE: *Colomesus psittacus*
(photo by J. Kolding)



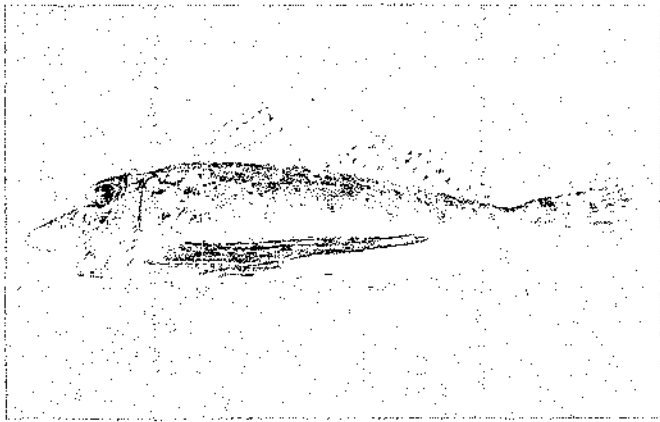
309. TETRAODONTIDAE: *Lagocephalus laevigatus*
(photo by F. Cervigón)



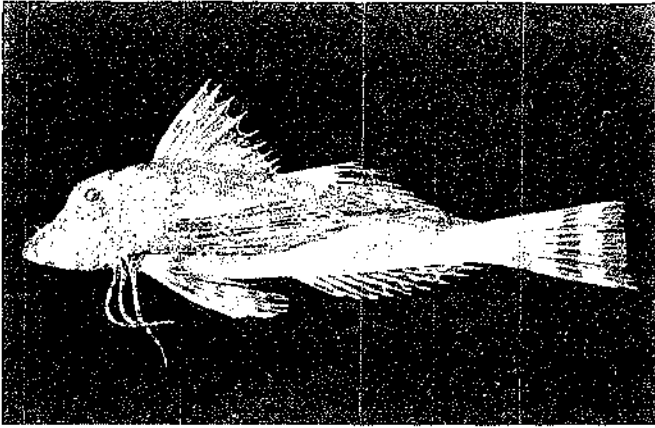
310. TETRAODONTIDAE: *Sphoeroides spengleri*
(photo by F. Cervigón)



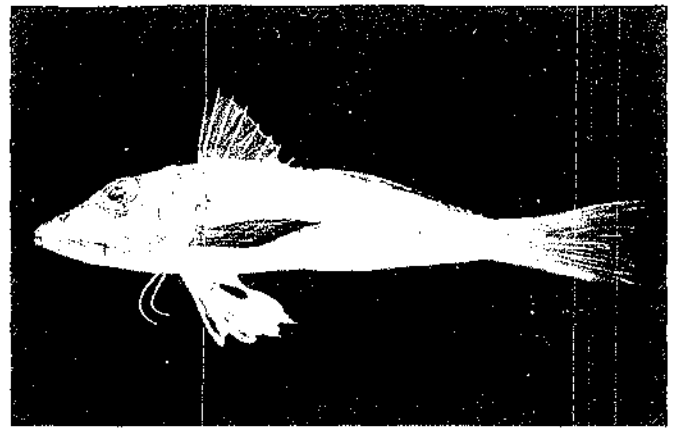
311. TETRAODONTIDAE: *Sphoeroides testudineus*
(photo by J. Kolding)



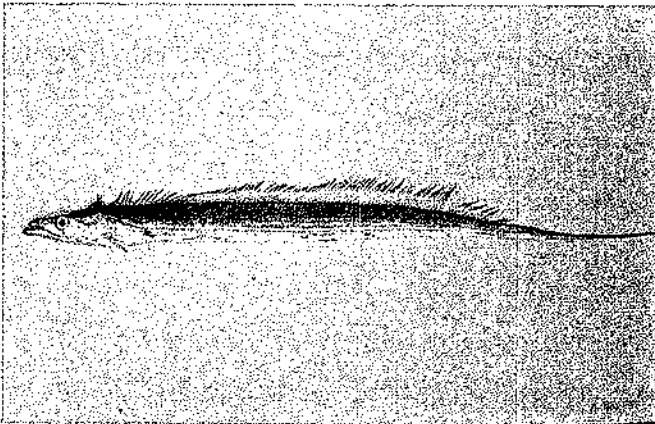
312. TRIGLIDAE: *Prionotus punctatus*
(photo by F. Cervigón)



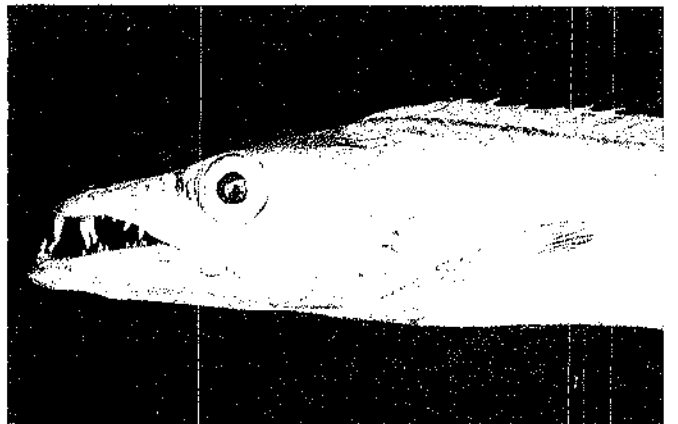
313. TRIGLIDAE: *Prionotus roseus*
(photo by J. Kolding)



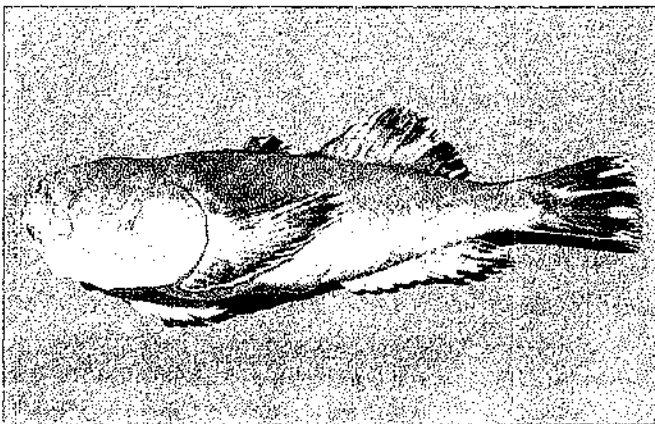
314. TRIGLIDAE: *Prionotus stearnsi*
(photo by J. Kolding)



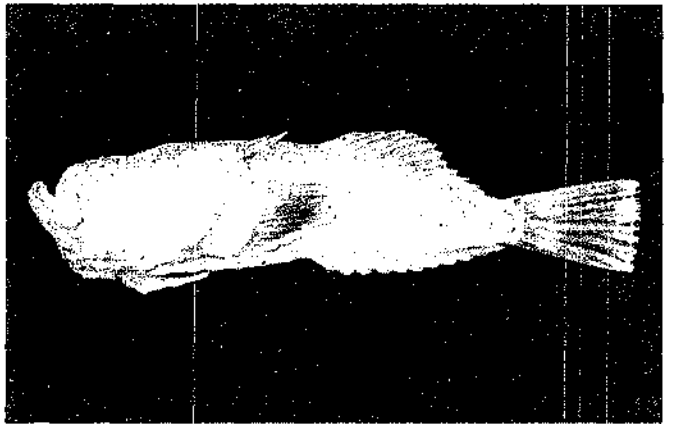
315. TRICHIURIDAE: *Trichiurus lepturus*
(photo by J. Kolding)



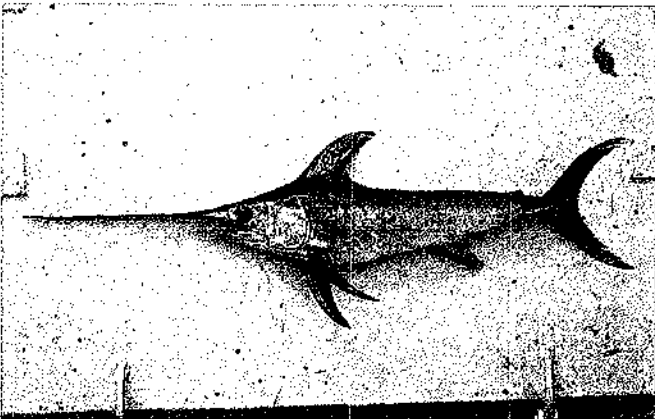
316. TRICHIURIDAE: *Trichiurus lepturus* (head)
(photo by J. Kolding)



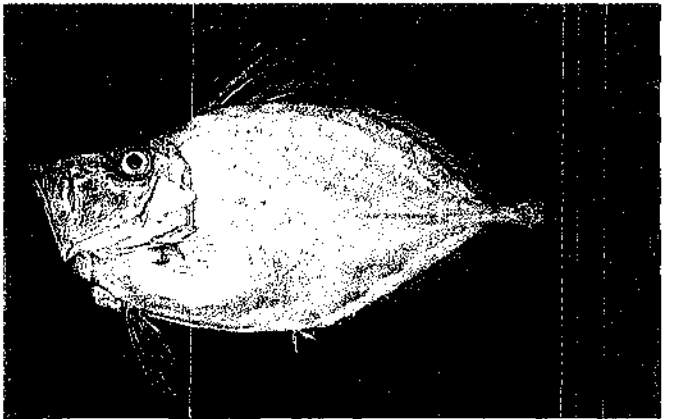
317. URANOSCOPIDAE: *Astroscopus y-graecum*
(photo by F. Cervigón)



318. URANOSCOPIDAE: *Kathetostoma cubana*
(photo by J. Kolding)



319. XIPHIIDAE: *Xiphias gladius*
(photo by J. Kolding)



320. ZEIDAE: *Zenopsis conchifer*
(photo by J. Kolding)

