



**FAO SPECIES IDENTIFICATION SHEETS
FOR FISHERY PURPOSES**

**WESTERN INDIAN OCEAN
FISHING AREA 51**



**DENMARK
FUNDS - IN-TRUST**



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

**FAO SPECIES IDENTIFICATION SHEETS
FOR FISHERY PURPOSES**

WESTERN INDIAN OCEAN
(Fishing Area 51)

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VOLUME IV

CONTENTS:

Bony Fishes

Families: Scatophagidae to
Trichiuridae

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Identification sheets. Taxonomy. Geographic distribution. Fisheries. Vernacular names. Bony fishes. Chimaeras. Sharks. Lobsters. Shrimps. Sea turtles. W.I.O.

WESTERN INDIAN OCEAN

FISHING AREA 51

FAO SPECIES IDENTIFICATION SHEETS

VOLUME 4

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TRACHIPTERIDAE

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FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(w. Indian Ocean)

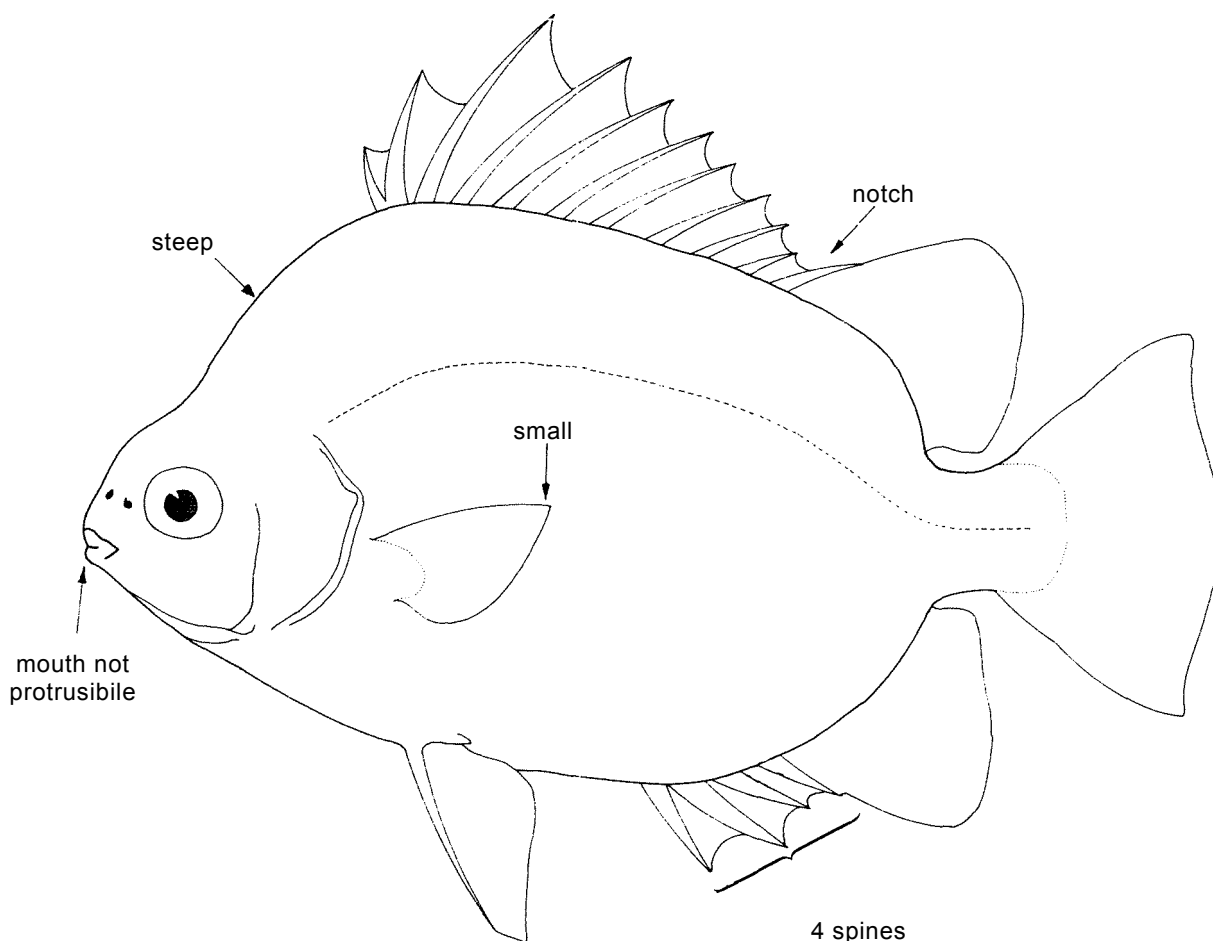
SCATOPHAGIDAE

Scats

Highly compressed, quadrangular shaped fishes. Head profile rising steeply to nape, snout and interorbital space rounded; mouth small, horizontal, not protrusible; teeth in several rows, very small and brush-like; palate toothless. Dorsal fin with 11 or 12 strong spines and 16 to 18 soft rays, the first spine procumbent; a deep notch between spinous and soft portions of fin; anal fin with 4 strong spines and 13 to 16 soft rays; pectoral fins relatively small, with 16 or 17 rays; caudal fin truncate or slightly emarginate (rounded in juveniles). Head and body covered with very small ctenoid scales which extend onto soft dorsal and anal fins. Bones of opercular series without spines or serrations.

Colour: silvery or greenish with dark spots or bars.

Scats are small fishes found in harbours, brackish estuaries, and the lower reaches of freshwater streams. They usually occur in aggregations and feed diurnally on a variety of benthic invertebrates, bottom detritus, algae, and garbage. Because of their small size they have little value as food. Those which appear in markets are taken mainly with gillnets and traps.

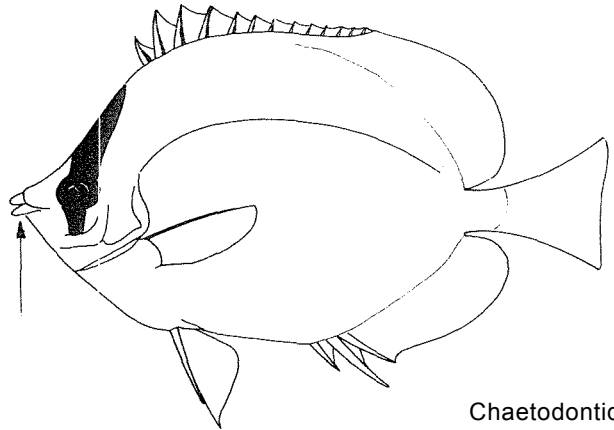


SIMILAR FAMILIES OCCURRING IN THE AREA:

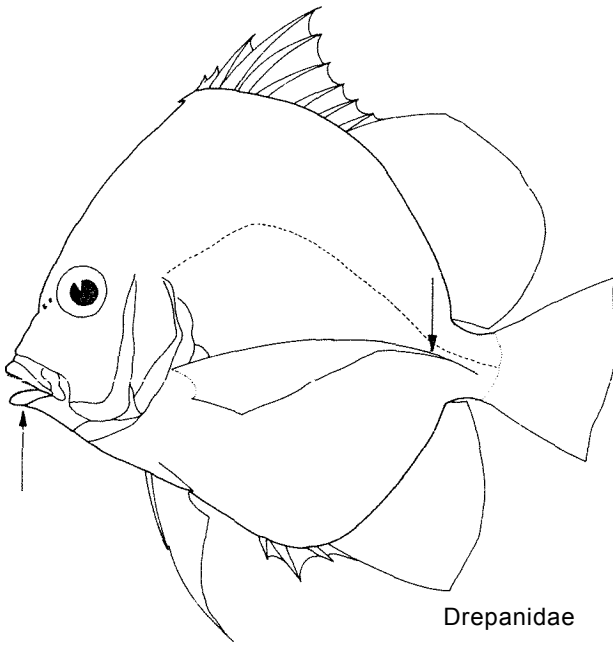
Chaetodontidae: dorsal fin not deeply notched, mouth protrusible; 3 to 5 anal spines (usually 3).

Pomacanthidae: dorsal fin not deeply notched, mouth protrusible; 3 anal spines, preopercle armed with a long spine.

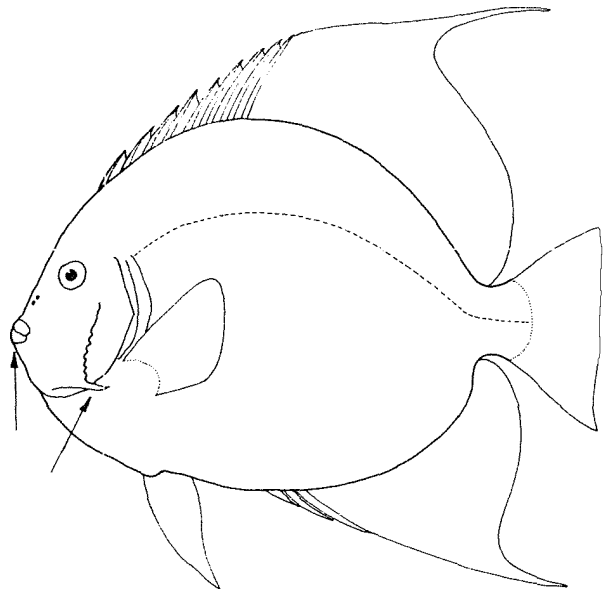
Drepanidae: mouth protrusible; 3 anal spines, pectoral fins elongate.



Chaetodontidae



Drepanidae



Pomacanthidae

KEY TO GENERA OCCURRING IN THE AREA:

Scatophagus only.

LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

Scatophagus argus (Bloch, 1788)

SCAT Scat 1

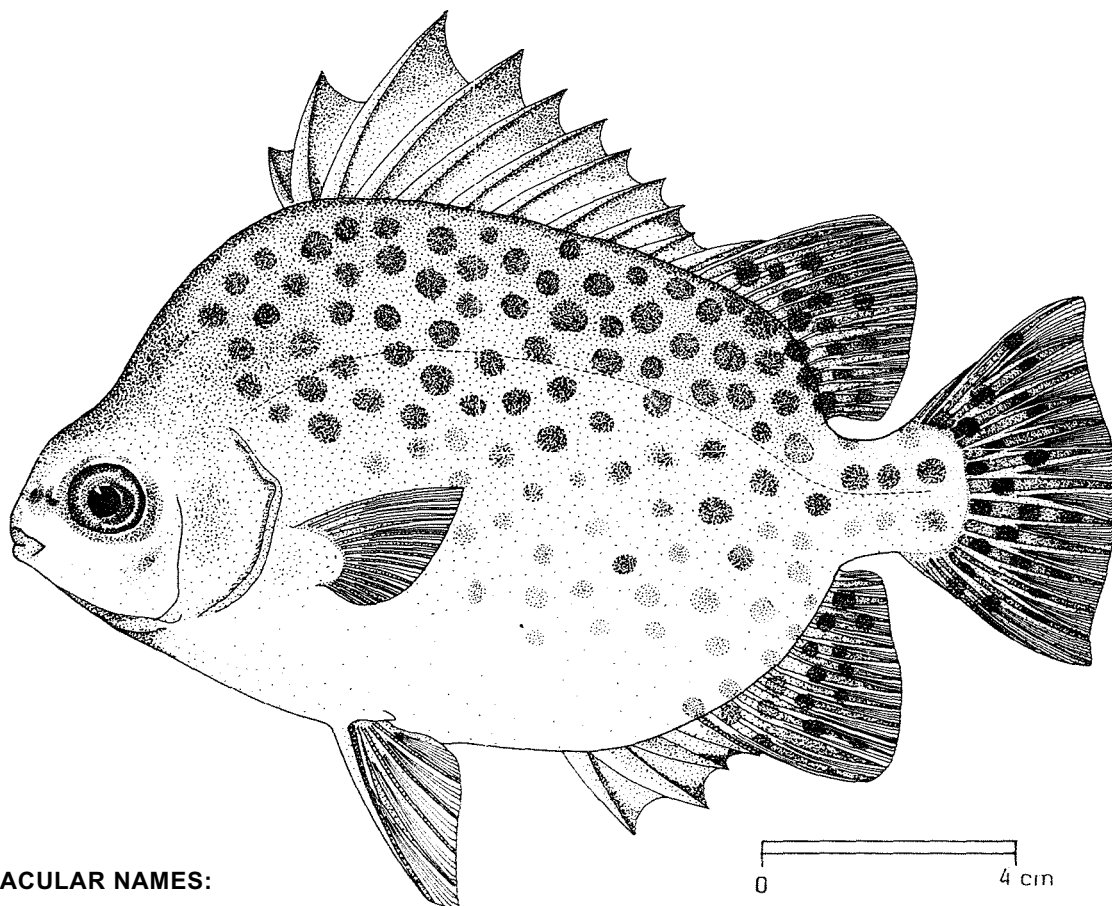
Scatophagus tetracanthus (Lacepède, 1801)

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCATOPHAGIDAE

FISHING AREA 51
(W. Indian Ocean)*Scatophagus argus* (Bloch, 1788)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Spotted scat
 Fr - Pavillon tacheté
 Sp - Pingo manchado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body quadrangular, strongly compressed. Forehead steep, mouth small, with brush-like teeth. Dorsal fin with 11 spines, the membranes deeply incised between spines; middle of dorsal fin with a deep notch.

Colour: greenish to silvery with numerous dark spots mainly confined to upper portion of sides; no bars present in adults.

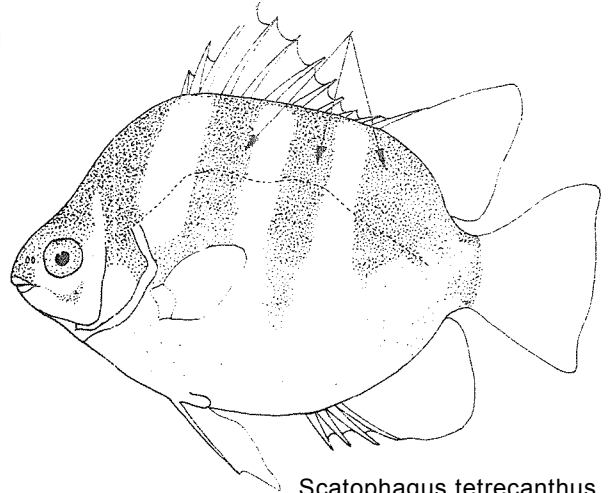
DISTINGUISHING CHARACTERS OF SIMILAR :SPECIES OCCURRING IN THE AREA:

Scatophagus tetracanthus (East Africa to India and in the Indo-Pacific): body with vertical crossbars instead of blotches.

Species of Chaetodontidae, Pomacanthidae and Drepanidae: dorsal fin unnotched; mouth protrusible. Furthermore, only 3 anal fin spines in Drepanidae and Pomacanthidae.

SIZE :

Maximum: 30 cm; common to 20 cm.



Scatophagus tetracanthus

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Within the area, known only from India and Sri Lanka; also ranges eastward to Australia, the New Hebrides and Solomon Islands, and northward to southern China and Taiwan.

An inhabitant of harbours, natural embayments, brackish estuaries, and the lower reaches of freshwater streams, frequently occurring among mangroves.

Feeds on bottom detritus and small benthic invertebrates; usually found in small to large schools.

PRESENT FISHING GROUNDS:

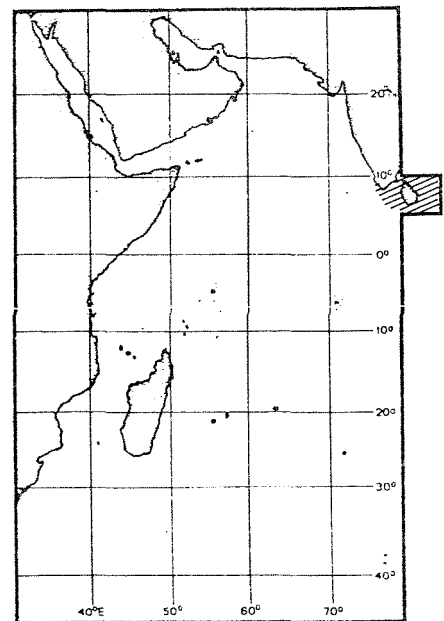
Harbours and mangrove estuaries, throughout the year.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with traps and gillnets.

Marketed mainly fresh or salted.



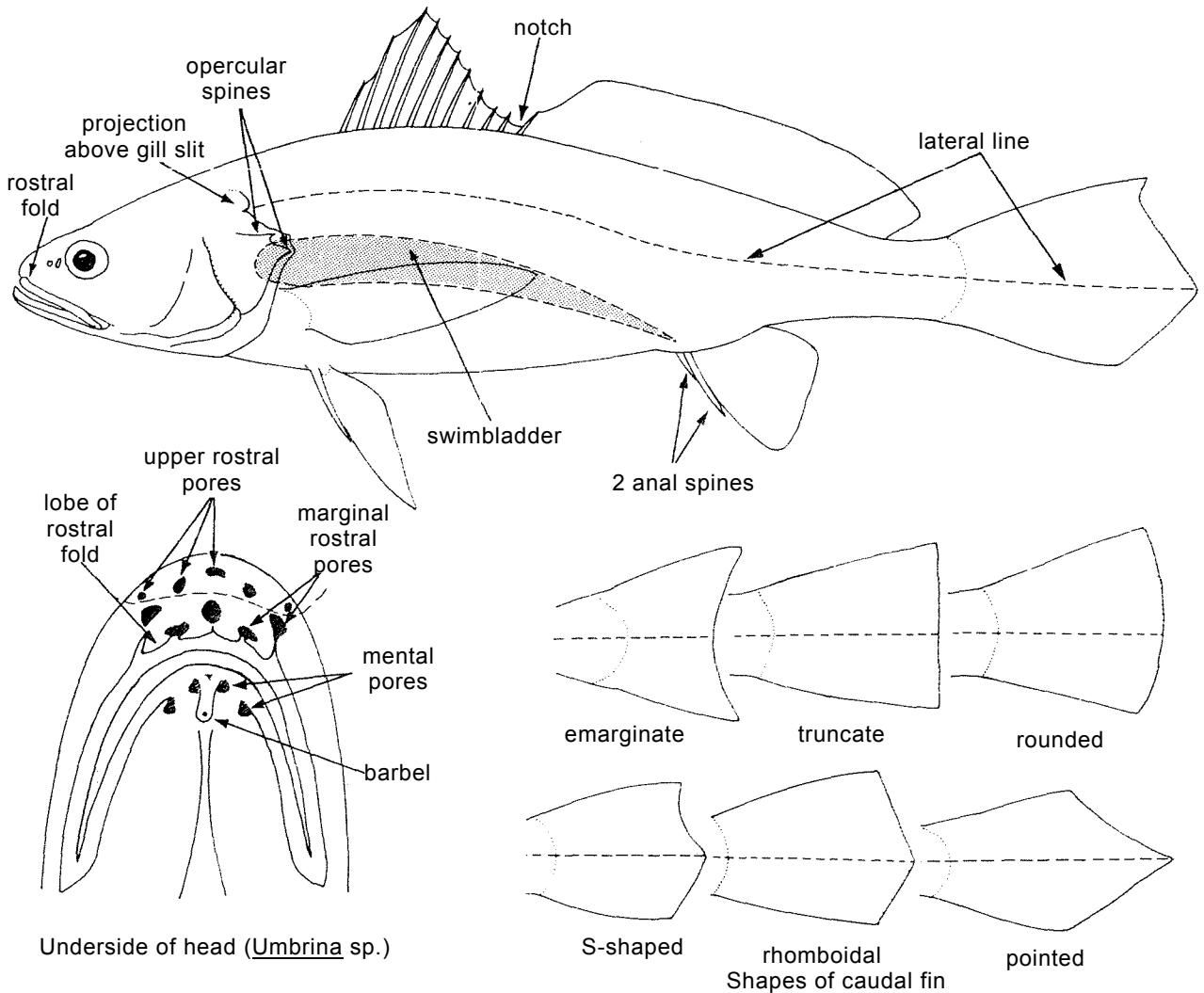
SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

SCIAENIDAE

Croakers, drums, meagres, weakfishes*

Fishes with fairly elongate bodies, moderately compressed; whole head and body scaled except at extreme tip of snout. Head with enlarged cavernous canals; snout rounded or bluntly pointed; sensory pores often conspicuous on tip of snout (rostral pores), on lower edge of snout (marginal pores) and on chin (mental pores); usually 3 to 5 rostral pores on tip of snout, 5 nearer anterior margin of mouth and 3 pairs on lower jaw; bottom feeders (Johnius carutta, Johnius elongatus) have well developed rostral and mental pores whereas in midwater



*Description applies to Western Indian Ocean representatives only

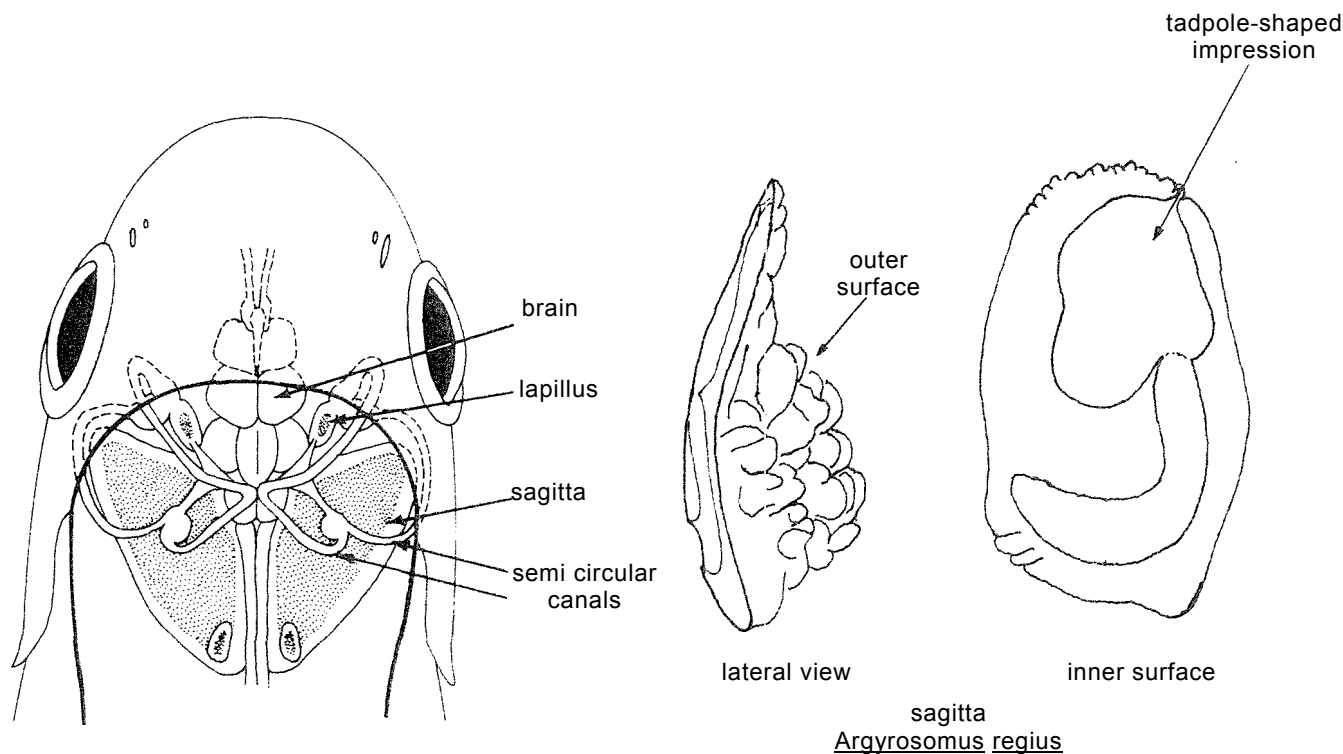
feeders (*Otolithes*, *Argyrosomus*) the pores are indistinct, one or 2 mental barbells sometimes present on chin, solid (*Dendrophysa russelli*, *Johnius dussumieri*), or with a pore at tip (*Umbrina*); mouth terminal (*Otholithes*, *Pennahia*), subterminal (*Protonibea*); inferior (*Johnius*, *Umbrina*) or lower jaw projecting (*Atractoscion*); teeth generally small, usually differentiated into larger and smaller in upper jaw; well developed canines may be present in both jaws (*Otolithes ruber*); teeth in lower jaw may be in a villiform band (*Johnius*), with a slightly enlarged inner row (*Johnieops sina*, *Johnieops aneus*), or with well developed enlarged teeth (*Pennahia*, *Protonibea*, *Nibea albida*); roof of mouth (vomer and palatine bones) toothless; bony edge of opercle forked at its upper angle, appearing as a pair of soft spines connected by a thin bone; a rounded, scaled bony projection present above upper end of gill slit; gillrakers on lower limb of first arch dentate, their number varying from 5 to 16. Dorsal fin usually long, continuous with a deep notch between the anterior (spinous) and posterior (soft) portions; anterior portion with 8 to 10 spines usually 10), and posterior portion with 1 spine and 21 to 34 soft rays; pectoral fins with 16 to 18 rays, pelvic fins with 1 spine and 5 soft rays, anal fin with 2 spines of which the second may be greatly enlarged and strong (*Nibea*); caudal fin emarginate to pointed, never deeply forked, usually pointed in juveniles. Scales cycloid (smooth to touch) on head and ctenoid (rough to touch) on body (in *Johnius dussumieri* scales cycloid on head and body). Lateral line scales extending to hind margin of caudal fin.

Colours highly variable from silvery to dark brown or black., either uniform or some species with spots and dark bands; juveniles of many species have bands on body.

Note:

Internal characters such as shape and size of otoliths and swimbladder are often particularly helpful in the identification of genera, and sometimes of species in this family. Since the examination of these characters is rather simple, field workers are encouraged to make use of them in case of doubt.

- (i) Otoliths (earstones) are located in the ear capsules on each side of the head (see figures on page 2); one pair (sagitta) is always large, while the other two pairs are rudimentary. The sagitta is characterized in this family by the presence of a tadpole-shaped impression (or sulcus) on its inner surface. To examine the otoliths it is necessary to remove them from the ear capsules by one of the following methods: (1) remove floor of skull at upper end of first gill arch from one side; the sagitta may be vaguely visible through the thin wall of the bony ear capsule; (2) cut head from the top above preopercular margin (hold knife at angle of 45°) remove roof of skull and extract otoliths from ear capsules.



(ii) The swimbladder is located between; the viscera and the vertebral column, separated from the head by a transverse membrane or septum. It is well developed in all Western Indian Ocean sciaenids. The organ is usually oval, or carrot-shaped, with or without appendages or diverticula. Drumming muscles (part of the sound-producing mechanism) are usually developed in males. The body of the swimbladder is readily exposed after gutting the fish; in some genera (i.e., Argyrosomus, Atractoscion, Kathala, Panna) it becomes necessary to also remove organs further ahead, in order to examine the anterior appendages.

Small to moderately large fishes (20 cm to more than 1 m in total length), primarily coastal but some found in estuaries or in deeper offshore waters. A large majority of them are found over muddy bottoms. Some occur in large shoals and are the object of sizeable fisheries. In India, about 6% of the total marine fish landings correspond to sciaenids; they are caught particularly during the winter months (November to February). Separate statistics are not reported for species of this family within the area. The reported catch of unclassified sciaenids totalled 112 116 metric tons in 1981 of which 95 171 were taken by India. The width of the continental shelf seems to have some relation to the abundance of sciaenid populations. Most of them feed on small crustaceans, fishes and benthic organisms. The smaller sciaenids attain maturity in their second year and breed in shallow coastal areas during March-April; they are taken in bottom trawls while larger ones are caught with bottom set gillnets. Some species (Argyrosomus thorpei, A. hololepidotus) are also good sport fishes. Swimbladders of the larger species are dried and exported from India to Far Eastern countries for the manufacture of isinglass used in the wine industry as a clarifying agent.

SIMILAR FAMILIES OCCURRING IN THE AREA:

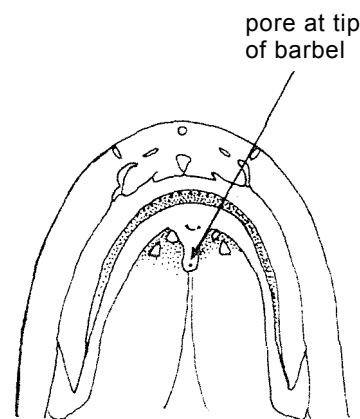
All other perchlike fishes: lateral line not extending to hind margin of caudal fin; anal fin with 3 spines (2 spines in Western Indian Ocean Sciaenidae).

KEY TO GENERA OCCURRING IN THE AREA:

- 1a. Swimbladder* without appendages (Fig.1); a barbel on chin with a pore at its tip (Fig.2) Umbrina
- 1b. Swimbladder with appendages; barbel on chin, when present, without a pore at its tip
- 2a. Swimbladder with only 1 or 2 pairs of simple or branched appendages (Figs.3,4)
- 3a. Swimbladder appendages wholly directed forward from anterior end of bladder (Figs 3,4)



swimbladder
umbrina Fig.1



underside of head
Umbrina Fig.2

pore at tip of barbel

*Cannot be seen without dissecting the fish

4a. Swimbladder appendages not extending through transverse septum into head (Fig. 3); gillrakers short, 6 to 9 on lower limb of first arch; teeth short, firm, subequal; caudal fin slightly emarginate to lunate Atractoscion

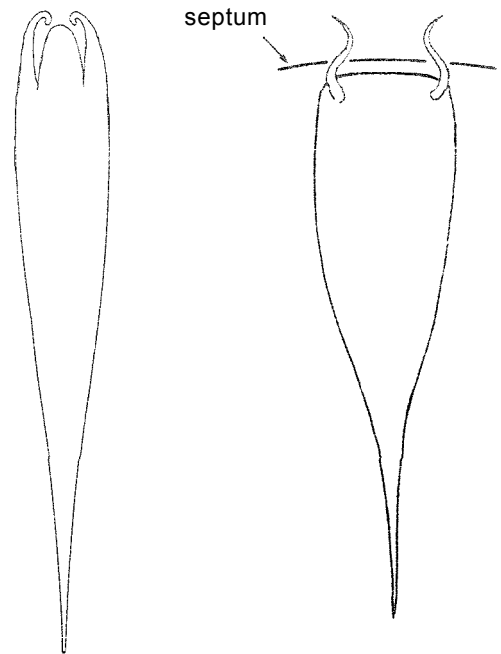
4b. Swimbladder appendages extending in front of transverse septum into head (Fig.4); gillrakers 19 to 23 on lower limb of first arch; teeth differentiated into large and small; caudal fin bluntly rhomboid Kathala

3b. Swimbladder appendages with at least the main part lying parallel to the bladder (Figs 5,6)

5a. Swimbladder appendages attached to posterior end of bladder (Fig.5)Otolithoides

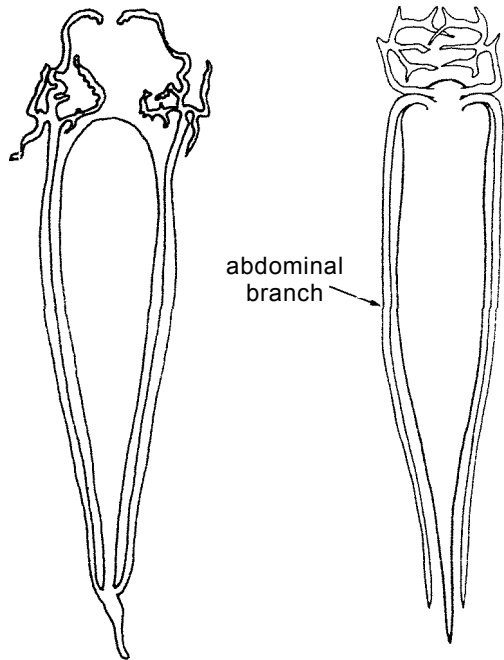
5b. Swimbladder appendages attached to anterior end of bladder and immediately dividing into branches, each side dividing into one cephalic and one abdominal branch, the former branching in front of the transverse septum (Fig.6) Panna

2b. Swimbladder with more than 2 pairs of arboresecent appendages



Swimbladder
Atractoscion Fig.3

Swimbladder
Kathala Fig.4



Swimbladder
Otolithoides Fig. 5

swimbladder
Panna Fig.6

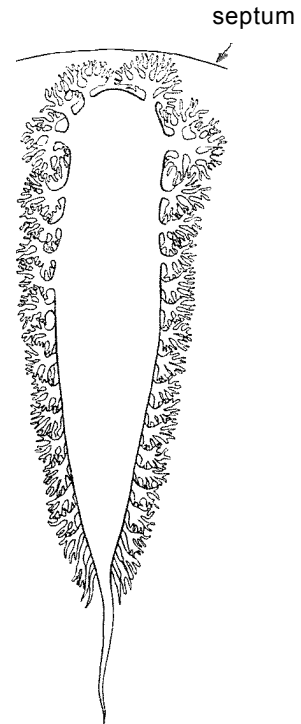
6a. Swimbladder carrot-shaped (Fig.20)

7a. Anterior pair of arborescent appendages of swimbladder branching on posterior surface of transverse septum and not entering head (Fig.7)

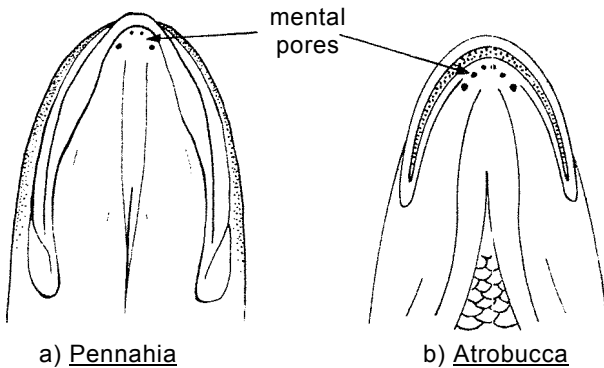
8a. Outer upper teeth enlarged and spaced, but no outstanding canines

9a. Pores on chin of the "false five" pattern, those of first pair close together behind tip of jaw and united by a groove (Fig.8); lower fins dark Protonibea

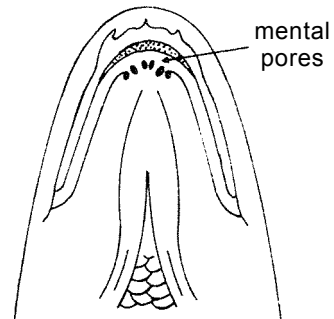
9b. First pair of pores small, on front of chin, one on each side of tip of jaw, not united by a groove, one (Fig.9a) or two (Fig.9b) pairs behind them; 2nd anal fin spine weak



swimbladder
Protonibea Fig.7

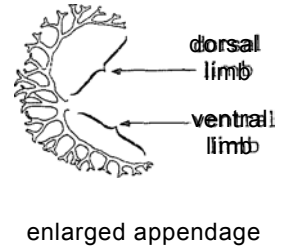
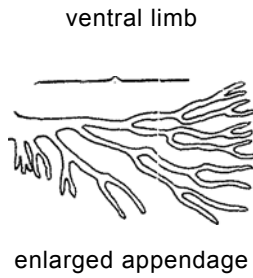


underside of head Fig.9



underside of head
Protonibea fig.8

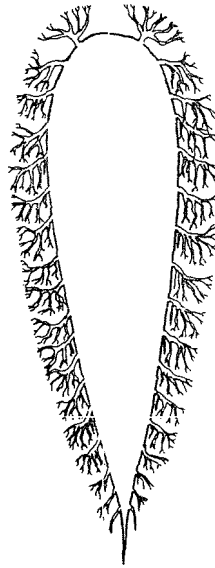
10a. Swimbladder appendages without a well developed dorsal limb, the posterior ones parallel to wall of bladder (Fig.10a); "tail" of tadpole-shaped impression of otolith only slightly curved (Fig.11) Pennahia



10b. Swimbladder appendages each with a short or long branched dorsal limb as well as a ventral; posterior appendages simple, very short, at right angles to wall of bladder (Fig.10b); tail of tadpole-shaped impression either slightly or strongly curved

11a. "Tail" of tadpole-shaped impression of otolith only slightly curved (Fig.12a) ... Atrobucca

11b. "Tail" of tadpole-shaped impression of otolith strongly curved, J-shaped (Fig.12b) Argyrosomus



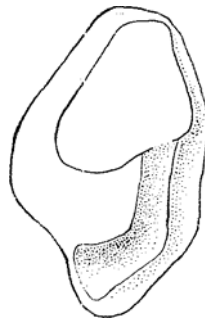
swimbladder
a) Pennahia

swimbladder
b) Argyrosomus Fig.10

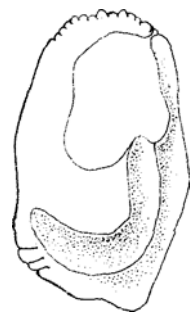


sagitta (inner surface)

Pennahia Fig.11



a) Atrobucca



b) Argyrosomus

sagitta (inner surface)

Fig.12

8b. One or 2 pairs of outstanding canine teeth in upper or both jaws (Figs 13,14)

12a. Canines in upper jaw only; mouth inferior (Fig.13) Chrysochir

12b. Canines in both jaws; mouth terminal or lower jaw projecting (Fig.14)..... Otolithes

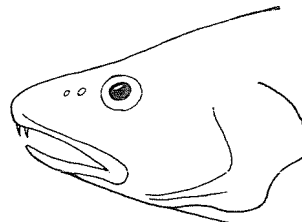
7b. Anterior pair of swimbladder appendages extending into head and branching between skull and upper gill arches (Fig.15)

13a. Lower jaw with a single mental barbel (Fig.16); lower jaw teeth uniform Dendrophysa

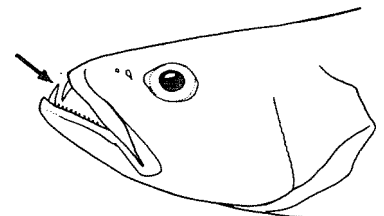
13b. Lower jaw either with 2 or without mental barbels

14a. Lower jaw teeth differentiated in size (Fig.17a); mental barbels 2 (Fig.18) or absent Nibeia

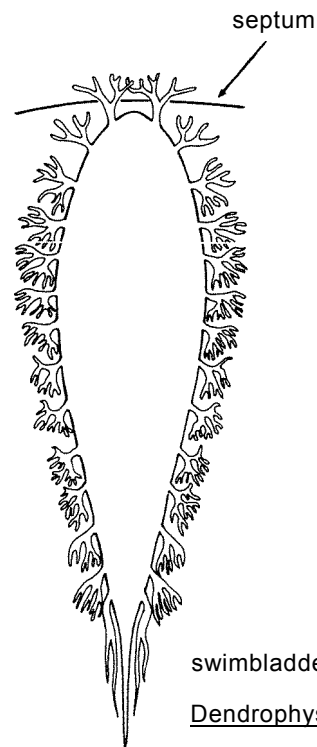
14b. Lower jaw teeth uniform in size (Fig.17b); no mental barbel Paranibeia



Chrysochir Fig.13

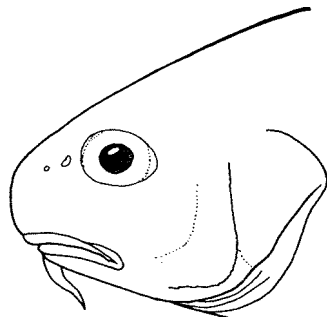


Otolithes Fig.14

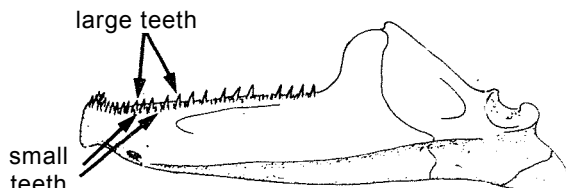


swimbladder

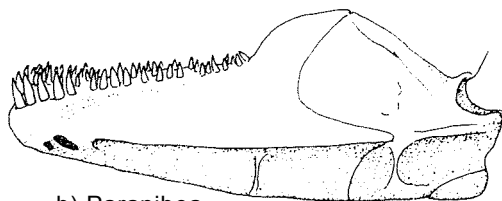
Dendrophysa Fig.15



Dendrophysa Fig.16

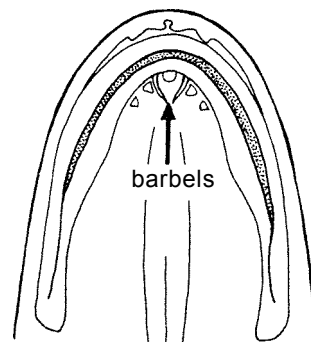


a) Nibeia



b) Paranibeia

lower jaw Fig.17



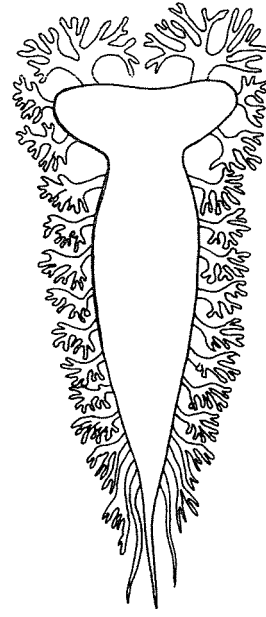
underside of head

Nibeia Fig.18

6b. Swimbladder hammer-shaped (Fig.19), "head" of tadpole-shaped impression of otolith truncated and obliquely bent, "tail" expanded to form hollow cone (Fig.20)

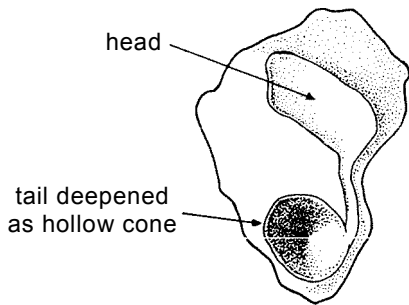
15a. Teeth of lower jaw subequal; enlarged teeth of upper jaw not widely spaced; mouth inferior (Fig.21a) Johnius

15b. Inner lateral teeth of lower jaw enlarged; outer teeth of upper jaw enlarged and widely spaced; mouth usually subterminal (Fig.21b) Johnieops



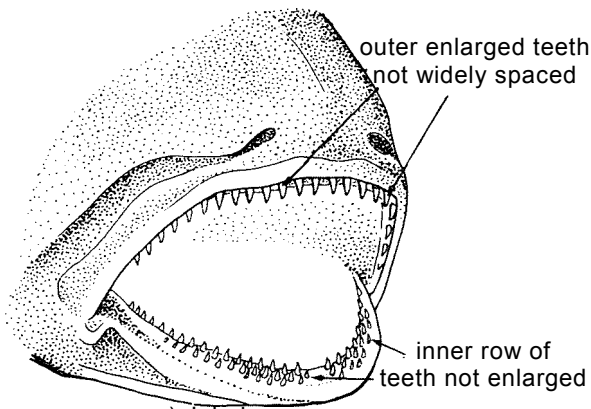
swim bladder

Johnius Fig.19

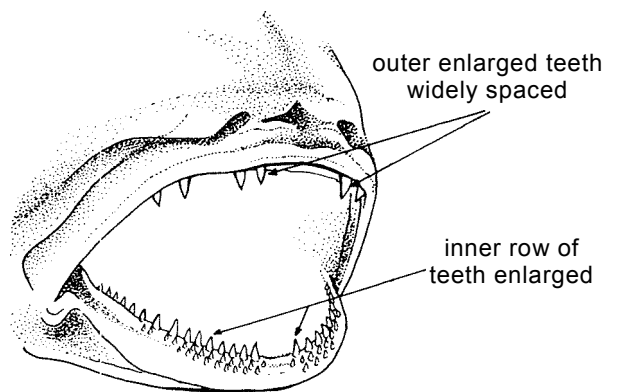


sagitta (inner surface)

Johnius Fig.20



a) Johnius



b) Johnieops Fig.21

LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

<u>Argyrosomus amoyensis</u> (Bleeker, 1863)	SCIAEN Argyr 2
<u>Argyrosomus heinii</u> (Steindachner, 1907)	SCIAEN Argyr 6
<u>Argyrosomus hololeadotus</u> (Lacepède, 1802)	SCIAEN Argyr 3
<u>Argyrosomus thorpei</u> (Smith, M.M., 1977)	SCIAEN Argyr 7
<u>Argyrosomus regius</u> (Asso, 1801)	SCIAEN Argyr 1
<u>Atractoscion aequidens</u> (Cuvier, 1830)	SCIAEN Atrac 1
* <u>Atrobucca alcocki</u> Talwar (in press)	
<u>Atrobucca marleyi</u> (Norman, 1922)	SCIAEN Atro 2
* <u>Atrobucca nibe</u> Jordan and Thompson, 1911	
* <u>Atrobucca trewavasae</u> Talwar and Sathiarajan	
<u>Chrysochir aureus</u> (Richardson, 1846)	SCIAEN Chrys 1
<u>Dendrophysa russelli</u> (Cuvier, 1830)	SCIAEN Dend 1
<u>Johnieops aneus</u> (Bloch, 1793)	SCIAEN Joh 4
<u>Johnieops dussumieri</u> (Cuvier, 1830)	SCIAEN Joh 1
<u>Johnieops macrorhynchus</u> Mohan, 1976	SCIAEN Joh 5
<u>Johnieops sina</u> (Cuvier, 1830)	SCIAEN Joh 2
<u>Johnieops vogleri</u> (Bleeker, 1853)	SCIAEN Joh 3
<u>Johnius belangerii</u> (Cuvier, 1830)	SCIAEN John 1
<u>Johnius carouna</u> (Cuvier, 1830)	SCIAEN John 6
<u>Johnius carutta</u> Bloch, 1793	SCIAEN John 2
<u>Johnius dussumieri</u> (Valenciennes, 1833)	SCIAEN John 4
<u>Johnius elongatus</u> Mohan, 1976	SCIAEN John 7
<u>Johnius glaucus</u> (Day, 1876)	SCIAEN John 8
<u>Johnius macropterus</u> (Bleeker, 1853)	SCIAEN John 9
<u>Johnius mannarensis</u> Mohan, 1969	
<u>Kathala axillaris</u> (Cuvier, 1830)	SCIAEN Kath 1
<u>Nibea albida</u> (Cuvier, 1830)	SCIAEN Nib 7
<u>Nibea maculata</u> (Schneider, 1801)	SCIAEN Nib 3
<u>Nibea soldado</u> (Lacepède, 1802)	SCIAEN Nib 6
<u>Otolithes cuvieri</u> Trewavas, 1974	SCIAEN Otol 1
<u>Otolithes ruber</u> (Schneider, 1801)	SCIAEN Otol 2
<u>Otolithoides biauritus</u> (Cantor, 1850)	SCIAEN Otold 1
* <u>Otolithoides pama</u> (Hamilton, 1822)	
<u>Panna microdon</u> (Bleeker, 1840)	SCIAEN Pan 1
<u>Paranibea semiluctuosa</u> (Cuvier, 1830)	SCIAEN Paranib 1 (= SCIAEN Nib 5 Areas 57/71)
<u>Pennahia macrophthalmus</u> (Bleeker, 1850)	SCIAEN Penn 3
<u>Protonibea diacanthus</u> (Lacepède, 1802)	SCIAEN Proto 1
<u>Umbrina ronchus</u> Valenciennes, 1843	SCIAEN Umbr 5
<u>Umbrina canariensis</u> Valenciennes, 1843	SCIAEN Umbr 6

Prepared by R.S. Lal Mohan, Regional Centre of Central Marine Fisheries Research Institute, Mandapam Camp, Tamil Nadu, India

Draft material revised by E. Trewavas and P.J.P. Whitehead, British Museum (Natural History), London, UK

Most main species drawings provided by author. Many sketches taken from Trewavas, 1977

* Species not actually recorded from the Western Indian Ocean (or records doubtful) but possibly extending to marginal parts of Fishing Area 51

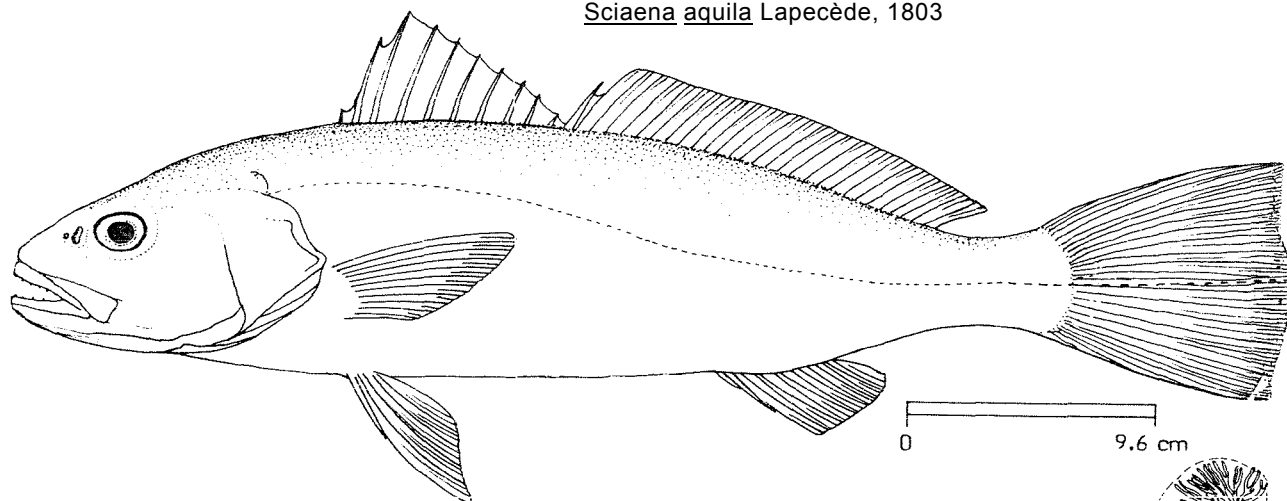
** Treated here as a possible synonym of *J. macropterus*, following Trewavas

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Argyrosomus regius* (Asso, 1801)

OTHER SCIENTIFIC NAMES STILL IN USE:

Sciaena regius (Asso, 1801)*Sciaena aquila* Lapecède, 1803

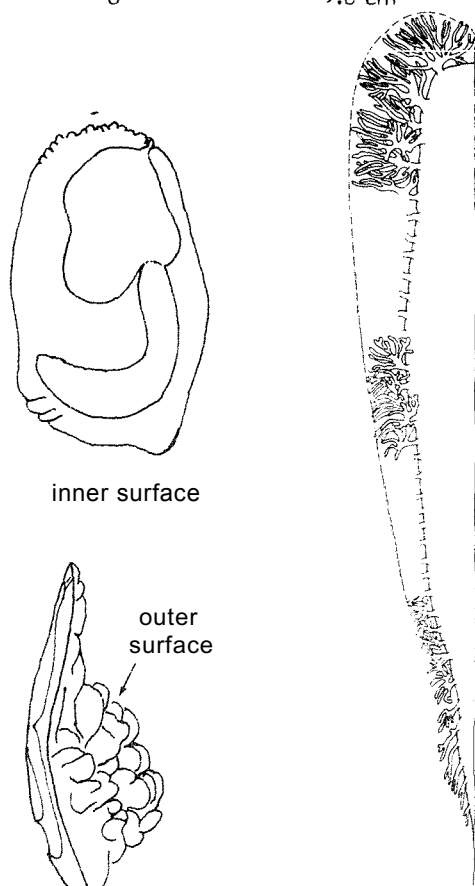
VERNACULAR NAMES:

FAO: En - Meagre
Fr - Maigre commun
Sp - Corvina

NATIONAL:

DISTINCTIVE CHARACTERS:

Fairly large and elongate species with a big, terminal, nearly horizontal mouth, the jaws meeting evenly in front; in small and medium-sized individuals, the teeth in both jaws are differentiated into large and small; the large ones not canine-like, forming the outer series in upper jaw, and the inner series in the lower; rostral pores 5, but the outer pair minute or obsolete in large specimens, marginal pores 5; mental pores in 3 pairs, the first small and round, at front of chin, the others as small slits; sagitta (large earstone) with a tadpole-shaped impression, the "tail" of which J-shaped gillrakers rather slender, 7 or 8 on lower limb of first arch. Dorsal fin with 9 or 10 spines, followed by a notch, second part of fin with 1 spine and 26 to 29 soft rays; pectoral fins about 18 to 22% of standard length; anal fin with 2 spines and 7 (exceptionally 8) soft rays, the second spine 6 to 9% of standard length; caudal fin pointed in young, slightly convex or S-shaped in adults. Scales cycloid (smooth) on snout and below eye, elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, with 40 to 42 pairs of appendages of approximately equal size, richly branched except for the 2 or 3 posterior ones with few or no branches; none of the appendages entering the head.



inner surface

outer surface

lateral view
sagittaSwimbladder
(half)

Colour: silvery grey, rather brown on back and whitish below, sides with a golden reflection; head silvery, fins in various shades of red

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other Argyrosomus species: fewer swimbladder appendages, always less than 36 (40 to 42 in A. regius). Furthermore:

A. hololepidotus: usually 4 gillrakers on lower limb of first arch (7, rarely 8 in A. regius).

A. arnoyensis: caudal fin bluntly rhomboid in adults.

A. thorpei (only known from off Natal). caudal fin truncate to slightly emarginate; 9 or 10 gillrakers on lower limb of first arch.

A. heinii (so far, only known from the Gulf of Oman and the southeast coast of the Arabian Peninsula): 32 or 33 dorsal fin rays (26 to 29 in A. regius); 9 gillrakers on lower limb of first arch.

SIZE:

Maximum: at least 100 cm; common to 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, so far restricted to the Red Sea (immigrated through the Suez Canal). Elsewhere, in the Mediterranean and Eastern Central Atlantic.

Found from the shoreline to about 200 m depth; sometimes enters estuaries and lagoons.

PRESENT FISHING GROUNDS:

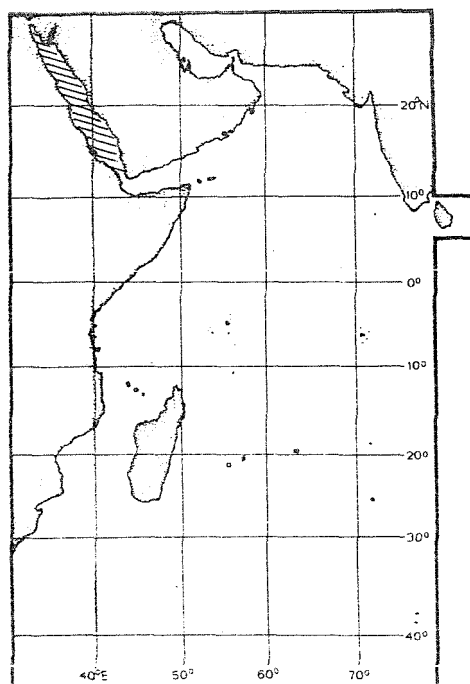
Occasionally taken in the Red Sea.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with trawls, shorelines and seines.

Marketed mainly fresh.



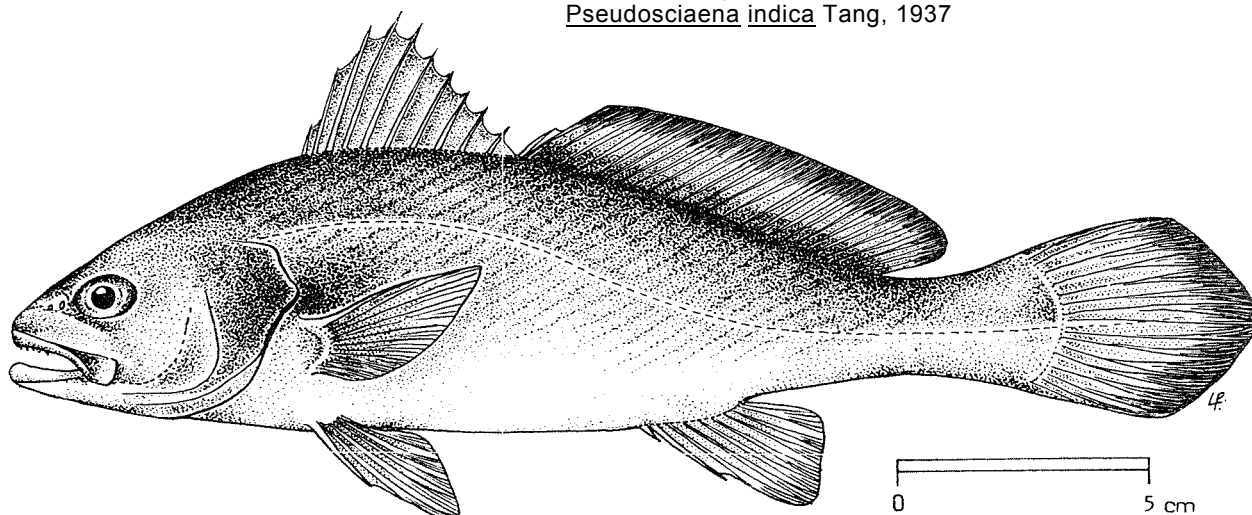
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Argyrosomus amoyensis (Bleeker, 1863)

OTHER SCIENTIFIC NAMES STILL IN USE:

Pseudosciaena amoyensis Bleeker, 1863
Sciaena bleekeri Day, 1876
Argyrosomus bleekeri: Talwar & Joglekar, 1972
Nibea milchthyoides Chu, Lo & Wu, 1963
Pseudosciaena indica Tang, 1937



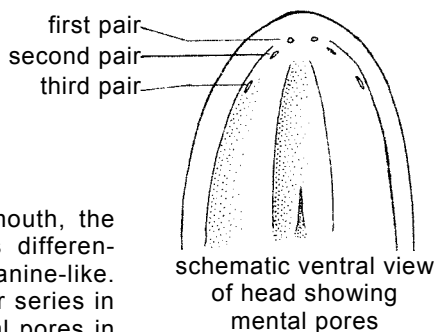
VERNACULAR NAMES:

FAO: En Amoy croaker
 Fr - Maigre d'Amoy
 Sp - Corvina de Amoy

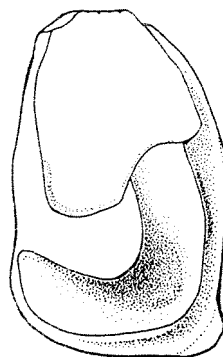
NATIONAL:

DISTINCTIVE CHARACTERS:

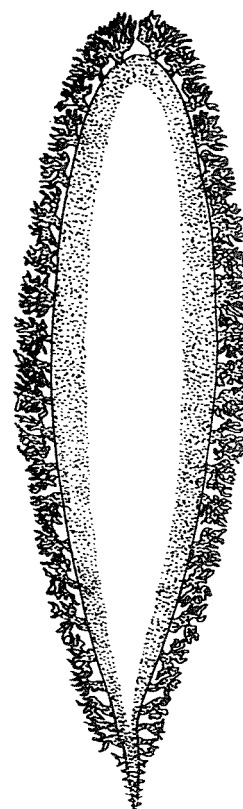
A fairly large species with a big terminal mouth, the jaws meeting evenly in front; teeth in both jaws differentiated into large and small, the large ones not canine-like, forming the outer series in upper jaw, and the inner series in the lower; rostral pores 3, marginal pores 5; mental pores in 3 pairs, the first small and round at front of chin, the others as small slits; sagitta (large earstone) with a tadpole-shaped impression, the "tail" of which is J-shaped; gillrakers rather slender, 8 on lower limb of first arch. Dorsal fin with 10 spines, followed by a notch. second part of fins with 1 spine and 25 to 28 soft rays; pectoral fins short, about 17% of standard length; anal fin with 2 spines and 7 soft rays, the second spine 1/2 the length of the longest soft fin ray or 1/4 of head length; caudal fin rhomboid in adults. Scales cycloid (smooth) on snout and below eye, elsewhere ctenoid (rough to touch); pectoral fin axil scaleless; lateral-line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, with 22 to 29 pairs of arborescent appendages of approximately equal size, branching in a rather ragged-looking fan shape; none entering the head.



sagitta (inner surface)



swimbladder



swimbladder

Colour: greyish above and white silvery below; brownish oblique wavy streaks on doper half of body; a pale yellow longitudinal stripe above lateral line; a black spot at pectoral fin base and a dark blotch on gill cover.

DISTINGUISHING CHARACTERS OF SIMILAR :SPECIES OCCURRING IN THE AREA:

Other Argyrosomus species: caudal fin in adults either truncate, S-shaped or slightly emarginate (bluntly rhomboid in A. amoyensis). Furthermore:

A. hololepidotus: pectoral fins longer. 19 to 21% of standard length (17% in A. amoyens).

A. regius (so far only known from the Red Sea within the area): 40 to 42 pairs of swimbladder appendages (22 to 29 in A. amoyensis).

A. thorpei (so far known from off Natal): 9 or 10 gillrakers on lower limb of first arch (8 in A. amoyensis); 29 to 31 pairs of swimbladder appendages); axil of pectoral fin scaly.

A. heinii (so far only known from the Gulf of Oman and the southeast coast of the Arabian peninsula): 32 or 33 dorsal fin rays (25 to 28 in A. amoyensis).

Protonibea diacanthus: pectoral fin length 20 to 22% of standard length.

Nibea species: second anal spine much stronger; anterior pair of swimbladder appendages extending into head through transverse septum.

SIZE:

Maximum: 38 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found in the "Gulf" and Arabian Sea; also in the Eastern Indian Ocean and the South China Sea.

Inhabits coastal waters over muddy bottoms to about 60 m depth; tends to form small schools.

PRESENT FISHING GROUNDS:

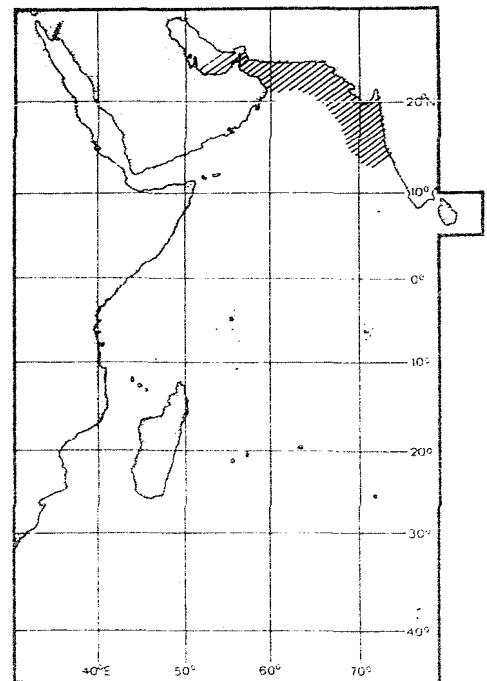
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with bottom trawls, gillnets and handlines.

Marketed fresh; also dried salted; swimbladder dried.

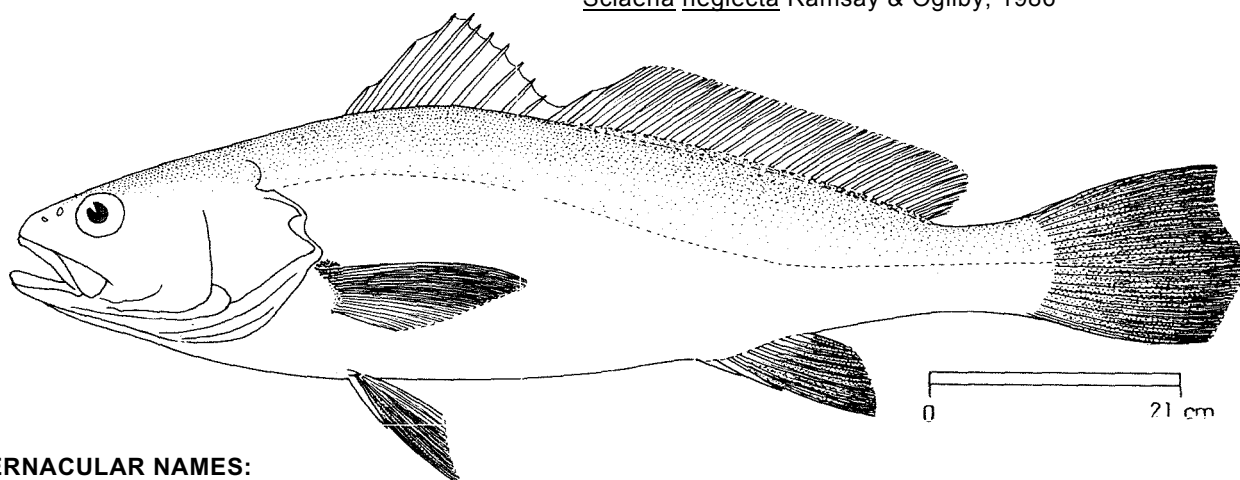


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Argyrosomus hololepidotus (Lacepede, 1802)

OTHER SCIENTIFIC NAMES STILL IN USE:

Sciaena antarctica Castelnau, 1872Sciaena margaritifera Haly, 1875Sciaena neglecta Ramsay & Ogilby, 1986

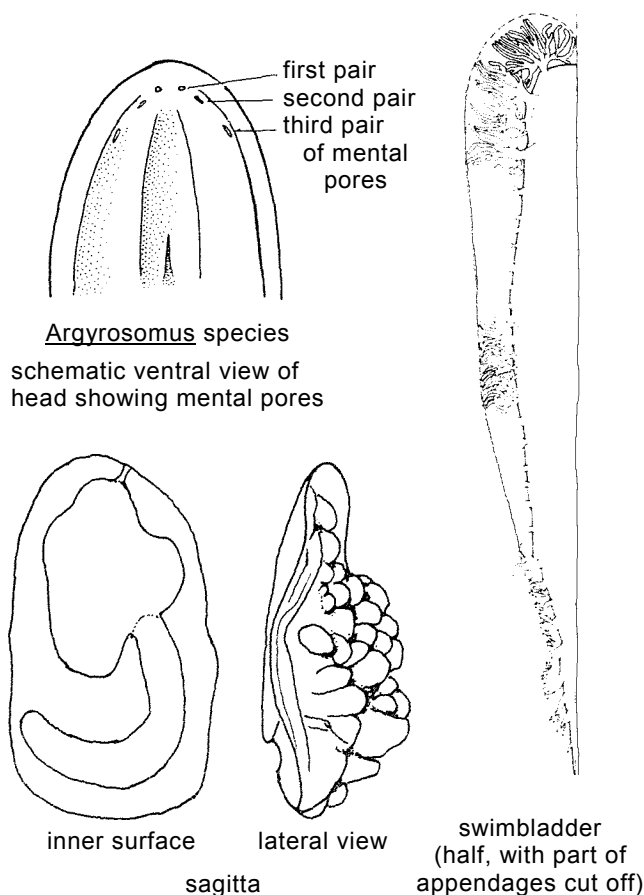
VERNACULAR NAMES:

FAO : En - Southern meagre
Fr - Maigre africain
Sp - Corvina africana

NATIONAL:

DISTINCTIVE CHARACTERS:

A large, fairly elongate species (body depth rarely less than 3 times in standard length), with a big terminal mouth, the jaws meeting evenly in front, or the lower jaw slightly longer; teeth in both jaws differentiated into large and small; the large ones not canine-like, forming the outer series in upper jaw, and the inner series in the lower; only the large teeth are visible in big specimens; rostral pores 5, the outer pair minute or obsolete in larger specimens; marginal pores 5; mental pores in 3 pairs, the first small and round, at front of chin, the others as small slits; sagitta (large earstone) with a tadpole-shaped impression, the "tail" of which is J-shaped; gillrakers rather slender, 8 to 10 on lower limb of first arch. Dorsal fin with 10 spines, followed by a notch, second part of fin with 1 spine and 26 to 29 soft rays; pectoral fins short, 19 to 21% of standard length or 1½ times in head length; anal fin with 2 spines and 7 soft rays, the second spine weak and about 1/2 the length of the longest soft fin ray; caudal fin almost truncate, or with upper corner pointed and the lower one rounded. Scales cycloid (smooth) on snout and below eyes, elsewhere ctenoid (rough to touch); pectoral fin axil scaleless; lateral line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, with 25 to 35 pairs of arborescent appendages of approximately equal size, branching in a rather ragged-looking fan shape; none entering the head.



Colour: grey/brown on back shading to silvery grey on flanks and belly; fins reddish; a black spot at pectoral fin base.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Argyrosmus amoyensis; caudal fin rhomboid; 22 to 29 pairs of swimbladder appendages (25 to 35 pairs in A. hololepidotus)

A. heinii (so far known only from the Gulf of Oman and the southeast coast of the Arabian Peninsula): 32 or 33 dorsal fin rays (26 to 29 in A. hololepidotus).

A. regius (so far, only reported from the Red Sea, within the area): 7 or 8 gillrakers on lower limb of first arch (9 in A. hololepidotus); 40 to 42 pairs of swimbladder appendages.

A. thorpei (so far only known from off Natal): 26 enlarged teeth in upper jaw (18 in A. hololepidotus); transverse rows of scales 12/15 to 18 (16/16 in A. hololepidotus); "tail" of tadpole-shaped impression on sagitta a more strongly curved, hockey stick-shaped; axil of pectoral fin scaly.

Otolithoides biauritus; caudal fin acutely pointed and more soft dorsal fin rays (27 to 32; 26 to 29 in A. hololepidotus); also, only 1 pair of swimbladder appendages.

Protonibea diacanthus: soft dorsal fin rays 22 to 25 (26 to 29 in A. hololepidotus).

SIZE:

Maximum: 150 cm; common to 105 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found in the southern part of the area, off South Africa, Mozambique and the east coast of Madagascar and in the northern part, off Pakistan and the northeast coast of India. Elsewhere, in the Eastern Central Atlantic and along the west and southeast coasts of Australia.

Inhabits coastal waters.

PRESENT FISHING GROUNDS:

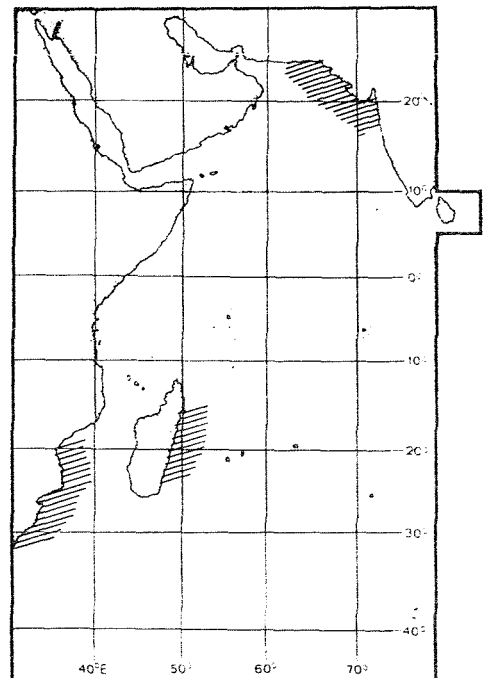
Coastal waters throughout its range; forms an occasional fishery on the east coast of Africa.

CATFIES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

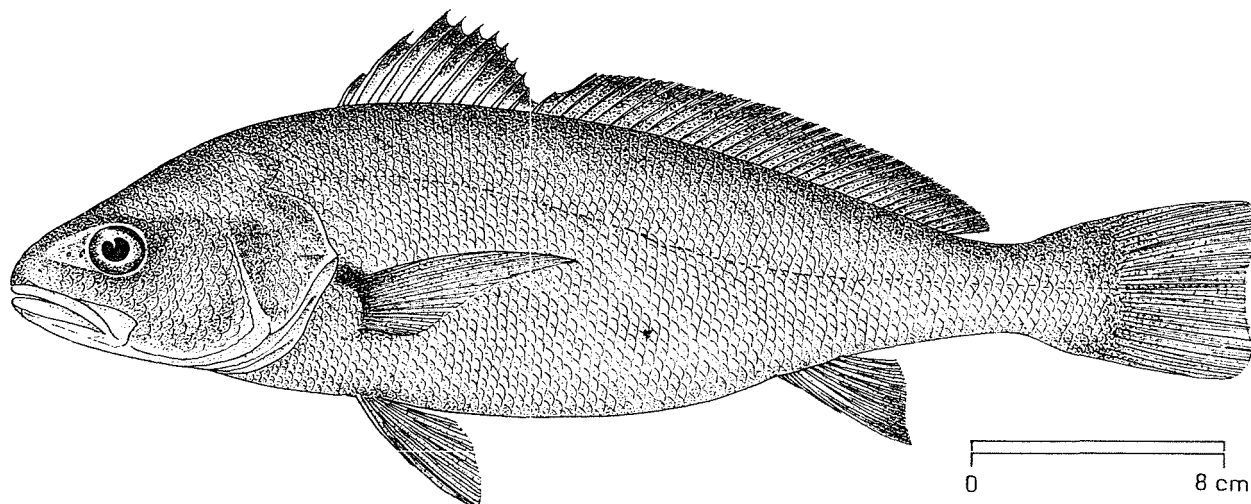
Caught with bottom trawls, gillnets and handlines.

Marketed fresh; also dried salted; swimbladder dried.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Argyrosomus heinii* (Steindachner, 1907)OTHER SCIENTIFIC NAMES STILL IN USE: *Sciaena heinii* Steindachner, 1907

VERNACULAR NAMES:

FAO : En - Arabian sea meagre
 Fr - Maigre arabe
 Sp - Corvina arabe

NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly large species with a big terminal mouth, the jaws meeting evenly in front; teeth in both jaws differentiated into large and small; the large ones not canine-like, forming the outer series in upper jaw and the inner series in the lower; sagitta (large earstone) with a tadpole-shaped impression, the "tail" of which is J-shaped; gillrakers rather slender, 9 on lower limb of first arch. Dorsal fin with 10 spines, followed by a notch, second part of fin with 1 spine and 32 or 33 soft rays; pectoral fins about 3/4 of head length; anal fin with 2 spines and 7 soft rays, the, second spine about 1/2 the length of the longest soft fin ray or 1/5 of head length; caudal fin slightly emarginate in adults, upper and lower rays longer than the middle ones. Scales on body ctenoid (rough to touch); axil of pectoral fin scaleless; lateral line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, with about 30 pairs of arborescent appendages, the hindmost very short, progressively bigger and more complex forward, none entering the head.

Colour: top of head and back dark, sides silver-grey, belly silver white; pelvic, anal and caudal fins dark; a black spot at base of pectoral fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other Argyrosomus species: soft dorsal fin rays less than 30 (32 or 33 in A. heinii). Furthermore, caudal fin bluntly rhomboid in adults of A. amoyensis; lower teeth much smaller and exit of pectoral fin scaly in A. thorpei.

Umbrina species: a mental barbel on chin; fewer dorsal rays and swimbladder without appendages.

SIZE:

Maximum: about 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Reported only from the south coast of Arabia and the Gulf of Oman.

PRESENT FISHING GROUNDS:

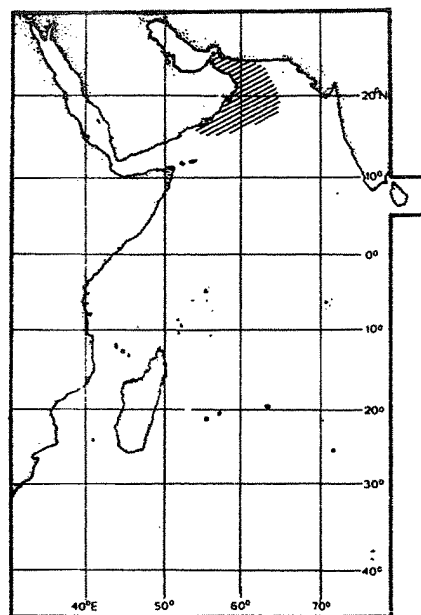
Gulf of Oman.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

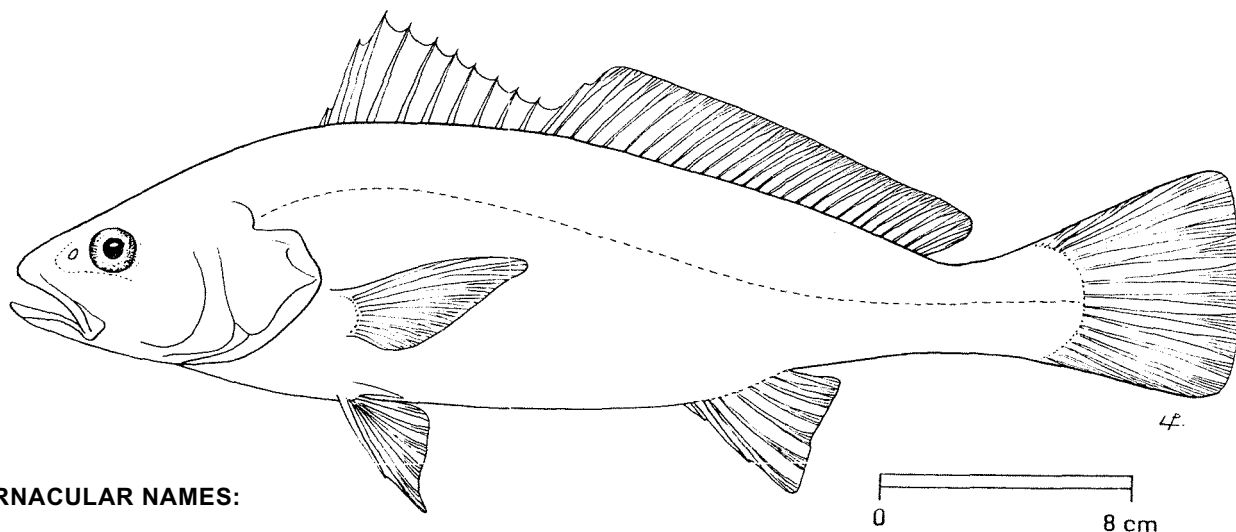
Caught with bottom trawls.

Marketed mostly fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Argyrosomus thorpei M.M. Smith, 1977OTHER SCIENTIFIC NAMES STILL IN USE: Afroscion thorpei Trewavas, 1977

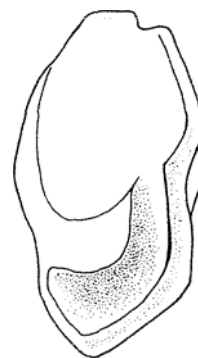
VERNACULAR NAMES:

FAO : En - Squaretail korb
Fr - Maigre d'Afrique du Sud
Sp - Corvina de Sudàfrica

NATIONAL:

DISTINCTIVE CHARACTERS:

A medium-sized, slightly elongate species with a large terminal mouth, the jaws meeting evenly in front; teeth in both jaws differentiated into large and small; the large ones, not canine-like, forming the outer series in upper jaw, and the inner series in the lower; rostral pores 3, marginal pores 5; mental pores in 3 pairs, the first small and round, at front of chin, the others as small slits; sagitta (large earstone) with a tadpole-shaped impression, the "tail" of which is deeply curved like a hockey stick; gillrakers rather slender, 9 or 10 on lower limb of first arch with a finely toothed bony patch near the base. Dorsal fin with 10 spines, followed by a notch, second part of fin with 1 spine and 26 to 28 soft rays; pectoral fins short, about 20% of standard length; anal fin with 2 spines and 7 soft rays, the second spine weak, 6 to 8% of standard length; caudal fin in adults truncate or slightly emarginate. Scales cycloid (smooth) on head, ctenoid (rough to touch) on body; axil of pectoral fin scaly; lateral line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, with 29 to 31 pairs of arborescent appendages of approximately equal size, with dorsal and ventral branches; anterior appendages ramifying fan-wise and not entering head.



sagitta (inner surface)

Colour: bluish silvery, darker above, with a black spot at base of pectoral fin; body with oblique stripes, spinous dorsal fin black between second and fourth spines. In life, fins are yellow or orange brown

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

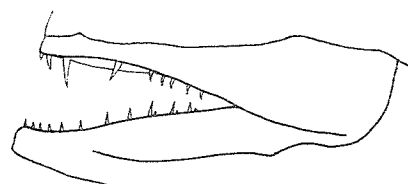
Argyrosomus hololepidotus: axil of pectoral fin scaleless; caudal fin S-shaped; 18 enlarged teeth on upper jaw (26 in A. thorpei); lateral transverse rows of scales 16/16 (12/15 to 18 in A. thorpei).

A. amovensis: caudal fin rhomboid, edge of subopercle entire spinnulate in A. thorpei; only 22 to 29 pairs of appendages on swimbladder (29 to 31 in A. thorpei); 8 gillrakers on lower limb of first arch (9 or 10 in A. thorpei).

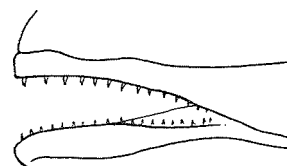
A. heinii (so far, only known from the Gulf of Oman and the southeast coast of the Arabian Peninsula): 32 or 33 dorsal fin rays (26 to 28 in A. thorpei).

A. regius (so far, only reported from the Red Sea, within the area): 7 or 8 gillrakers on lower limb of first arch (9 or 10 in A. thorpei); 40 to 42 pairs of swimbladder appendages (29 to 31 in A. thorpei); tadpole-shaped impression on sagitta with a less curved "tail" J-shaped rather than hockey stick-shaped.

Protonibea diacanthus: caudal fin acutely rhomboid; dorsal soft rays 21 to 25.



A. hololepidotus



A. thorpei

SIZE:

Maximum: 50 cm; common to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Fast coast of South Africa.

Inhabits coastal waters; spawns near the Tugela Banks off the South African coast; occurs in shoats during March-April.

PRESENT FISHING GROUNDS:

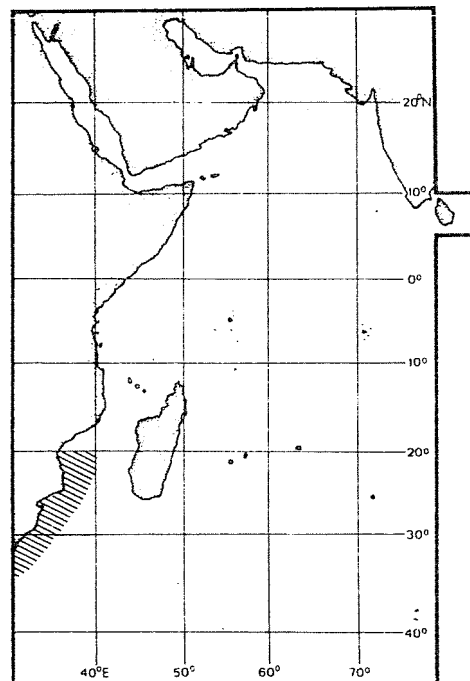
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with handlines and bottom trawls.

Marketed fresh.

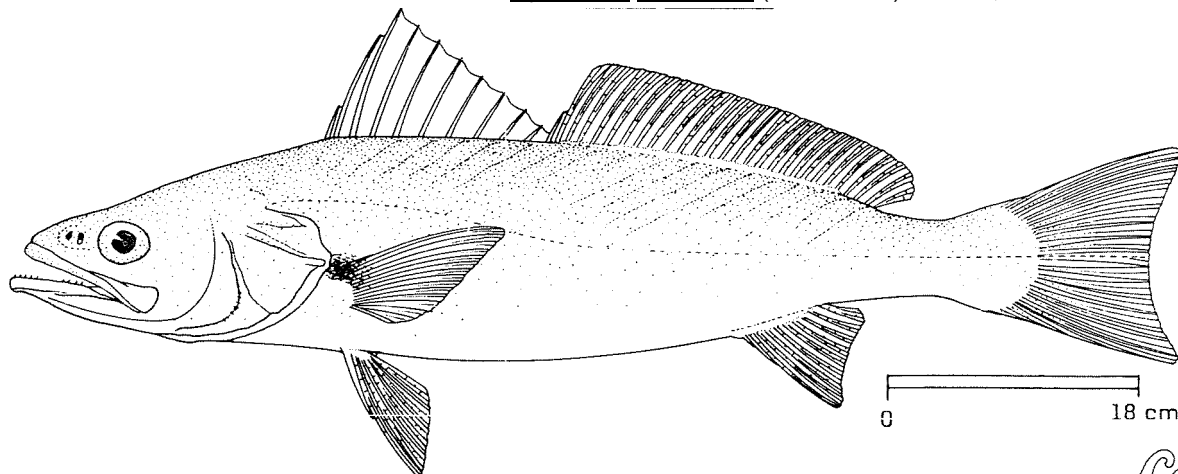


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Atractoscion aequidens* (Cuvier, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE:

Otolithus aequidens Cuvier, 1830*Otolithus atelodus* Günther, 1867*Zeluco atelodus*: Whitley, 1931*Otolithus teraglin* Macleay, 1881*Cynoscion nebulosus* (nec Cuvler): Fowler, 1936

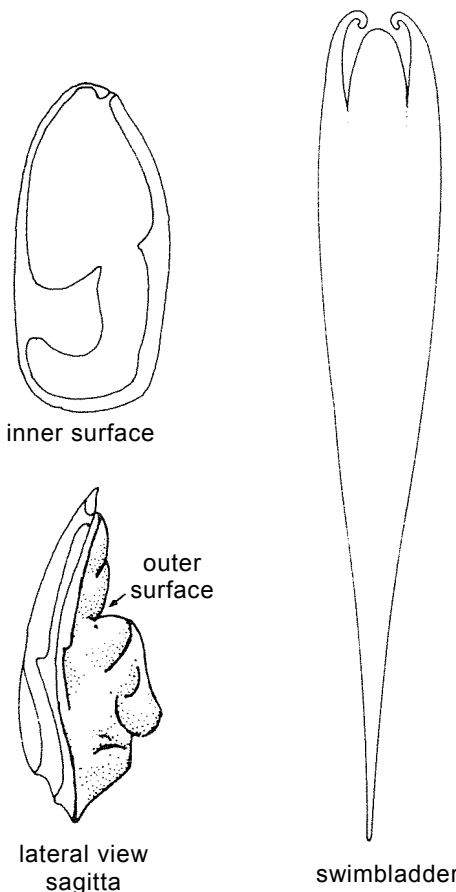
VERNACULAR NAMES:

FAO: En Geelbeckcroaker
Fr - Téraclin
Sp - Corvinata prieta

NATIONAL:

DISTINCTIVE CHARACTERS:

A large-sized species with a rather slender body, its depth about 4 times in standard length. Snout pointed, mouth oblique; rostral marginal pores and anterior pair of mental pores absent, the second and third pair represented by minute pores in the skin; teeth narrow, pointed, those in upper jaw teeth differentiated into large and small, those in lower jaw of about equal size; none of the teeth canine-like; sagitta (large earstone) with a tadpole-shaped impression, of which the "tail" is J-shaped, its end very close to the ventral edge; gillrakers dentate, 6 to 9 on lower limb of first arch. Dorsal fin with 10 spines, followed by a deep notch, second part of the fin with 1 spine and 26 to 30 rays; anal fin with 2 spines and 9 soft rays, the spines very slender; pectoral fins about 1/2 of head length; caudal fin emarginate to lunate; scales cyloid (smooth) on head and ctenoid (rough to touch on posterior part of body; lateral-line scales extending to tip of caudal fin. Swimbladder elongate, with a single pair of forward-directed anterior diverticula curved between the transverse septum and the anterior end of the bladder, not entering the head.

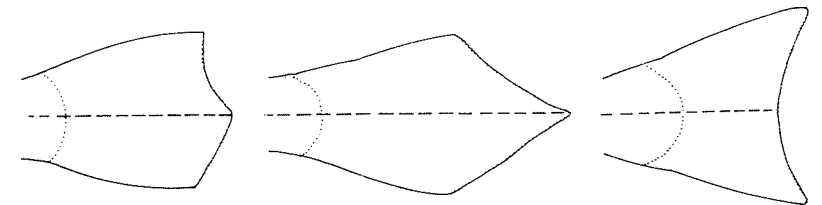


Colour: body iridescent blue and purple; pectoral fin axil with a black blotch; edges of jaws and inside of gill cover bright yellow.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Argyrosomus hololepidotus: caudal fin "S" shaped; anal soft rays 7 (9 in Atractoscion aequidens); swimbladder with many arborescent appendages.

A. amoyensis: caudal fin rhomboid; anal soft rays 7; teeth well differentiated in size in both jaws; swimbladder with 22 pairs of arborescent appendages; lower jaw with a mental pore.

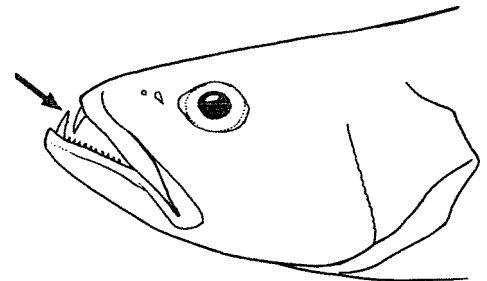


Argyrosomus hololepidotus A. amoyensis **Atractoscion aequidens**

Otolithes ruber: well developed canines present.

SIZE:

Maximum: 120 cm; common to 90 cm.



Otolithes ruber

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found in the area, off southern Mozambique and South Africa. Elsewhere, in the Southeastern Atlantic to Angola.

Inhabits coastal waters.

Feeds on pelagic fishes.

PRESENT FISHING GROUNDS:

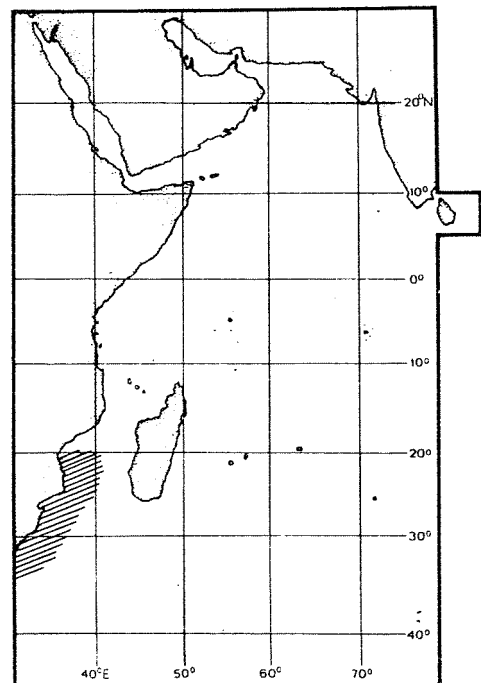
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species within the area.

Caught with gillnets and trawls.

Marketed fresh.



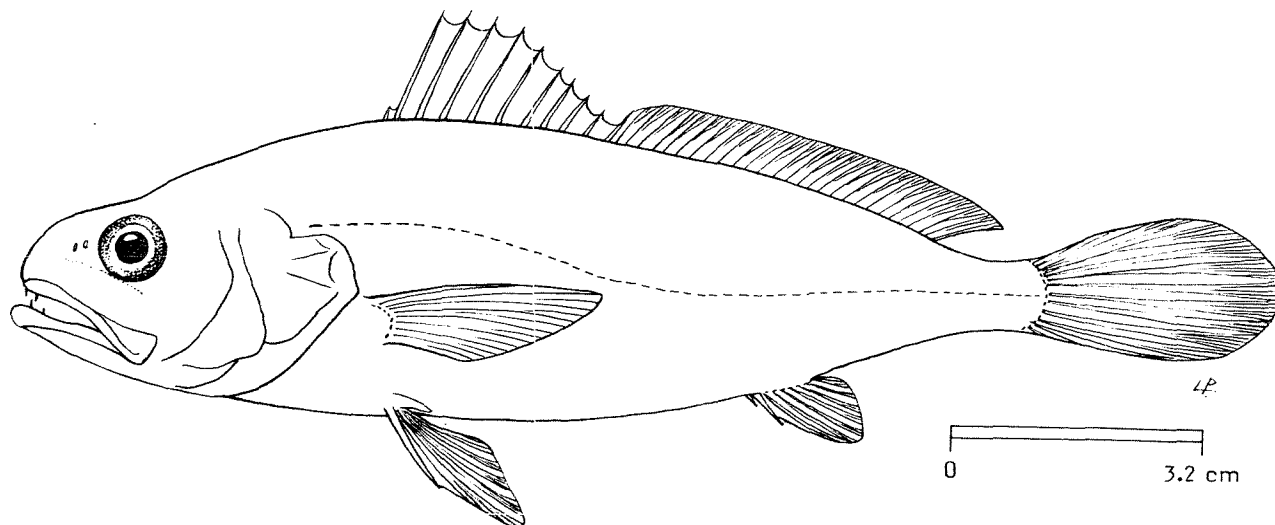
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)

Atrobucca marleyi (Norman, 1922)

OTHER SCIENTIFIC NAMES STILL IN USE : Sciaena marleyi Norman, 1922



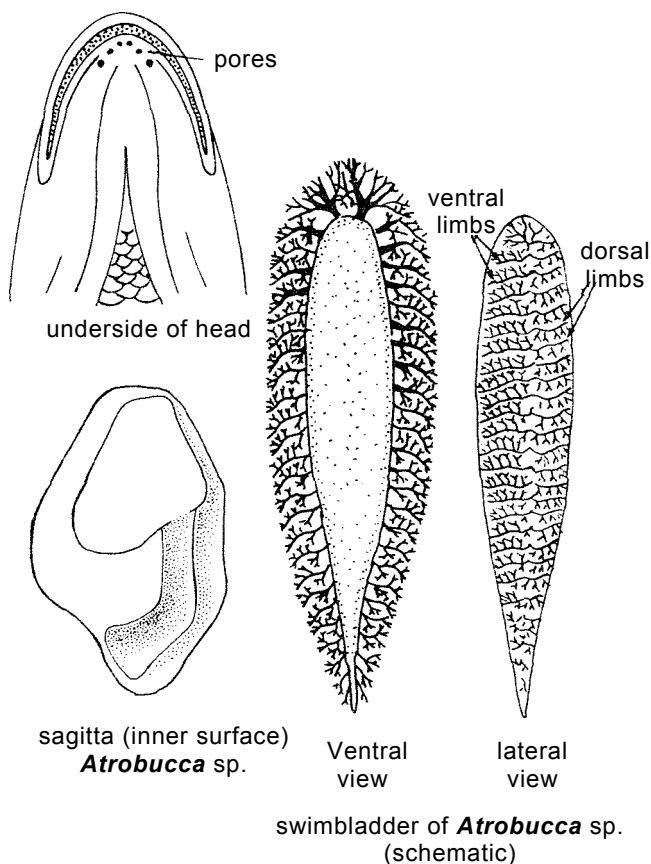
VERNACULAR NAMES:

- FAO : En - African blackmouth croaker
Fr - Courbine à bouche noire
Sp - Corvina bocanegra africana

NATIONAL:

DISTINCTIVE CHARACTERS:

A small and slightly deep-bodied species, its depth about 28.5% of standard length. Mouth terminal; head length about 33.3% of standard length; eye diameter about 7.6% of standard length; rostral pores absent, marginal pores 5; mental pores in 3 pairs, the first pair at front on chin, minute, the others small but conspicuous; teeth in both jaws well differentiated into: large and small, the large not canine-like, forming the outer series in upper jaw and the inner series in lower jaw; sagitta (large earstone) with a tadpole-shaped impression, the "tail" of which is only slightly curved; gillraker on lower limb of first arch about 11. Dorsal fin with 10. spines, followed by a moderate notch, second part of fin with 1 spine and 30 soft rays; pectoral fins long, nearly equal to body depth; anal fin with 2 spines and 7 soft rays, the second spine slender; caudal fin rhomboid. Scales finely ctenoid (rough to touch) on body; lateral-line scales extending to tip of caudal fin. Swimbladder carrot-shaped, with about 31 pairs of arborescent appendages, each with a dorsal and ventral limb, regularly arranged so that the twiglets of the dorsal limb point backwards, those of the ventral limb forwards; no appendages entering the head.



swimbladder of *Atrobucca* sp. (schematic)

Colour: no special colour markings; linings of mouth, gill chamber and body cavity black

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

None of the other species of Atrobucca occurring in the Indian Ocean have as yet recorded from Fishing Area 51. They can be distinguished from A. marleyi by the following characters:

Atrobucca trewavasae. only 24 to 26 soft dorsal fin rays (30 in A. marleyi).

A. nibe: extremely similar, but eye larger. 8.2 to 8.3% of standard length (7.6% in A. marleyi); also swim-bladder appendages smaller.

A. alcocki: eye conspicuously large, 9.4% of standard length; gill filaments longer.

Pennahia macrophthalmus: much stronger dentition; only 19 or 20 pairs of arborescent appendages (31 in A. marleyi).

SIZE:

Maximum: 18 cm; common to 16 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Southeast coast of Southern Africa at depths to about 100 m.

PRESENT FISHING GROUNDS

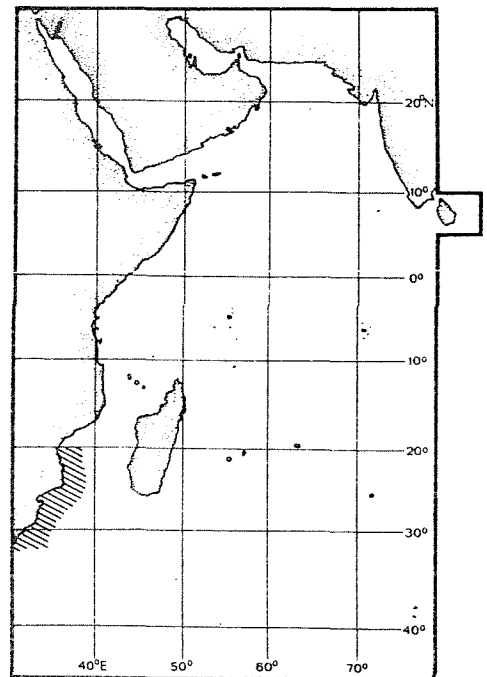
Southeast coast of Africa.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not recorded for this species within the area.

Caught with bottom trawls.

Marketed fresh.



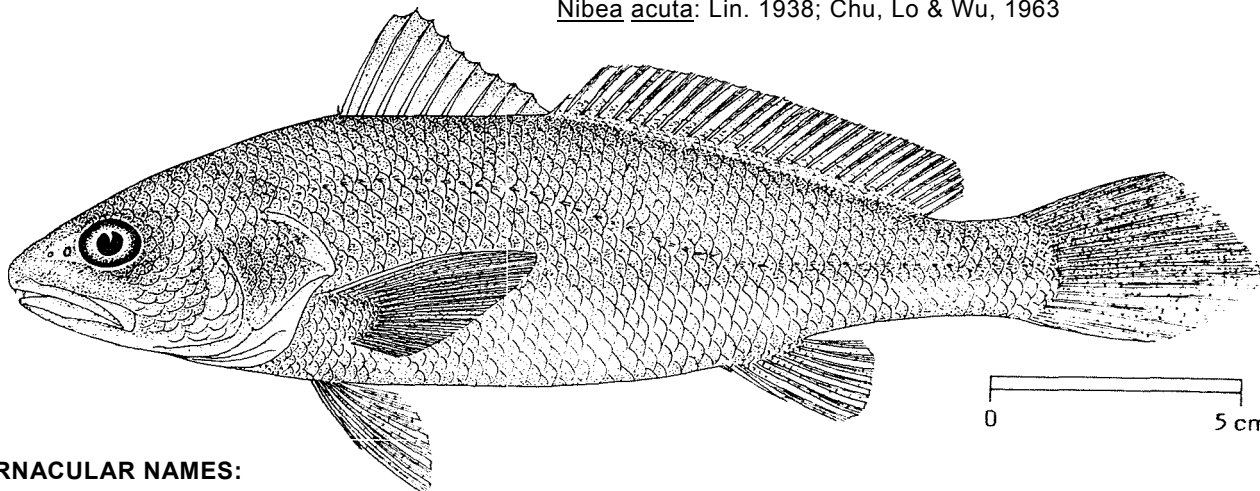
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Chrysochir aureus (Richardson. 1846)

OTHER SCIENTIFIC NAMES STILL IN USE:

Sciaena ophiceps Alcock, 1889
Sciaena incerta Vinciguerra, 1926
Johnius birtwistlei Fowler, 1933
Pseudosciaena acuta Tang, 1937
Nibea acuta: Lin. 1938; Chu, Lo & Wu, 1963



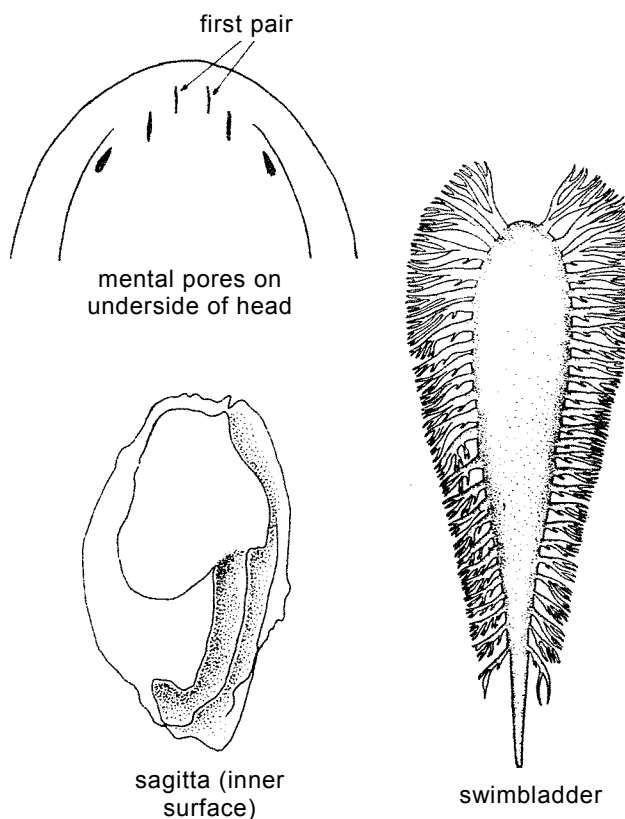
VERNACULAR NAMES:

FAO : En - Reeve's croaker
 Fr - Courbine dorée
 Sp - Corvina dorada

NATIONAL:

DISTINCTIVE CHARACTERS:

A rather slender species. Snout pointed, mouth large, nearly horizontal and subterminal; upper jaw extending backward to below hind margin of eye, overshooting the lower jaw in front; rostral pores 3, marginal pores 5, the outer marginal pair in a marked notch; mental pores in 3 pairs, the first slit-like on either side of the symphysis; teeth differentiated into large and small in both jaws; large teeth in upper jaw forming the outer series, and including 1 or 2 canines twice as long as the other enlarged teeth at tip of jaw; large teeth in lower jaw forming the inner series but not including any canines; sagitta (large earstone) with a tadpole-shaped impression, the "tail" of which is only slightly curved, ending in a disc at the posterior end of otolith; gillrakers on lower limb of first arch 8 to 9, the first 2 to 5 reduced to short stumps. Dorsal fin with 10 spines, followed by a notch, second part of the fin with 1 spine and 25 to 28 soft rays; pectoral fins long; anal fin with 2 spines and 6 or 7 soft rays, the second spine rather weak, about half the length of the soft rays; caudal fin rhomboid with a pointed tip. Scales cycloid (smooth) on snout and below eye, elsewhere finely ctenoid (slightly rough to touch); lateral line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, with 27 to 30 pairs of arborescent appendages, none enteric head.



Colour; metallic blue above. shading to silver below; pectoral fins yellow, other fins grey suffused with orange.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Otolithes species: mouth terminal or lower jaw projecting; canine teeth present also in lower jaw.

Nibea species: second anal fin spine long and strong; no canines in jaws.

Panna microdon: mouth terminal; 31 to 36 dorsal soft rays (25 to 28 in C. aureus); lower gillrakers 10 to 12 (8 or 9 in C. aureus); swimbladder with only one pair of appendages arising at anterior end of bladder and subdividing into an anterior arborescent branch and a posterior simple tube.

Other croaker species: canine teeth either absent, weak or equally strong in both jaws (one or two pairs of canine teeth in upper jaw only in C. aureus).

SIZE:

Maximum: 31 cm; common to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, only known from Sri Lanka and Southeast India. Eastward extending to southern China (Kwang-tung).

Inhabits shallow coastal waters.

Feeds on small crustaceans.

PRESENT FISHING GROUNDS

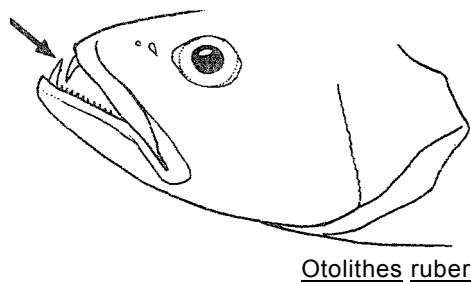
Coastal Waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

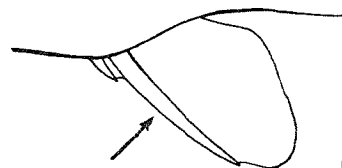
Separate statistics are not reported for this species within the area.

Caught with bottom trawls, gillnets and handlines.

Marketed fresh; also dried salted.



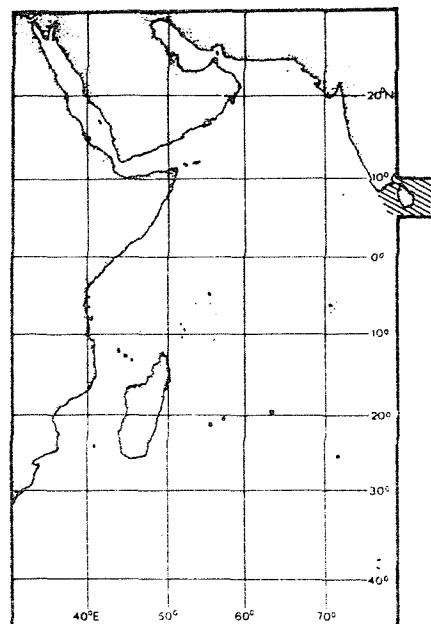
Otolithes ruber



Nibea sp.



Chrysochir aureus

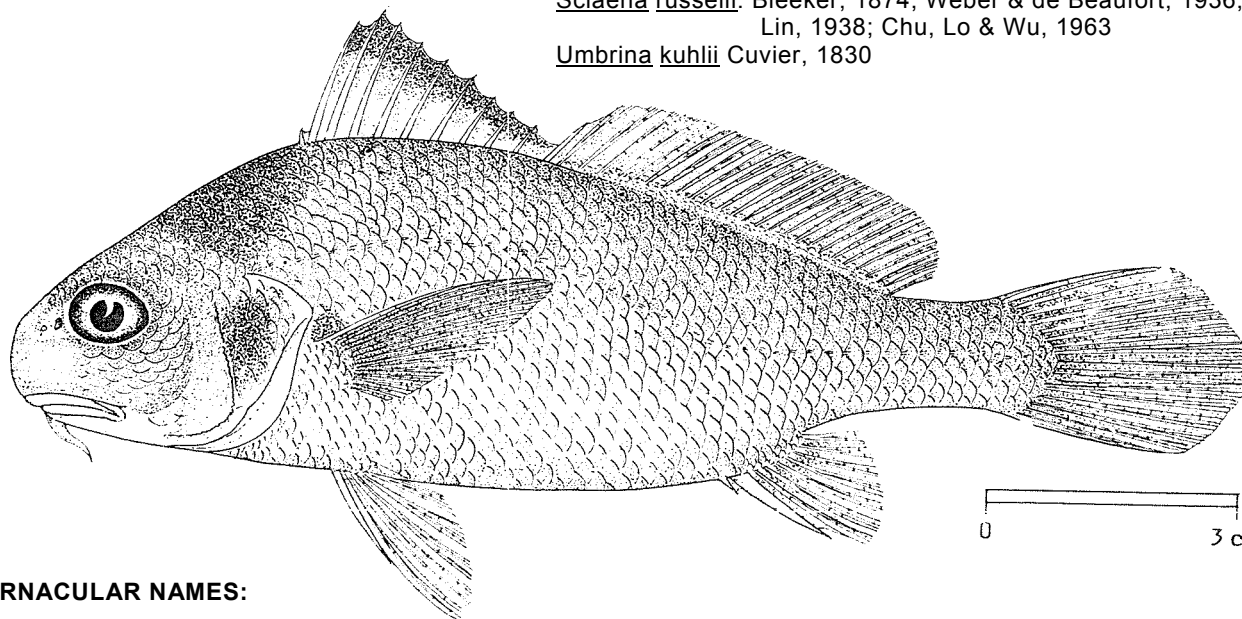


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Dendrophysa russelli* (Cuvier, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE :

Umbrina russelli Cuvier, 1830*Sciaena russelli*: Bleeker, 1874; Weber & de Beaufort, 1936;
Lin, 1938; Chu, Lo & Wu, 1963*Umbrina kuhlii* Cuvier, 1830

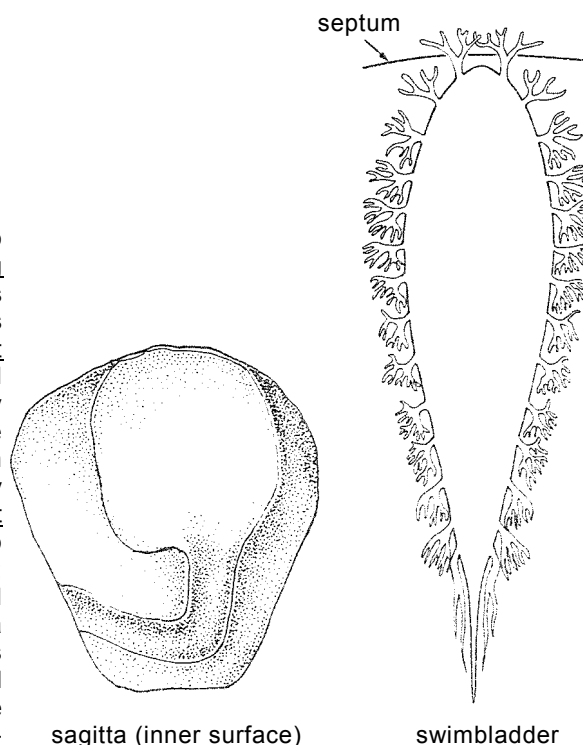
VERNACULAR NAMES:

FAO : En - Goatee croaker
Fr - Bourrugue chèvre
Sp - Lambe chivato

NATIONAL:

DISTINCTIVE CHARACTERS :

A fairly small species with an oblong body, its depth 3 to 4 times in standard length. Snout rounded and projecting slightly beyond tip of upper jaw; mouth inferior; upper jaw less than half of head length; a single barbel on chin; rostral pores 3, marginal pores 5; mental pores 5; median mental pore at the base of the solid, pointed mental barbel; teeth not well differentiated into large and small, the large ones not widely spaced and forming an outer series in upper jaw; no canine teeth; sagitta (large earstone) with a tadpole-shaped impression of which the "tail" is bent at a sharp angle and terminally cutting into the ventral edge; gillrakers on lower limb of first arch 8 to 10. Dorsal fin with 10 spines, followed by a deep notch, second part of the fin with 1 spine and 25 to 28 soft rays; pectoral fins moderately long, about 3/4 of head length; anal fin with 2 spines and 7 soft rays, the second spine strong and a little less than half of head length: caudal fin rhomboid. Scales cycloid (smooth) on front part of head and lower parts of dorsal and anal fins, elsewhere ctenoid (rough to touch); lateral-line scales reaching to tip of caudal fin. Swimbladder carrots-shaped, with about 14 to 17 pairs of arborescent appendages, the first entering the head, the last bifid and parallel to tubular end of bladder.



sagitta (inner surface)

swimbladder

Colour. back grey, shading, to white on belly; a dark brown broad band on nape; opercle with a deep blue blotch; upper edge of spiny part of dorsal fin dark.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Nibea albida: mouth nearly terminal and a pair of barbells on chin.

Johnius dussumieri: swimbladder hammer-shaped and second anal spine shorter; scales cycloid.

Umbrina species: a pore at tip of barbel (not at its base); also, swimbladder without appendages.

SIZE :

Maximum: 25 cm; common to 15 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Southwest coast of India and Sri Lanka. Eastward extending to Australia.

Found in coastal waters, down to 40 m depth.

Feeds on small fishes and invertebrates.

PRESENT FISHING GROUNDS:

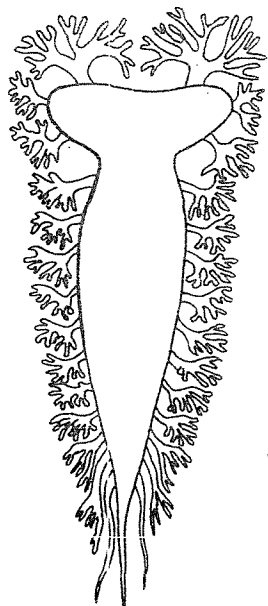
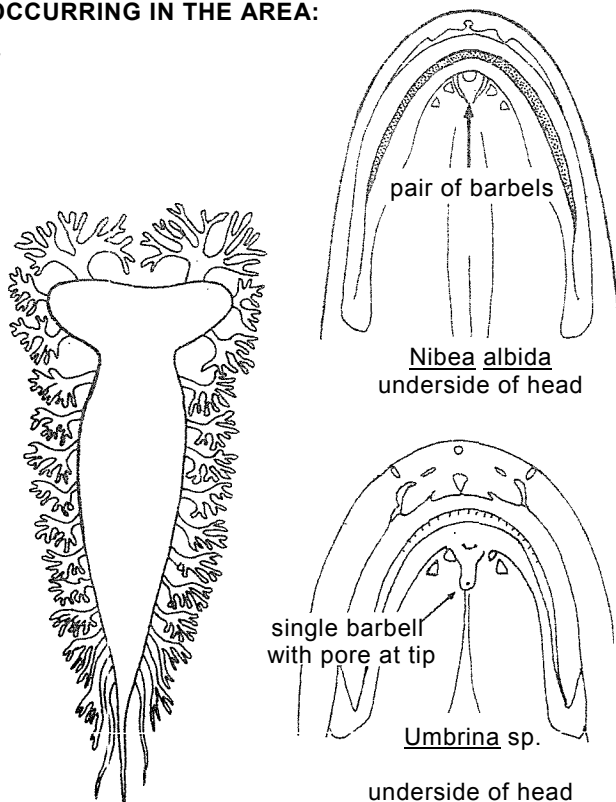
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

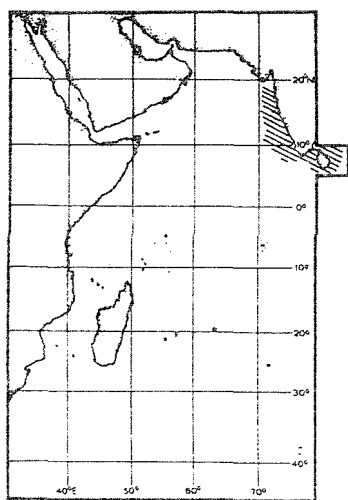
Separate statistics are not recorded for this species within the area.

Caught with bottom trawls, gillnets and traps.

Marketed fresh, also dried salted.



Johnius sp.
swimbladder

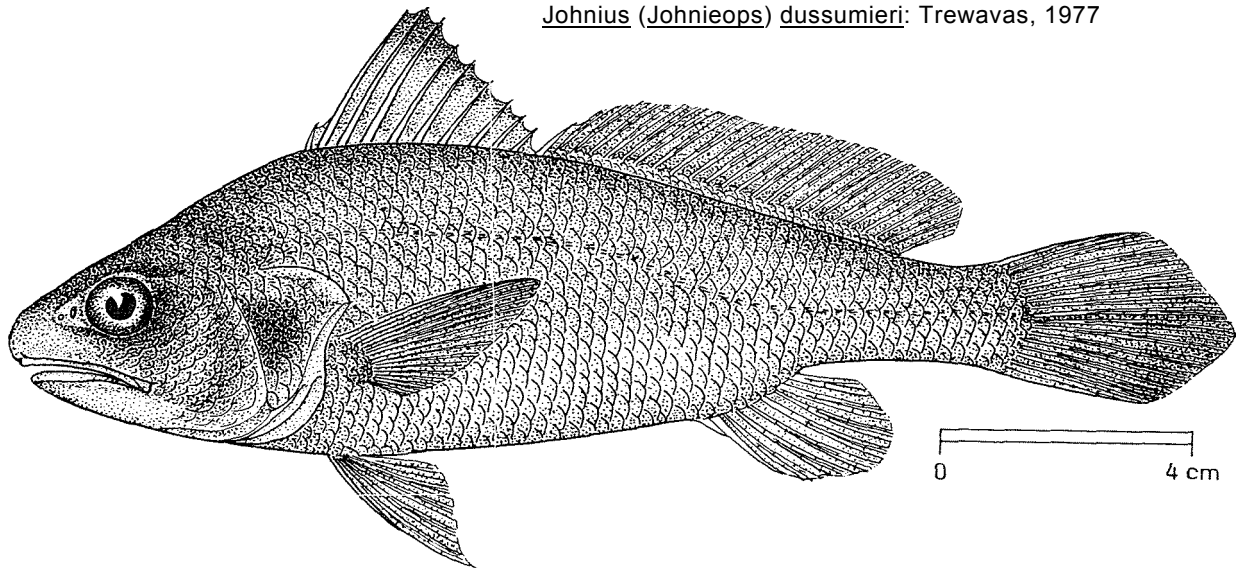


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Johnieops dussumieri (Cuvier, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE:

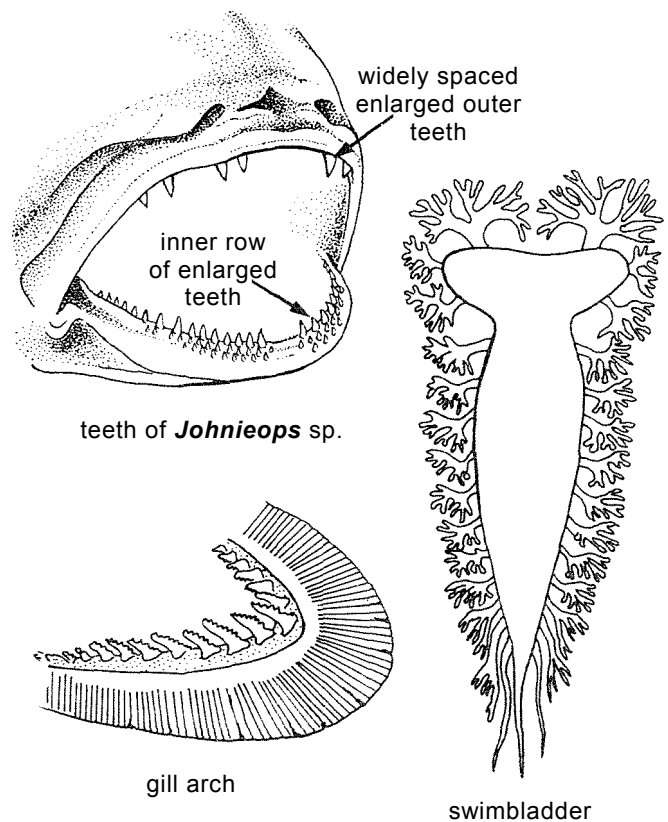
Corvina dussumieri Cuvier, 1830Corvina dorsalis Peters, 1855Johnius (Johnieops) dussumieri: Trewavas, 1977

VERNACULAR NAMES:

FAO : En - Dussumier's croaker:
Fr - Courbine de
Sp - Corvina de Dussumier

DISTINCTIVE CHARACTERS:

A fairly small species, with a prominent, swollen snout projecting a little beyond upper jaw. Mouth small and subterminal; rostral pores 5, marginal pores 5; mental pores 5; teeth in narrow bands, moderately differentiated in both jaws into large and small, the large ones forming the outer series in upper jaw and the inner series in the lower; enlarged upper jaw teeth well spaced anteriorly; no canines; sagitta (large earstone) with a tadpole-shaped impression, of which the "head" is obliquely truncate and the "tail" is deepened as a hollow cone; gillrakers short, curved and coarsely toothed, 12 to 16 on lower limb of first arch. Dorsal fin with 9 or 10 spines, followed by a deep notch, second part of fin with 1 spine and 25 to 30 soft rays; pectoral fins moderately long, about 3/4 of head length; anal fin with 2 spines and 7 or 8 soft rays, the second spine moderately long; caudal fin rhomboid. Scales cycloid (smooth) on lower part of head, elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin. Swimbladder hammer-shaped, with 14 or 15 arborescent appendages, the first branching in head and sending a palmate branch to the front of pectoral arch.



Colour: dusky brown on back, lighter below; upper part of dorsal fin black and a black spot at base of pectoral fin; opercular opening with a black blotch.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Johnieops vogleri: teeth in both jaws well differentiated, upper jaw with 2 strong teeth anteriorly; lower gillrakers stumpy, 9 to 12 (12 to 16 in J. dussumieri); mouth terminal,

J. sina: teeth well differentiated on both jaws, upper jaw without strong anterior teeth on each side; lower gillrakers slender, 13 to 15; mouth subterminal.

J. aneus: teeth in jaws slightly differentiated, upper jaw without strong teeth anteriorly.

J. macrorhynchus: teeth weakly differentiated; lower gillrakers stumpy, 5 to 8; mouth inferior.

Johnius species: lower jaw teeth uniformly villiform.

SIZE:

Maximum: 40 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

West coast of India and southeast coast of Africa; outside Fishing Area 51, in the Andaman Sea (other records doubtful).

Found in inshore and coastal waters, down to 40 m depth.

Feeds on invertebrates and small fishes.

PRESENT FISHING GROUNDS:

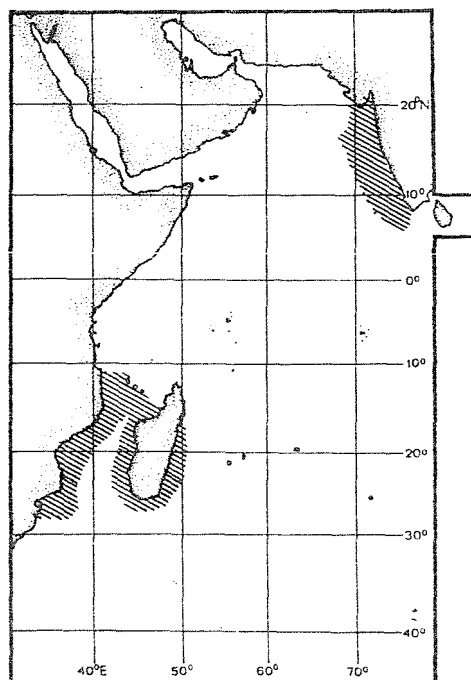
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species within the area.

Caught with bottom trawls, gillnets and bag nets.

Marketed fresh, also dried salted.



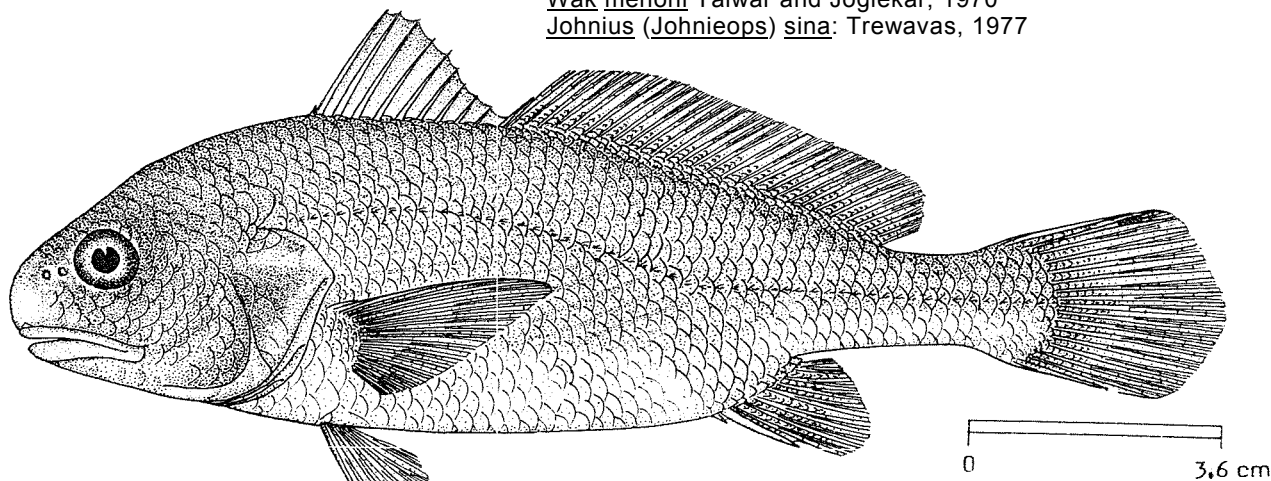
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Johnieops sina</i> (Cuvier, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE:

Corvina sina Cuvier, 1830*Sciaena parva* Gilchrist & Thompson, 1908*Wak sina*: Chu, Lo & Wu, 1963*Wak menoni* Talwar and Joglekar, 1970*Johnius (Johnieops) sina*: Trewavas, 1977

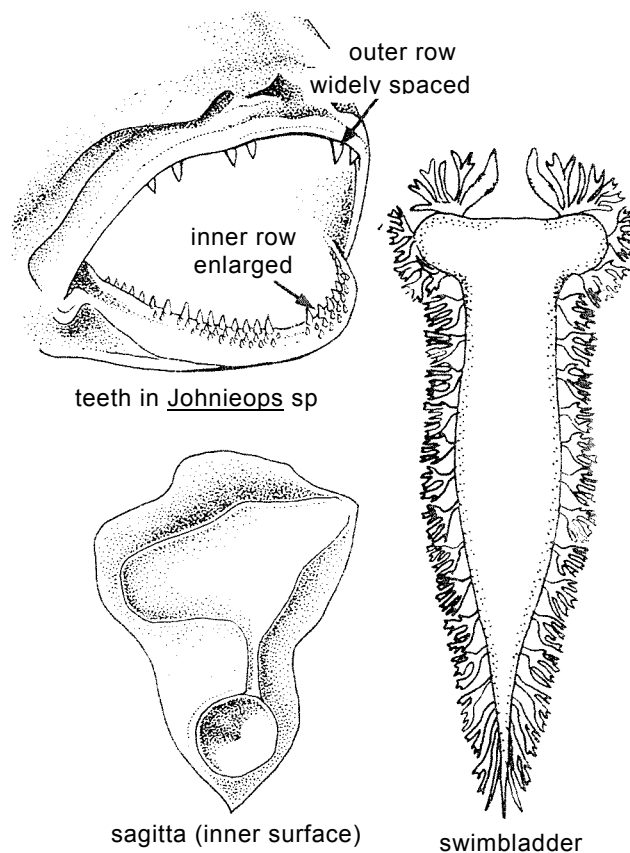
VERNACULAR NAMES:

FAO : En - Sin croaker
 Fr - Courbine chinoise
 Sp - Corvina china

NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly small species. Snout rounded by rostr projecting, not greatly swollen; mouth large, a little inferior; upper jaw extending to below hind margin of pupil and about 2/5 of head length, lower jaw not quite 1/2 of head length; rostral pores 5, marginal pores 5; mental pores in 3 pairs, the anterior close together in a pit or joined by a groove ("false five"); teeth in very narrow bands moderately differentiated into large and small in both jaws, the large ones forming the outer series in upper jaw, and the inner posterior series in lower jaw; enlarged teeth in both jaws well spaced; no canines; sagitta (large earstone), with a tadpole-shaped impression, of which the "head" is obliquely truncate and the "tail" is deepened as a hollow cone; gillrakers slender and finely toothed, 13 to 15 on lower limb of first arch. Dorsal fin with 9 or 10 spines, followed by a deep notch, second part of fin with 1 spine and 26 to 29 soft rays; pectoral fins moderate, about 3/4 of head length; anal fin with 2 spines and 7 soft ray: the second spine moderately long, about 1/3 of head length; caudal fin rhomboid. Scales cycloid (smooth) on head, elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin. Swimbladder hammer-shaped, with 12 to 17 pairs of arborescent appendages, the first branching into head and sending a palmate branch to the front of pectoral arch.



Colour: no distinctive coloration, a steel blue blotch on opercle. Upper 2/3 of first dorsal dark grey.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

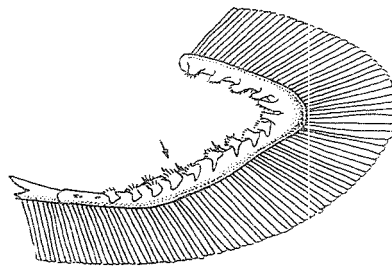
Johnieops vogleri: teeth well differentiated in both jaws; upper jaw with 2 strong anterior teeth; lower gillrakers stumpy, 4 to 12 (13 to 15 in J. sina); mouth terminal (a little inferior in J. sina).

J. dussumieri: teeth in both jaws not well differentiated, upper without strong anterior teeth; lower gillrakers slender, 12 to 16; mouth subterminal, snout swollen.

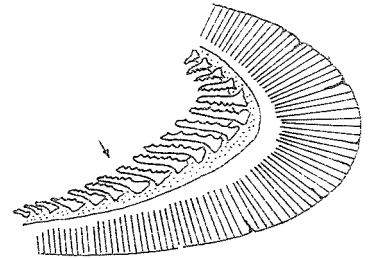
J. aneus: teeth slightly differentiated in both jaws, upper jaw without strong anterior teeth; mouth slightly inferior.

J. macrorhynchus: teeth in lower jaw weakly differentiated; lower gillrakers stumpy, 5 to 8; mouth inferior.

Johnius species: lower jaw teeth uniformly villiform.



J. vogleri



J. sina

first gill arch

SIZE:

Maximum: 30 cm; common to 13 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

From Natal eastward to India. Also in the Eastern Indian ocean and Western Central Pacific to the north coast of Australia.

Found in inshore waters, down to 40 m depth.

Feeds on small crustaceans.

PRESENT FISHING GROUNDS:

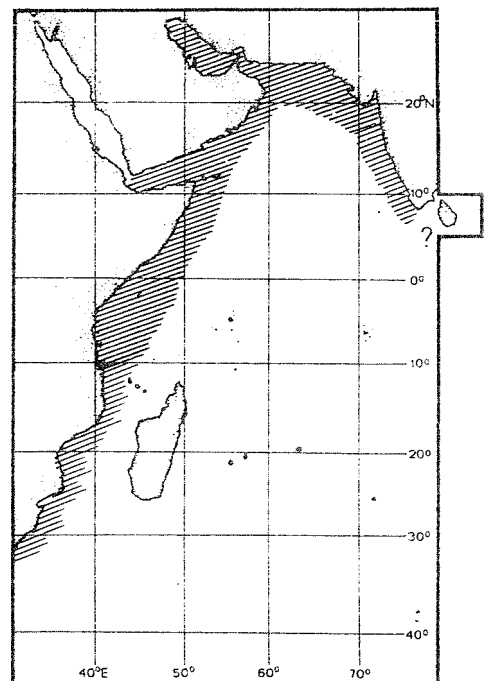
Coastal waters throughout its range; forms a fishery along the northwest coast of India.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not recorded for this species within the area.

Caught with bottom trawls, bottom-set gillnets and bag-nets.

Marketed fresh dried salted.

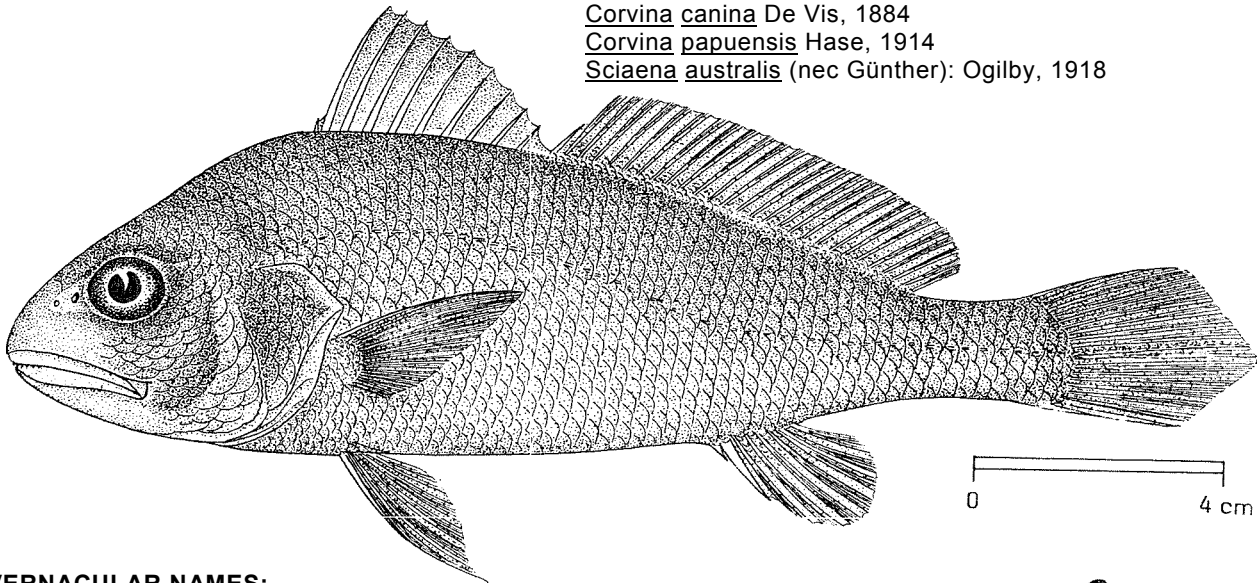


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Johnieops vogleri* (Bleeker, 1853)

OTHER SCIENTIFIC NAMES STILL IN USE:

Sciaena sina: Day, 1876 (in part)*Sciaena siamensis* Hora, 1924*Corvina canina* De Vis, 1884*Corvina papuensis* Hase, 1914*Sciaena australis* (nec Günther): Ogilby, 1918

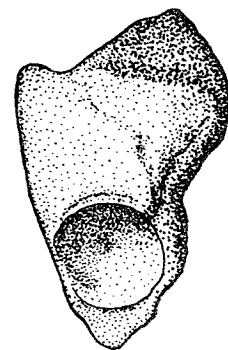
VERNACULAR NAMES:

FAO : En - Sharptooth hammer croaker
Fr - Courbine dentue
Sp - Corvina dientusa

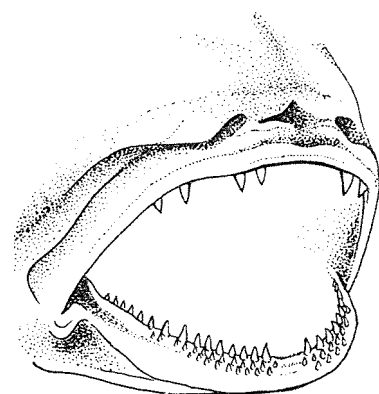
NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly small species. Snout rounded but, not projecting, not greatly swollen; eye large; mouth large, a little inferior, the upper jaw long, extending to below hind margin of pupil and almost $\frac{1}{2}$ of head length, lower jaw about $\frac{1}{2}$ of head length; rostral pores minute, 3; marginal pores 5; mental pores in 3 pairs, the anterior close together, joined by a groove; teeth in narrow bands, well differentiated into large and small in both jaws, the large ones forming the outer series in upper jaw, the inner series in the lower; enlarged teeth in upper jaw widely spaced; no canines; sagitta (large earstone) with a tadpole-shaped impression, of which the "head" is obliquely truncate and the "tail" is deepened as a hollow cone; gillrakers short, curved and coarsely toothed in adult, 9 to 12 on lower limb of first arch. Dorsal fin with 10 spines, followed by a deep notch, second part of fin with 1 spine and 26 to 31 soft rays; pectoral fin moderately long, about $\frac{3}{4}$ of head length; anal fin with 2 spines and 7 soft rays, the second spine short; caudal fin rhomboid. Scales cycloid smooth on head, elsewhere ctenoid (rough to touch); scales covering lower parts of both dorsal and anal fins; lateral line scales reaching to tip of caudal fin. Swimbladder hammer-shaped, with 14 to 16 pairs of arborescent appendages, the first entering the head and sending a palmate branch to front of pectoral arch.



sagitta (inner surface)

teeth of *Johnieops* sp.

Colour: no distinctive coloration.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

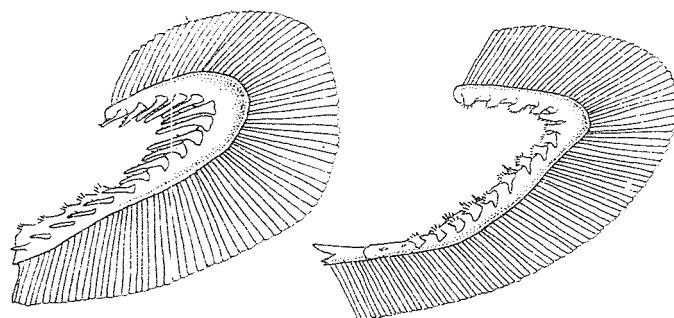
Johnieops sina: teeth in both jaws well differentiated, upper jaw without strong anterior teeth on each side; lower gillrakers slender, 13 to 15 (9 to 12 in J. vogleri); mouth subterminal.

J. dussumieri: teeth in both jaws not well differentiated, upper without strong teeth; lower gillrakers slender, 12 to 16 (9 to 12 in J. vogleri); mouth subterminal, snout swollen.

J. aneus: teeth slightly differentiated in both jaws, upper jaw without strong teeth on each side; mouth slightly inferior.

J. macrorhynchus: teeth in jaws weakly differentiated; lower gillrakers stumpy, 5 to 8; mouth inferior.

Johnius species: lower jaw teeth uniformly villiform.



Johnieops dussumieri

J. vogleri

first gill arch

SIZE:

Maximum: 30 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, known from the Gulf of Oman, and western coast of India. Also in the Eastern Indian Ocean and the Western, Central Pacific to the northern coast of Australia.

Inhabits shallow coastal waters.

Feeds on small fishes and crustaceans.

PRESENT FISHING GROUNDS :

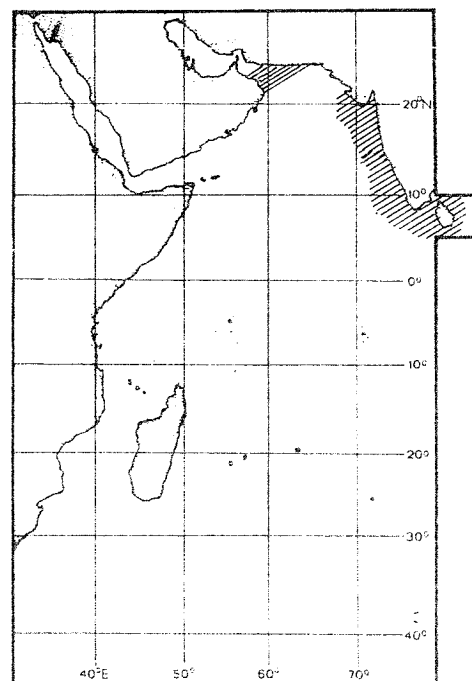
Coastal waters throughout its range; forms a fishery on the northwest coast of India.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species within the area.

Caught with bottom trawls and gillnets.

Marketed fresh; also dried salted.

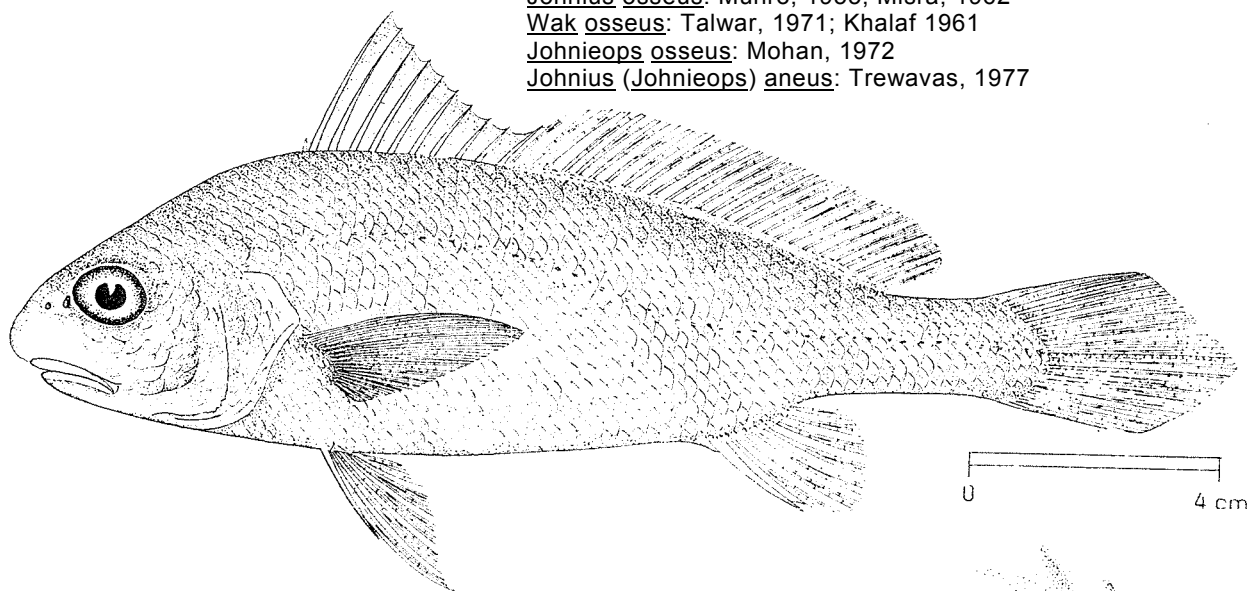


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Johnieops aneus (Bloch, 1793)

OTHER SCIENTIFIC NAMES STILL IN USE : Sciaena osseus Day, 1876
Johnius osseus: Munro, 1955; Misra, 1962
Wak osseus: Talwar, 1971; Khalaf 1961
Johnieops osseus: Mohan, 1972
Johnius (Johnieops) aneus: Trewavas, 1977



VERNACULAR NAMES:

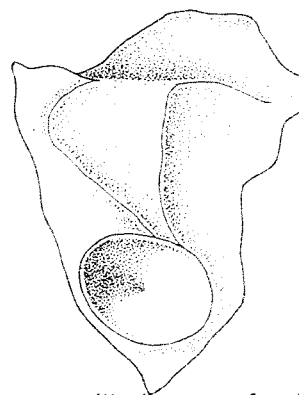
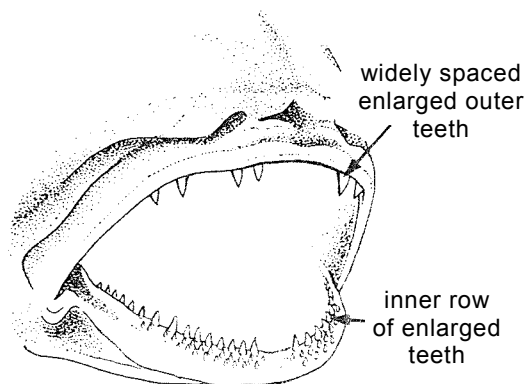
FAO : En - Greyfin croaker
 Fr - Courbine grise
 Sp - Corvina plumiza

NATIONAL:

DISTINCTIVE CHARACTERS:

A small species. Snout decurved, but not inflated; mouth slightly inferior; rostral pores 3, marginal pores 5; mental pores 5; teeth differentiated into large and small in both jaws, the large ones forming the outer row in upper jaw and the inner row in the lower; enlarged teeth in upper jaw well spaced; no canines; sagitta (large earstone) with a tadpole-shaped impression, of which the "head" is obliquely truncate and the "tail" is deep ended as a hollow cone; gillrakers about 16 on lower limb of first arch. Dorsal fin with 10 spines, followed by a notch, second part of fin with 1 spine and 24 to 30 soft rays; anal fin with 2 spines and 7 soft rays; caudal fin rhomboid. Scales cycloid (smooth) on head and breast, elsewhere ctenoid (rough to touch). Swimbladder hammer-shaped, with 13 or 14 pairs of arborescent appendages, the first branching in the head.

Colour: back dark grey, silvery on flanks and belly.



sagitta (inner surface)

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Johnieops sina: teeth in both jaws well differentiated, upper jaw without strong anterior teeth on each side; lower gillrakers slender, 13 to 15 (about 16 in J. aeneus); mouth subterminal.

J. vogleri: teeth well differentiated in both jaws, upper jaw with 2 strong anterior teeth; lower gillrakers stumpy, 9 to 12; mouth terminal.

J. dussumieri: teeth in both jaws not well differentiated, upper without strong anterior teeth; lower gillrakers slender, 12 to 16; mouth subterminal, snout swollen.

J. macrorhynchus: teeth in jaws weakly differentiated; lower gillrakers stumpy, 5 to 8; mouth inferior.

Johnius species: no enlarged teeth in lower jaw.

SIZE:

Maximum: 25 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found along the west coast of the Indian subcontinent to Sri Lanka.

Occurring in inshore waters, down to 30 m depth.

Feeds on smaller crustaceans, benthic worms and small fishes.

PRESENT FISHING GROUNDS:

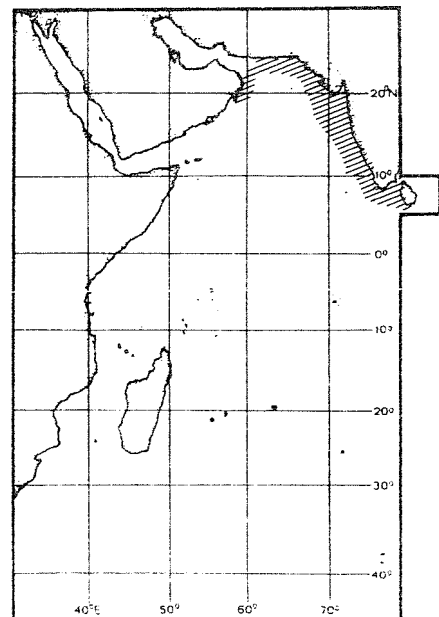
Coastal waters throughout its range; forms a fishery along the southwest coast of India.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not recorded for this species within the area.

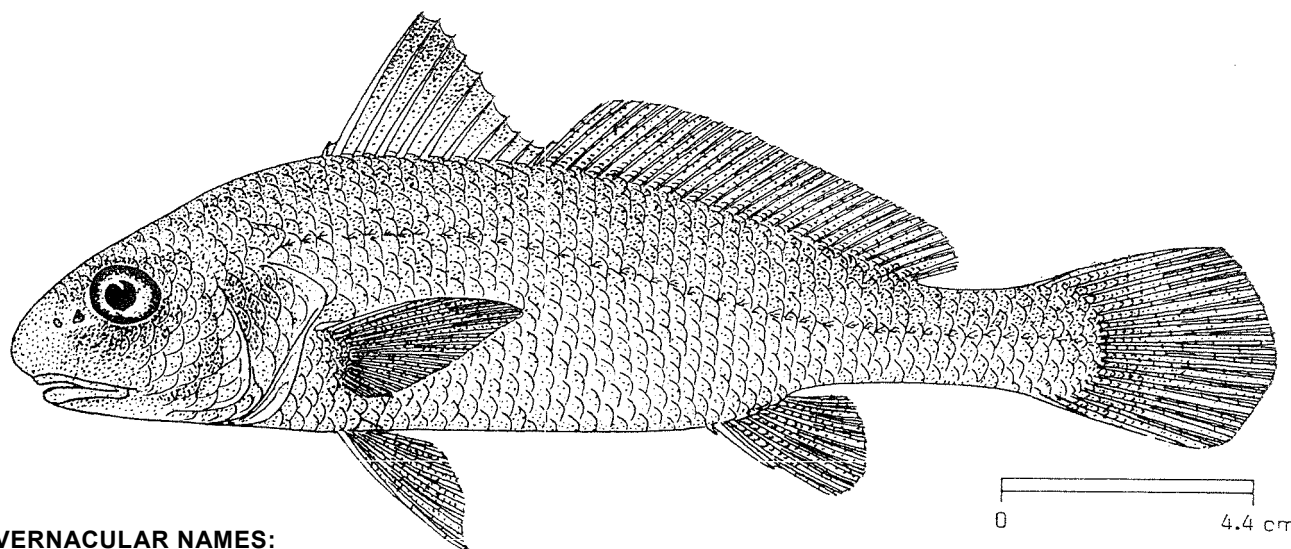
Caught with bottom trawls, boat seines and shore seines.

Marketed fresh; also dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Johnieops macrorhynus (Mohan, 1976)OTHER SCIENTIFIC NAMES STILL IN USE: Johnius (Johnius) macrorhynus: Trewavas, 1977

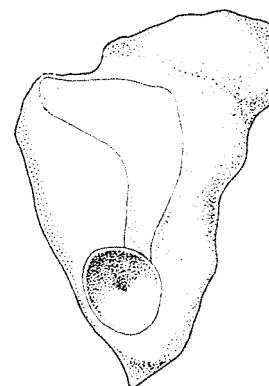
VERNACULAR NAMES:

FAO : En - Bigsnout croaker
Fr - Courbinelongnez
Sp - Corvina hocicona

NATIONAL:

DISTINCTIVE CHARACTERS :

A medium-sized species. Snout rounded (rather obtuse), projecting; mouth horizontal and inferior; rostral pores 5, marginal pores 5, the marginal dividing the snout into deep lobes; mental pores 5; teeth differentiated into large and small in upper jaw, the large ones not widely spaced, forming the outer series; lower jaw with outer villiform teeth and slightly enlarged inner teeth posteriorly (in large specimens the enlarged posterior teeth are blunt); no canines; sagitta (large earstone) with a tadpole-shaped impression, of which the "head" has its long axis lying obliquely to that of the otolith and the "tail" is expanded and deepened as a hollow cone, connected with the "head" by a narrow groove; gillrakers on lower limb of first arch 5 to 8, short and stumpy with minute spines. Dorsal fin with 10 spines, followed by a deep notch, second part of fin with 1 short spine and 26 to 30 soft rays; pectoral fin, about $\frac{3}{5}$ of head length; anal fin with 2 spines and 7 soft rays, the second spine weak and about $\frac{1}{4}$ of head length; caudal fin rhomboid; scales on the body cycloid (smooth); lateral line scales reaching to tip of caudal fin. Swimbladder hammer-shaped, with 13 or 14 pair of appendages, the first arborescent tubule branching into the head and sending an outer palmate branch to the front of pectoral arch.

sagitta
(inner surface)

Colour: lower part of body with a golden tinge when fresh; pectoral, pelvic and anal fins yellow; a faint steel blue blotch on opercle

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Johnius dussumieri and J. macropterus: a short barbel present on chin and lower jaw teeth uniformly villiform. Furthermore, 8 to 11 lower gillrakers in J. macropterus (5 to 8 in J. macrorhynchus).

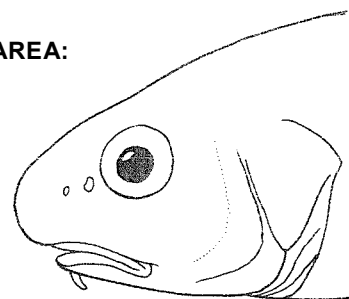
J. glaucus: eye diameter 1/3 of head length (1/4 in J. macrorhynchus); lower jaw more than 1/3 of head (about 1/4 in J. macrorhynchus); 10 to 13 lower gillrakers; lower jaw teeth uniformly villiform.

J. elongatus: few short, knob-like tags between the median and first lateral mental pores on lower jaw; teeth in lower jaw uniformly villiform.

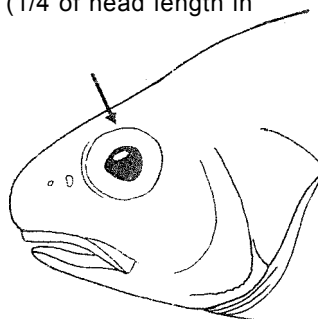
J. belangerii: body dark in colour, lips thick; no golden tinge on lower sides; second anal fin spine nearly 1/2 of head length (1/4 of head length in J. macrorhynchus); teeth in lower jaw uniformly villiform.

J. carouna and J. carutta: more lower gillrakers, 9 to 12 in J. carouna and 8 or 9 in J. carutta. Furthermore, 16 swimbladder appendages, cycloid (smooth) scales on body and a yellow or white streak along lateral line in J. carutta.

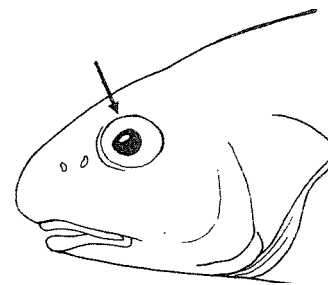
Johnieops species: clearly enlarged teeth in outer series of upper jaw widely spaced; inner series of lower jaw teeth more strongly enlarged.



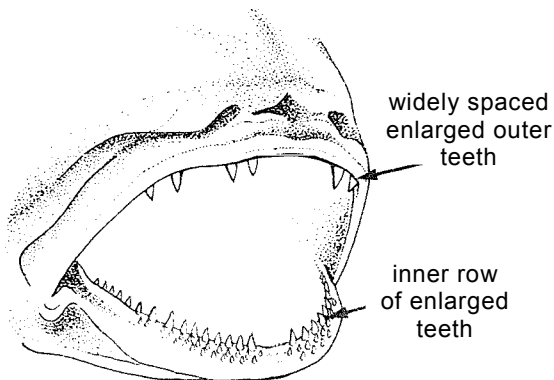
Johnius dussumieri



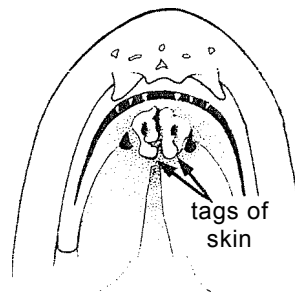
J. glaucus



J. macrorhynchus



Johnieops aneus



underside of head
J. elongatus

SIZE :

Maximum: 30 cm; common to 22 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Coasts of India and Sri Lanka.. Eastward to the Andaman islands and Singapore.

Inhabits shallow coastal waters.

Feeds on benthic worms, crustaceans and small fishes.

PRESENT FISHING GROUNDS:

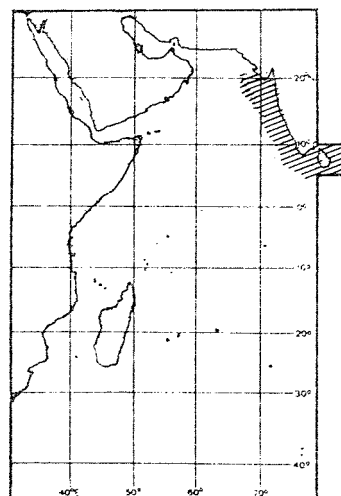
Coastal waters throughout its range; common along the West coast of India.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species within the area.

Caught by bottom trawls, shore seines and boat seines.

Marketed fresh and dried salted.



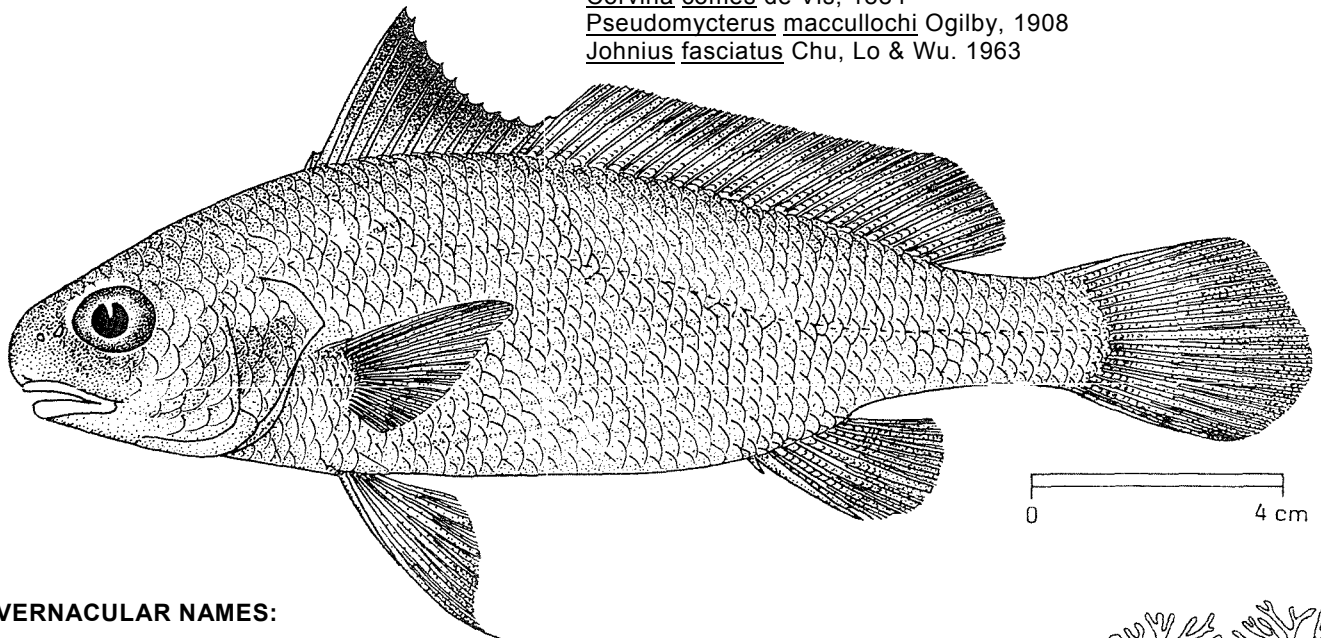
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Johnius belangerii (Cuvier, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE:

Sciaena belangeri Day, 1976
Corvina lobata Cuvier, 1930
Corvina carounua Cuvier, 1830
Sciaena (Corvina) nasus Steindachner, 1866
Corvina australis Günther, 1880
Corvina comes de Vis, 1884
Pseudomycterus maccullochi Ogilby, 1908
Johnius fasciatus Chu, Lo & Wu, 1963



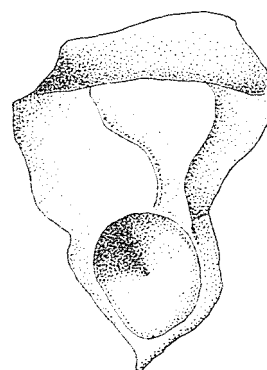
VERNACULAR NAMES:

FAO : En - Belanger's croaker
 Fr - Courbine de Belanger
 Sp - Corvina de Belanger

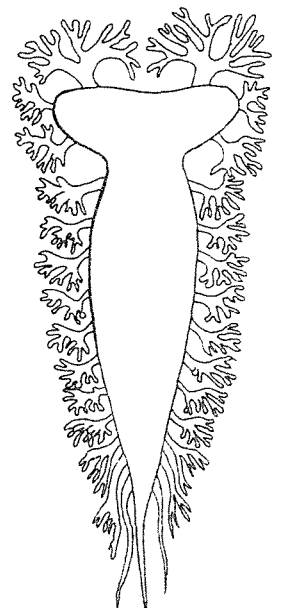
NATIONAL:

DISTINCTIVE CHARACTERS:

A medium-sized species with a steeply rounded snout. Mouth small, slightly inferior; no barbel on chin; rostral pores 5, marginal pores 5, the marginal deeply dividing the edge into 4 lobes; mental pores 5; teeth differentiated into large and small in upper jaw only, the large ones close-set, not canine-like, forming the outer series; lower jaw teeth villiform; sagitta (large earstone) with a tadpole-shaped impression, of which the "head" has its long axis lying obliquely to that of the otolith and the "tail" is expanded and deepened as a hollow cone, connected with the "head" by a narrow groove; gillrakers very short, 8 to 10 on lower limb of first arch. Dorsal fin with 9 or 10 spines, followed by a deep notch, second part of fin with 1 spine and 27 to 31 soft rays; pectoral fins moderately long, about 3/4 of head length; anal fin with 2 spines and 7 or 8 soft rays, the second spine rather strong and about 1/2 (38 to 49%) of head length; caudal fin rhomboid. Scales cycloid (smooth) on snout and lower parts of head, elsewhere strongly ctenoid (very rough to touch); lateral line scales reaching to tip of caudal fin. Swimbladder hammer-shaped, with 11 to 15 pairs of arborescent appendages, the first entering the head and sending a palmate branch to the front of pectoral arch.



sagitta (inner surface)

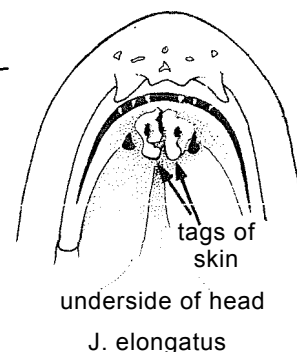
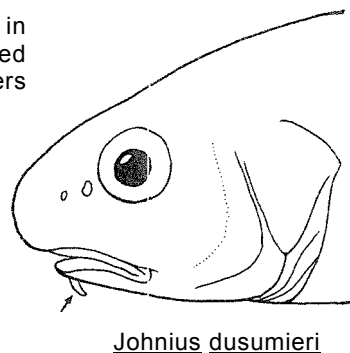
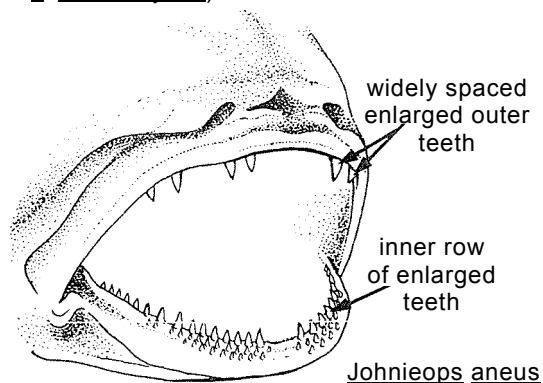
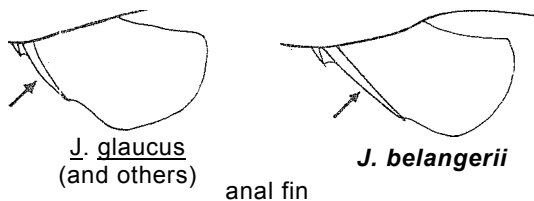
swimbladder of
Johnius species

Colour: darkly pigmented. but pigment sometimes irregular and concentrated into short dark bars along back or on dorsal fin; spinous part of dorsal fin black, lower fins also black in many cases; a dark blotch shows through gill cover.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other Johnius species: second anal fin spine shorter than 37% of head length (38 to 49% of head length in J. belangerii). Furthermore, a blunt barbel on chin in J. dussumieri and J. macropterus; less than 8 lower gill-rakers and thickened skin produced into tags around mental pores in J. elongatus; a yellow or white streak along lateral line and 16 swimbladder appendages in J. carutta (11 to 15 in J. belangerii).

Johnieops species: enlarged teeth also present in lower jaw (uniformly small in J. belangerii), and enlarged teeth in upper jaw widely spaced. Also, lower gillrakers (5 to 8 in J. macrorhynchus).



SIZE:

Maximum: 30 cm; common to 20

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Coast of India and Sri Lanka. Eastward to New South Wales (Australia).

Inhabits coastal waters down to 40 m depth.

Feeds on invertebrates, particularly benthic worms.

PRESENT FISHING GROUNDS:

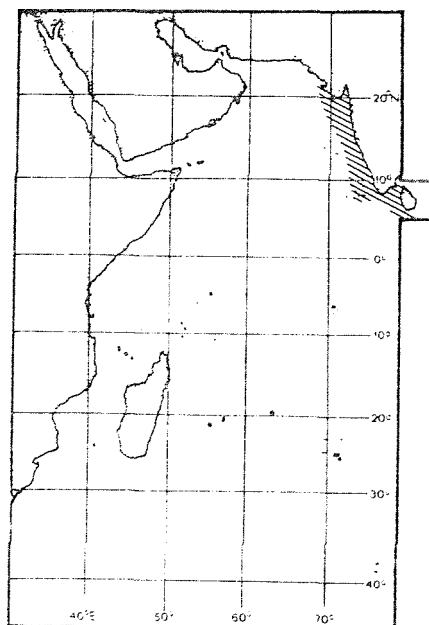
Coastal waters, throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

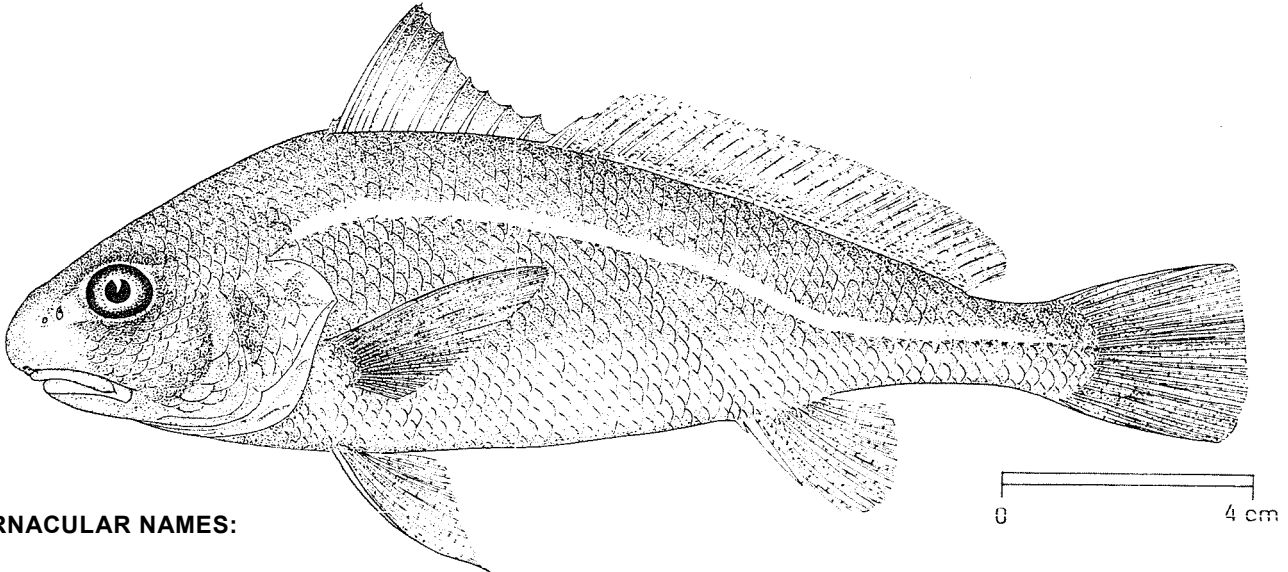
Caught with bottom trawls and boat seines.

Marketed fresh; also dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Johnius carutta* Bloch, 1793OTHER SCIENTIFIC NAMES STILE IN USE: *Sciaena carutta*: Day, 1876

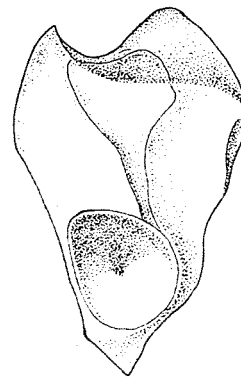
VERNACULAR NAMES:

FAO : En - Karut croaker
 Fr - Courbine carutte
 Sp - Corvina carota

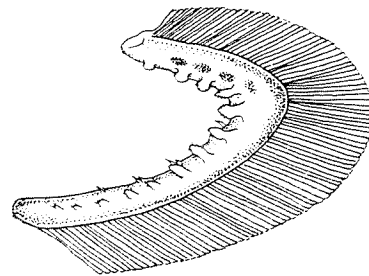
NATIONAL:

DISTINCTIVE CHARACTERS:

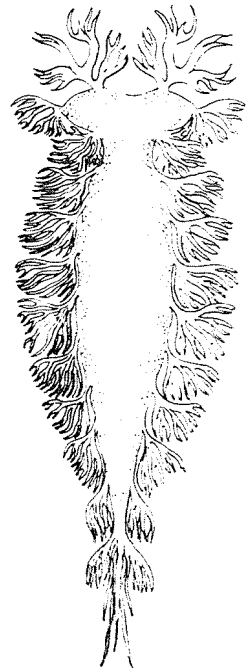
A small species with a rounded snout. Mouth small, low-set, nearly horizontal and inferior; no barbel on chin; rostral pores 5; marginal pores 5; mental pore: in 3 pairs of which the first open close behind symphysis in a common pit; teeth differentiated into large and small in upper jaw only, the large ones close-set, not canine-like, forming the outer series; lower jaw teeth uniformly small. Sagitta (large earstone) with a tadpole-shaped impression, of which the "head" has its long axis lying obliquely to that of the otolith and the "tail" is expanded and deepened as a hollow cone, connected with the "head" by a narrow groove; gillrakers short, 8 or 9 on lower limb of first arch. Dorsal fin with 9 or 10 spines, followed by a deep notch, second part of fin with 1 spine and 25 to 30 soft rays; pectoral fins moderately long, about 3/4-of head length; anal fin with 2 spines and 7 soft rays; the second spine weak, about 1/4 of head length; caudal fin rhomboid. Scales of head and upper part of body cycloid (smooth), elsewhere (especially lower part of body and toward tail) some scales weakly ctenoid; scales present also on soft parts of dorsal and anal fins: lateral line scales reaching to tip of caudal fin. Swimbladder hammer-shaped, with about 16 pairs of arborescent appendages, the first entering the head and sending a palmate branch to the front of pectoral arch.



sagitta (inner surface)



first gill arch



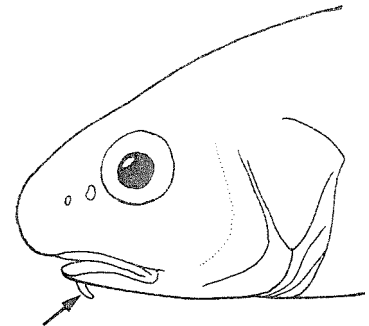
Swimbladder

Colour: upper two-thirds of body dark grey with a yellow or white streak along lateral line; upper two-thirds of first dorsal black.

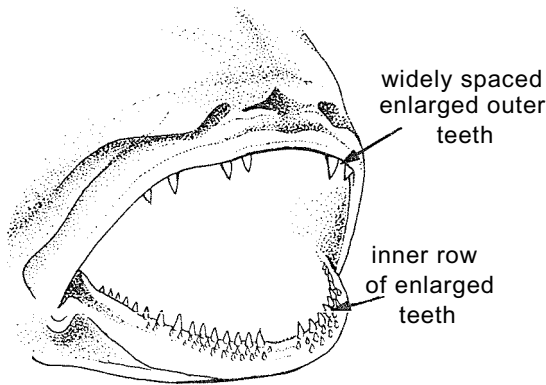
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Other Johnius species: none has white or yellow streak along lateral line and all have less than 16 pairs of swimladder appendages. Furthermore, a blunt barbel on chin in J. dussumieri and J. macropterus; 2 small knoblike tags of thick skin on chin and only 6 or 7 lower gillrakers in J. elongatus (8 or 9 in J. carutta); a much longer second anal fin spine in J. belangerii (about 1/2 of head length against 1/4 of head length in J. carutta).

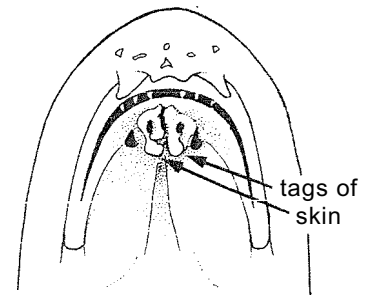
Johnieops species: enlarged teeth also present in lower jaw; enlarged teeth of upper jaw widely spaced.



Johnius dussumieri



Johnieops aneus



underside of head
J. elongatus

SIZE:

Maximum: 30 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Coasts of India and Sri Lanka. Eastward to the Malay Peninsula and Thailand.

Inhabits inshore waters down to 40 m depth.

Feeds on small fishes and invertebrates.

PRESENT FISHING GROUNDS:

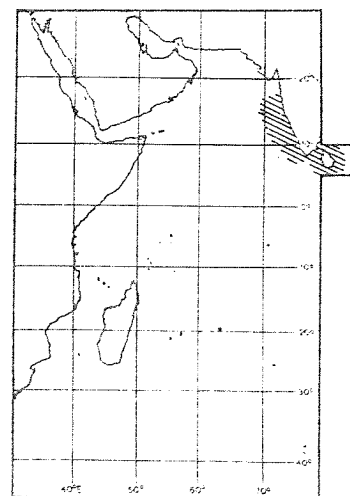
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not recorded for this species within the area.

Caught with bottom trawls, seine nets and gillnets.

Marketed fresh; also dried-salted.

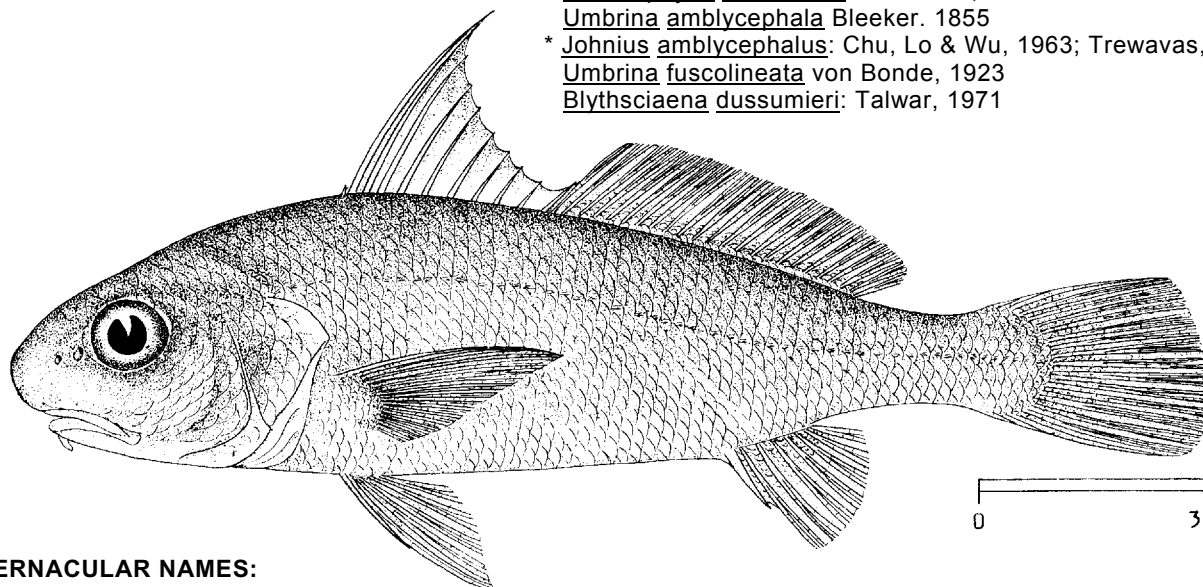


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Johnius dussumieri (Valenciennes, 1833)

OTHER SCIENTIFIC NAMES STILL IN USE:

Umbrina dussumieri Valenciennes, 1833Sciaena dussumieri Bleeker, 1872; Fowler, 1933; Weber & de Beaufort, 1936; Lin, 1938Dendrophysa dussumieri: Trewavas, 1964Umbrina amblycephala Bleeker, 1855* Johnius amblycephalus: Chu, Lo & Wu, 1963; Trewavas, 1977Umbrina fuscolineata von Bonde, 1923Blythsciaena dussumieri: Talwar, 1971

VERNACULAR NAMES:

FAO : En - Bearded croaker
 Fr - Courbine barbiche
 Sp - Corvina de barba

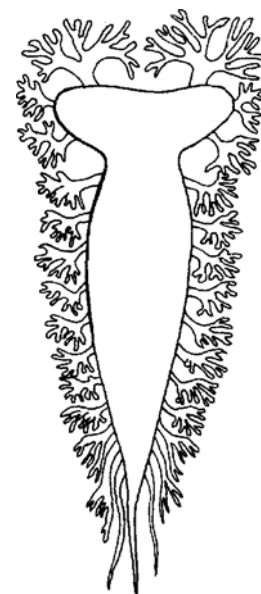
NATIONAL:

DISTINCTIVE CHARACTERS:

A medium-sized species with a rounded projecting snout. Mouth inferior; a blunt barbel on chin; rostral pores 5, marginal pores 5, dividing the snout into deep lobes; mental pores 5; teeth differentiated into large and small in upper jaw only, the large ones close-set, not canine-like and forming the outer series; teeth in lower jaw uniform; sagitta (large earstone) with a tadpole-shaped impression, of which the "head" is obliquely truncate and the "tail" is deepened as a hollow cone; gill-rakers short, 6 to 9 on lower limb of first arch, the anterior minute, Dorsal fin with 10 spines, the second and third spines elongate, followed by a deep notch, second part of fin with 1 spine and 23 to 26 soft rays, pectoral fins moderately long, about 3/4 of head length; anal fin with 2 spines and 7 soft rays. the second spine weak; caudal fin rhomboid, Scales on body cycloid (smooth); lateral line scales reaching to tip of caudal fin. Swim-bladder hammer-shaped, with 14 or 15 pairs of appendages, all except one or two posterior arborescent, the first branching in the head.



sagitta (inner surface)



swimbladder

*The name Johnius dussumieri (Valenciennes, 1833) can be used if Johnius and Johnieops are kept distinct genera; if they are combined, then dussumieri of Valenciennes is a junior homonym of Johnieops dussumieri (Cuvier, 1830), a quite different species, and so must be replaced by the next available name, Johnius amblycephalus (Bleeker, 1855)

Colour: body black. upper part of the rather high spinous part of dorsal fin black: no other distinctive markings.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

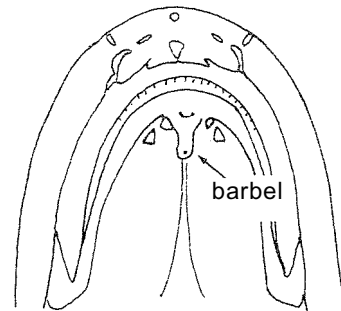
Johnius macropterus: ctenoid (rough to touch) scales present on body, gillrakers 10 to 12 (6 to 9 in J. dussumieri): soft dorsal fin rays 27 to 32 (24 to 26 in J. dussumieri)

Other Johnius and Johnieops species: no barbel on chin.

Dendrophysa russelli: also with a barbel on chin, but the swimbladder is carrot-shaped (hammer-shaped in J. dussumieri): also, more soft dorsal fin rays 27 or 28 in D. russelli.

Nibea albida: two barbels on chin: also. swimbladder carrot-shaped.

Umbrina canariensis: a pore lies at tip of barbel; also, no appendages on swimbladder.



underside of head

Umbrina sp.

SIZE:

Maximum: 25 cm: common to 15 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Abundant throughout most of the Indo-West Pacific. westward to East Africa.

Inhabits coastal waters. down to 40 m depth.

Feeds on small fishes and invertebrates.

PRESENT FISHING GROUNDS:

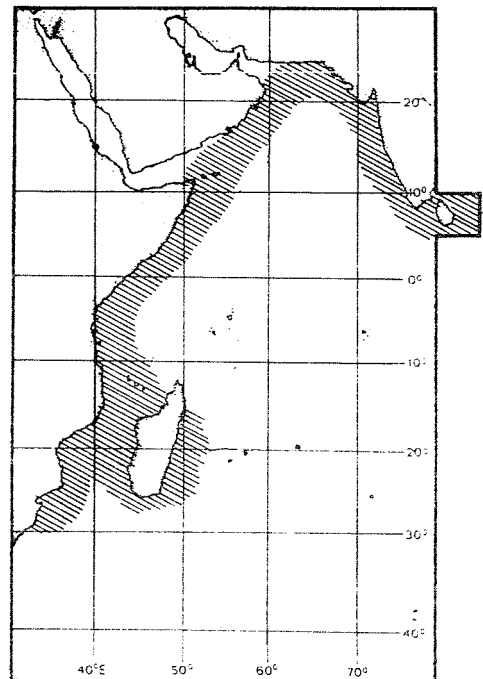
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not recorded for this species within the area.

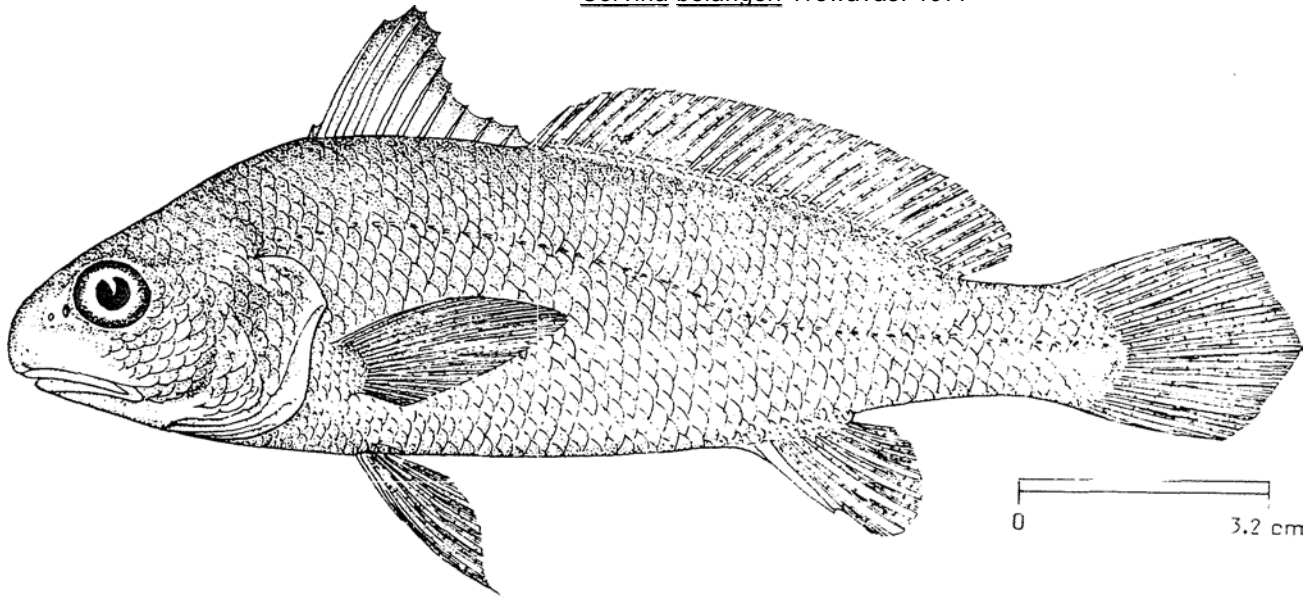
Caught with bottoms trawls and boat seines.

Marketed fresh. also dried-salted.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Johnius carouna (Cuvier. 1830)OTHER SCIENTIFIC NAMES STILL IN USE : Corvina carutte Day. 1878
Corvina belangeri Trewavas. 1977

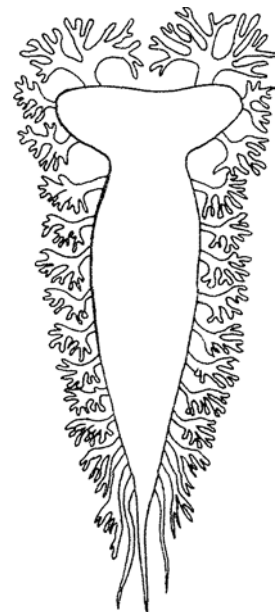
VERNACULAR NAMES:

FAO : En - Caroun croaker
Fr - Courbine caroune
Sp - Corvina caruna

NATIONAL:

DISTINCTIVE CHARACTERS:

A small-sized species with a rounded snout. Mouth horizontal and inferior: no barbel on chin; rostral pores 5; marginal pores 5. mental pores in 3 pairs of which the first open close behind the symphysis in a common pit; teeth differentiated into large and small in upper jaw only. the large ones close-set, forming the outer series; lower jaw with a uniform band of villiform teeth; sagitta (large earstone) with a tadpole-shaped impression. of which the "head" has its long axis lying obliquely to that of the otolith and the "tail" is expanded and deepened as a hollow cone connected with the head by a narrow groove; gillrakers short, 9 to 12 on lower limb of first arch. Dorsal fin with 10 or 11 spines followed by a deep notch, second part of the fin with 1 short spine and 26 to 29 soft rays; pectoral fins moderately long, 3/4 of head length; anal fin with 2 spines and 7 soft rays. the second spine strong, about 1/3 of head length; caudal fin rhomboid. Scales on snout cycloid (smooth). other parts of head and body with ctenoid (rough to touch) scales; small scales present on bases of soft parts of dorsal and anal fins. Lateral line scales extend to tip of caudal fin. Swimbladder hammer-shaped, with 14 or 15 pairs of arborescent appendages, the first entering the head and sending a palmate branch to the front of pectoral arch.

swimbladder of
Johnius sp.

Colour: upper two-thirds of body light grey or with a white sheen. lower third yellowish; pectoral, pelvic, and anal fins and lower part of caudal fin with a yellowish tinge.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Johnius dussumieri and J. macropterus: a blunt barbel present on chin. Furthermore, only 23 to 26 dorsal soft rays in J. dussumieri (26 to 29 in J. carouna).

J. carutta: 16 pairs of swimbladder appendages. (14 or 15 in J. Carouna); a white or yellow streak present along lateral line (in fresh specimens).

J. belangerii: second anal fin spine long, about 1/2 of head length (1/3 of head length in J. carouna), spinous part of dorsal fin at least partly black.

J. elongatus: only 6 or 7 lower gillrakers (9 to 12 in J. carouna), 2 small, knob-like tags of thick skin on chin.

J. glaucus: spinous part of dorsal fin stained with black, opercle with a bluish blotch.

Johnieops species: enlarged teeth also present in lower jaw; enlarged teeth of upper jaw widely spaced. Also only 5 to 8 lower gillrakers in J. macrorhynus.

SIZE:

Maximum: 25 cm: common to 16 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Southwest and southeast coast of India.

Inhabits coastal waters entering estuaries.

Feeds on small crustaceans and other invertebrates.

PRESENT FISHING GROUNDS:

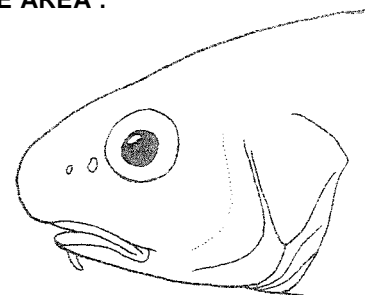
Coastal waters and estuaries.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

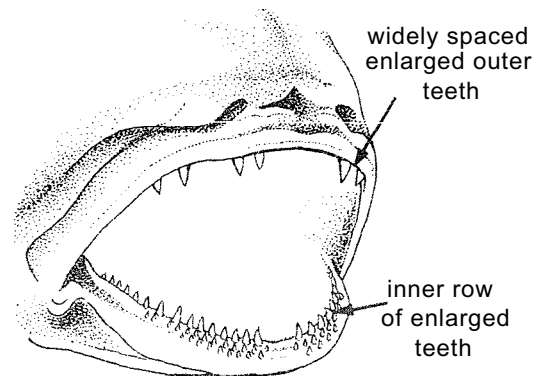
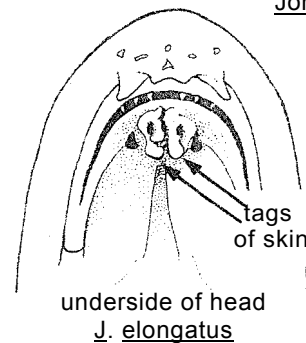
Separate statistics are not available for this species within the area.

Caught with trawls, boat seines and the Chinese dip nets.

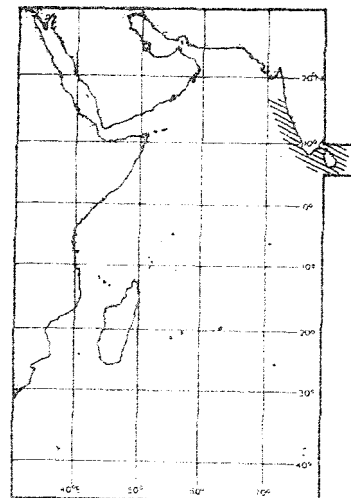
Marketed fresh: also dried and salted.



Johnius dussumieri



Johnieops aneus



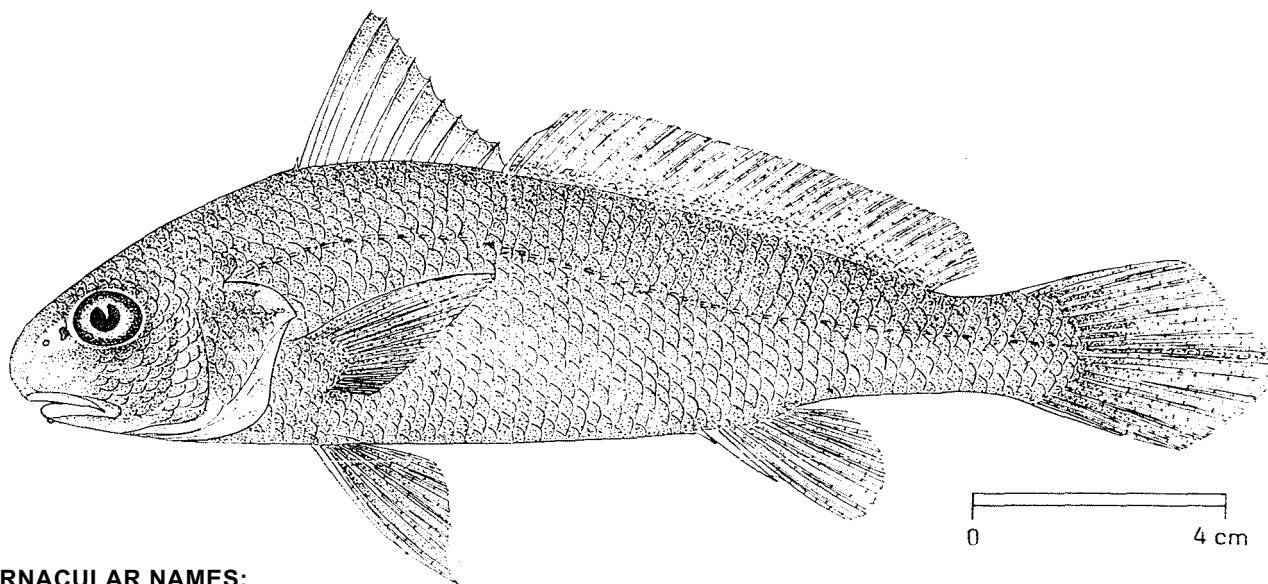
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Johnius elongatus</i> Mohan, 1976

OTHER SCIENTIFIC NAMES STILL IN USE : none



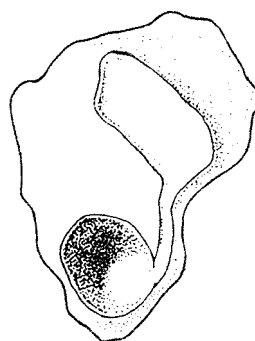
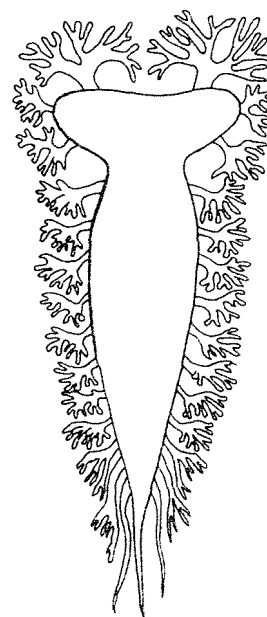
VERNACULAR NAMES:

FAO: En - Spindle croaker
 Fr - Courbine fuseau
 Sp - Corvina ahusada

NATIONAL:

DISTINCTIVE CHARACTERS:

A small, rather slender species with a swollen snout projecting beyond the ventral mouth. No barbel on chin; rostral pores 5, marginal pores 5, the marginal dividing the rostral flap into deep lobes; mental pores 5, surrounded by thickened skin, produced into two short, irregular taps between the median and first lateral pores; teeth differentiated into large and small in upper jaw, those in the outer row close-set and enlarged, but not canine-like; lower jaw teeth uniformly villiform; sagitta (large earstone) with a tadpole-shaped impression, of which the "head" has its long axis lying obliquely to that of the otolith and the "tail" is expanded and deepened as a hollow cone, connected with the "head" by a narrow groove; gillrakers short and narrow, 6 or 7 on lower limb of first arch. Dorsal fin with 10 or 11 spines, followed by a notch, second part of fin with 1 spine and 25 to 29 soft rays; anal fin with 2 weak spines and 7 soft rays, the second spine about 1/3 of head length; caudal fin rhomboid. Scales cycloid (smooth) on snout and below eye, and ctenoid (rough to touch) on top of head and on body; lateral line scales reaching to tip of caudal fin. Swimbladder hammer-shaped, with 13 or 14 pairs of arborescent appendages, the first branching in the head.

sagitta
(inner surface)swimbladder of
Johnius species

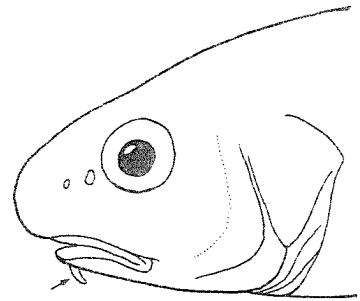
Colour: back grey, flanks and belly silvery, peppered with black on lower flanks and tips of dorsal, anal and caudal fins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

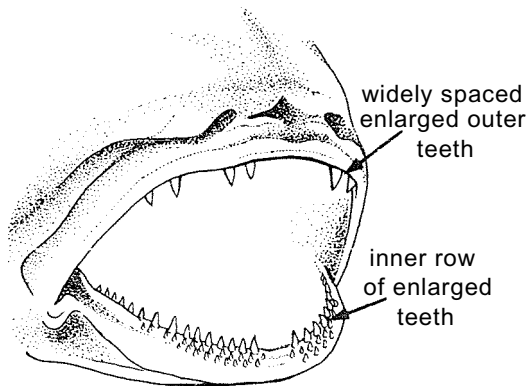
Johnius dussurmieri and J. macropterus: a blunt barbel present on chin; also 8 to 11 lower gillrakers in J. macropterus (6 or 7 in J. elongatus).

Other Johnius species: 8 or more gillrakers on lower limb of first arch and snout less prominent. Also, body deeper in J. glaucus (depth over 29% of standard length; less than 29% in J. elongatus) and no thickened skin produced into tags around mental pores in J. glaucus and J. belangeri.

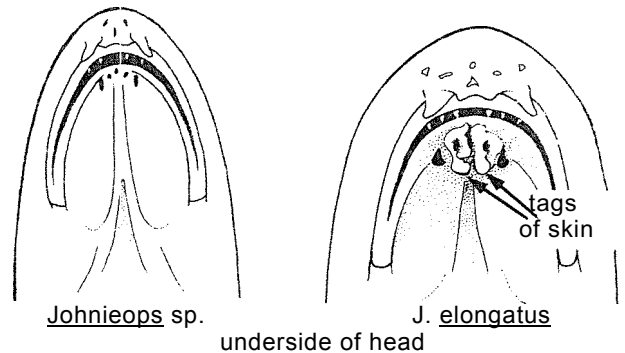
Johnieops species: enlarged teeth also present in lower jaw; enlarged teeth of upper jaw widely spaced. Furthermore, mental pores not surrounded by thickened skin produced into tags.



Johnius dussurmieri



Johnieops aneus



SIZE:

Maximum: 30 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

West coast of India and Sri Lanka.

Inhabits coastal waters, down to 30 m depth.

Feeds on benthic worms and

PRESENT FISHING GROUNDS:

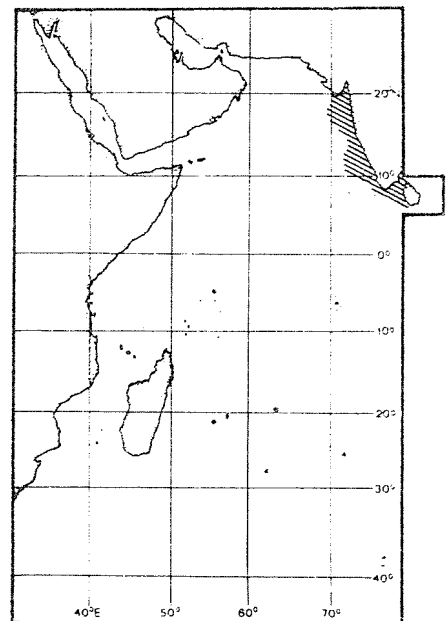
Coastal waters, throughout its range; forms an important constituent of trawl catches along the west coast of India.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species within the area.

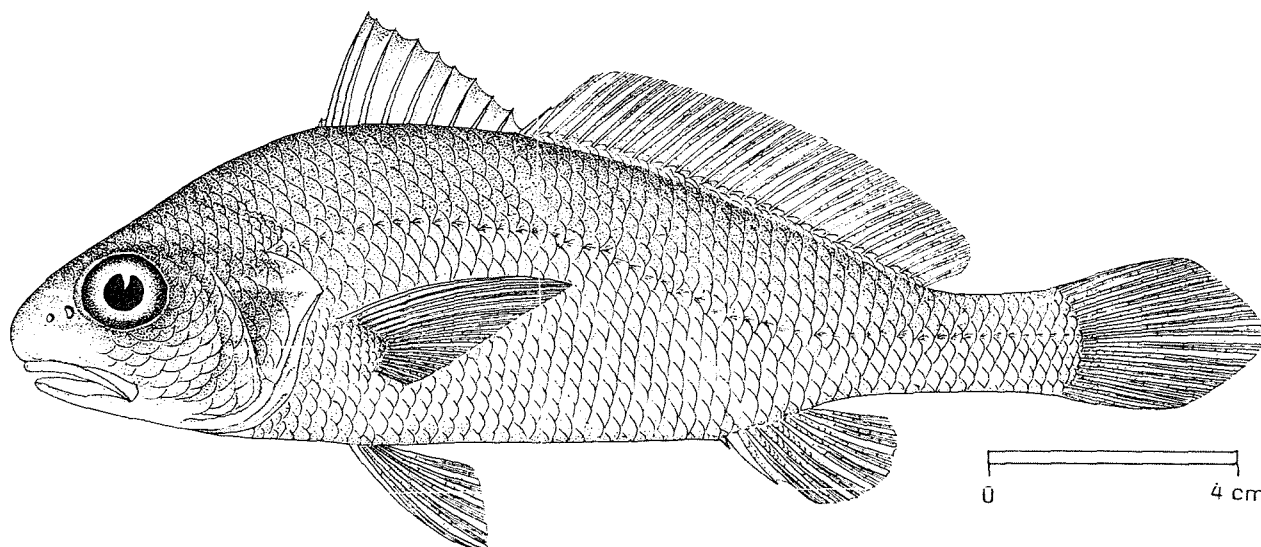
Caught with bottom trawls and boat seines.

Marketed fresh; also dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Johnius glaucus* (Day, 1876)OTHER SCIENTIFIC NAMES STILL IN USE : *Sciaena dussumieri* (not Cuv. & Val.):Day, 1865
Sciaena glaucus; Day, 1878

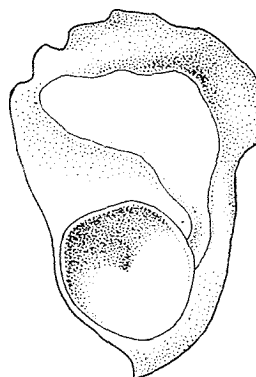
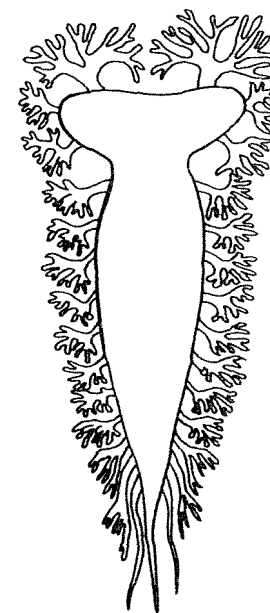
VERNACULAR NAMES:

FAO : En - Pale spotfin croaker
Fr - Courbine aile tachetée
Sp - Corvina glauca

NATIONAL:

DISTINCTIVE CHARACTERS:

A medium-sized species with a deep body, its depth about 3 times in standard length. Snout projecting, mouth inferior; no barbel on chin; rostral pores 5, marginal pores 5, lower jaw with 5 mental pores; teeth differentiated in size in upper jaw only, the large teeth close-set and forming the outer row; uniform villiform teeth in lower jaw; sagitta (large earstone) with a tadpole-shaped impression of which the "head" lies obliquely and the "tail" is expanded and deepened as a hollow cone; gillrakers short, with simple curved spines on both sides, 10 to 13 on lower limb of first arch. Dorsal fin with 10 spines, followed by a deep notch, second part of fin with 1 spine and 28 to 30 soft rays; pectoral fins about 3/4 of head length; anal fin with 2 spines and 7 soft rays, the second spine weak, about 1/3 of head length; caudal fin rhomboid; scales on body ctenoid (rough to touch); lateral line scales reaching tip of caudal fin. Swimbladder hammer-shaped, with 14 or 15 pairs of arborescent appendages, the first branching in the head.

sagitta
(inner surface)swimbladder of
Johnius sp.

Colour: body dorsally grey; upper two-thirds of spinous part of dorsal fin black, opercle with a blue blot

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Johnius macropterus and J. dussumieri: a blunt barbel present on chin. Furthermore, dorsal soft rays 23 to 26 and lower gillrakers 6 to 9 in J. dussumieri (28 to 30 and 10 to 13, respectively, in J. glaucus).

J. carutta: lower gillrakers 8 or 9; 16 pairs of swimbladder appendages (14 or 15 in J. glaucus); a yellow or white streak along lateral line.

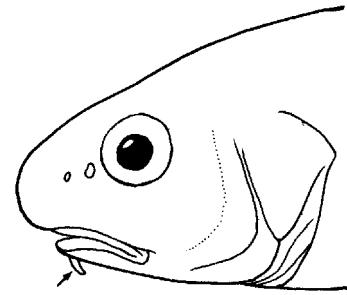
J. carouna: no black on spinous part of dorsal fin; dorsal fin rays usually less, 26 to 29.

J. belangerii: lower gillrakers 8 to 10; second anal fin spine 38 to 49% of standard length (26 to 36% in J. glaucus).

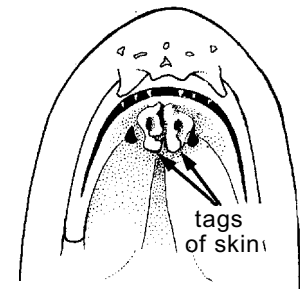
J. elongatus: body more slender, its depth 24 to 28% of standard length (29.4 to 29.7% in J. glaucus); lower gillrakers only 6 or 7; lower jaw with 2 small, knoblike tags around inner mental pores; no black on spinous part of dorsal fin.

Johnieops species: enlarged teeth present in lower jaw; enlarged teeth of upper jaw widely spaced.

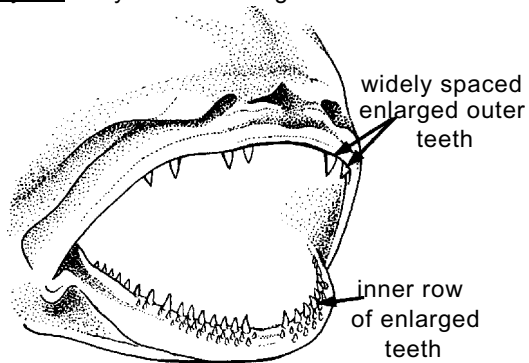
J. macrorhynchus: only 5 to 8 lower gillrakers.



Johnius dussumieri



underside of head
J. elongatus



widely spaced
enlarged outer
teeth

inner row
of enlarged
teeth

SIZE: Johnieops aneus

Maximum: 30 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR

Northwest coast of India.

Inhabits shallow muddy coastal waters down to 30 m depth.

PRESENT FISHING GROUNDS:

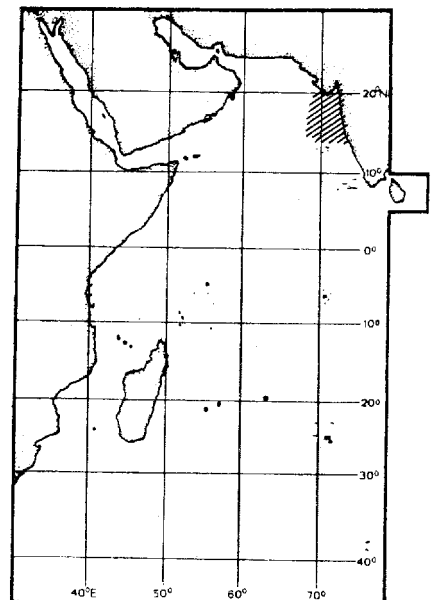
Coastal waters throughout the range; forms an important constituent of the trawl catches at Bombay.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION

Separate statistics are not recorded for this species within the area.

Caught with bottom trawls and boat seines.

Marketed fresh and dried salted.



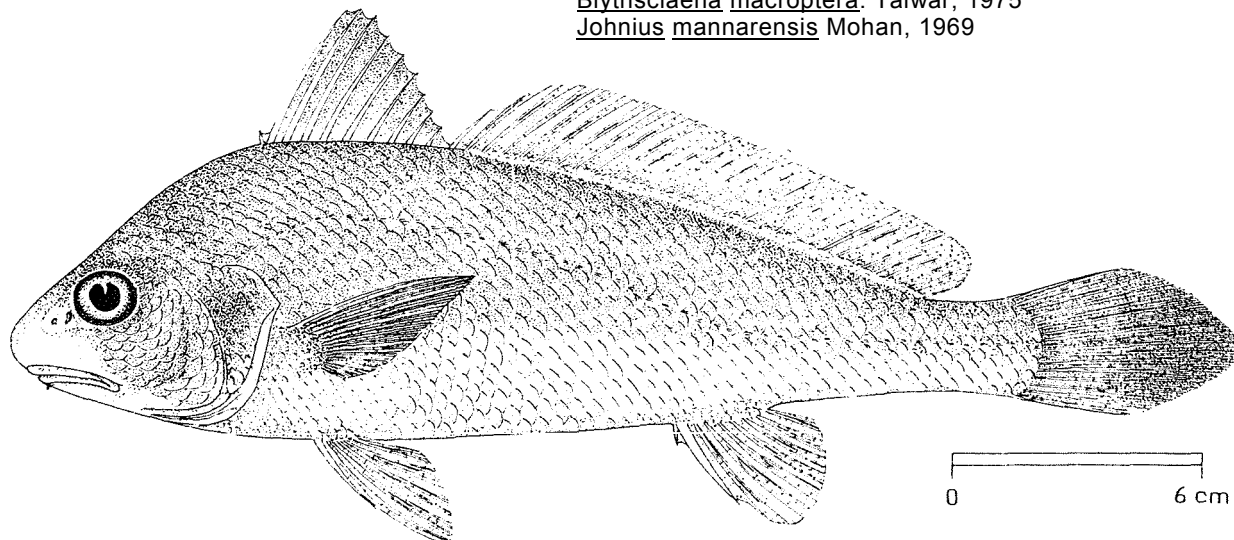
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Johnius macropterus (Bleeker, 1853)

OTHER SCIENTIFIC NAMES STILL IN USE:

Umbrina macroptera: Day, 1876
Sciaena macropterus: Munro, 1955
Dendrophysa macroptera: Trewavas, 1964
Blythia macroptera: Talwar, 1972
Blythsciaena macroptera: Talwar, 1975
Johnius mannarensis Mohan, 1969



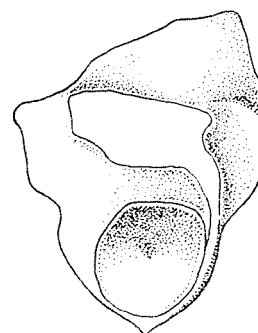
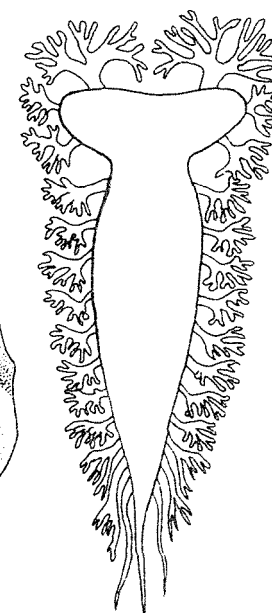
VERNACULAR NAMES:

FAO : En - Largefin croaker
 Fr - Courbine à grande
 Sp - Corvina aletona

NATIONAL:

DISTINCTIVE CHARACTERS:

A small-sized species with a rounded, slightly projecting snout. Mouth inferior, its cleft horizontal; rostral peres 3 to 5, marginal pores 5, the marginal ones dividing the edge into lobes; mental pores 5; a short, stiff, short barbel behind the median pore; teeth differentiated into large and small in upper jaw, outer upper row slightly enlarged, not widely spaced; teeth in lower jaw small, uniform; sagitta (large earstone) with a tadpole-shaped impression of which the "head" lies obliquely and the "tail" is expanded and deepened as a hollow cone, connected with the "head" by a narrow groove; gillrakers 8 to 11 on lower limb of first arch. Dorsal fin with 10 spines, followed by a notch, second part of fin with 1 spine and 27 to 34 soft rays; anal fin with 2 spines and 7 or 8 soft rays; pectoral fins about 2/3 of head length; caudal fin rhomboid. Scales cycloid (smooth) on snout, below eye and on breast, elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin. Swim-bladder hammer-shaped, with 12 to 15 pairs of arborescent appendages, the first branching in the head.

sagitta
(inner surface)swimbladder of
Johnius sp.

Colour: back dark brown, flanks and belly whitish with silvery reflections; spinous part of dorsal fin darkish; pectoral fins hyaline.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

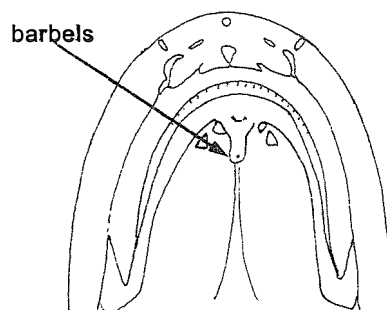
Johnius dussumieri: cycloid (smooth) scales on body: lower gill-rakers 6 to 9 (8 to 11 in J. macropterus); soft dorsal fin rays 23 to 26 (27 to 34 in J. macropterus).

Other Johnius and Johnieops species: no barbel on chin.

Umbrina species: a pore at tip of barbel; no appendages on swimbladder.

SIZE:

Maximum: 25 cm; common to 18 cm.



underside of head
Umbrina sp.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Natal and coasts of India and Sri Lanka. Eastward to the Malay Peninsula and Indo-Australian archipelago as far as New Guinea.

Inhabits coastal waters down to 30 m depth.

Feeds on benthic worms and small crustaceans.

PRESENT FISHING GROUNDS:

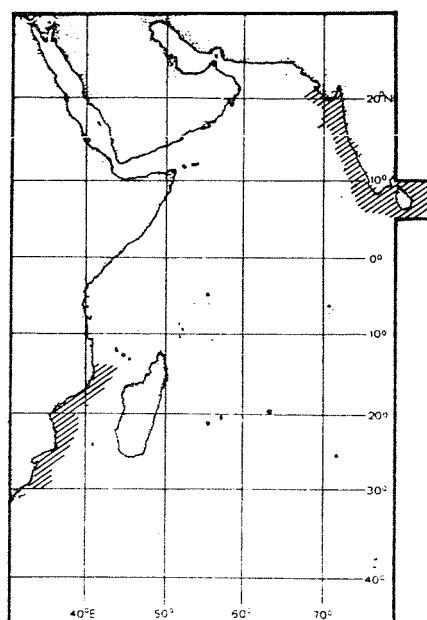
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not recorded for this species within the area.

Caught with bottom trawls, boat seines and shore seines.

Marketed fresh; also dried salted.



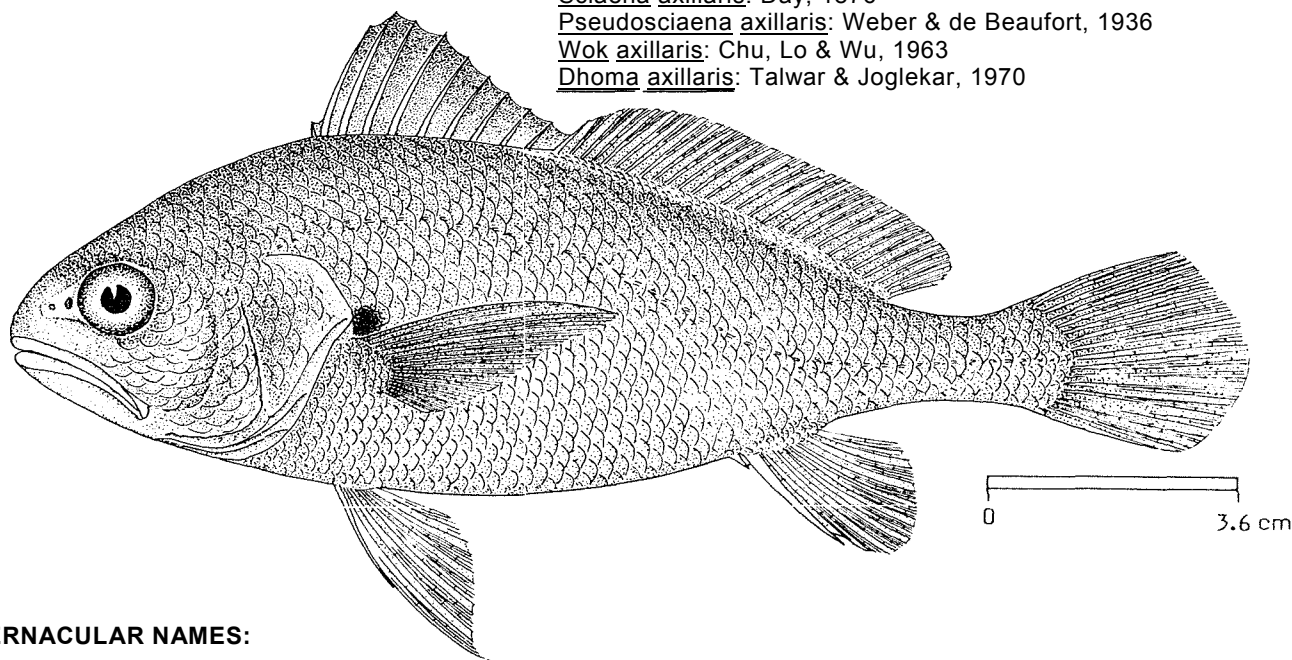
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)

Kathala axillaris (Cuvier, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE:

Corvina axillaris Cuvier, 1830*Sciaena axillaris*: Day, 1876*Pseudosciaena axillaris*: Weber & de Beaufort, 1936*Wok axillaris*: Chu, Lo & Wu, 1963*Dhoma axillaris*: Talwar & Joglekar, 1970

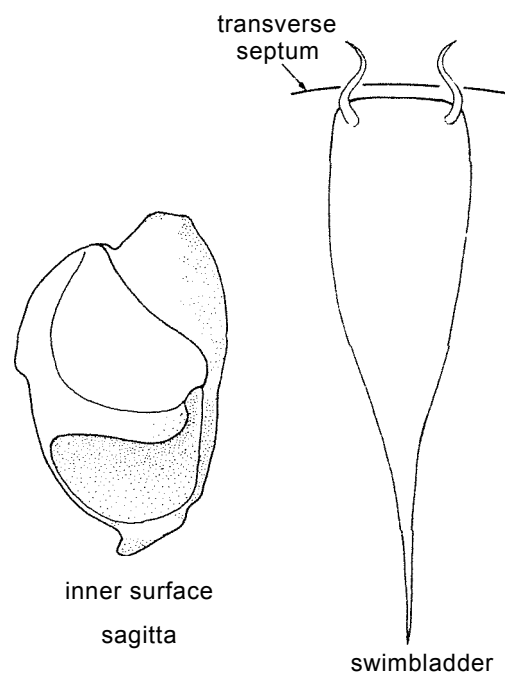
VERNACULAR NAMES:

FAO: En - Kathala croaker
Fr - Courbine kathala
Sp - Corvina catala

NATIONAL

DISTINCTIVE CHARACTERS:

A medium-sized species with a fairly deep body, its depth about 3 times in standard length. Snout rounded; mouth terminal and oblique; rostral pores 3, very small, marginal pores 5, the outer pair in a feeble notch; mental pores in 3 pairs, the first pair small and at front of chin; teeth differentiated into large and small in both jaws; the large teeth not canine-like forming the outer series in upper jaw and the inner series in lower jaw. Sagitta with a tadpole-shaped impression, the "tail" of which is broad, deeply excavated, ending close to the edge and connected to the "head" by a narrow stem; gillrakers slender and finely denticulate, 19 to 23 on lower limb of first arch. Dorsal fin with 9 or 10 spines, followed by a deep notch, second part of the fin with 1 spine and 26 to 29 soft rays; pectoral fins moderately long, about 3/4 of head length; anal fin with 2 spines and 7 soft rays; caudal fin rhomboid. Scales cycloid (smooth) on head and nape, elsewhere ctenoid (rough to touch); scales present on anterior half of soft part of dorsal fin; lateral-line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, with only one air of appendages (simple, short, curved tubes) arising from the broad anterior end and passing through the transverse septum into the head.



Colour: grey/green on back, flanks yellow/silver; a black blotch on pectoral fin axil; spinous part of dorsal fin black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

All other Indo-Pacific croakers have fewer gillrakers (20 to 23 in *K. axillaris*) and a dissimilar form of swimbladder; most of them are more slender-bodied.

SIZE:

Maximum: 27 cm; common to 18 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Coasts of India and Sri Lanka.

Inhabits shallow coastal waters.

PRESENT FISHING GROUNDS:

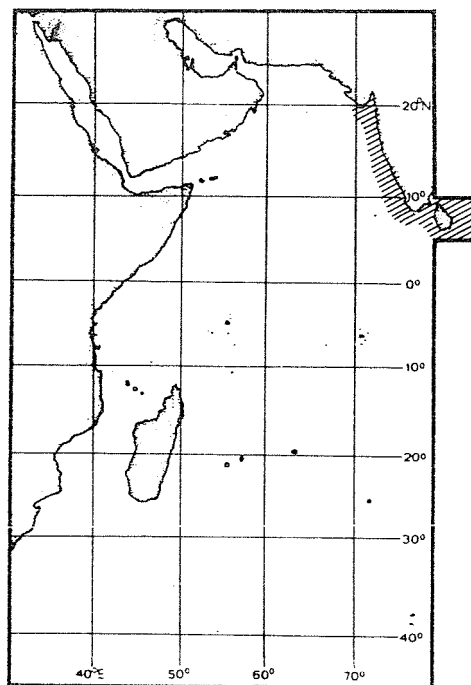
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species within the area.

Caught with bottom trawls, gill nets and handlines.

Marketed fresh; also dried salted.

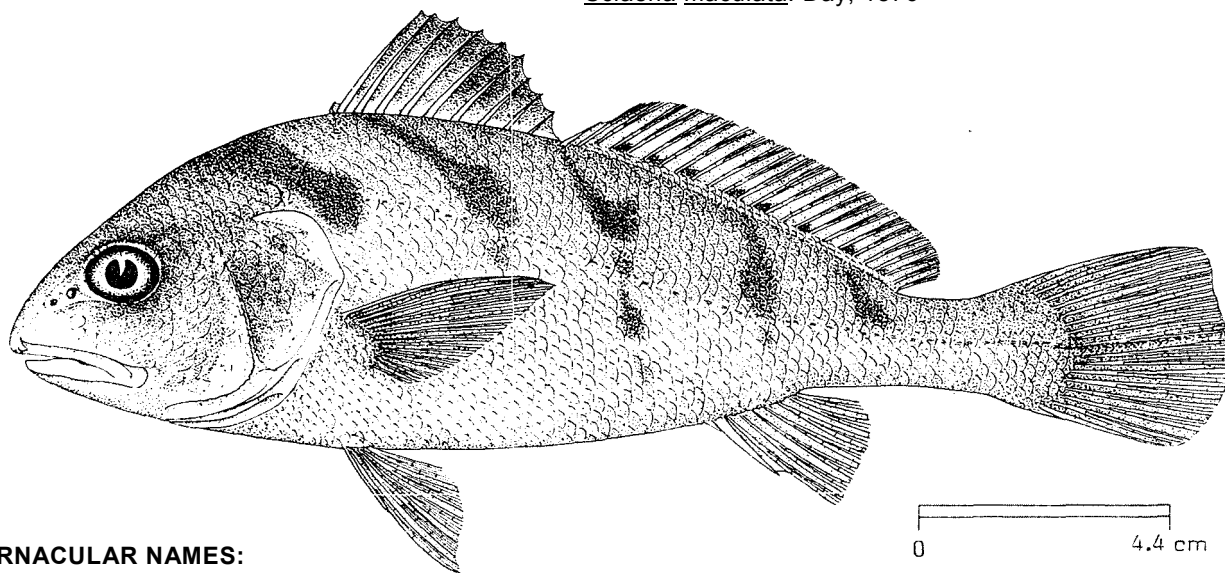


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Nibea maculata* (Schneider, 1801)

OTHER SCIENTIFIC NAMES STILL IN USE:

Johnius maculatus: Fowler, 1933; Weber & de Beaufort, 1936*Sciaena maculata*: Day, 1876

VERNACULAR NAMES:

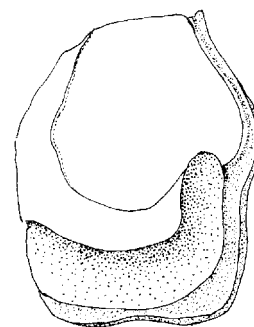
FAO : En - Blotched croaker
 Fr - Courbine tachetée
 Sp - Corvina manchada

NATIONAL:

DISTINCTIVE CHARACTERS:

A medium-sized species with a prominent snout, projecting beyond upper jaw. Mouth inferior: rostral pores 3, marginal pores 5, notching the edge to produce 3 lobes; mental pores 5; teeth differentiated into large and small, the large ones forming the outer series in upper jaw and the inner row in lower jaw; no canines; sagitta (large earstone) with a tadpole-shaped impression, the "tail" of which is sharply curved and cutting into the ventral edge; gillrakers on lower limb of first arch 6 to 8, with toothed plates below. Dorsal fin with 10 spines followed by a notch, second part of fin with 1 spine and 22 to 26 soft rays; anal fin with 2 spines and 7 soft rays, the second spine strong, about 1/3 of head length; caudal fin with a slightly convex hind margin, often angular above and rounded below. Scales cycloid (smooth) on snout and below end behind eye, elsewhere ctenoid (rough to touch); lateral-line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, with 19 to 21 pairs of appendages, the first longer, extending into head and branching there, last two simple parallel to the tubular end of the bladder, the others arborescent.

Colour: a distinctive colour pattern of 5 dark bars extending obliquely from the back to the lower part of flanks and a sixth dark blotch on top of caudal peduncle; first bar broadest, from nape obliquely backwards, lower parts of bars narrower and often discontinuous. Spinous part of dorsal fin black except along base, soft. part of dorsal fin with a black margin.

sagitta (inner
surface)

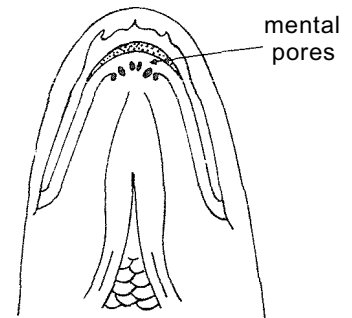
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other *Nibe* species lack the distinctive colour pattern of *N. maculata* and have a rhomboid caudal fin. Furthermore, mouth terminal and more than 27 soft dorsal fin rays in *N. soldado* (22 to 26 in *N. maculata*); a pair of small barbets on chin and only 17 to 19 pairs of swimbladder appendages in *N. albida* (19 to 21 in *N. maculata*).

Protonibea diacanthus: dark blotches less well defined, totally absent in adults; pores on chin of the "false five" pattern, those of first pair close together behind tip of jaw and united by a groove.

SIZE:

Maximum: 30 cm; common to 22 cm.



underside of head
Protonibea diacanthus

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Coasts of India and Sri Lanka. Eastwards probably extending to the Malay Peninsula.

Inhabits coastal waters.

PRESENT FISHING GROUNDS:

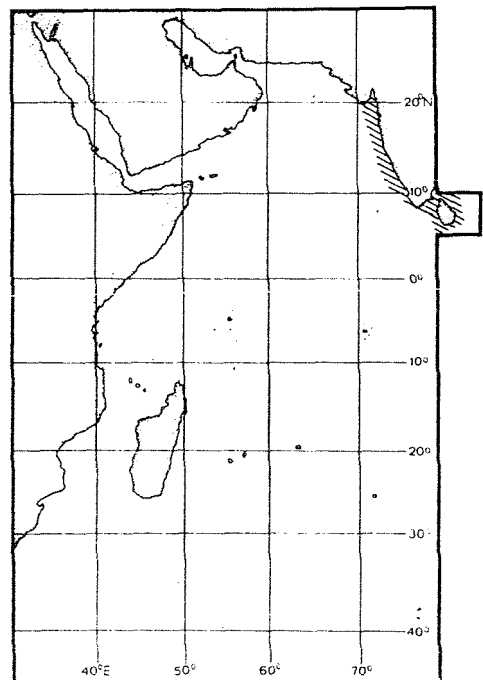
Coastal waters throughout its range; forms an important constituent of trawl catches in the Gulf of Mannar.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species within the area.

Caught with bottom trawls, gillnets and boat seines.

Marketed fresh; also dried salted.



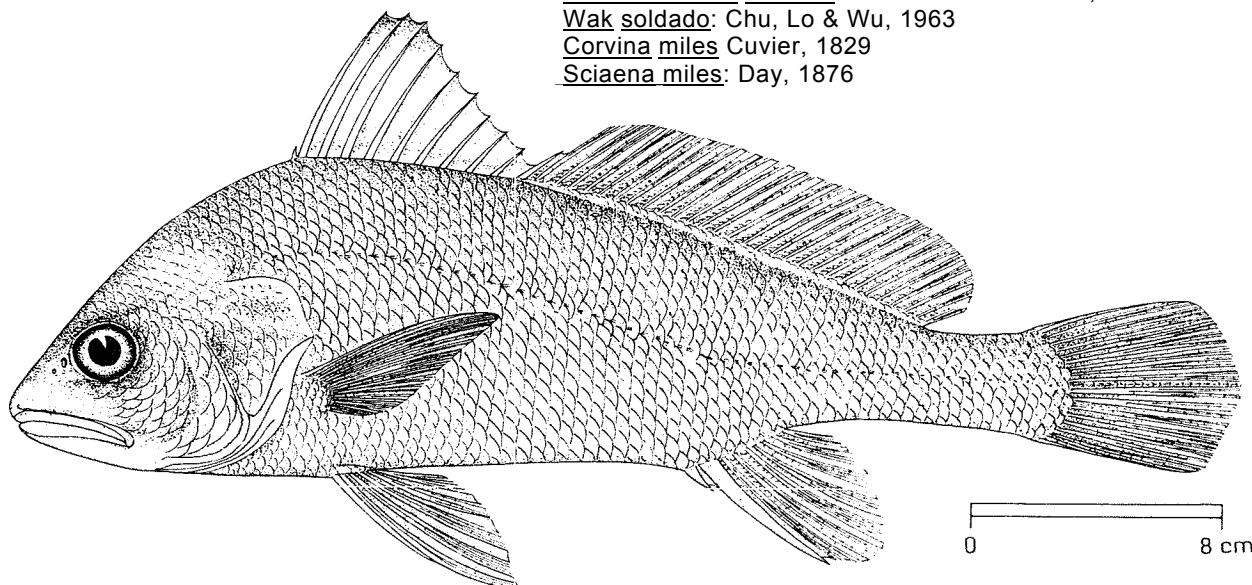
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Nibea soldado (Lacepède, 1802)

OTHER SCIENTIFIC NAMES STILL IN USE:

Johnius soldado: Fowler, 1933
Pseudosciaena soldado: Weber & de Beaufort, 1936
Wak soldado: Chu, Lo & Wu, 1963
Corvina miles Cuvier, 1829
Sciaena miles: Day, 1876



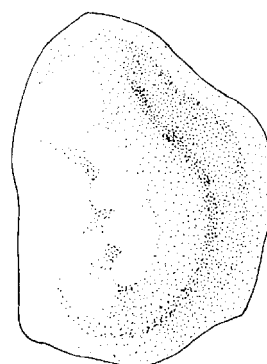
VERNACULAR NAMES:

FAO: En - Soldier croaker
 Fr - Courbine soldat
 Sp - Corvina soldado

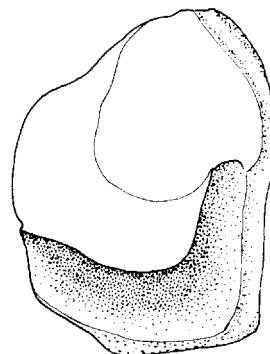
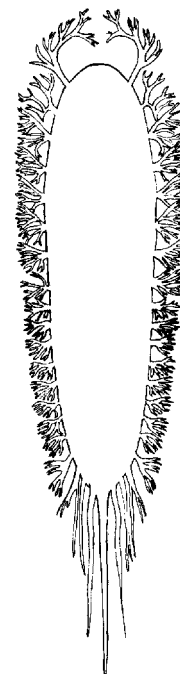
NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly large species with an arched back and deep body. Mouth terminal and at a low angle to the horizontal; rostrum pores 3, very small, marginal pores 5; mental pores 5, the median composed of two united by a crescentic groove just behind the symphysis; teeth well differentiated into large and small in both jaws; sagitta (large earstone) with a tadpole-shaped impression the "tail" of which is deeply grooved, cutting into the ventral edge; gillrakers on lower limb of first arch 8 or 9. Dorsal fin with 9 or 10 spines, followed by a deep notch, second part of fin with 1 spine and 28 to 31 soft rays; pectoral fins short, about 2/3 of head length; anal fin with 2 spines and 7 soft rays, the second spine very strong and nearly half of head length; caudal fin rhomboid. Scales cycloid (smooth) on head and chest, elsewhere ctenoid (rough to touch); lateral-line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, abruptly constricted posteriorly to its tubular end, with about 18 to 22 pairs of appendages, the first long, entering the head and branching below the occipital region, the two last simple and parallel to tubular end of bladder, the rest arborescent with no dorsal limb.



outer surface

inner surface
sagitta

swimbladder

Colour: silvery with faint series of oblique stripes along scale rows; margin of soft part of dorsal fin dark, pectoral and pelvic fins with a yellowish tinge.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Nibeia albida: lower jaw with a pair of mental barbels; soft dorsal fin rays 23 to 26 (28 to 31 in *N. soldado*).

Paranibeia semiluctuosa: lower gillrakers 5 to 8 (8 or 9 in *N. soldado*); teeth in lower jaw uniform in size; body and fins less dark.

SIZE :

Maximum: 60 cm; common to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Coasts of India and Sri Lanka. Eastwards extending to Queensland (Australia).

Found in coastal waters down to 40 m depth.

Feeds on small fishes and invertebrates.

PRESENT FISHING GROUNDS:

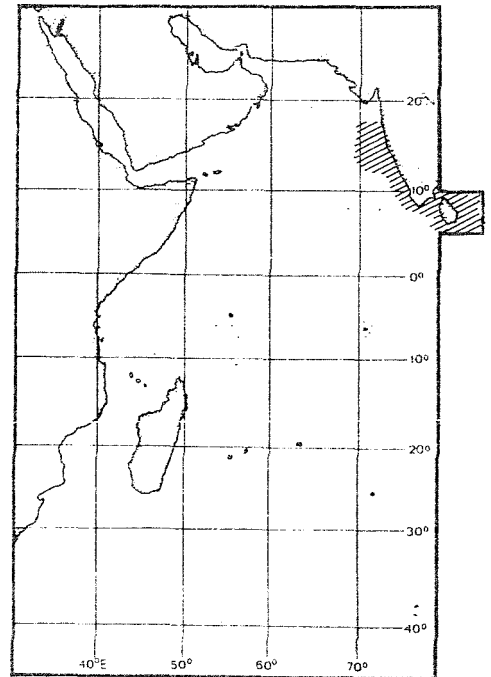
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Separate statistics are not reported for this species within the area.

Caught with bottom trawls, gillnets and handlines.

Marketed fresh; also dried salted.

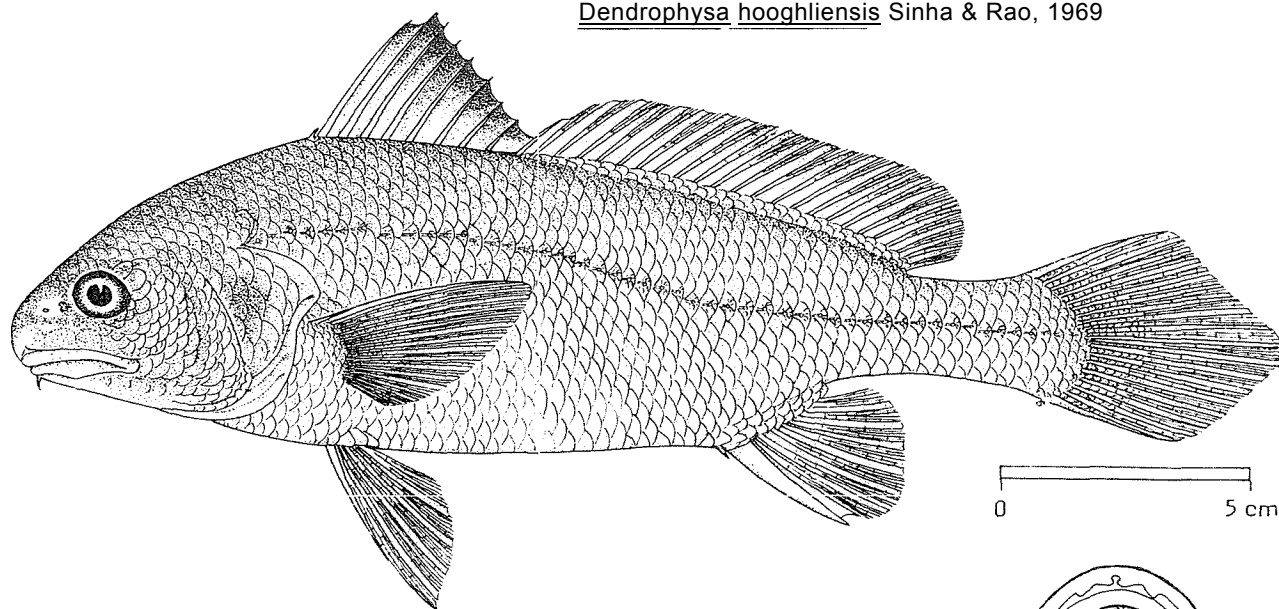


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Nibea albida (Cuvier, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE :

Sciaena albida: Day, 1876Daysciaena albida: Talwar, 1970: Trewavas, 1971, 1977Dendrophysa hooghliensis Sinha & Rao, 1969

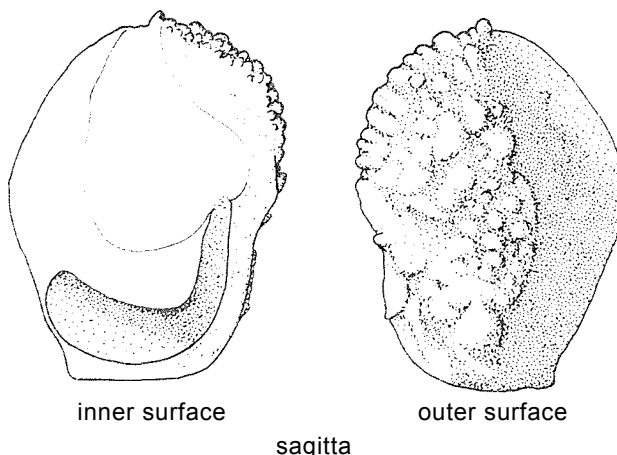
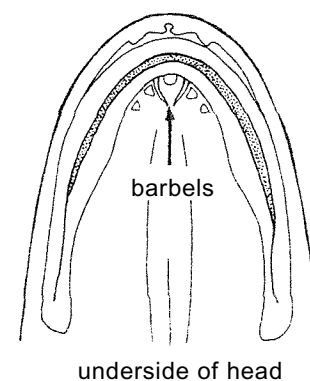
VERNACULAR NAMES:

FAO: En - Two-bearded croaker
Fr - Courbine
Sp - Corvina de dos barbas

NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly large species, with an oblong body, its depth 3 to 4 times in standard length. Snout rounded and projecting only slightly beyond tip of upper jaw; mouth terminal or only slightly inferior; rostral pores 5, marginal pores 5; mental pores 5; a pair of small tapering barbels on chin; teeth differentiated into large and small, especially in upper jaw, the large ones forming the outer series (inner series in lower jaw); no canine teeth; sagitta (large earstone) with a tadpole-shaped impression, of which the "tail" is sharply curved at about a right angle and ending close to the ventral edge; gillrakers on lower limb of first arch 7 to 9, with several toothed plates below. Dorsal fin with 9 to 10 spines, followed by a deep notch, second part of the fin with 1 spine and 23 to 26 soft rays; pectoral fins moderately long, about 3/4 of head length; anal fin with 2 spines and 7 soft rays, the second spine long and strong, up to half of head length; caudal fin bluntly rhomboid in adults. Scales cycloid (smooth) on front part of head, elsewhere ctenoid (rough to touch); lateral-line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, with about 17 to 19 pairs of appendages, one posterior simple, the rest arborescent, the anteriormost sending some of its twiglets into the head.



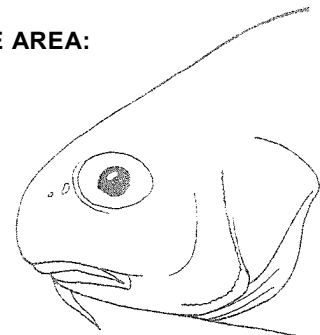
Colour : back grey, belly silvery ; faint oblique lines along scale rows ; spinous part of dorsal fin black, upper margin of second part of dorsal fin dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other Nibe species: no barbels on chin. Furthermore, 28 to 31 soft dorsal fin rays in N. soldado and a characteristic colour patten of dark blotches in N. maculata.

Dendrophysa russelli mouth inferior and only a single barbel on chin.

Umbrina species with barbel on chin: a pore at tip rather than at base of barbel; also, swimbladder without appendages.



Dendrophysa russelli

SIZE:

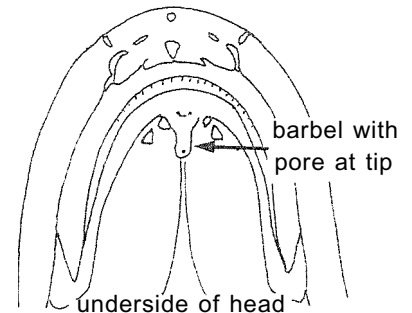
Maximum: 36 cm; common to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Coasts of India and Sri Lanka. Eastwards possibly extending to Borneo.

Inhabits shallow coastal waters and estuaries.

Feeds on prawns, small fishes and other benthic organisms.



Umbrina

PRESENT FISHING GROUNDS:

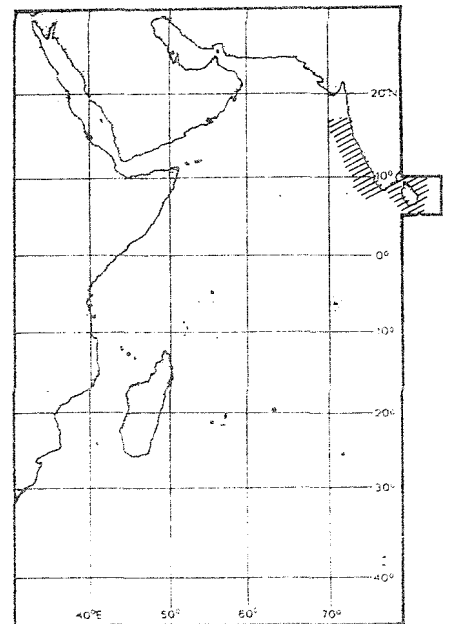
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for thin species within the area.

Caught with bottom trawls, gillnets and handlines.

Marketed fresh; also dried salted; swimbladder dried



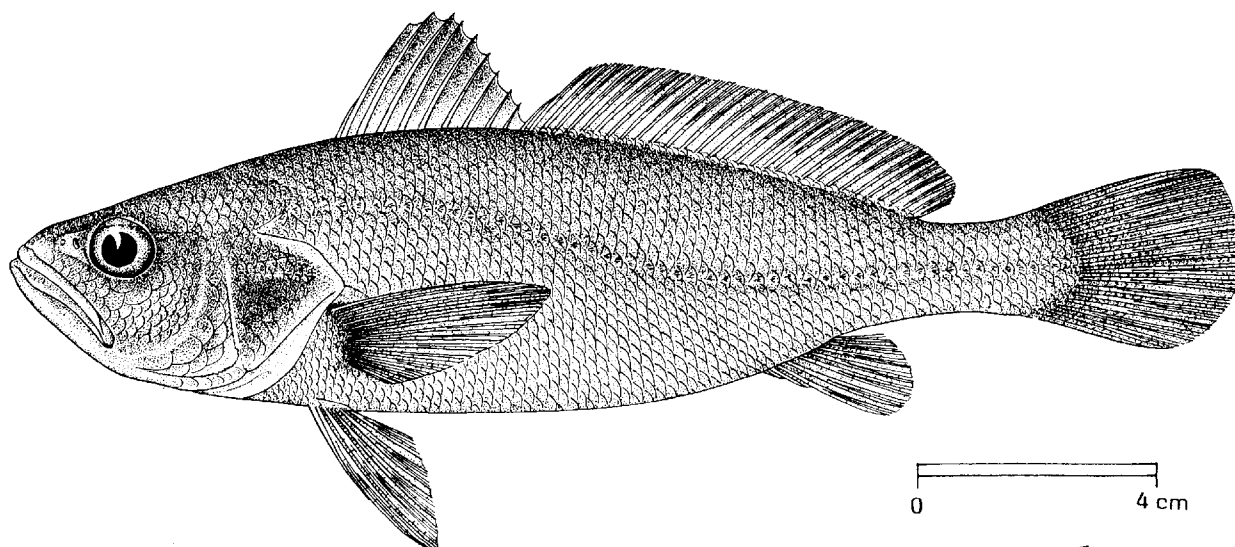
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)

Otolithes cuvieri Trewavas., 1974

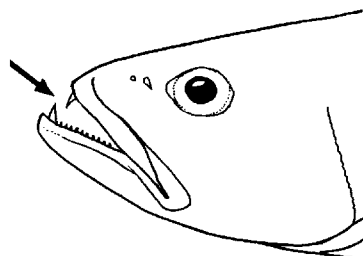
OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

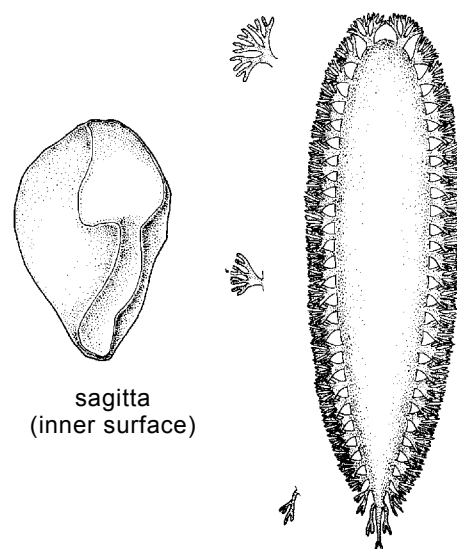
FAO : En - Lesser tigertooth croaker
 Fr - Verrue tigre
 Sp - Bombache tigre

NATIONAL:



DISTINCTIVE CHARACTERS:

A fairly slender species, the body depth $3 \frac{1}{4}$ to $4 \frac{1}{2}$ times in standard length. Snout a little longer than eye diameter, its upper profile rising evenly to dorsal fin origin but a little concave over eye; mouth large, terminal; lower jaw projecting; rostral pores absent, marginal pores 5, mental pores usually indistinct; teeth in a single series in lower jaw (sometimes part of a second series present); 1 or 2 pairs of strong canines in upper jaw and 1 pair at tip of lower jaw; sagitta (large earstone) with a tadpole-shaped impression, of which the "tail" is only slightly curved, ending in a disc near the posterior edge; gillrakers on lower limb of first arch 12 to 17, with some toothed plates anteriorly. Dorsal fin with 10 spines, followed by a notch, second part of the fin with 1 spine and 29 to 32 soft rays; anal fin with 2 spines and 7 or 8 soft rays, the second spine short and weak, its base beginning behind middle of soft part of dorsal fin; caudal fin rhomboid, but with tip pointed. Scales cycloid smooth on head, elsewhere ctenoid (rough to touch); lateral-line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, with about 28 pairs of arborescent appendages, somewhat swollen at their bases; none entering the head.

sagitta
(inner surface)

swimbladder

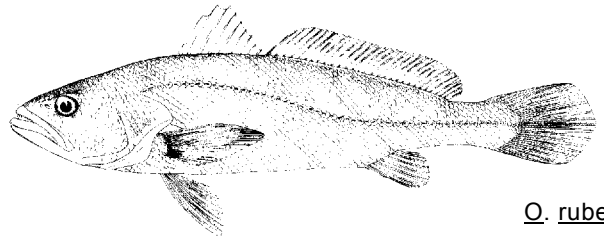
Colour: brown/pink above, yellow/gold or silver on flanks; spinous part of dorsal fin edged in grey/black, soft part of dorsal fin and anal fin edged in grey; pectoral and pelvic fins yellow.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

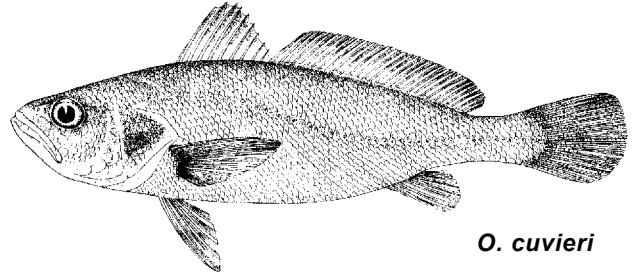
Otolithes ruber: 32 to 35 swimbladder appendages (about 28 in O. cuvieri) lower gillrakers 8 to 11 (12 to 17 in O. cuvieri); body more slender (depth 4 to 5 times in, standard length. $3\frac{1}{4}$ to $4\frac{1}{2}$ times in O. cuvieri).

Chrysochir aureus: lower jaw without canines; mouth inferior; lower gillrakers 8 or 9; lower jaw sensory pores distinct (in Otolithes sp. the lower jaw sensory pores not distinct).

All other Indo-Pacific croakers: lack such strong canine teeth in both jaws.



O. ruber



O. cuvieri

SIZE:

Maximum: 30 cm; common to 20 cm.

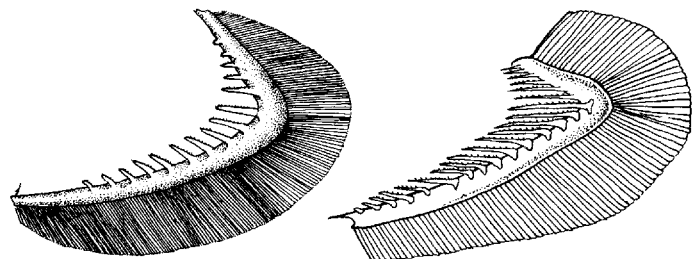
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Coasts of India and Pakistan.

Inhabits inshore and coastal waters.

PRESENT FISHING GROUNDS:

Coastal waters throughout its range; forms a fishery on the northwest coast of India.



O. ruber

O. cuvieri

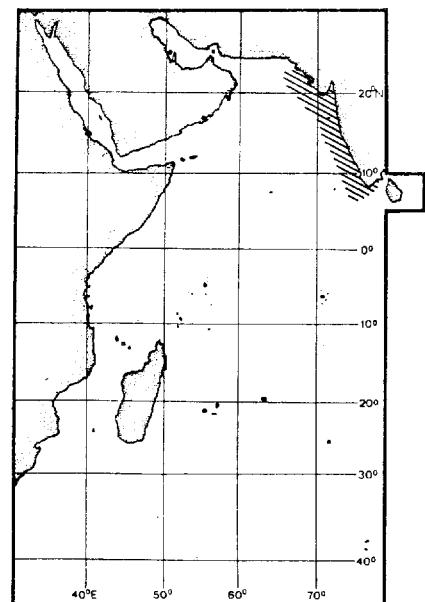
first gill arch

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species within the area.

Caught with bottom trawls, gillnets and bag-nets.

Marketed fresh; also dried salted.

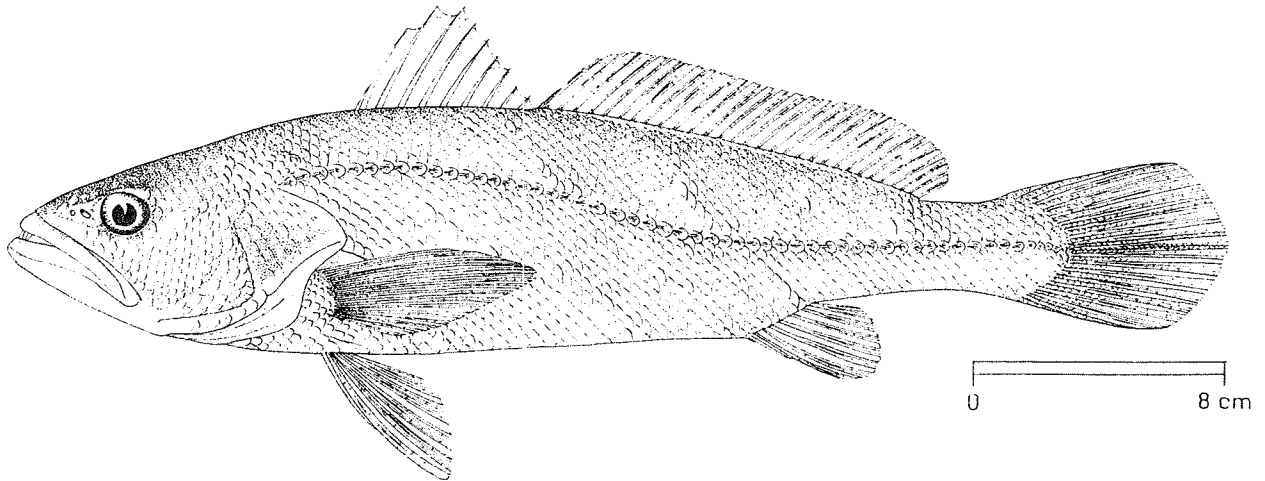


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Otolithes ruber (Schneider, 1801)

OTHER SCIENTIFIC NAMES STILL IN USE :

Otolithus argenteus Cuvier, 1830 (quoted in Day, 1876)Otolithes argenteus: Chu, Lo & Wu, 1963

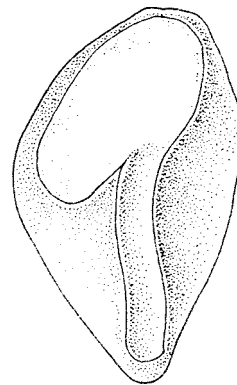
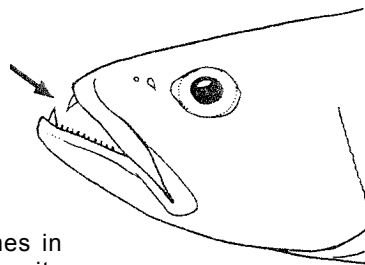
VERNACULAR NAMES :

FAO : En - Tigertooth croaker
 Fr - Grande verrue tigre
 Sp - Bombache tigre major

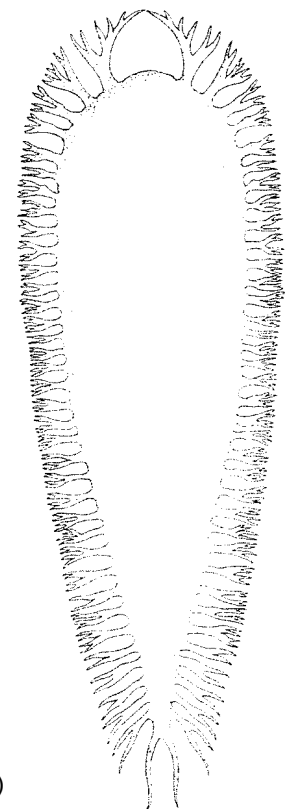
NATIONAL:

DISTINCTIVE CHARACTERS:

A slender species, the body depth 4 or 5 times in standard length. Snout longer than eye diameter, its upper profile rising evenly to dorsal fin origin or slightly concave before eye; mouth large, terminal, slightly upturned; rostral pores absent, marginal pores 3, mental pores rather indistinct; teeth in 2 series in upper jaw, with 1 or 2 pairs of strong canines at front; a pair of canine teeth at tip of lower jaw; sagitta (large earstone) with a tadpole-shaped impression, of which the "tail" is only slightly curved, ending in a disc near the posterior edge; gillrakers on lower limb of first arch 8 to 11. Dorsal fin with 9 or 10 spines, followed by a notch, second part of the fin with 1 spine and 27 to 30 soft rays; anal fin with 2 spines and 7 soft rays, the second spine short and weak its base behind middle of soft part of dorsal fin; caudal fin rhomboid (pointed in juveniles). Scales cycloid (smooth), but a few ctenoid (rough to touch) on lower part of hind end of body; lateral-line scales reaching to tip of caudal fin. Swimbladder with 32 to 36 arborescent appendages in adults, branching in a very regular pattern; none entering head.



sagitta (inner surface)



swimbladder

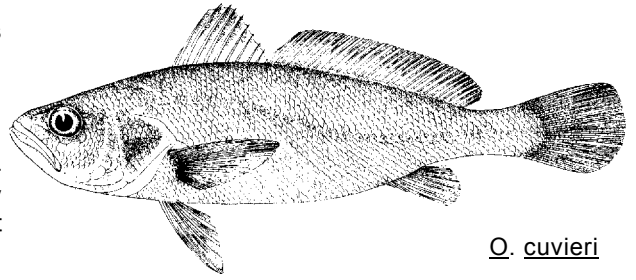
Colour: brownish above, silvery with a golden sheen on flanks and belly, often with oblique dark streaks dorsally.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Otolithes cuvieri: about 28 swimbladder appendages (32 to 36 in *O. ruber*) gillrakers 12 to 17 (8 to 11 in *O. ruber*); body deeper, 3 1/4 to 4z times in standard length 74 to 5 times in *O. ruber*).

Chrysochir aureus: snout prominent and canines present only in upper jaw; mouth inferior; lower jaw sensory pores distinct (in *Otolithes* sp. lower jaw sensory pores not distinct).

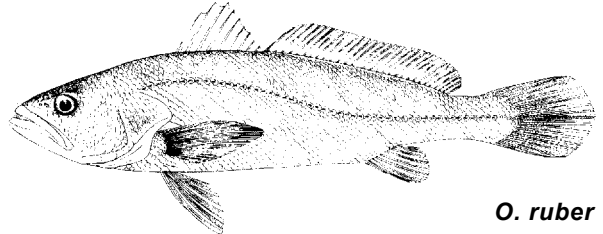
All other Indo-Pacific croakers: lack such strong teeth in both jaws.



O. cuvieri

SIZE:

Maximum: 70 cm; common to 40 cm.



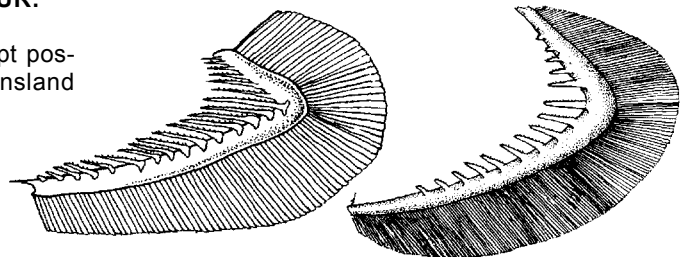
O. ruber

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout the Western Indian Ocean, except possibly the Red Sea. Eastward extending to Queensland (Australia) and Japan.

Inhabits coastal waters, down to 40 m depth.

Feeds on fishes and invertebrates.



O. cuvieri

O. ruber

first gill arch

PRESENT FISHING GROUNDS:

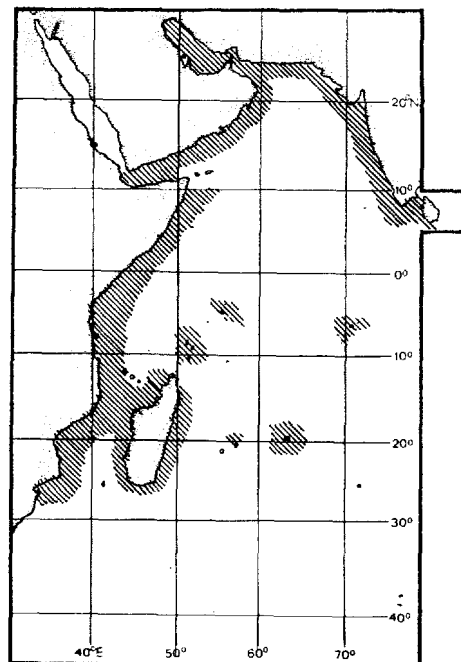
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species within the area.

Caught with bottom trawls, gillnets and handlines.

Marketed fresh; also dried salted.

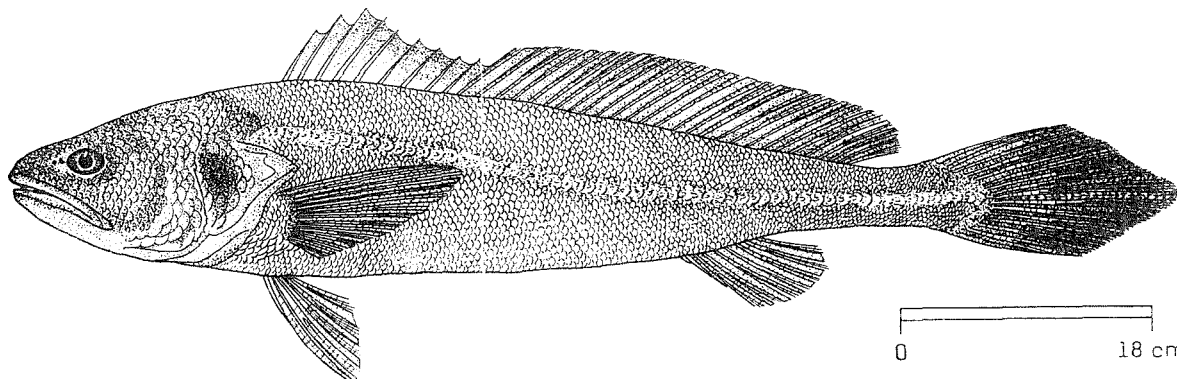


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Otolithoides biauritus (Cantor, 1850)

OTHER SCIENTIFIC NAMES STILL IN USE : Otolithus brunneus Day, 1873
Sciaenoides brunneus: Day, 1876
Otolithoides brunneus: Fowler, 11333; Chu, Lo & Wu, 1963



VERNACULAR NAMES:

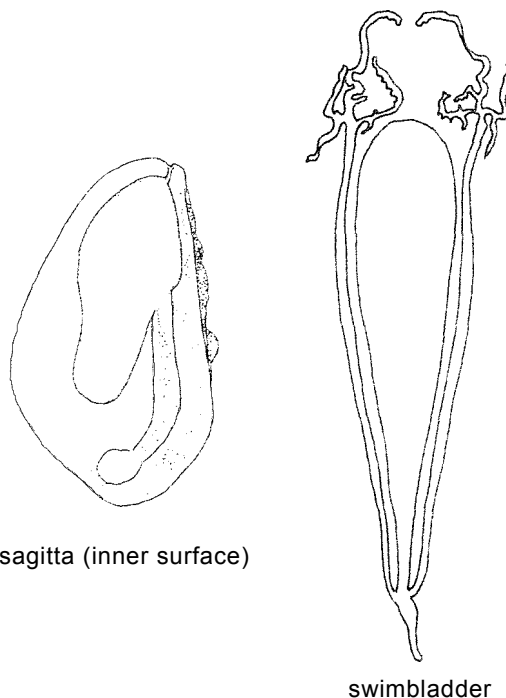
FAO : En - Bronze croaker
 Fr - Verrue bronzée
 Sp - Bombache bronzado

NATIONAL :

DISTINCTIVE CHARACTERS:

A large species with a fairly pointed snout and a terminal mouth. Upper jaw reaching back well beyond eye; rostral pores 3, marginal pores 5; mental pores in 2 pairs, the first pair small and at front of chin; teeth strong and spaced in both jaws, sometimes with one upper pair of large canines; a few smaller teeth also present; sagitta (large earstone) with a tadpole-shaped impression comprising a big, pouched "head" and a "tail" only slightly curved and ending in a disc; lower gillrakers 10 or 11. Dorsal fin with 8 or 9 spines, followed by a low notch, second part of the fin with 1 spine and 27 to 32 soft rays; pectoral fins moderately long, about 3/4 of head length; anal fins with 2 spines and 7 or 8 soft rays, the second spine weak; caudal fin acutely pointed. Scales cycloid (smooth) on head and on upper part of front of body, elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, with a single pair of appendages arising from posterior end of bladder and running forward beside main body of bladder and in front of it into the head, where they branch under the skull.

Colour: head and back green/grey, flanks gold/orange, paler toward belly, minutely dotted with brown. Lateral line golden yellow; dorsal, anal and caudal fins brown/yellow to pale orange, pelvic fins pale orange, pectoral fins brown with a black spot at base.



sagitta (inner surface)

swimbladder

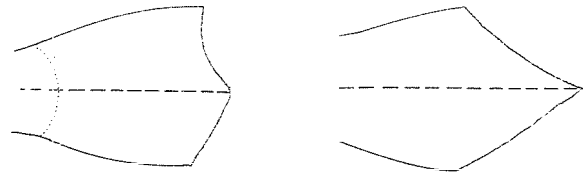
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Otolithoides pama: inside Fishing Area 5 only one (possibly dubious) record from Karachi: 40 to 45 soft rays in dorsal fin (27 to 32 in *O. biauritus*); also, pectoral fins as long as head (3/4 of head length in *O. biauritus*).

Argyrosomus hololepidotus. Caudal fin biconcave, canine teeth never present in upper jaw.

Protonibea diacanthus: soft dorsal fin rays 22 to 25.

Most other large species of Sciaenidae: caudal fin less pointed; also, swimbladder with many appendages attached to front or sides of bladder, not solely at posterior end.



Argyrosomus hololepidotus

O. biauritus

caudal fin

SIZE :

Maximum: 160 cm; common to 90 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Northwest coast of India and Sri Lanka. Also found in the Indo-Australian Archipelago.

Inhabits coastal and inshore waters.

Feeds on small fishes and invertebrates.

PRESENT FISHING GROUNDS :

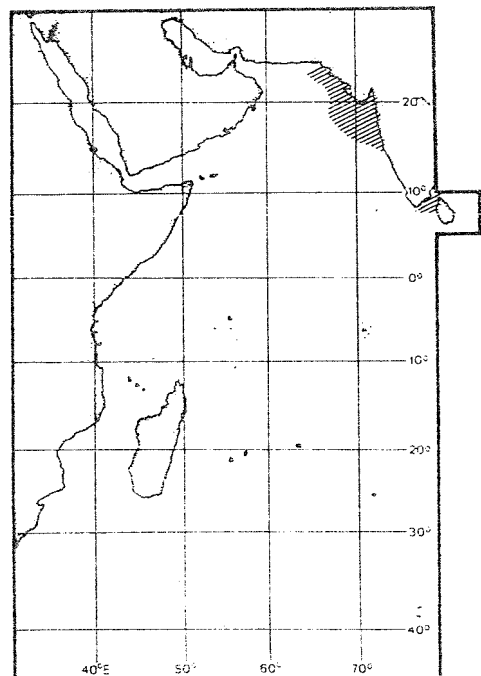
Coastal waters throughout its range; forms a fishery on the northwest coast of India.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species within the area.

Caught with bottom trawls.

Marketed fresh; also dried salted; swimbladder dried.

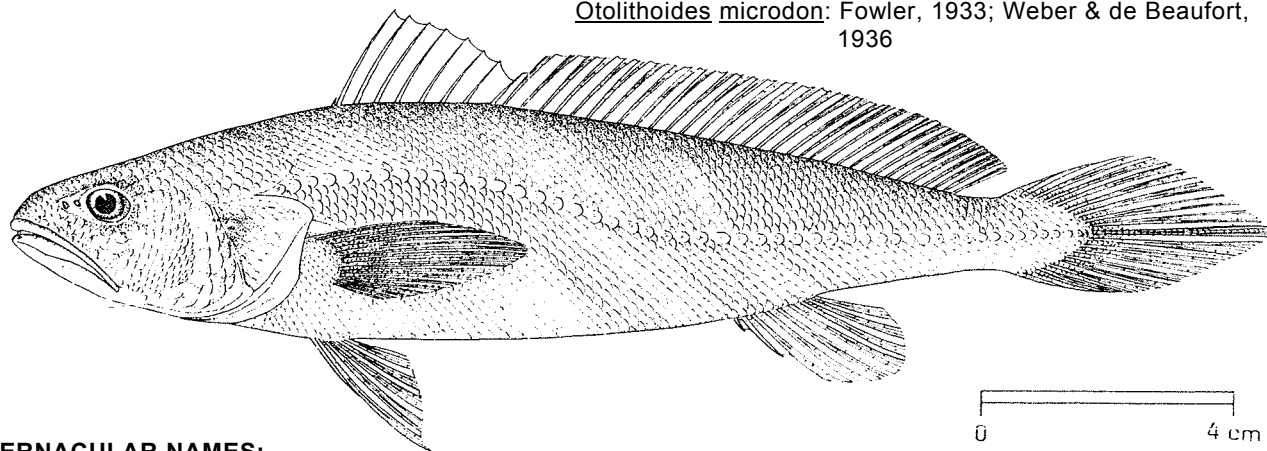


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Panna microdon (Bleeker, 1849)

OTHER SCIENTIFIC NAMES STILL IN USE:

Collichthys microdon: Bleeker, 1872; Chevey, 1932Sciaenoides microdon: Day, 1876Otolithoides microdon: Fowler, 1933; Weber & de Beaufort, 1936

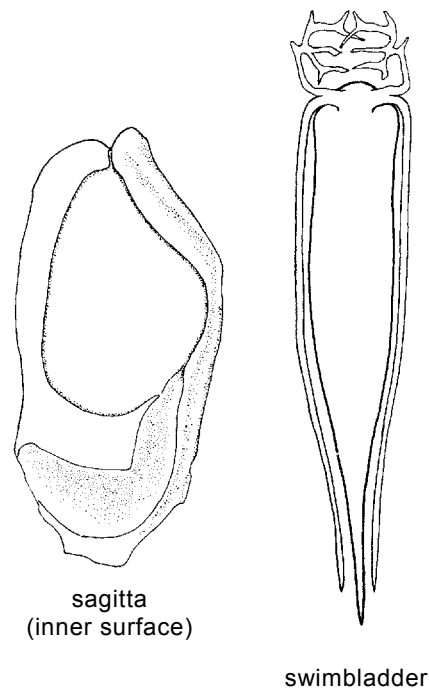
VERNACULAR NAMES:

FAO : En - Panna croaker
 Fr - Courbine ragane
 Sp - Corvina ragana

NATIONAL:

DISTINCTIVE CHARACTERS:

A medium-sized, rather slender species. Snout pointed, mouth large and terminal; upper jaw extending backward beyond hind margin of eye; rostral pores 3, the marginal pores 5; mental pores in 3 pairs, the first small on either side of the symphysis; the second and third pairs slit-like; teeth differentiated into large and small in both jaws; large teeth in upper jaw forming the outer series, and including 1 or 2 canines twice as long as the other enlarged teeth at tip of jaw; large teeth in lower jaw forming the inner series but not including any canines; sagitta (large earstone) with a tadpole-shaped impression, the "tail" of which is broad and deep with a sharp bend between a shorter proximal part and a longer distal part; gillrakers on lower limb of first arch 10 to 12, the 2 or 3 lowermost reduced to short stumps. Dorsal fin with 9 or 10 spines, followed by a notch, second part with 31 to 36 soft rays; pectoral fins moderately long, about 4 times in standard length; anal fin with 2 spines and 6 or 7 soft rays, the second spine rather weak, about half the length of the soft rays; pelvic fins with a short white filament; caudal fin rhomboid with a pointed tip. Scales cycloid (smooth) on head, chest and pectoral fin base, elsewhere finely ctenoid (slightly rough to touch); lateral line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, with one pair of arborescent appendages arising at the anterior end and immediately dividing into an anterior branch entering the head and ramifying under the skull and a posterior tube lying beside the main bladder to its posterior end.



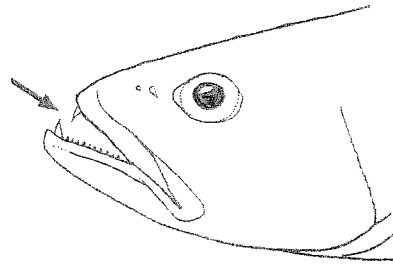
Colour: brown, becoming lighter on flanks and belly. Fins yellow, dorsal and anal fins with darker margin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Otolithes species: canine teeth present also in lower jaw; swimbladder with many arborescent appendages

Chrysochir aureus: snout projecting, mouth subterminal; only 25 to 28 soft dorsal rays (31 to 36 in P. microdon); lower gillrakers 8 or 9 (10 or 11 in P. microdon); swimbladder with many arborescent appendages.

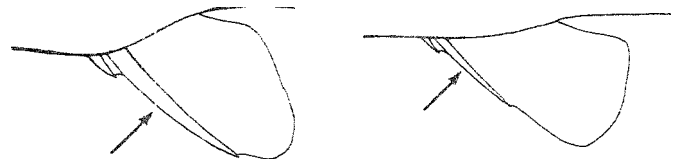
Nibea species: second anal fin spine long and strong; no canines in jaws,



Otolithes ruber

SIZE :

Maximum: 30 cm; common to 20



Nibea sp.

Panna microdon
anal fin

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, known from Sri Lanka and south-east India. Eastward extending to the South China Sea.

Inhabits shallow coastal waters.

PRESENT FISHING GROUNDS :

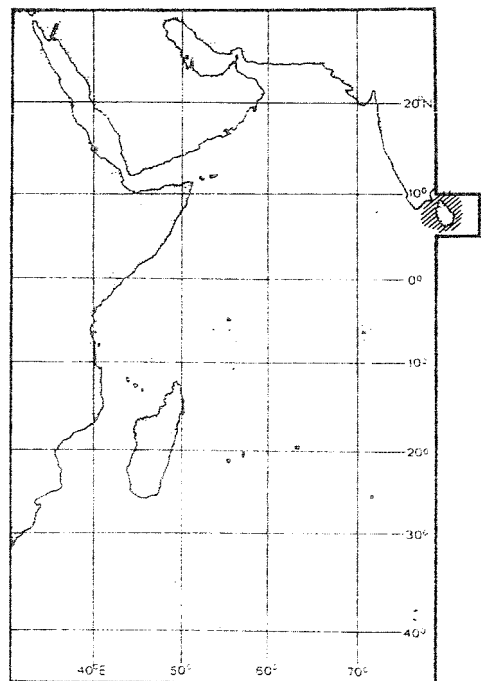
Coastal waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Separate statistics are not reported for this species.

Caught with bottom trawls, gillnets and handlines.

Marketed fresh: also dried salted.

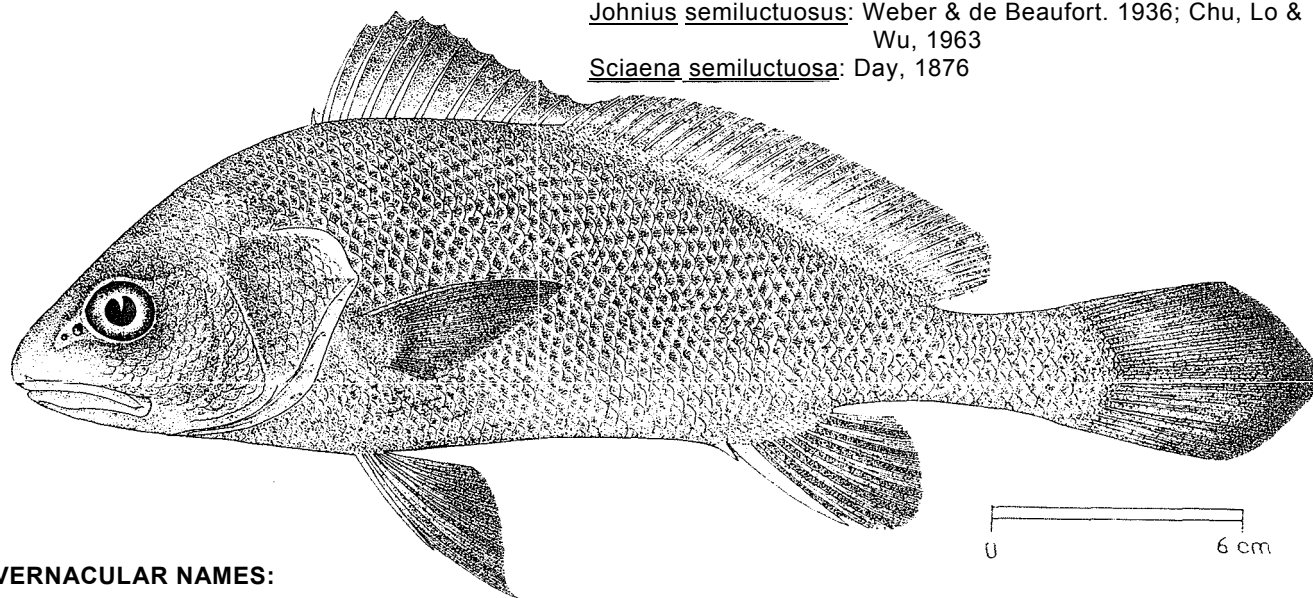


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)(=SCIAEN Nib 5)
(Fishing Areas 57/71)Paranibea semiluctuosa (Cuvier, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE:

Nibea luctuosa (Cuvier, 1830), in FAO Species Identification
Sheets Areas 57/71Corvina semiluctuosa Cuvier, 1830Johnius semiluctuosus: Weber & de Beaufort. 1936; Chu, Lo &
Wu, 1963Sciaena semiluctuosa: Day, 1876

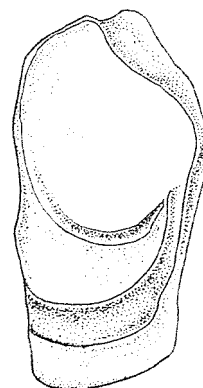
VERNACULAR NAMES:

FAO : En - Half-mourning croaker
 Fr - Courbine lugubre
 Sp - Corvina lúgubre

NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly small species with an arched back and deep body. Mouth slightly inferior and at a low angle to the horizontal; rostral pores 5, small, marginal pores 5; mental pores 5; teeth differentiated into large and small in upper jaw only, the large ones forming the outer series, with the longest in front but no canines; teeth in lower jaw uniform similar to large teeth in upper jaw; sagitta (large earstone with a tadpole-shaped impression, of which the big pear-shaped "head" is joined by a narrow stem to the broad, deep "tail" which ends close to the ventral edge; gillrakers on lower limb of first arch 5 to 8, with some toothed plates below. Dorsal fin with 9 or 10 spines, followed by a notch, second part of fin with 1 spine and 27 to 31 soft rays; pectoral fins moderately long, about 2/3 of head length; anal fin with 2 spines and 7 soft rays, the second spine long and strong, up to half of head length; caudal fin rounded or bluntly rhomboid. Scales cycloid (smooth) on snout and below eye, elsewhere ctenoid (very rough to touch); lateral-line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, with about 15 to 20 pairs of arborescent appendages, the first rather long, entering the head and branching below the occipital region.

inner surface
sagitta

Colour: dark with numerous oblique wavy black stripes reaching down the flanks to belly; pelvic and anal fins very dark.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Nibea species: lower jaw teeth differentiated into large and small. Furthermore, less than 27 soft dorsal fin rays in N. maculata and N. albida; a pair of small barbels on chin in N. albida; 8 or 9 gillrakers on lower limb of first arch in N. soldado (5 to 8 in P. semiluctuosa); big, dark blotches on upper sides of body in N. maculata.

Johnius belangerii: lower jaw with uniform villiform teeth; no stripes on body.

SIZE:

Maximum: 40 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Coast of India. Eastwards extending to Sumatra and Java.

Inhabits coastal waters.

PRESENT FISHING GROUNDS:

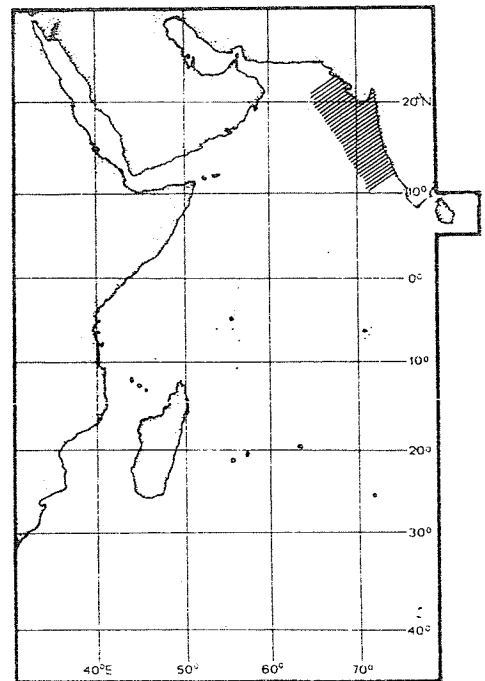
Coastal waters, throughout its range; forms a fishery along the northwest coast of India.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species within the area.

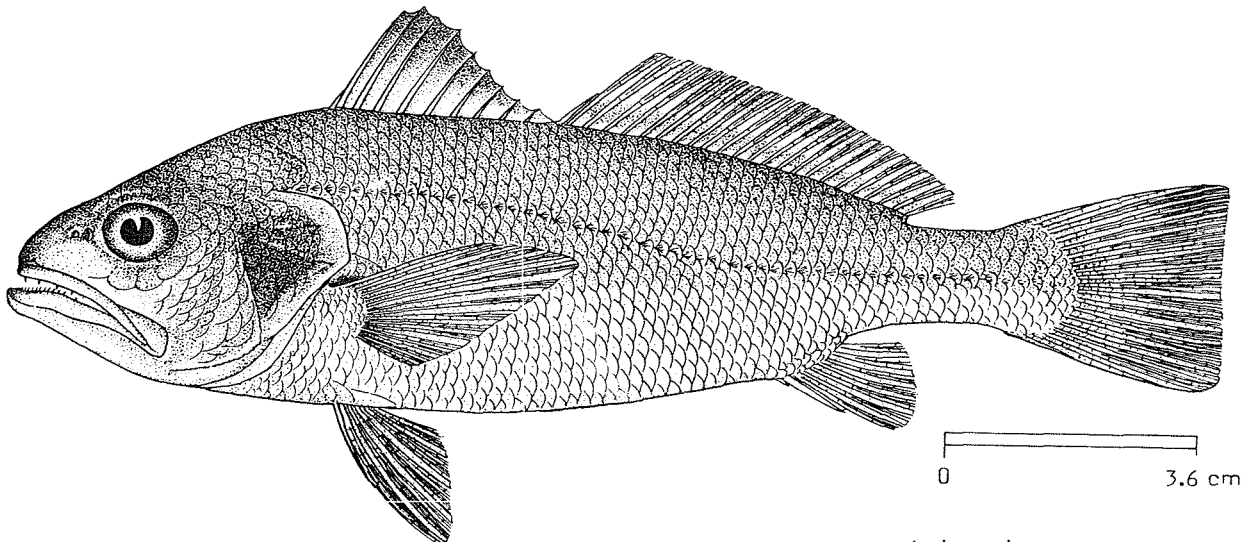
Caught with bottom trawls, gillnets and handlines.

Marketed fresh, also dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Pennahia macrophthalmus (Bleaker, 1850)OTHER SCIENTIFIC NAMES STILL IN USE: Sciaena aneus (non Bloch): Day, 1876

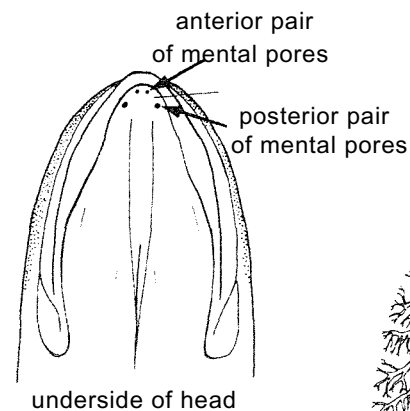
VERNACULAR NAMES:

FAO : En - Bigeye croaker
Fr - Courbine gros yeux
Sp - Corvina ojona

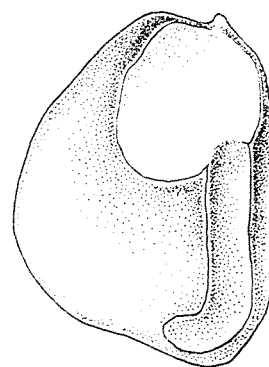
NATIONAL:

DISTINCTIVE CHARACTERS:

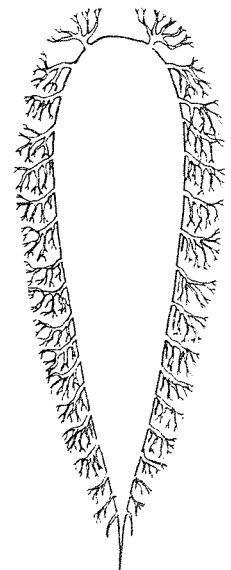
A fairly small, rather deep-bodied species, with a large, terminal, oblique mouth; upper jaw reaching to below hind part of eye; rostral pores absent or minute, marginal pores 5, very small, not notching the edge; mental pores in 2 pairs, both small, the anterior at front of the prominent chin; teeth well differentiated into large and small in both jaws, the large forming the outer series in upper jaw, and inner the series in the lower; no outstanding canine teeth; sagitta (large earstone) with a tadpole-shaped impression, the "tail" of which is hockey-stick-shaped; gillrakers on lower limb of first arch 9 to 12. Dorsal fin with 9 or 10 spines, followed by a notch, second part of the fin with 21 to 26 soft rays; pectoral fins rather long, 25 to 28% of standard length; anal fin with 2 spines and 7 or 8 soft rays, the second spine weak; caudal fin truncate. Scales cycloid (smooth) on snout, elsewhere ctenoid (rough to touch); lateral-line scales reaching to tip of caudal fin. Swimbladder carrot-shaped with 18 to 22 arborescent appendages, the first not entering head, the last a simple tube parallel to the narrow posterior end of the swimbladder.



underside of head



sagitta (inner surface)

swimbladder
ventral view

Colour: body silvery white, back blue/grey; nape with a diffused dusky blotch; upper 2/3 of spinous dorsal fin dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Kathala axillaris bears a superficial resemblance to P. macrophthalmus but has no arborescent appendages on swimbladder; mouth more oblique and snout slightly swollen, spot on nape very distinct. Also caudal fin rhomboid (truncate in P. macrophthalmus),

SIZE:

Maximum. 30 cm; common to 18 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found in the "Gulf" and along the West coast of the Indian subcontinent to Sri Lanka. Eastward extending to Indonesia and northward to China.

Inhabits coastal waters, down to 60 m depth.

Feeds on small shrimps and small fishes.

PRESENT FISHING GROUNDS:

Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

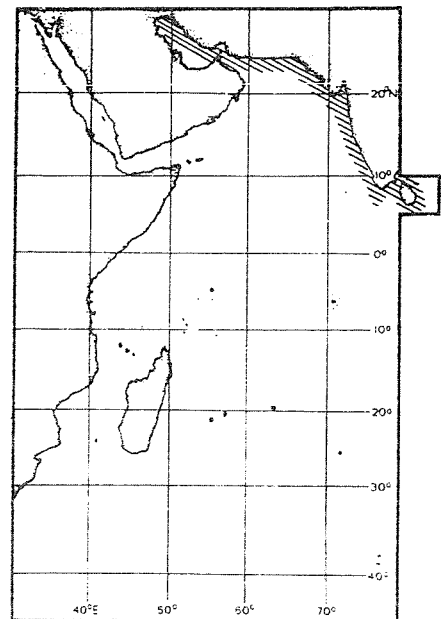
Separate statistics are not reported for this species within the area.

Caught with bottom trawls and seine nets.

Marketed fresh and dried salted.



swimbladder
Kathala axillaris



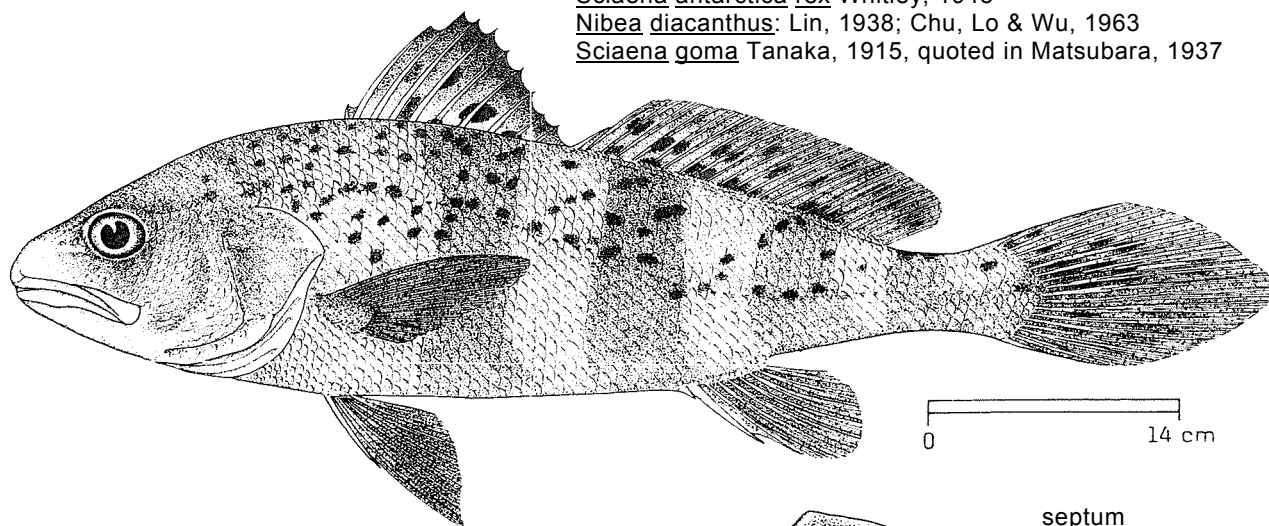
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)Protonibea diacanthus (Lacepède, 1802)

OTHER SCIENTIFIC NAMES STILL IN USE:

Corvina maculata (part, nec Schneider), 1830
Corvina catalea Valenciennes, 1834
Johnius valenciennii Eydoux & Souleyet, post-1848
Sciaena diacanthus: Day, 1865
Corvina nigromaculata Borodin, 1930
Pseudosciaena diacanthus: Weber & de Beaufort, 1936
Sciaena antarctica rex Whitley, 1945
Nibea diacanthus: Lin, 1938; Chu, Lo & Wu, 1963
Sciaena goma Tanaka, 1915, quoted in Matsubara, 1937



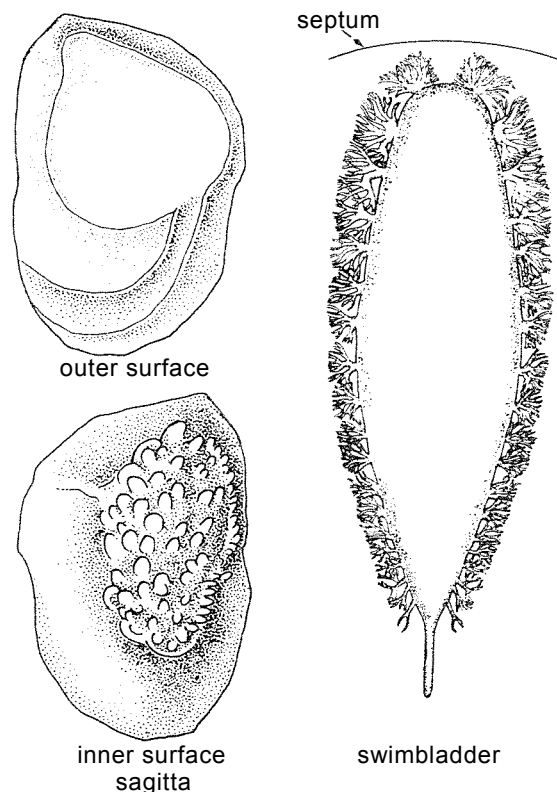
VERNACULAR NAMES:

FAO : En - Spotted croaker
 Fr - Courbine pintade
 Sp - Corvina pintada

NATIONAL:

DISTINCTIVE CHARACTERS:

A large species with a pointed snout and a big, nearly horizontal and terminal mouth. Teeth differentiated into large and small in both jaws; rostral pores 3, marginal pores 5; mental pores in 3 pairs, the first pair close to the symphysis and joined by a semicircular groove; no canine teeth; sagitta (large earstone) with a tadpole-shaped impression of which the "tail" is bent sharply at about a right angle, very narrowly separated from the ventral edge; gillrakers on lower limb of first arch 7 or 8. Dorsal fin with 9 or 10 spines, followed by a low notch, second part of the fin with 1 spine and 22 to 24 soft rays; pectoral fin fairly small, a little more than half of head length; anal fin with 2 spines and 7 soft rays, the second spine rather strong; caudal fin rhomboid. Scales cycloid (smooth) on snout and below eyes, elsewhere ctenoid (rough to touch); lateral-line scales reaching to tip of caudal fin. Swimbladder carrot-shaped, with 16 to 20 pairs of arborescent appendages, the first branching on transverse septum but not entering head, the last two small and simple, the rest branching, but without dorsal limbs.



Colour: 5 dark bars along back and many small black spots (about the size of pupil) on top of head, upper half of body and caudal fin pectoral, pelvic, anal and lower part of caudal fins black. in larger fishes the 5 bars and the smaller spots are absent.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Nibea maculata: lower fins pale; also black blotches on body, but numerous black dots never present; mouth inferior; anterior pair of swimbladder appendages entering through transverse septum into head.

Other croakers in the area; lack the distinctive colour pattern of blotches and spots on body and fins.

SIZE:

Maximum: 120 cm; common to 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, found in the "Gulf", the Gulf of Oman, and along the coasts of India and Sri Lanka. Eastward extending to Queensland (Australia).

Found in coastal waters, down to about 60 m depth; primarily a species of muddy grounds, living off the sea-bed; spawning from June to August.

Feeds mainly on crustaceans and small fishes.

PRESENT FISHING GROUNDS:

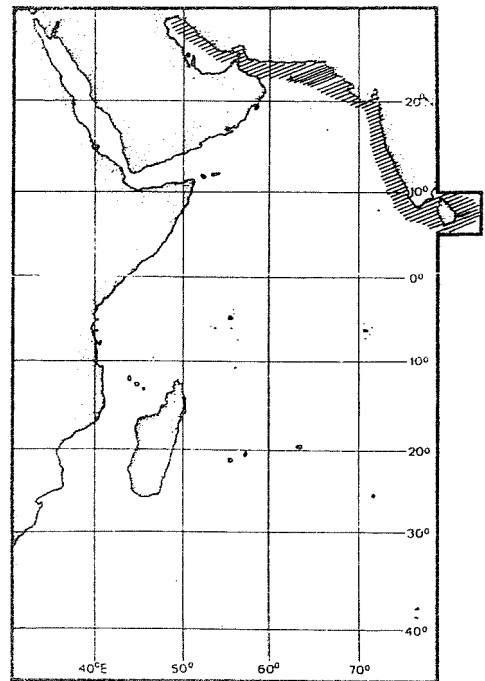
Coastal waters throughout its range; forms a fishery along the northwest coast of India.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not recorded for this species within the area.

Caught with bottom trawls and gillnets.

Marketed fresh; sometimes dried/salted; swimbladder dried.



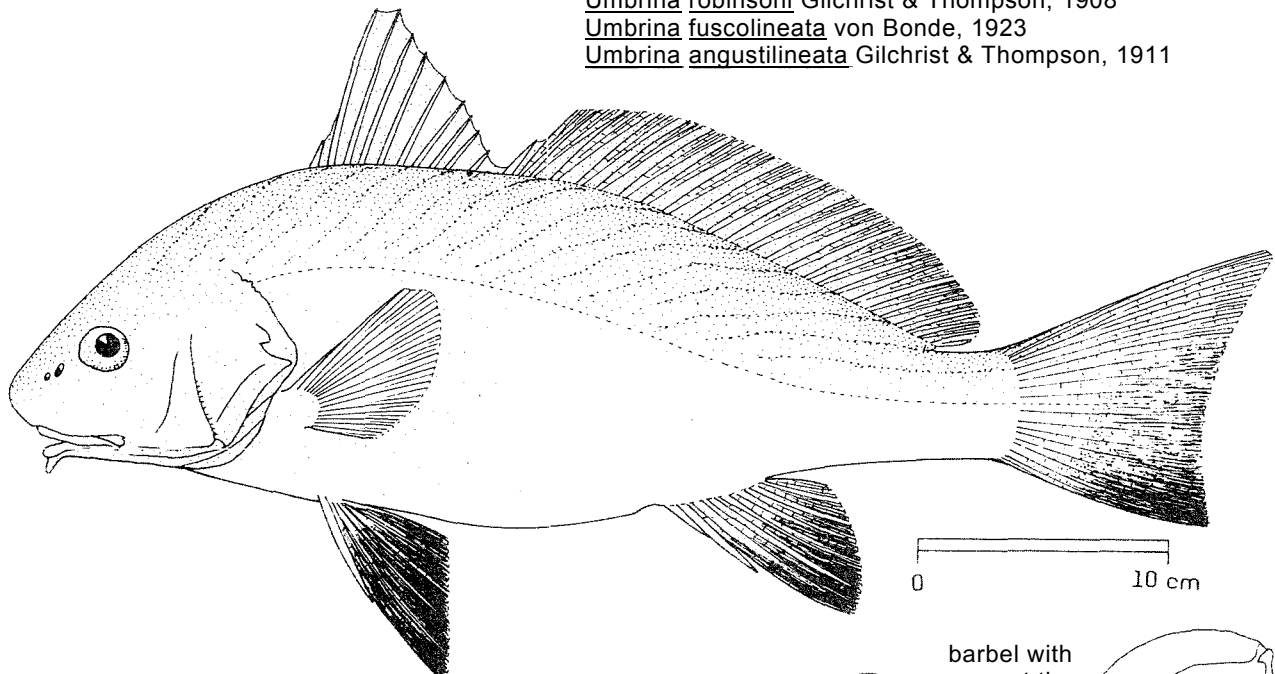
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Umbrina ronchus* Valenciennes, 1843

OTHER SCIENTIFIC NAMES STILL IN USE:

Umbrina capensis (?Pappe, 1853)
Sciaena capensis: J.L.B. Smith, 1949
Umbrina fusta Dardignac, 1958
Umbrina robinsoni Gilchrist & Thompson, 1908
Umbrina fuscolineata von Bonde, 1923
Umbrina angustilineata Gilchrist & Thompson, 1911



VERNACULAR NAMES:

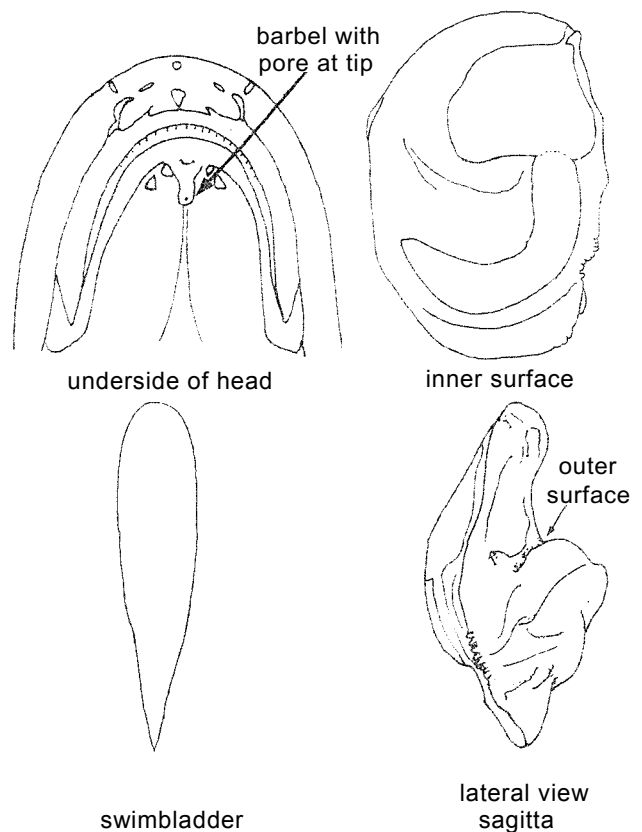
FAO: En - Fusta croaker
 Fr - Ombrine fusta
 Sp - Verrugato fusto

NATIONAL:

DISTINCTIVE CHARACTERS:

A medium-sized species with a deep body, the depth 2.5 to 3 times in standard length. Eye small; snout rounded, mouth inferior and horizontal; a single, well developed barbel on chin; rostral pores 3, marginal pores 5; mental pores 5, the median at the tip of mental barbel; teeth differentiated in size in upper jaw and in a uniform band in lower jaw, canines absent; sagitta (large ear-stone) with a tadpole-shaped impression, of which the "tail" is bent sharply, tapering, not reaching the ventral edge; gillrakers short, 8 or 9 on lower limb of first arch. Dorsal fin with 10 spines, followed by a deep notch, second part of fin with 1 spine and 23 to 25 soft rays; caudal fin subtruncate in adults; scales ctenoid rough to touch) on head and body, lateral-line scales extending to caudal fin; swimbladder simple without appendages.

Colour: greyish above; body with about 20 distinct dark oblique streaks, pectoral fin axil with a dark spot, snous part of dorsal fin and pelvic fins black, soft part of dorsal with a dark margin.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Umbrina canariensis: dorsal soft rays 27 to 29 (24 or 25 in U. ronchus).

Johnius dussumieri and J. macropterus: mental barbel without a pore at its tip; swimbladder with arborescent appendages; body with cycloid scales and ctenoid scales, respectively.

SIZE :

Maximum: 80 cm; common to 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found along the south Africa coast, extending northward to Mozambique and in the Gulf of Oman. Also known from Morocco.

Inhabits coastal waters up to 50 m. Enters estuaries and congregates on sand banks for feeding.

PRESENT FISHING GROUNDS:

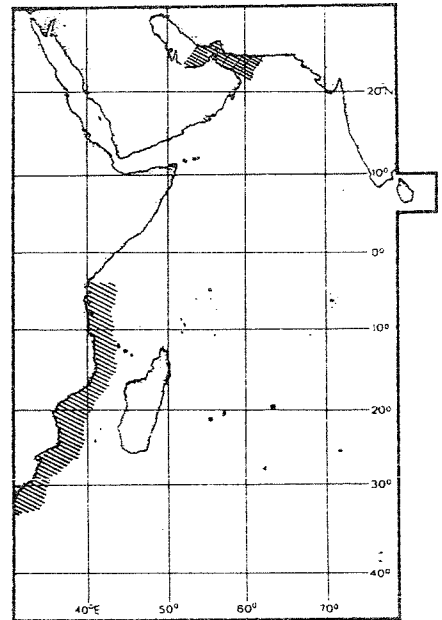
Coastal waters throughout its range; rather abundant off South Africa.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species within the area.

Caught with bottom trawls and hand lines.

Marketed fresh. A very good table fish.

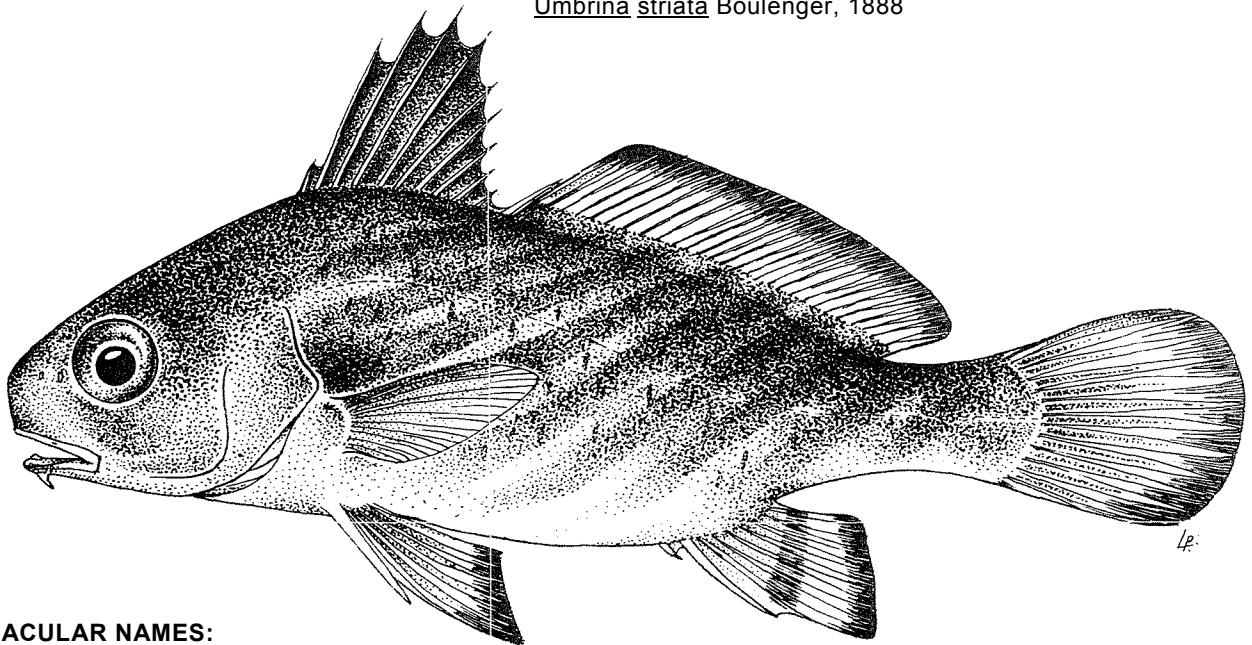


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Umbrina canariensis* Valenciennes, 1843

OTHER SCIENTIFIC NAMES STILL IN USE:

Umbrina sinuata day, 1876*Sciaena sinuata*: J.L.B. Smith, 1949*Umbrina striata* Boulenger, 1888

VERNACULAR NAMES:

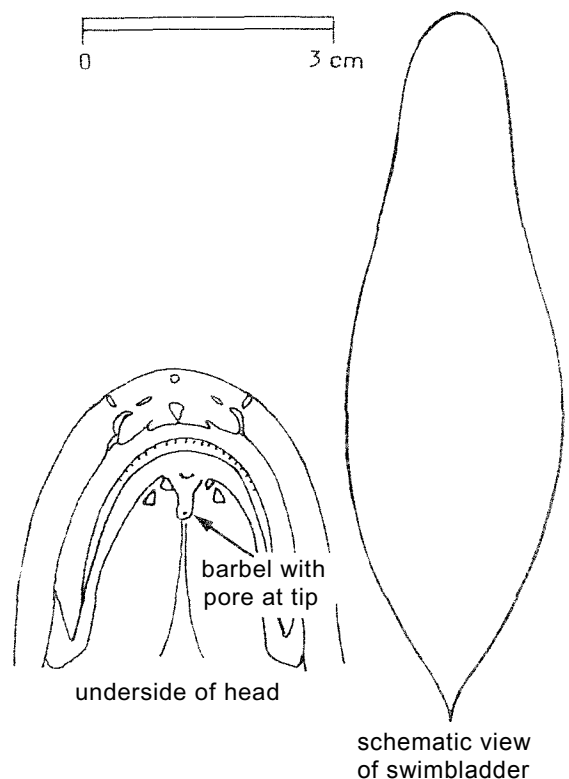
FAO : En - Canary drum
Fr - Umbrine bronze
Sp - Verrugato de Canarias

NATIONAL:

DISTINCTIVE CHARACTERS:

A small-sized species with a fairly deep body, its depth about 3 times in standard length. Snout rounded, mouth inferior, maxilla reaching to middle of eye; a single, well developed barbel on chin; rostral pores 3, marginal pores 5; mental pores 5, the median pore at the tip of mental barbel; teeth differentiated into large and small in upper jaw, lower jaw with uniform teeth; no canines; sagitta (large earstone) with a tadpole-shaped impression, of which the "tail" is bent sharply, tapering, not reaching the ventral edge. Dorsal fin with 10 spines, followed by a deep notch, second part of fin with 1 spine and 27 to 29 soft rays; pectoral fins moderate, about 3/4 of head length; anal fin with 2 spines and 7 rays, second anal spine strong, about half of head length; caudal fin wedge-shaped. Scales cycloid (smooth) on snout, ctenoid (rough to touch) elsewhere; scales present on base of anal fin. Swimbladder oblong, without appendages.

Colour: body with about 9 sinuous brown bands; a dark blotch at axilla, first part of dorsal fin black; a black band along the length of second dorsal and anal fins; pelvic fins black.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Umbrina ronchus: soft dorsal fin rays 23 to 25.

Johnius dussumieri and J. macropterus: mental barbel without a medium pore at its tip; swimbladder with arborescent appendages.

SIZE :

Maximum: 20 cm; common to 15 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known from the east coast of Africa northwards to Somalia and from the northeastern Arabian Sea.

inhabits shallow coastal waters.

PRESENT FISHING GROUNDS:

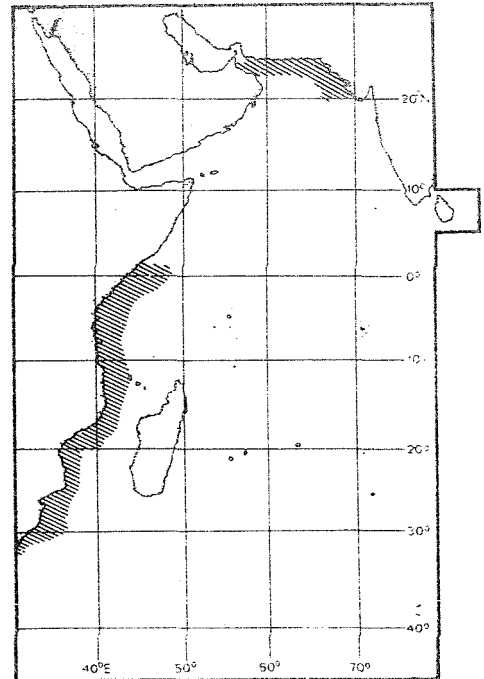
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species within the area.

Caught with trawls.

Marketed fresh; also dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

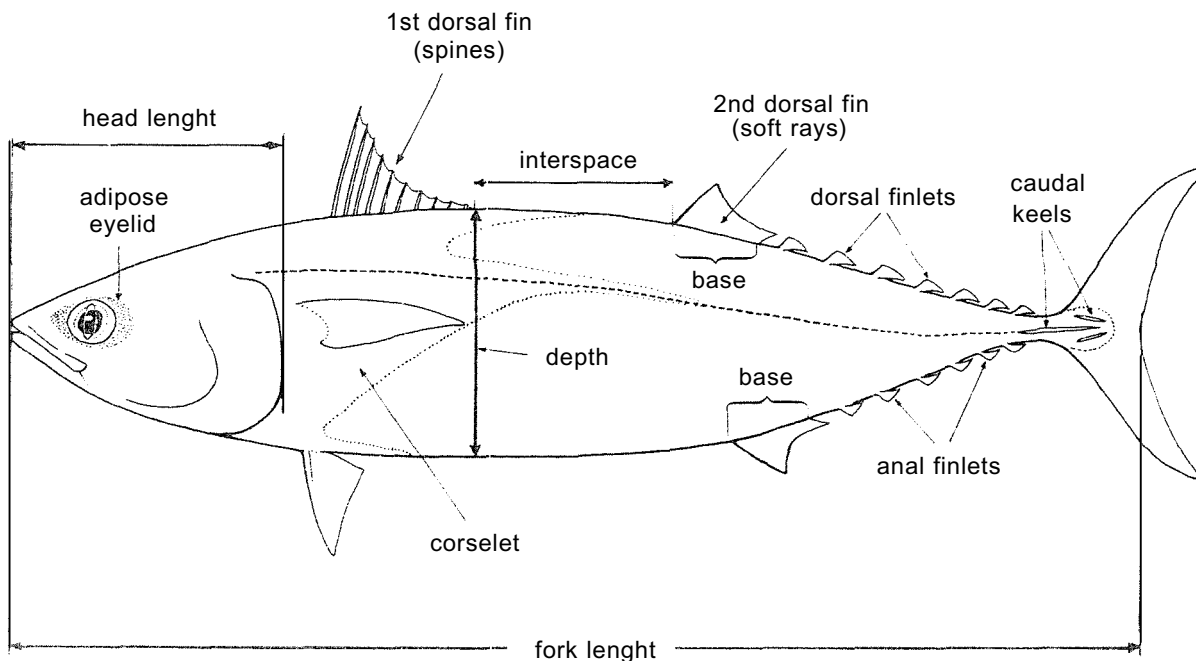
SCOMBRIDAE

Albacores, bonitos, kawakawas, mackerels, seerfishes, tunas and wahoos

Body elongate and fusiform, moderately compressed in some genera. Snout pointed; adipose eyelid sometimes present (Rastrelliger, Scomber); premaxillae beak-like, free from nasal bones which are separated by ethmoid bone; mouth rather large; teeth in jaws strong, moderate or weak; no true canines; palate and tongue may be toothed. Two dorsal fins; anterior fin usually short and separated from posterior fin; finlets present behind dorsal and anal fins; pectoral fins placed high; pelvic fins moderate or small; caudal fin deeply forked with supporting caudal rays completely covering hypural plate. At least 2 small keels on each side of caudal peduncle a larger keel in between in many species. Lateral line simple. Vertebrae 31 to 66. Body either uniformly covered with small to moderate scales (e.g. Rastrelliger, Scomber, Scomberomorus) or a corselet developed (area behind head and around pectoral fins covered with moderately large, thick scales) and rest of body naked (Auxis, Euthynnus, Katsuwonus), or covered with small scales (Thunnus).

Colour: various Scomber species are usually bluish or greenish above with a pattern of wavy bands on upper sides and silvery below; Scomberomorus and Acanthocybium are blue-grey above and silvery below with dark vertical bars or spots on sides (Grammatocynus is green above, silvery below with dark spots along belly); Sarda has 5 to 11 dark oblique stripes on back; Euthynnus has a striped pattern on back and several dark spots between pectoral and pelvic fins; Katsuwonus has 4 to 6 conspicuous longitudinal stripes on belly; Auxis and Thunnus are deep blue/black above; most species of Thunnus have bright yellow finlets with black borders.

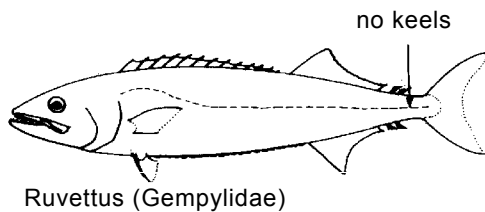
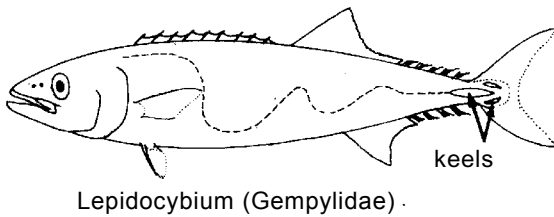
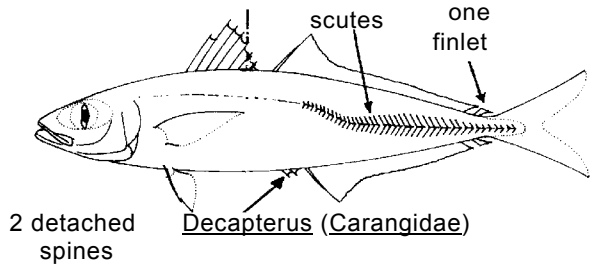
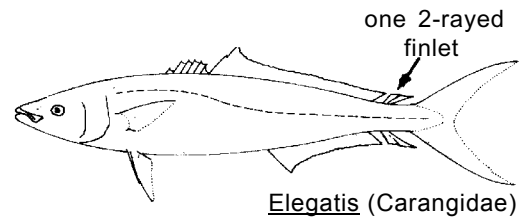
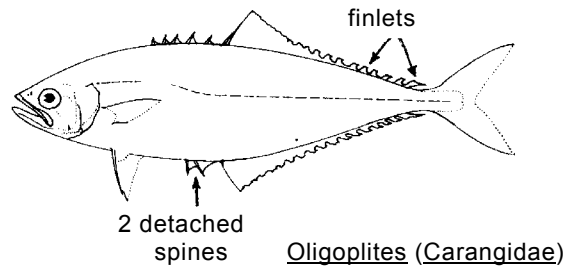
A rather diverse group of pelagic fishes ranging in size from about 45 cm to over 3 m in length. Some of the smaller species inhabit coastal waters while the larger ones, especially Thunnus maccoyii, T. obesus, T. alalunga and T. tonggol carry out wide, transoceanic migrations. All scombrids are excellent foodfishes and many of them are of significant importance in coastal pelagic or oceanic commercial and sports fisheries. The annual catch of tunas and mackerels from Fishing Area 51 exceeds 200 000 t (about 210 000 t in 1981).



SIMILAR FAMILIES OCCURRING IN THE AREA:

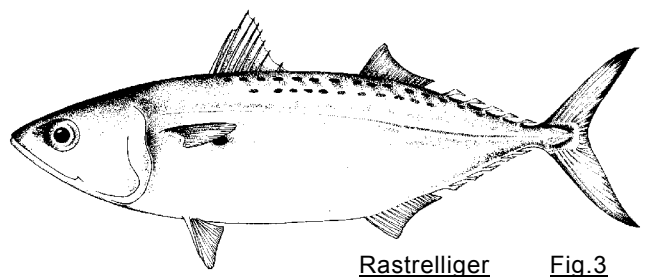
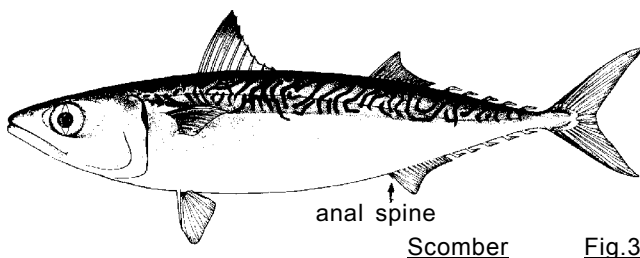
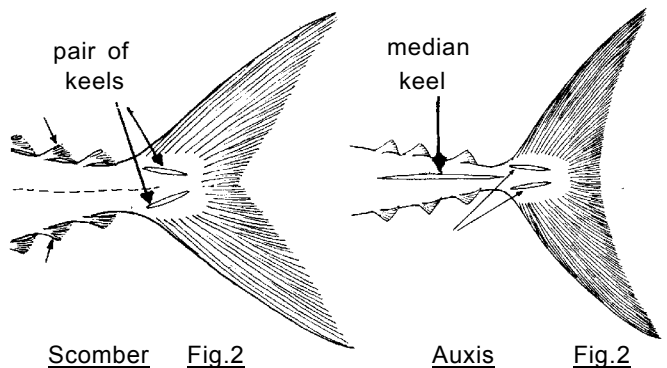
Carangidae: dorsal fin spines 3 to 8 (9 to 27 in Scombridae); frequently scutes developed along the posterior part of the lateral line and usually no well developed finlets (except in Oligoplites with a series of dorsal and anal finlets; Elagatis and Decapterus with one dorsal and one anal finlet); they also have 2 detached spines in front of anal fin.

Gempylidae: back usually brown, rarely blue-brown; never distinct markings on body; no keels on caudal peduncle, except in Lepidocybium.

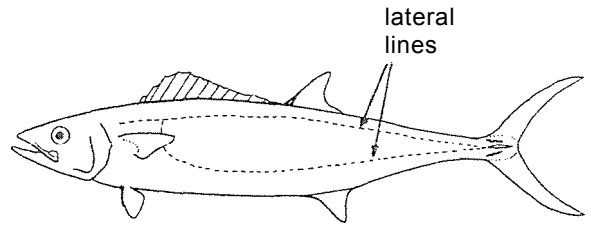


KEY TO GENERA OCCURRING IN THE AREA:

- 1a. Two small keels on either side of caudal peduncle (Fig.1); 5 dorsal and 5 anal finlets
- 2a. Vertically zig-zag or wavy lines on back; anal fin spine fairly stiff and strong (Fig.3); teeth present on roof of mouth Scomber
- 2b. Two horizontal rows of spots on each side of back; anal fin spine thin, rudimentary (Fig.4); no teeth on roof of mouth Rastrelliger
- 1b. Two small keels and a large median keel between them on either side of caudal peduncle (Fig.2); 7 to 10 dorsal and 7 to 10 anal finlets



3 a. Two lateral lines, the lower joining the upper behind pectoral fin base and at base of caudal fin (Fig.5); interpelvic process (scaly process between pelvic fin bases) single..... Grammatorcynus

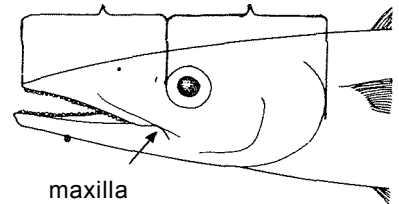


Grammatorcynus Fig.5

3b. Single (upper) lateral line; interpelvic process single or double

4 a. Teeth in jaws strong, compressed, almost triangular or knife-like; corselet of scales obscure

5 a. Snout as long as rest of head (Fig. 6); no gillrakers; 23 to 27 spines in first dorsal fin Acanthocybium

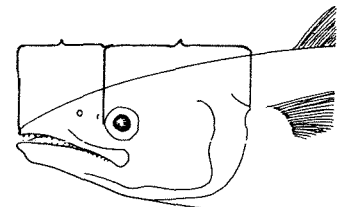


maxilla concealed Acanthocybium Fig.6

5 b. Snout much shorter than rest of head (Fig. 7); at least 3 gillrakers present; 14 to 22 spines in first dorsal fin Scomberomorus

4 b. Teeth in jaws slender, conical, hardly compressed; corselet of scales well developed (Figs 9 to 12)

6 a. Upper surface of tongue without cartilaginous longitudinal ridges (Fig. 8a)

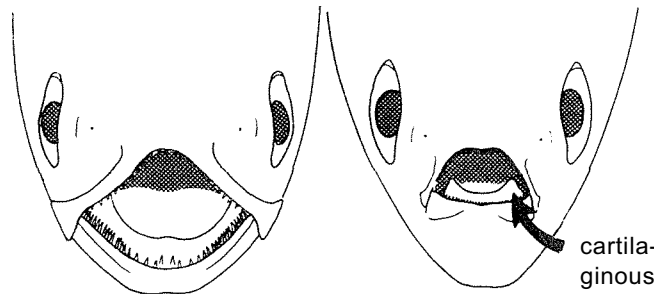


Scomberomorus Fig.7

7 a. Jaw teeth tiny, 40 to 55 on each side; gillrakers fine, numerous, 70 to 80 on first arch..... Allothunnus

7 b. Jaw teeth larger, only 10 to 30 on each side; gillrakers fewer, 8 to 21 on first arch

8a. Five to 10 narrow, dark longitudinal stripes on upper part of body (Fig. 9); no teeth on tongue Sarda



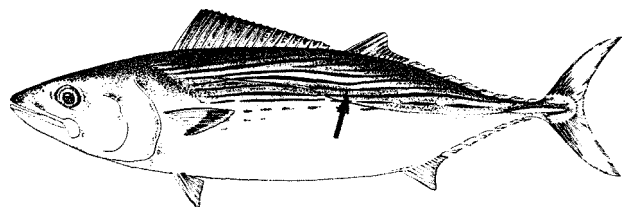
a) Sarda orientalis b) Katsuwonus pelamis

cartilaginous ridges

8 b. Upper part of body without stripes; 2 patches of teeth on tongue Gymnosarda

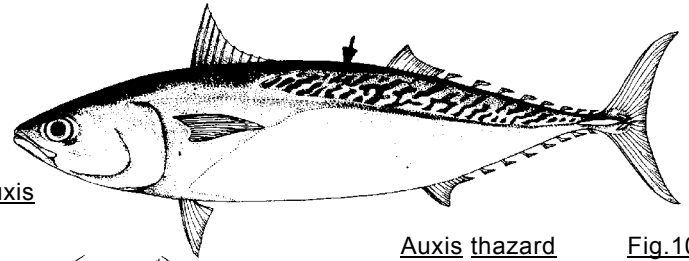
6 b. Upper surface of tongue with 2 longitudinal ridges (Fig. 8b)

Fig.8

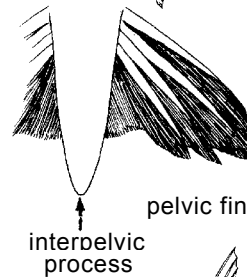


Sarda orientalis Fig.9

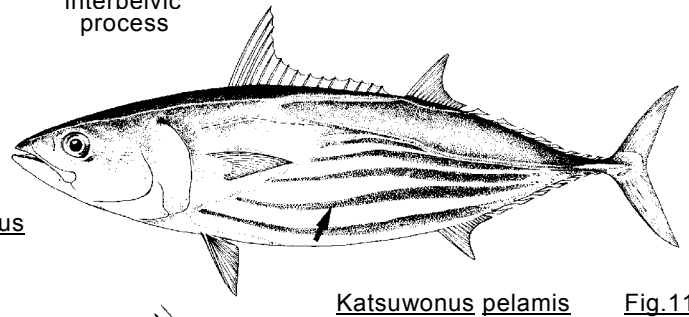
9 a. first dorsal and second dorsal fins widely separated, the space between them equal to length of first dorsal fin base; 10 to 12 spines in first dorsal fin (Fig.10); interpelvic process single and large, longer than pelvic fins..... Auxis



9 b. First and second dorsal fins barely separated, at most by eye diameter (Figs 8 to 10); 12 to 16 spines in first dorsal fin; interpelvic process bifid and short, shorter than pelvic fins

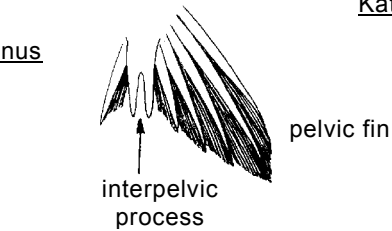


10a. Three to 5 prominent dark longitudinal stripes on belly; gillrakers 53 to 63 on first arch (Fig.11)..... Katsuwonus

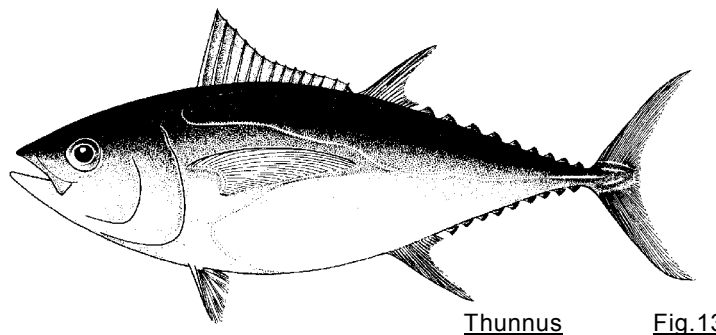
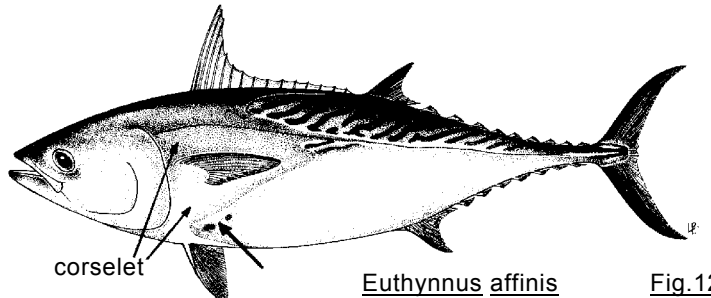


10b. No dark longitudinal stripes on belly; gillrakers 19 to 45 on first arch

11a. Body naked behind corselet of enlarged and thickened scales; black spots usually present between pectoral and pelvic fin bases (Fig.12); 26 or 27 pectoral fin rays Euthynnus



11b. Body covered with very small scales behind corselet; no black spots on body (Fig.13) 30 to 36 pectoral fin rays Thunnus



LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

<u>Acanthocybium solandri</u> (Cuvier, 1831)	SCOMBR Acan 1
<u>Allothunnus fallai</u> Serventy, 1948	SCOMBR Alla 1
<u>Auxis rochei</u> (Risso, 1810)	SCOMBR Aux 2
<u>Auxis thazard</u> (Lacepède, 1800)	SCOMBR Aux 1
<u>Euthynnus affinis</u> (Cantor, 1849)	SCOMBR Euth 2
<u>Grammatorcynus bilineatus</u> (Rüppell, 1836)	SCOMBR Gram 2
<u>Gymnosarda unicolor</u> (Rüppell, 1838)	SCOMBR Gymno 1
<u>Katsuwonus pelamis</u> (Linnaeus, 1758)	SCOMBR Kats 1
* <u>Rastrelliger kanagurta</u> (Cuvier, 1817)	SCOMBR Rast 3
<u>Sarda orientalis</u> (Temminck & Schlegel, 1844)	SCOMBR Sarda 2
<u>Scomber japonicus</u> Houttuyn, 1782	SCOMBR Scm 2
<u>Scomberomorus commerson</u> (Lacepède, 1800)	SCOMBR Scombm 1
<u>Scomberomorus guttatus</u> (Bloch & Schneider, 1801)	SCOMBR Scombm 3
<u>Scomberomorus koreanus</u> (Kishinouye, 1915)	SCOMBR Scombm 11
<u>Scomberomorus lineolatus</u> (Cuvier; 1831)	SCOMBR Scombm 2
<u>Scomberomorus plurilineatus</u> Fourmanoir, 1966	SCOMBR Scombm 15
<u>Thunnus alalunga</u> (Bonnaterre, 1788)	SCOMBR Thun 1
<u>Thunnus albacares</u> (Bonnaterre, 1788)	SCOMBR Thun 3
<u>Thunnus maccoyii</u> (Castelnau, 1872)	SCOMBR Thun 4
<u>Thunnus obesus</u> (Lowe, 1839)	SCOMBR Thun 5
<u>Thunnus tonggol</u> (Bleeker, 1851)	SCOMBR Thun 6

Prepared by B.B. Collette, NMFS Systematics Laboratory, NORA, National Museum of Natural History, Washington, O.C., USA

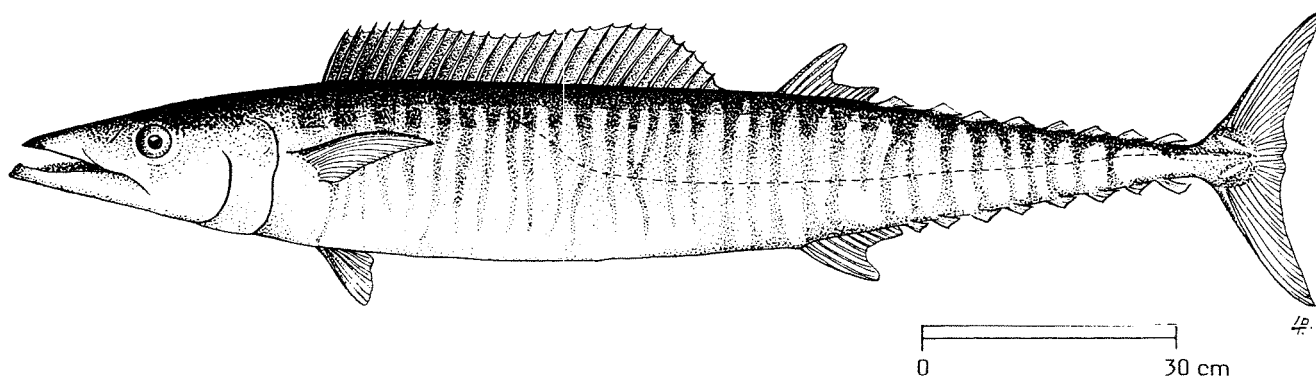
* Two other *Rastrelliger* species, *R. brachysoma* (Sleeker, 1851) and *R. faughni* Matsui, 1967 may be expected to occur in the area sporadically, although they have not been recorded as yet

FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)Acanthocybium solandri (Cuvier, 1831)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

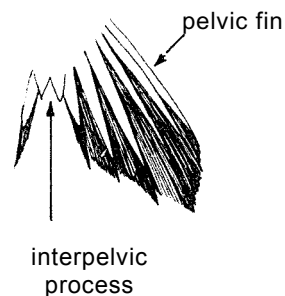
FAO: En - Wahoo
 Fr - Thazard-bâtard
 Sp - Peto

NATIONAL:

DISTINCTIVE CHARACTERS:

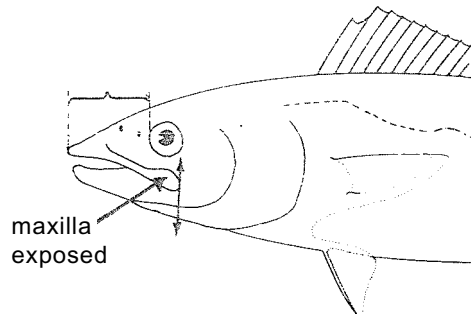
Body very elongate, fusiform and only slightly laterally compressed. Mouth large with strong teeth closely set in a single series, teeth triangular, compressed, and finely serrate; snout about as long as the rest of head. Gillrakers undeveloped and absent; posterior part of maxilla completely concealed under preorbital bone. Two dorsal fins, the first with 23 to 27 spines, 8 or 9 dorsal and anal finlets; 2 small flaps (interpelvic process) between pelvic fins.

Colour: back iridescent bluish green; numerous dark vertical bars on sides which extend to below lateral line.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other species of Scombridae: snout much shorter than the rest of head (equal to rest of head in A. solandri) and no regular vertical stripes extending to below lateral line. The most similar in shape are Scomberomorus species which, in addition to the above-mentioned characters, are distinguished from A. solandri by the exposed hind margin of the maxilla, fewer dorsal fin spines (14 to 22 instead of 23 to 27) and the presence of at least 3 gill rakers on first gill arch.



Scomberomorus

SIZE :

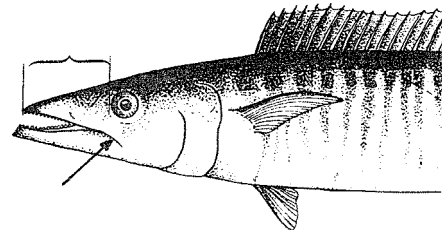
Maximum: 211 cm fork length; and 83 kg.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

A cosmopolitan warm-water species usually found well offshore. Within the area, reported from Algoa Bay and Natal, South Africa; throughout the east African region, including Zanzibar, Madagascar, Mauritius, Seychelles, Gulf of Aden and along the west coast of India from Vizhingam, Colachel, and Cape Comorin, and Sri Lanka.

A pelagic species, frequently taken well offshore.

Feeds on fishes and squids; pelagic.



A. solandri

PRESENT FISHING GROUNDS:

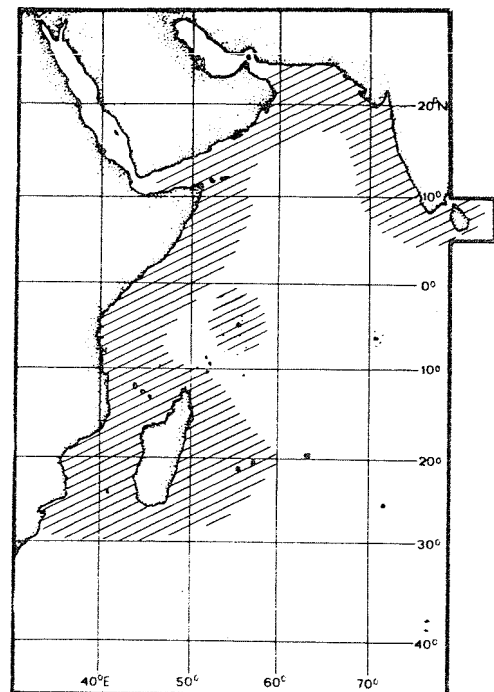
Offshore surface waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species in Fishing Area 51.

Primarily a sportsfish on light to heavy tackle, surface trolling with spoon, feather lure, strip bait, or flying fish or halfbeak.

Marketed mostly fresh; the flesh is of very good quality.

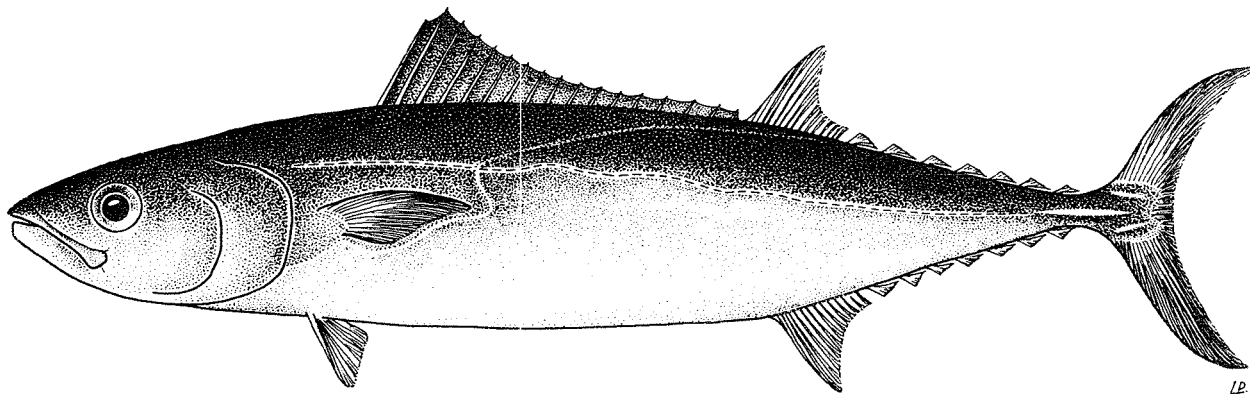


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

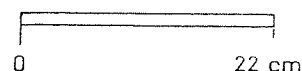
FISHING AREA 51
(W. Indian Ocean)Allothunnus fallai Serventy, 1948

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Slender tuna
 Fr - Thon élégant
 Sp - Atún lanzón



NATIONAL:

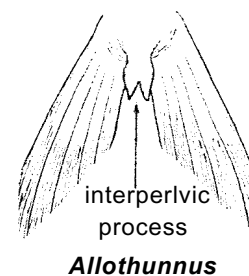
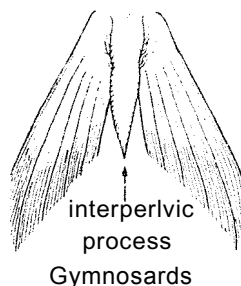
DISTINCTIVE CHARACTERS:

Body robust, elongate and rounded. Teeth very small and conical, 40 to 55 on each side of upper and lower jaws; 70 to 80 gillrakers on first arch, more than in any other scombrid species. Dorsal fins closely together, the first with 15 to 18 spines, the second with 12 or 13 rays, followed by 6 or 7 finlets; anal fin with 13 or 14 rays followed by 6 or 7 finlets; pectoral fins with 24 to 26 rays; interpelvic process small and bifid. Body naked ventrally behind the long anterior corselet; dorsal half of body to lateral line covered with small scales; caudal peduncle slender with a well developed lateral keel between the 2 smaller keels on each side. Swimbladder absent. Vertebrae 20 precaudal plus 20 caudal, total 40.

Colour: back uniformly dark blue; lower sides and belly silvery white.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Gymnosarda unicolor: interpelvic process large and single; first dorsal fin usually with fewer spines (13 to 15; 15 to 18 in Allothunnus).



Sarda species: body entirely covered with scales; dark, oblique stripes on the back.

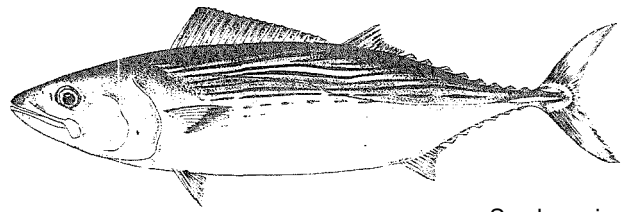
Acanthocybium solandri and Scomberomorus species: corselet of scales ill-defined; also, snout as long as rest of head, maxilla concealed, and vertical stripes on body in A. solandri.

Grammatorcynus bilineatus: 2 lateral lines, interpelvic process single.

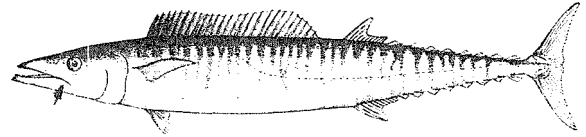
Gasterochisma melampus: entire body covered with large scales; no large median keel between pair of small keels.

Thunnus species: body more robust; first dorsal fin with fewer spines (11 to 14; 15 to 18 in Allothunnus).

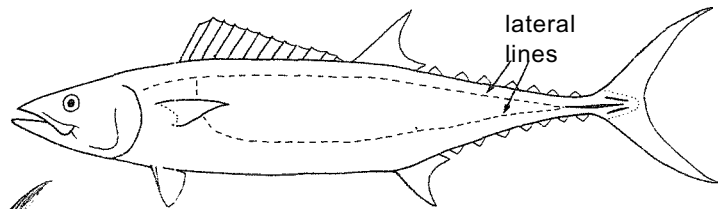
Other species of Scombridae: various colour patterns and/or two dorsal fins well separated.



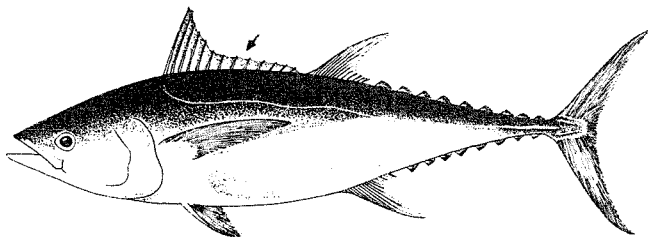
Sarda orientalis



Acanthocybium solandri



Grammatorcynus bilineatus



Thunnus tonggol

SIZE:

Maximum: about 96 cm; common to 86 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout the southern part of the area; cosmopolitan between 20° and 50° S.

An epipelagic, oceanic species.

Feeds on zooplankton, particularly euphausiid crustaceans, and to a minor extent on squids and small fishes.

PRESENT FISHING GROUNDS:

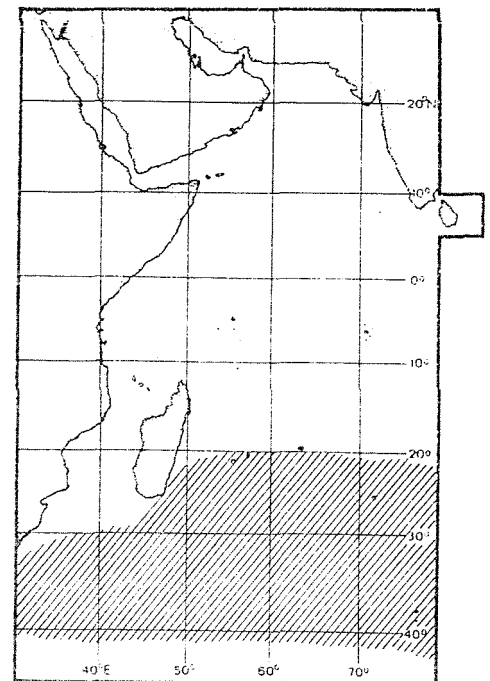
There is presently no fishery directed at this species.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught incidentally on longline gear.

Marketed mostly fresh.

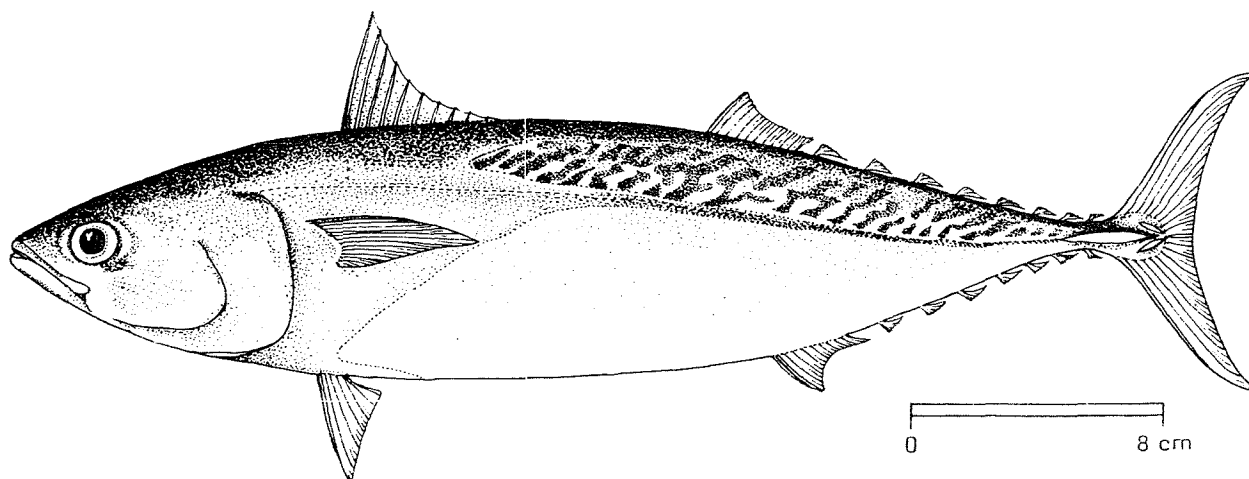


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)Auxis thazard (Lacepède, 1800)

OTHER SCIENTIFIC NAMES STILL IN USE:

Auxis tapeinosoma Bleeker, 1854Auxis hira Kishinouye, 19315

VERNACULAR NAMES:

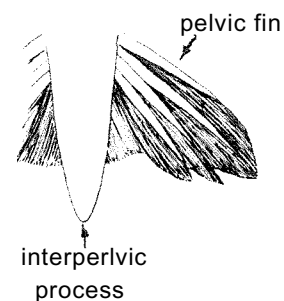
FAO: En - Frigate tuna
Fr - Auxide
Sp - Melva

NATIONAL:

DISTINCTIVE CHARACTERS:

Body robust, elongate and rounded. Teeth small and conical, in a single series. Two dorsal fins, the first with 10 to 12 spines, separated from the second by a large interspace (at least equal to length of first dorsal fin base), the second fin followed by 8 finlets; pectoral fins short, but reaching past vertical line from anterior margin of scaleless area above corselet; a large single-pointed flap (interpelvic process) between pelvic fins; anal fin followed by 7 finlets. Body naked except for the corselet, which is well developed and narrow in its posterior part no more than 5 scale wide under second dorsal fin origin). A strong central keel on each side of caudal fin base between 2 smaller keels.

Colour: back bluish, turning to deep purple or almost black on the head; a pattern of 15 or more narrow, oblique to nearly horizontal, dark wavy lines in the scaleless area above lateral line; belly white; pectoral and pelvic fins purple, their inner sides black.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

A. rochei: posterior part of corselet wider, 6 to 20 scales wide under the second dorsal in origin (not more than 5 or 6 scales wide in A. thazard); pectoral fins not reaching vertical from scaleless area above corselet; dark stripes on back nearly vertical.

Scomber and Rastrelliger species: scales present all over body; no central keel between the 2 small keels on each side of caudal fin base; 5 finlets behind dorsal and anal fins instead of 7 or 8. Furthermore, marbled colour pattern of back extending forward up to head in Scomber.

All other scombrid species occurring in the area have both dorsal fins close together.

SIZE:

Maximum: 58 cm fork length (off Sri Lanka); common to 40 cm (larger than A. rochei).

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

A cosmopolitan warm-water species known throughout most of the area, although some records may be attributable to A. rochei. Possibly absent from the Red Sea and the "Gulf". Reported from the east coast of South Africa from Natal north, the Gulf of Aden, the Laccadive Islands, the entire west coast of India from Bombay to Cape Comorin, and from Sri Lanka.

It is a seasonal visitor to coastal waters of India and is the more common of the two species of Auxis there.

Feeds on small fishes, especially clupeoids; also, on squids and planktonic crustaceans such as crab (megalops) and stomatopod larvae.

FAO Species Synopses Nos 47, 71 and 124 (also Nos 51 -Pacific, 70 - Atlantic).

PRESENT FISHING GROUNDS:

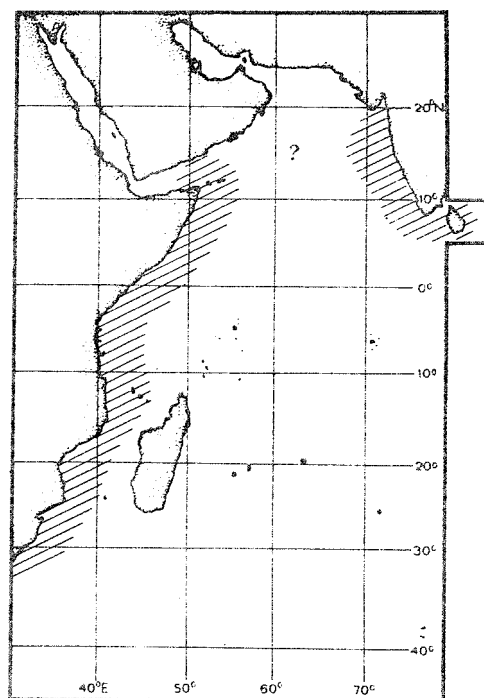
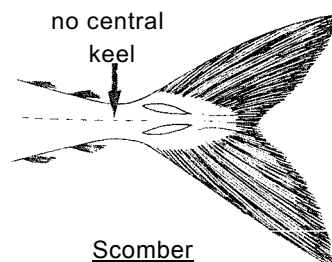
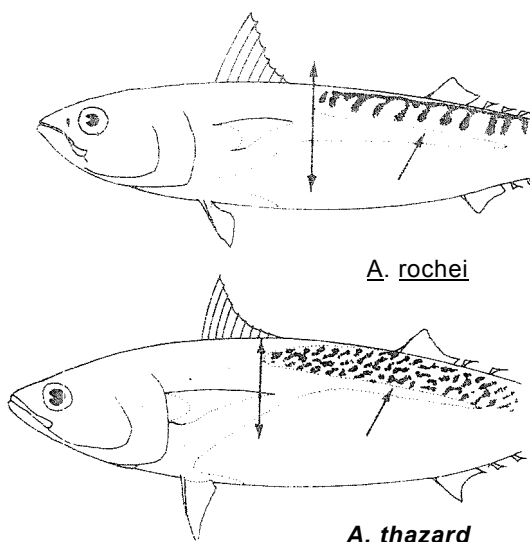
Mainly coastal waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The combined catch of A. rochei and A. thazard reported from Fishing Area 51 totalled about 1900 t in 1981.

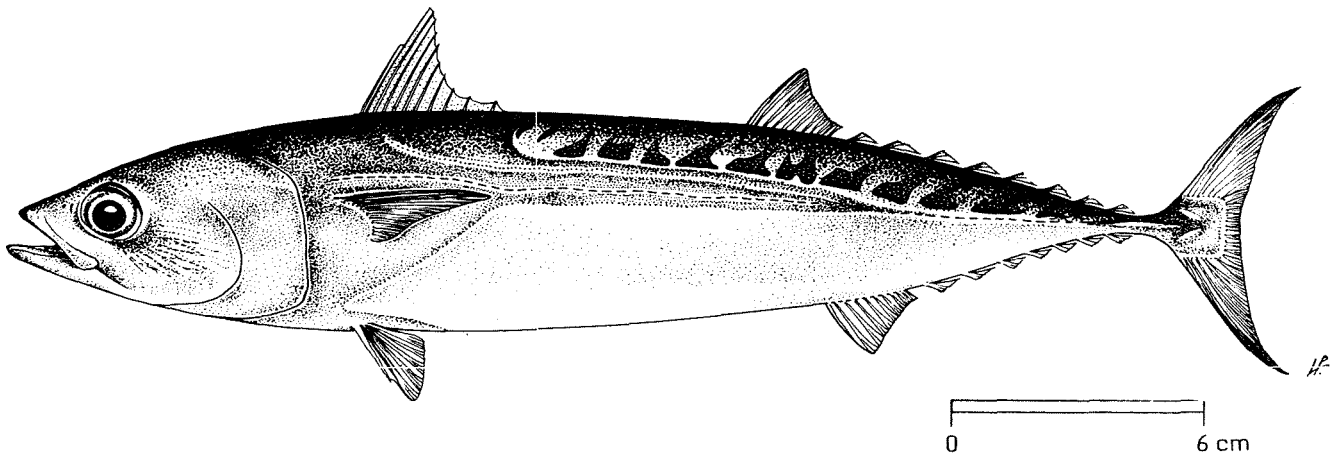
Caught with beach seines, shore seines, drift nets, purse seines, hook and line, and by trolling.

Marketed fresh; possibly also frozen.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)*Auxis rochei* (Risso, 1810)OTHER SCIENTIFIC NAMES STILL IN USE: *Auxis thynnoides* Bleeker, 1855
Auxis maru Kishinouye, 1915

VERNACULAR NAMES:

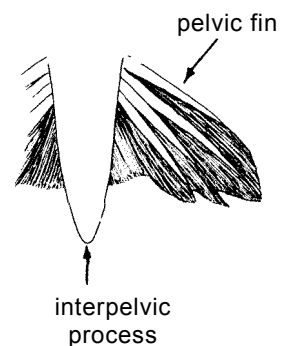
FAO : En - Bullet tuna
Fr - Bonitou (Auxide, Fishing Area 31)
Sp - Melvera

NATIONAL:

DISTINCTIVE CHARACTERS:

Body robust, elongate and rounded. Teeth small and conical, in a single series. Two dorsal fins, the first with 10 to 11 tall spines, separated by a large interspace (at least equal to length of first dorsal fin base), the second fin followed by 8 finlets; pectoral fins short, not reaching vertical line from anterior margin of scaleless area above corselet; a large, single-pointed flap (interpelvic process) between the pelvic fins; anal fin followed by 7 finlets. Body naked except for corselet, which is well developed in its posterior part (more than 6 scales wide under second dorsal fin origin). A strong central keel on each side of caudal fin base between 2 smaller keels.

Colour: back bluish, turning to deep purple or almost black on the head; a pattern of 15 or more fairly broad, neap vertical dark bars in the scaleless area; belly white; pectoral and pelvic fins purple, their inner sides black.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Auxis thazard: posterior part of corselet narrower, not more than 5 scales wide under second dorsal fin origin (6 to 20 scales wide in A. rochei); pectoral fins reaching vertical from scaleless area above corselet; dark stripes on back more oblique.

Scomber and Rastrelliger species: scales present all over body; no central keel between the 2 small keels on each side of caudal fin base; 5 finlets behind dorsal and anal fins instead of 7 or 8. Furthermore, marbled colour pattern of back extending forward up to head in Scomber.

All other scombrid species occurring in the area have both dorsal fins close together.

SIZE:

Maximum: 40 cm fork length; common to 35 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

A cosmopolitan warm-water species that occurs sporadically throughout the Indian Ocean. Reported from off the Cape Peninsula and Mossel Bay in South Africa and from the west coast of India to Mangalore, Calicut, Cochin, Trivandrum, and Cape Comorin. Some records of A. thazard are probably attributable to A. rochei.

Adults have been taken largely in inshore waters and near islands.

Feeds on small fishes, especially clupeoids; also on squids and crustaceans, especially crab and stomatopod larvae.

FAO Species Synopsis No. 124.

PRESENT FISHING GROUNDS:

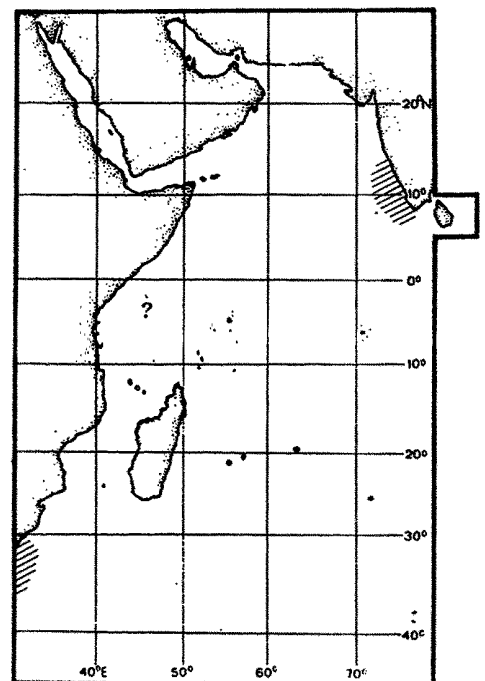
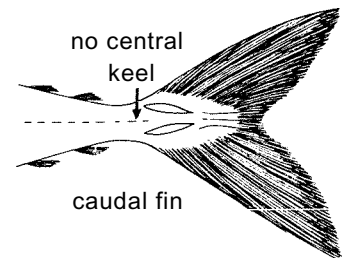
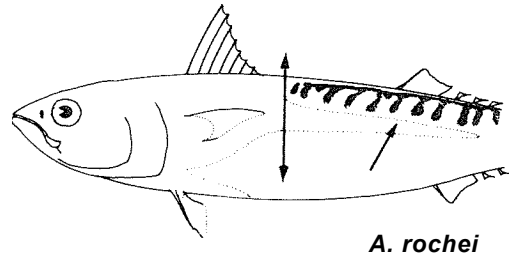
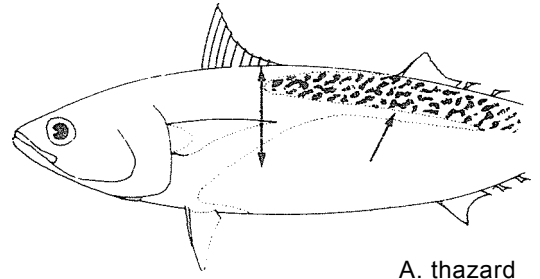
No specific fishery exists; caught with other species. Considerable quantities are landed at Vizhinjam, southwest India.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The combined catch of A. rochei and A. thazard reported from Fishing Area 51 totalled about 1 900 t in 1981.

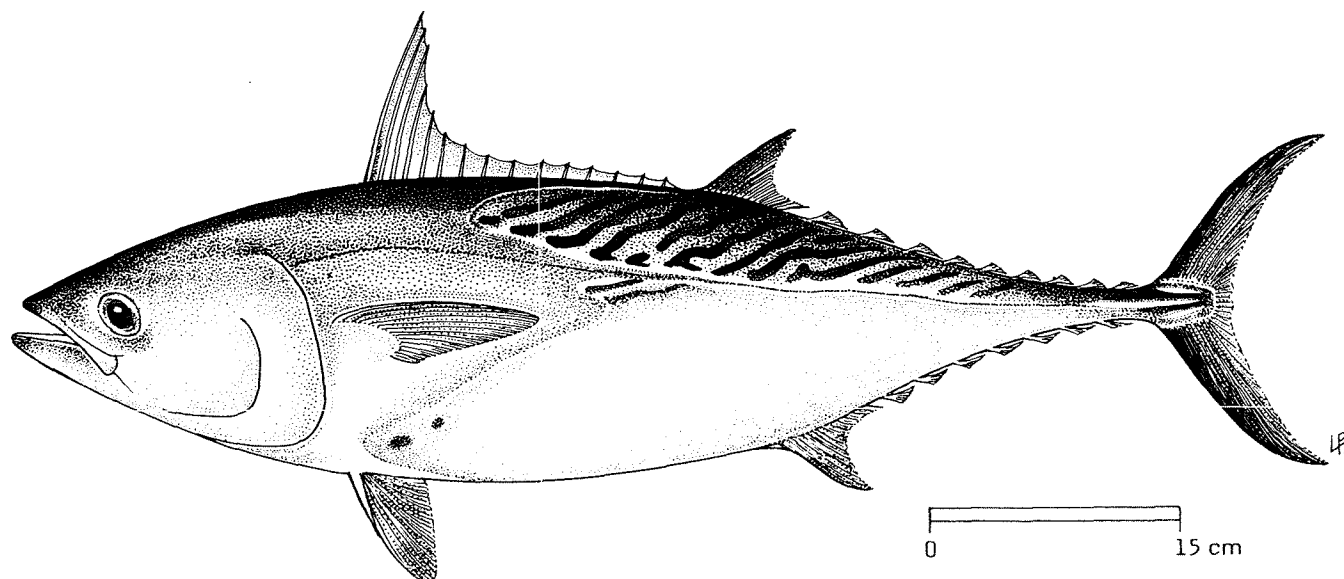
Caught with purse seines, shore seines, liftnets, traps, pole and line, and by trolling.

Marketed fresh and frozen.



FAO SPECIES IDENTIFICATION SHEETS

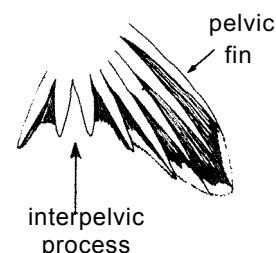
FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)*Euthynnus affinis* (Cantor, 1849)OTHER SCIENTIFIC NAMES STILL IN USE: *Euthynnus yaito* Kishinouye, 1915

VERNACULAR NAMES:

FAO: En - Kawakawa
Fr - Thonine orientale
Sp - Bacoreta oriental

NATIONAL:



DISTINCTIVE CHARACTERS:

A medium-sized fish with a robust, elongate and fusiform body. Teeth small and conical, in a single series; gillrakers 29 to 34 on first arch. Two dorsal fins, the first with 11 to 14 spines; both fins separated by only a narrow interspace (not wider than eye), anterior spines of first much higher than those mid-way, giving the fin a strongly concave outline; second dorsal fin much lower than first and followed by 8 to 10 finlets; pectoral fins short; never reaching the interspace between the dorsal fins; two flaps interpelvic process between pelvic fins; anal fin followed by 6 to 8 finlets. Body naked except for corselet and lateral line. A very slender caudal peduncle with a prominent lateral keel between 2 small keels at base of caudal fin.

Colour: back dark blue with a complicated striped pattern which does not extend forward beyond middle of first dorsal fin; lower sides and belly silvery white; several characteristic dark spots between pelvic and pectoral fins (which, however, may not always be very conspicuous).

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Thunnus species, Allothunnus fallai and Gymnosarda unicolor: no pattern of stripes on back; also, scales present on all parts of body in Thunnus:

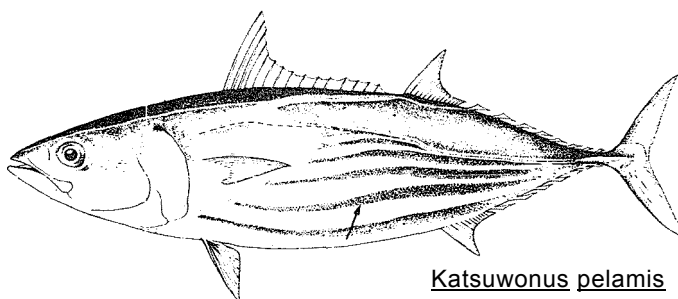
Katsuwonus pelamis: no striped colour pattern on back, but very characteristic dark longitudinal bands along lower sides; also, more gillrakers on first arch (53 to 63; 29 to 34 in E. affinis).

Sarda species: mouth wider and upper jaw reaching at least to hind margin of eye.

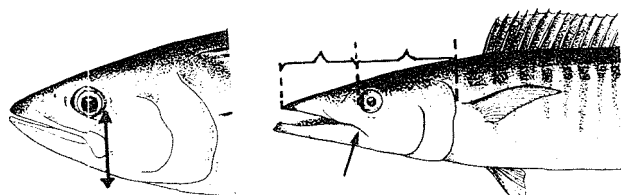
Acanthocybium solandri and Scomberomorus species: body much more elongate; corselet of scales ill-defined; also, snout as long as rest of head, maxilla concealed, and vertical stripes on body in A. solandri.

Grammatorcynus bilineatus: no stripes on body and 2 lateral lines.

Auxis, Scomber and Rastrelliger species: a large interspace between dorsal fins (at least equal to length of first dorsal fin base).

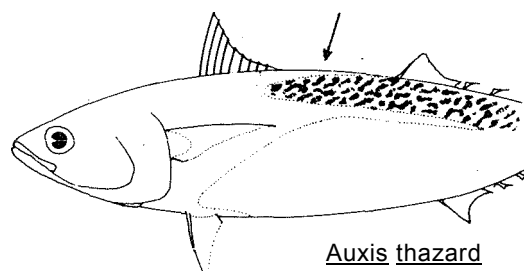


Katsuwonus pelamis



Sarda sp.

Acanthocybium solandri



Auxis thazard

SIZE:

Maximum: about 100 cm; common to 60 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread along the entire east coast of Africa, in the Red Sea, the Gulf of Aden, the "Gulf", off Pakistan, in the west coast of India and Sri Lanka; eastward to Hawaii.

Found in coastal waters and around offshore islands. Schools with other similar sized scombrids.

Feeds on small fishes, especially clupeoids and atherinids; also on squids, crustaceans and zooplankton.

FAO Species Synopses Nos 48 and 50 (as E. yaito), and 122.

PRESENT FISHING GROUNDS:

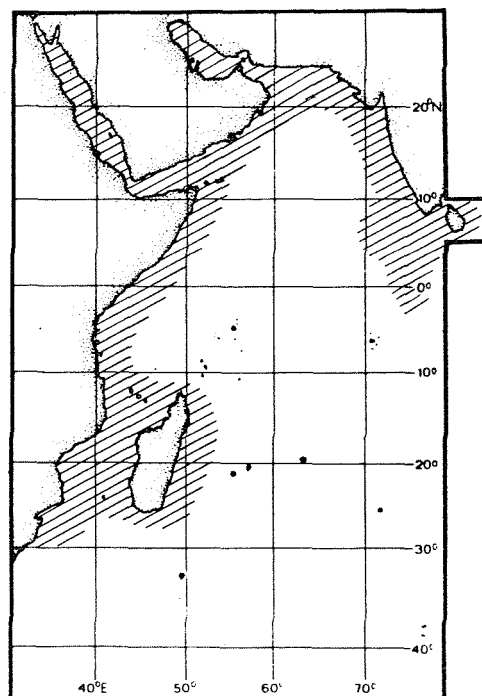
Coastal waters and around islands throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

The catch from Fishing Area 51 totalled about 11 000 t in 1981, primarily by Pakistan.

Caught in multispecies fisheries, mainly by surface trolling; also with gillnets.

Marketed canned and frozen; also dried-salted and smoked.



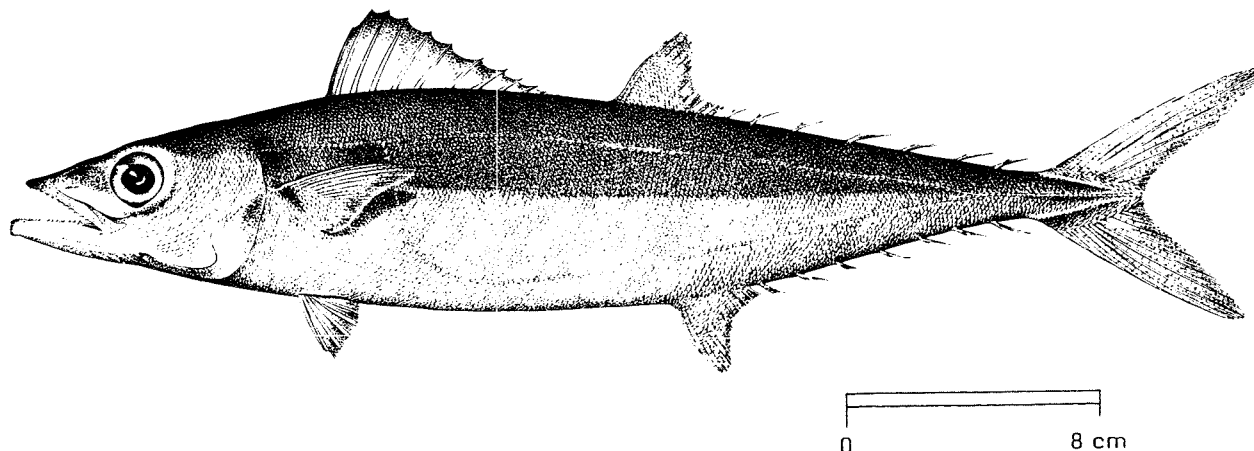
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)

Grammatorcynus bilineatus (Rüppell, 1836)

OTHER SCIENTIFIC NAMES STILL IN USE: Grammatorcynus bilineatus Gill, 1862
Nesagrammus piersoni Evermann & Seale, 1907



VERNACULAR NAMES:

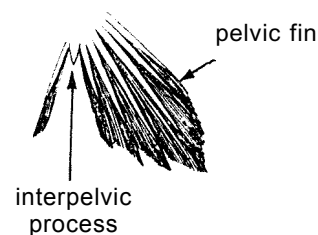
FAO : En - Double-lined mackerel
Fr - Thazard-kusara
Sp - Carite cazón pintado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate, slightly compressed. Teeth slender and conical; rectangular patch of sharp teeth on tongue; gillrakers on first arch 19 to 24. Two dorsal fins separated by small interspace, the first with 11 to 13 spines, the second dorsal and anal followed by 6 or 7 finlets; pectoral fins short with 22 to 26 rays; a small single flap (interpelvic) process between pelvic fins. Two lateral lines, the lower joining the upper behind the pectoral fin base; and at the caudal fin base. Body covered with moderately small scales; no anterior corselet; caudal peduncle slender with a well developed lateral keel between the two smaller ones on each side.

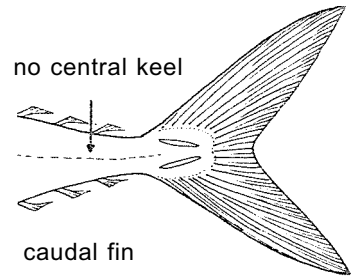
Colour: back and upper sides metallic blue-green; lower sides and belly silvery white.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

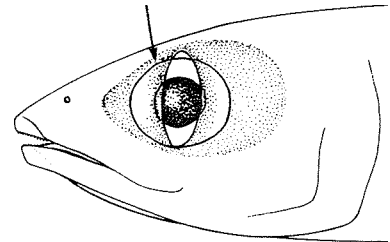
Scomberomorus species: only one lateral line; teeth in jaws strong, compressed, triangular (slender and conical in Grammatocynus); interpelvic process double (single in Grammatocynus); gill-rakers 3 to 16 in species in the area (19 to 24 in Grammatocynus).

Scomber and Rastrelliger species: only one lateral line; no central keel between the 2 small keels on each side of caudal fin base; two dorsal fins are widely separated (close together in Grammatocynus); adipose eyelids cover anterior and posterior edges of eye (absent in Grammatocynus).



Scomber

adipose eyelid



Scomber, Rastrelliger

SIZE:

Maximum: 100 cm fork length; common to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

A tropical Indo-West Pacific species; reported from the Red Sea, Andaman Sea, coasts of Australia, Java Sea, Papua New Guinea, Celebes, the Philippines, Marshall Islands and the Ryuku Islands south of Japan.

Found mainly around coral reefs. Forms large schools.

Feeds on fishes and crustaceans.

FAO Species Synopsis No. 72 (as G. bicarinatus).

PRESENT FISHING GROUNDS:

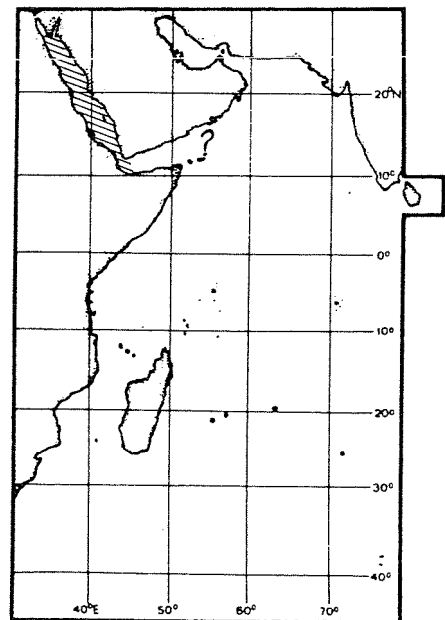
Surface waters, mainly near coral reefs.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

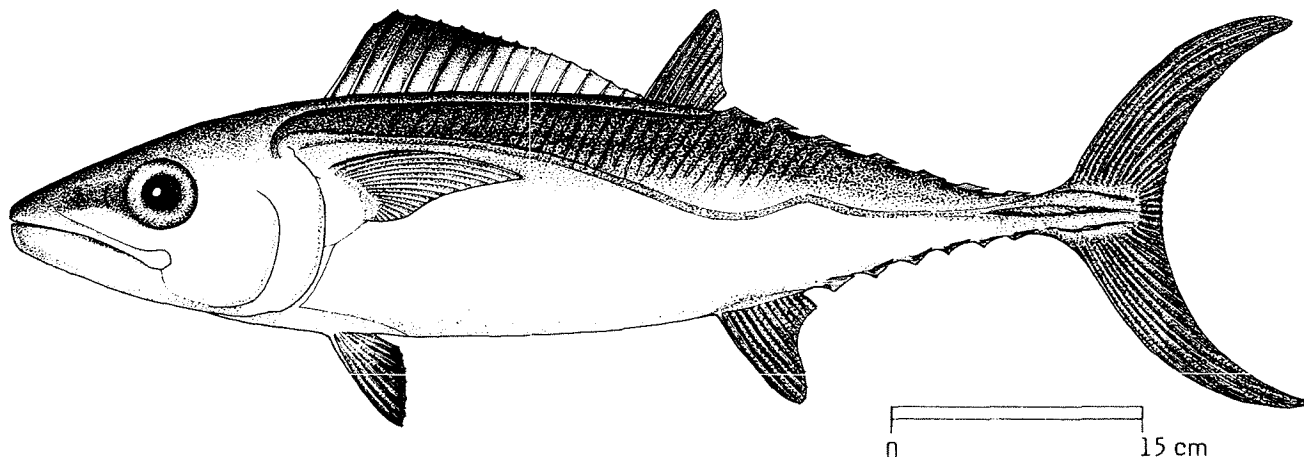
Caught mainly by pole and line.

Marketed canned or frozen. The ammonia-like smell of the flesh can be masked by brushing with lemon juice prior to cooking.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)Gymnosarda unicolor (Rüppell, 1838)OTHER SCIENTIFIC NAMES STILL IN USE: Gymnosarda nuda (Günther, 1860)

VERNACULAR NAMES:

FAO : En - Dogtooth tuna
Fr - Bonite à gros yeux
Sp - Casarte ojón

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and moderately compressed. Mouth fairly large, upper jaw reaching to middle of eye; 14 to 31 large, conical teeth on upper jaw, 10 to 24 on lower jaw; 2 patches of teeth on upper surface of tongue; 11 to 14 gillrakers on first gill arch. Dorsal fins close together, the first (spiny) long (13 to 15 spines) its border almost straight, the second followed by 6 or 7 finlets; anal fin followed by 6 finlets; pectoral fins with 25 to 28 rays; interpelvic process large and single. Lateral line strongly undulating. Body naked posterior to corselet except for the lateral line, dorsal fin base, and caudal keel; caudal peduncle slender, with a well developed lateral keel between 2 smaller keels on each side.

Colour: back and upper sides brilliant blue-black, lower sides and belly silvery; no lines, spots or other markings on body; anterior tip of first dorsal fin dark; other fins greyish.

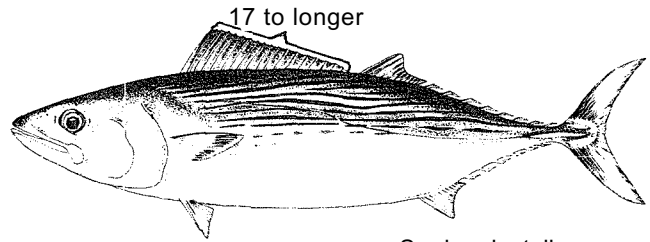
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Allothunnus fallai: first dorsal fin with more spines (15 to 18 spines against 13 to 15 in Gymnosarda); interpelvic process small and bifid.

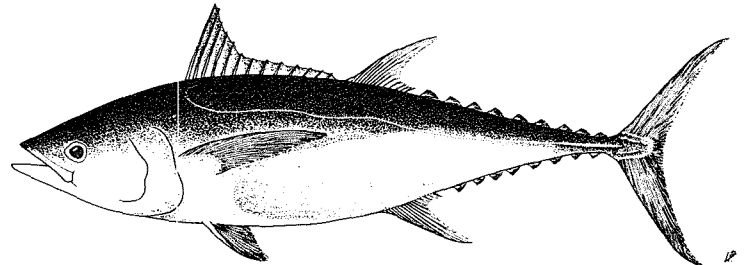
Sarda orientalis: 5 to 11 dark oblique stripes on back and upper sides; no teeth on tongue; first dorsal fin longer (17 to 19 instead of 13 to 15 in Gymnosarda unicolor).

Thunnus species: body covered with very small scales behind corselet; teeth much smaller; border of spiny dorsal fin not straight; 2 flaps on interpelvic process.

Other species of Scombridae: various colour patterns of stripes, blotches or marblings.



Sarda orientalis



Thunnus tonggol

SIZE:

Maximum: 110 cm fork length; common to 80 cm.

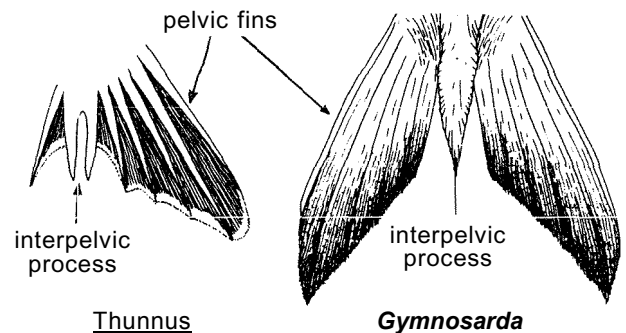
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

A tropical Indo-West Pacific species; probably throughout the Western Indian Ocean, actually recorded from Tanzania, Madagascar, Reunion, Mauritius, Rodrigues, Comoro Islands, Aldabra, Amirante Islands, Seychelles Islands, the Red Sea, the Laccadive Archipelago, the Maldives, and Sri Lanka.

An offshore species found mainly around coral reefs. Usually solitary.

Feeds mostly on small schooling fishes and squids.

FAO Species Synopsis No. 75.



PRESENT FISHING GROUNDS:

Surface waters, mainly near coral reefs.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

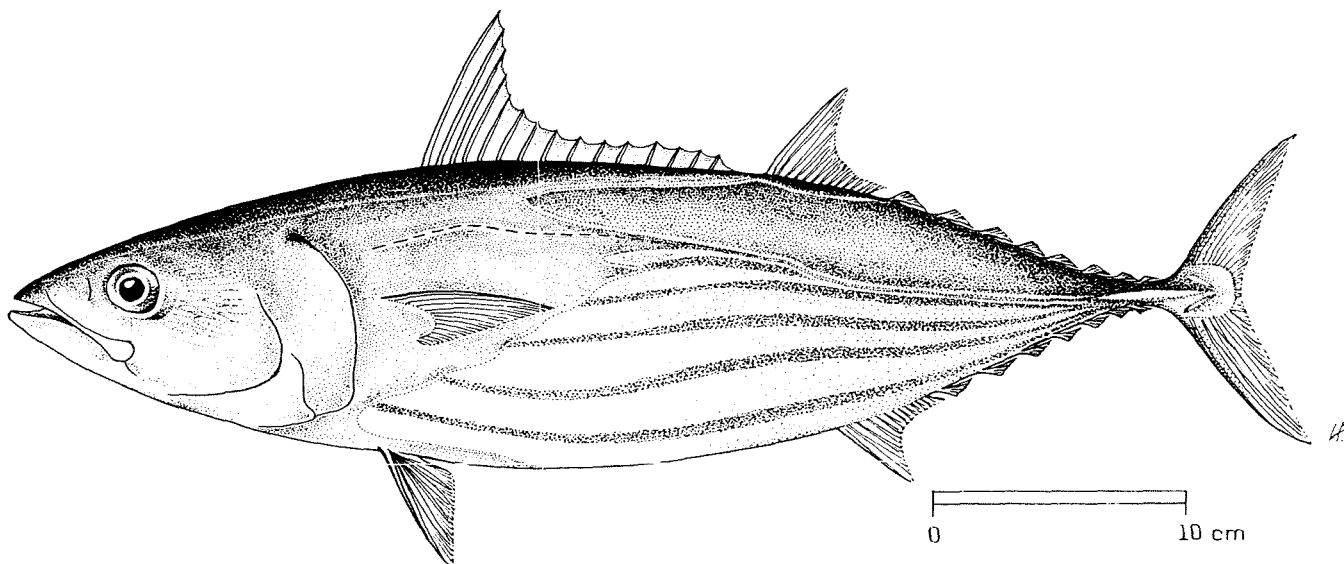
Separate statistics are not reported for this species.

Caught mainly by pole and line.

Marketed canned or frozen.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)Katsuwonus pelamis (Linnaeus, 1758)OTHER SCIENTIFIC NAMES STILL IN USE: Euthynnus pelamis (Linnaeus, 1758)

VERNACULAR NAMES:

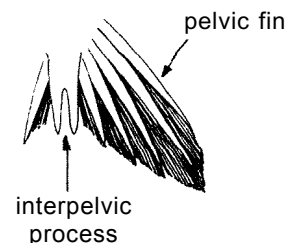
FAO : En - Skipjack tuna
Fr - Bonite à ventre rayé (= Listao, Fishing Area 31)
Sp - Listado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body fusiform, elongate and rounded. Teeth small and conical, in a single series; gillrakers numerous, 53 to 63 on first gill arch. Two dorsal fins separated by a small interspace (not larger than eye), the first with 14 to 16 spines, the second followed by 7 to 9 finlets; pectoral fins short, with 26 or 27 rays; 2 flaps (interpelvic process) between pelvic fins; anal fin followed by 7 or 8 finlets. Body scaleless except for the corselet and lateral line. A strong keel on each side of base of caudal fin between 2 smaller keels.

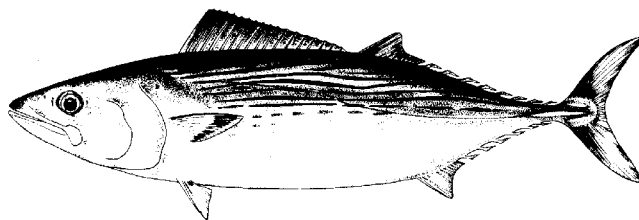
Colour: back dark purplish blue, lower sides and belly silvery, with 4 to 6 very conspicuous longitudinal dark bands which in live specimens may appear as discontinuous lines of dark blotches.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Sarda orientalis is the only other species in the area with longitudinal stripes but these are on the back instead of on the belly as in K. pelamis. S. orientalis also has fewer gillrakers (16 to 22 instead of 53 to 63) and more spines in the long, low and straight first dorsal fin (17 to 19 instead of 14 to 16).

All other scombrid species in the area lack the dark longitudinal bands on lower flanks, and have fewer gillrakers, at most 40 (Thunnus maccoyii).



Sarda orientalis

SIZE:

Maximum: 100 cm fork length; common to 80 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Cosmopolitan in tropical and subtropical seas. Found from the Cape Peninsula of South Africa, off the coast of East Africa including Madagascar, Réunion, Mauritius, Aldabra, and the Seychelles, in the Red Sea, the Gulf of Aden, the Laccadive Sea, the Maldives, the Indian coast and Sri Lanka; apparently absent from the "Gulf".

Occurs in large schools in oceanic waters, generally above the thermocline.

Feeds on fishes, cephalopods, and crustaceans.

FAO Species Synopses Nos 64 and 136 (and Nos 58 - Atlantic and Mediterranean, 65 - Pacific).

PRESENT FISHING GROUNDS:

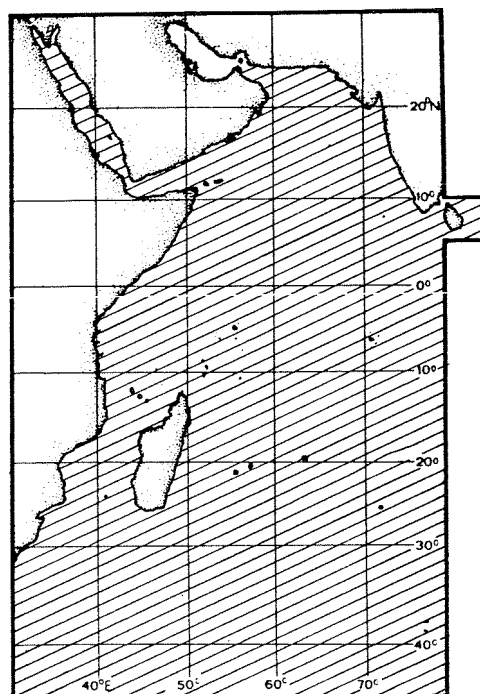
Deep coastal and oceanic waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

The catch from Fishing Area 51 totalled about 35 000 t in 1981 primarily by the Maldives and Sri Lanka.

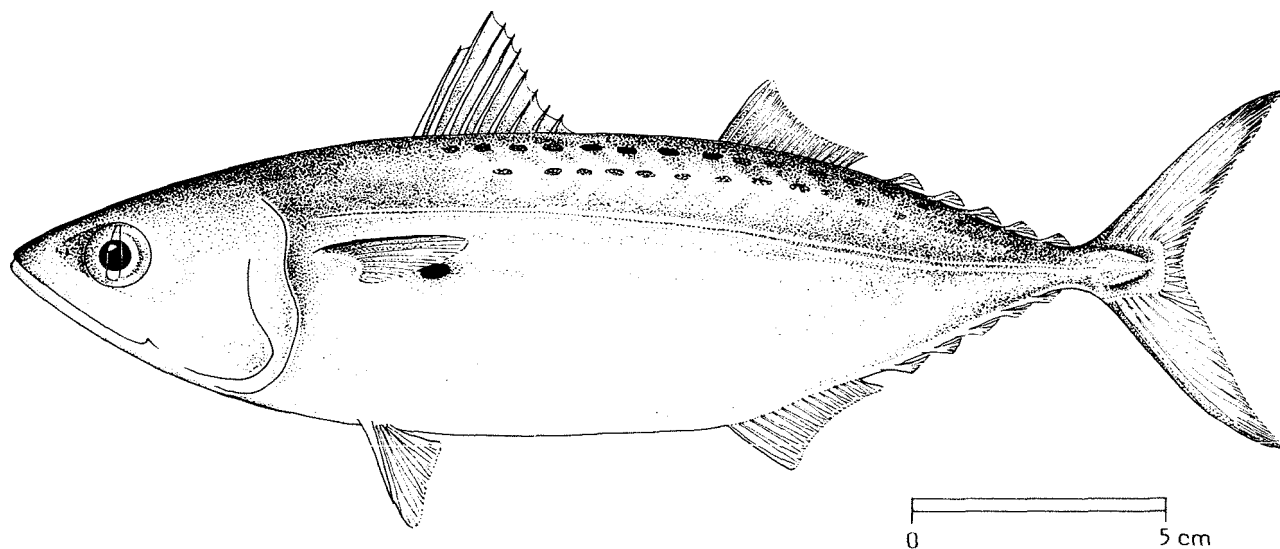
Caught mainly with purse seines; also by pole and line. Also an important game fish usually taken by trolling on light tackle using plugs, spoons, feathers, or strip bait.

Marketed canned or frozen.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)Rastrelliger kanagurta (Cuvier, 1817)OTHER SCIENTIFIC NAMES STILL IN USE: Rastrelliger chrysozonus (Rüppell, 1836)

VERNACULAR NAMES:

FAO : En - Indian mackerel
 Fr - Maquereau des
 Sp - Caballa de la India

NATIONAL:

DISTINCTIVE CHARACTERS :

Body moderately deep, its depth at margin of gill cover 4.3 to 5.2 times in fork length; head longer than body depth. Maxilla partly concealed, covered by the lacrimal bone, but extending to about hind margin of eye. Well developed adipose eyelids. Gillrakers very long, visible when mouth is opened, 30 to 46 on lower limb of first arch; a moderate number of bristles on longest gillraker, 105 on one side in specimens of 12.7 cm, 140 in specimens of 16 cm, and 160 in specimens of 19 cm fork length. Two widely separated dorsal fins; second dorsal and anal fins each followed by 5 or 6 finlets. Intestine 1.4 to 1.8 times fork length.

Colour: back blue/green, flanks silver with a golden tint; 2 rows of small dark spots on sides of dorsal fin bases, narrow dark longitudinal bands on upper part of body (golden in fresh specimens) and a black spot on body near lower margin of pectoral fin; dorsal fins yellowish with black tips, caudal and pectoral fins yellowish; other fins dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Rastrelliger brachysoma (not reported from Area 51, but may occur there occasionally): more deep-bodied, the depth at margin of gill cover 3.7 to 4 times in fork length (4.3 to 5.2 in R. kanagurta); intestine very long, 3.2 to 3.6 times in fork length (1.4 to 1.8 in R. kanagurta); bristles on longest gillrakers more numerous, about 150 on one side in specimens of 12.7 cm, 210 in specimens of 16 cm, and 240 in specimens of 19 cm in fork length.

R. faughni (not reported from Area 51 but may occur there occasionally, nearest record is from Madras): body slimmer, its depth at margin of gill cover about 5 to 6 times in fork length; intestine about equal to fork length; gillrakers short, not extending far into mouth when the latter is opened, and less numerous (20 to 25 on lower limb of first gill arch; 30 to 46 in R. kanagurta); only 30 to 55 bristles on one side of longest gillraker (over 100 in R. kanagurta).

Auxis and Scomber species: a conspicuous pattern of oblique zig-zag or wavy dark lines on back. Furthermore, Auxis has a simple interpelvic process, a well developed corselet of scales and a median keel between the pair of small keels on each side of caudal peduncle; 8 dorsal and 7 anal finlets (5 dorsal and anal finlets in R. kanagurta).

Other species of Scombridae: first and second dorsal fins close together; 7 to 10 finlets behind dorsal and anal fins.

SIZE:

Maximum: 35 cm; common to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found from Natal northward along the coast of East Africa, Madagascar, Réunion, Comoros, Aldabra, the Seychelles, to the Red Sea, western India, and Sri Lanka. The range extends eastward to the Philippines, Australia and Samoa. Has entered the eastern Mediterranean Sea.

A common, coastal pelagic species, often found in large schools. Off India, batch spawning extends from March through September.

Feeds primarily on plankton, mainly larval crustaceans.

FAO Species Synopsis No. 29.

PRESENT FISHING GROUNDS:

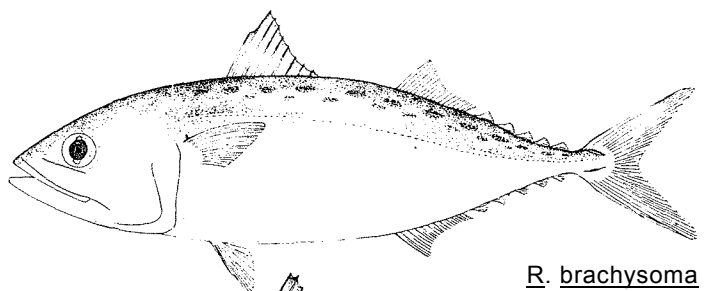
Most of the Indian catch comes from the west coast off the Ratnagiri-Quilon region.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

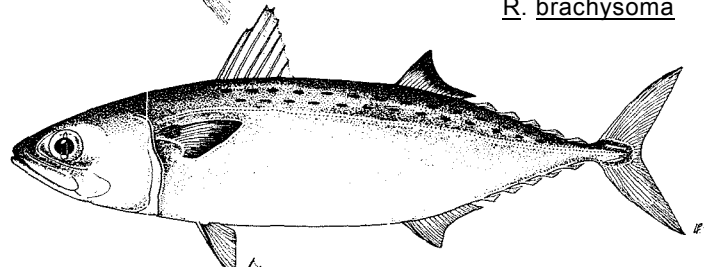
The catch from Fishing Area 51 totalled about 55 000 t in 1981 (mainly India).

Caught mainly with purse seines, encircling gillnets, lift nets, and bamboo stake traps.

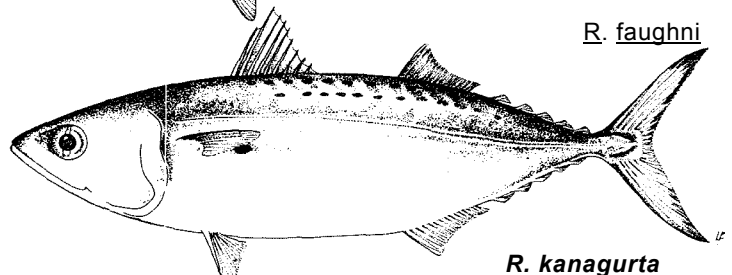
Marketed fresh, frozen, canned, dried-salted, and smoked; also made into fish sauce.



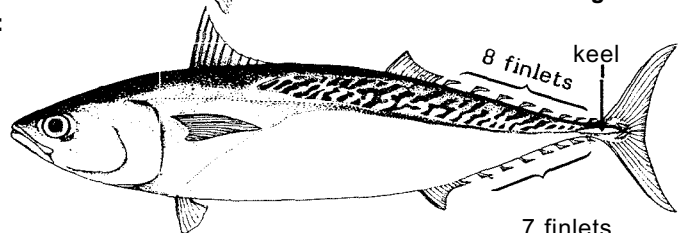
R. brachysoma



R. faughni

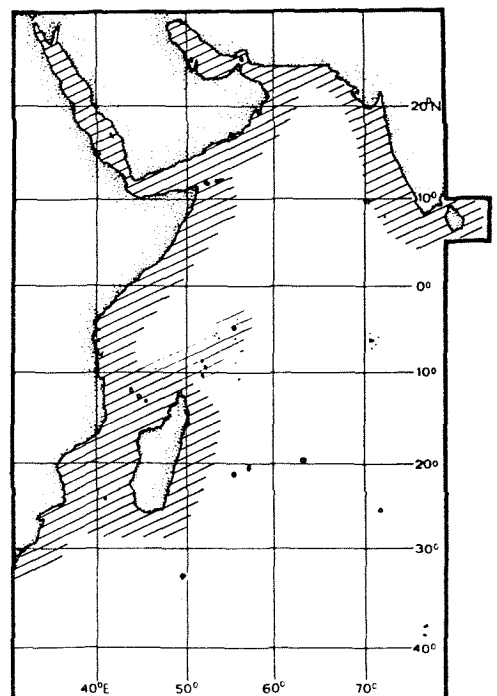


R. kanagurta



7 finlets

Auxis thazard

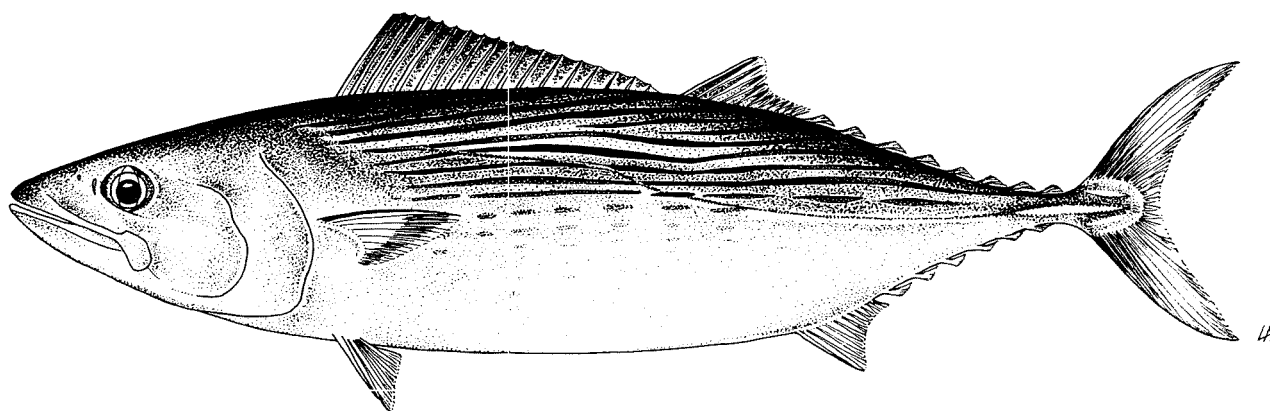


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)*Sarda orientalis* (Temminck & Schlegel, 1844)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

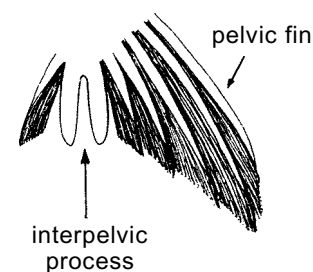
FAO: En - Striped bonito
 Fr - bonite oriental
 Sp - bonito mono

NATIONAL:

DISTINCTIVE CHARACTERS:

A small, relatively narrow-bodied tuna. Mouth rather wide, upper jaw reaching beyond hind margin of eye; teeth fairly large and conical, 12 to 20 on each side in upper jaw, 10 to 17 in each lower jaw; no tooth patches on upper surface of tongue; 8 to 13 gillrakers on first arch. Dorsal fins close together, the first (spiny) very long, (17 to 19 spines) and straight or only slightly concave in outline; 7 to 9 dorsal and 6 or 7 anal finlets; pectoral fins short; pelvic fins separated by 2 flaps (interpelvic process). Lateral line conspicuously wavy. Body entirely covered with scales which are minute except on the well developed corselet; caudal peduncle slender, with a prominent lateral keel between two smaller keels on each side.

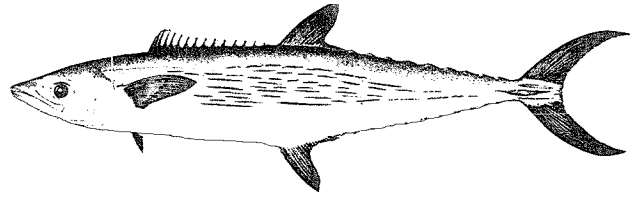
Colour: back and upper sides steel-blue, with 5 to 11 dark slightly oblique stripes running forward and downward; lower sides and belly silvery. Juveniles to 30 cm fork length) with several transverse bars. First dorsal fin solid black.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Scomberomorus species: none has the longitudinal dark stripes on back characteristic of Sarda; dorsal fin spines at most 17, usually less (17 to 19 in S. orientalis).

Other species of Scombridae: upper jaw shorter; the maxilla not reaching to hind margin of eye; first dorsal fin clearly concave and shorter. The only other species with longitudinal dark stripes is Katsuwonus pelamis, but these are on belly, not on back.



Scomberomorus lineolatus

SIZE:

Maximum: 102 cm; common to 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread in the Indo-Pacific but with many gaps in its known distribution. Reported from Durban to Natal, South Africa, Aldabra, the Seychelles, Red Sea, mouth of the "Gulf", all along the west coast of India and Sri Lanka.

Inhabits coastal waters but is also found around some islands. Schools with other small tunas. Spawning varies with the monsoon season.

Feeds on small fishes, particularly cupleoids, crustaceans and squids.

FAO Species Synopsis Nos 46 and 118.

PRESENT FISHING GROUNDS:

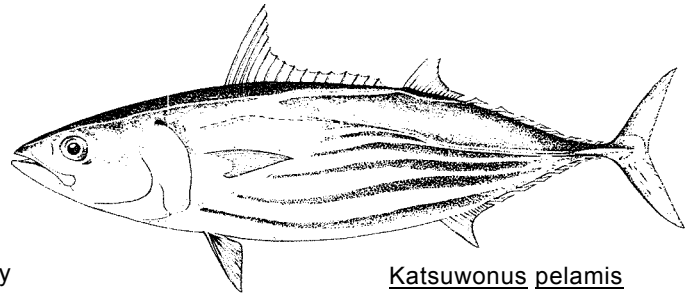
Coastal waters. The fishing season on the southwest coast of India extends from June to September.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

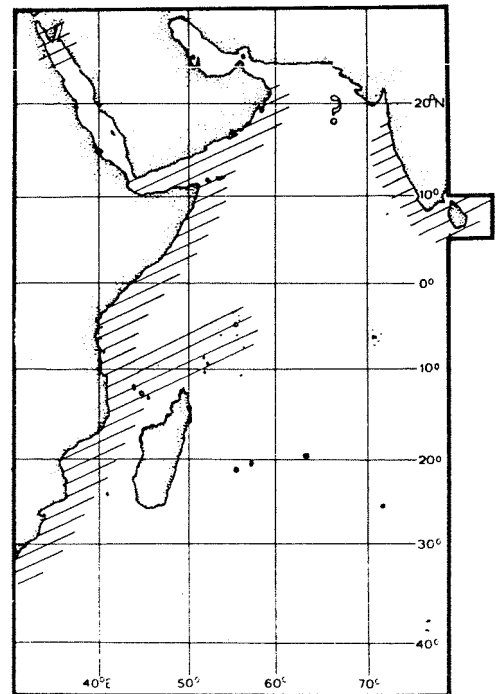
Separate statistics are not reported for this species.

Caught mainly by pole and line, and with purse seines, and drift nets (around Sri Lanka and southwest India).

Marketed mainly fresh; also dried salted.

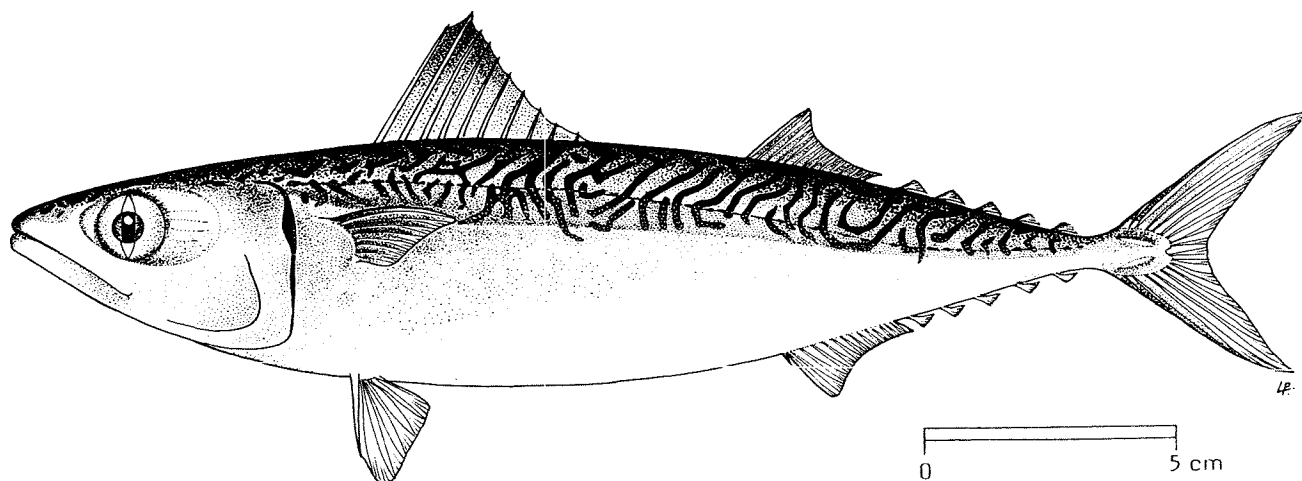


Katsuwonus pelamis



FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)Scomber japonicus Houttuyn, 1782OTHER SCIENTIFIC NAMES STILL IN USE : Pneumatophorus colias (Gmelin, 178)
Scomber colias, Gmelin 1789

VERNACULAR NAMES:

FAO : En - Chub mackerel
Fr - Maquereau
Sp - Estornino

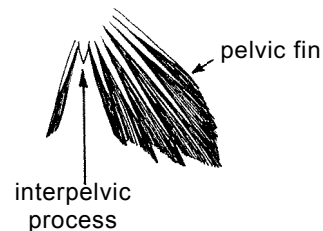
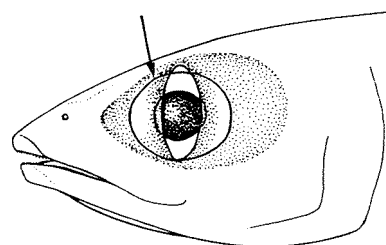
NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and rounded, caudal peduncle slim. Snout pointed, front and hind margins of eye covered by an adipose eyelid; teeth in upper and lower jaws small and conical; teeth also present on vomer and palatines (roof of mouth); gillrakers 25 to 35 on lower limb of first arch, usually, 29 to 33 in the area. Two widely separated dorsal fins the first with 9 or 10 spires; anal spine fairly stiff and strong; 5 dorsal and 5 anal finlets; a single small flap (interpelvic process) between pelvic fins. Scales behind head and around pectoral fins larger and more conspicuous than those covering rest of body, but no well developed corselet. Two small keels on each side of caudal peduncle (at base of caudal fin lobes), but no central keel between them. Swimbladder present.

Colour: back steel-blue crossed by faint wavy lines; lower sides and belly silvery-yellow with numerous dusky, rounded blotches.

adipose eyelid

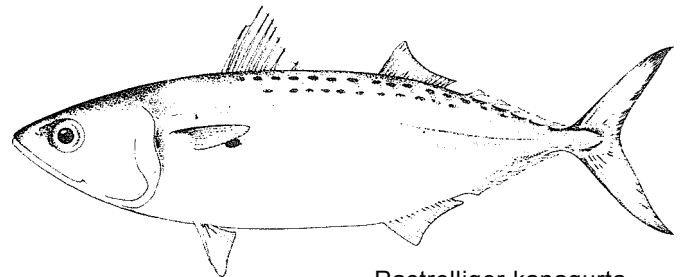


DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Rastrelliger kanagurta: much longer and more numerous gillrakers, clearly visible when the mouth is opened; no teeth on vomer and palatines; anal spine thin, rudimentary; last branchiostegal ray forming a wide plate.

Auxis rochei and A. thazard: a strong central keel between 2 feeble keels located at the bases of the caudal fin lobes; corselet of scales well developed, while the rest of body is scaleless.

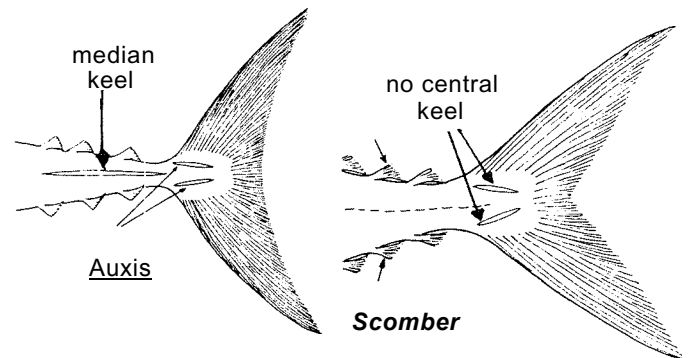
All other species of Scombridae: dorsal fins close together; a strong keel on the caudal peduncle between the 2 keels at bases of caudal fin lobes; size larger.



Rastrelliger kanagurta

SIZE:

Maximum: 50 cm fork length; common to 30 cm



Auxis

Scomber

caudal fin

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

A cosmopolitan species inhabiting temperate waters of the Atlantic, Indian and Pacific Oceans and adjacent seas. One population is common about the Cape of Good Hope, becoming progressively scarcer towards Natal. There are also records from the Red Sea, the "Gulf", and the coasts of India, but these may be attributable to Rastrelliger kanagurta.

A schooling pelagic species occurring mostly in coastal waters.

Feeds on small pelagic fishes, especially clupeoids, and pelagic invertebrates.

PRESENT FISHING GROUNDS:

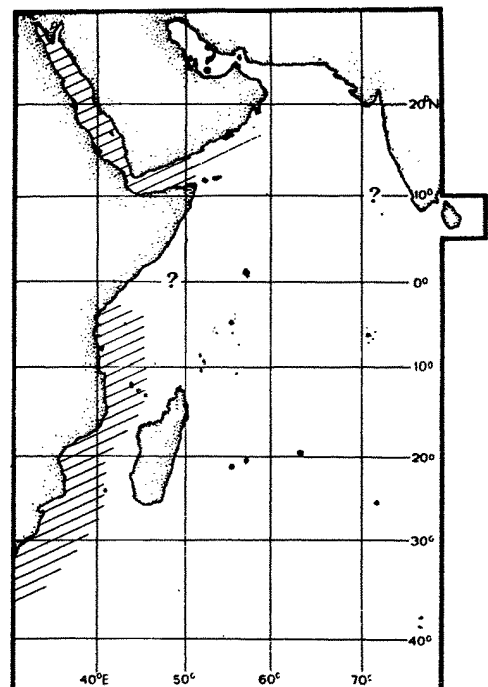
Coastal waters over the continental shelf.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics for this species are not reported from Fishing Area 51.

Caught with purse seines, often together with sardines, sometimes using light; also with trolling lines, gillnets, traps, beach seines and midwater trawls.

Marketed fresh, frozen, smoked, salted and occasionally also canned.

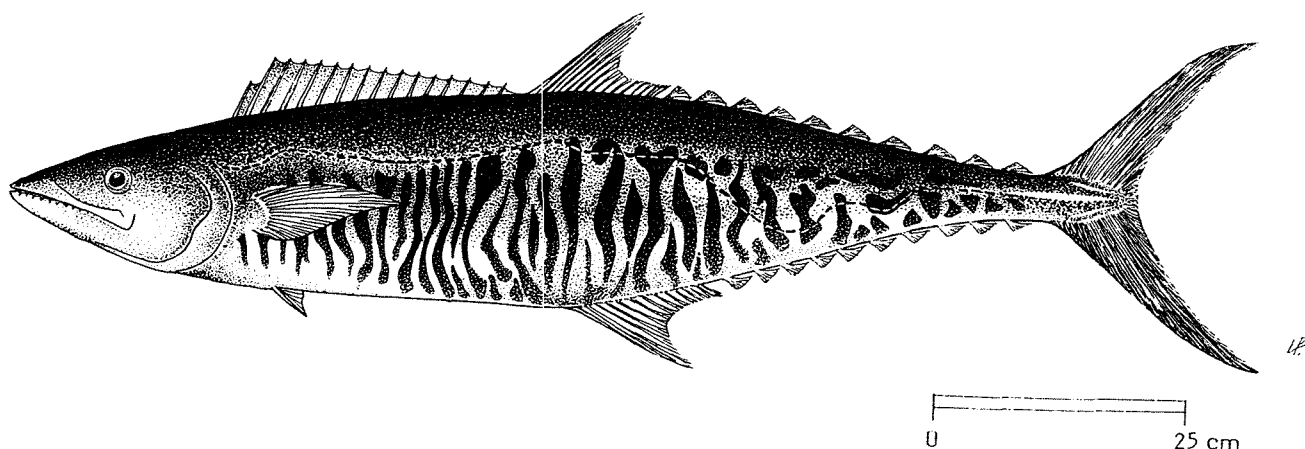


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Scomberomorus commerson</i> (Lacepède, 1801)

OTHER SCIENTIFIC NAMES STILL IN USE: *Cybium commersoni* (Lacepède, 1801)

VERNACULAR NAMES:

FAO : En - Narrow-barred Spanish mackerel
 Fr - Thazard rayé (Indo-Pacifique)
 Sp - Carite estriado del Indo-Pacífico

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate, rather strongly compressed. Upper jaw reaching to posterior margin of eye or slightly beyond; teeth in jaws strong and compressed; gillrakers 0 to 2 on upper limb and 1 to 8 on lower limb of first gill arch (total 1 to 8). Two dorsal fins, the first with 15 to 18 spines and the second with 15 to 20 rays, followed by 8 to 10 finlets; anal fin originating below midpoint of second dorsal fin and with 16 to 20 rays followed by 7 to 12 finlets. Lateral line abruptly bent downward below end of second dorsal fin.

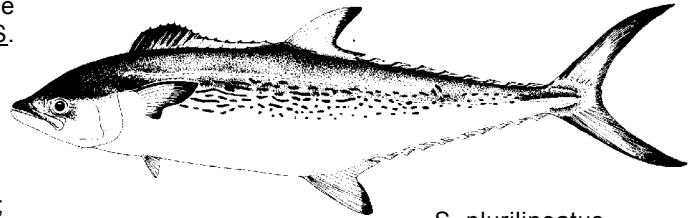
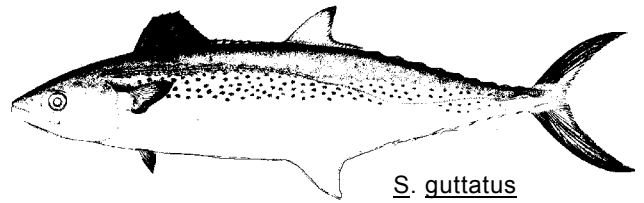
Colour: back iridescent blue/grey, sides silver with bluish reflections, marked with numerous thin, wavy vertical bands; the number of bars increases from as few as 20 in a 40 cm specimen to as many as 65 at 150 cm. Juveniles are frequently spotted.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Scomberomorus guttatus and S. koreanus: dark spots along sides of body and lateral line almost straight; more gillrakers, total number on first gill arch 8 to 15 (1 to 8 in S. commerson).

S. lineolatus and S. plurilineatus: dark horizontal streaks along sides of body; lateral line almost straight; total number of gillrakers on first arch 7 to 15.

Acanthocybium solandri: no gillrakers. and 23 to 27 dorsal fin spines (15 to 18 in S. commerson); also, the snout as long as rest of the head (shorter in S. commerson).



SIZE:

Maximum: 220 cm (largest species in genus); common to 90 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Common throughout the warmer parts of the Western Indian Ocean from Algoa Bay and Mossel Bay northward along the coast of East Africa, including Madagascar, Mauritius and Aldabra, to the Red Sea and the 'Gulf; Pakistan, west coast of India and Sri Lanka. The range extends eastward and northward to the Philippines and Japan and southward to New Caledonia and the southeast coast of Australia. Also has entered the eastern Mediterranean Sea.

A pelagic fish, inhabiting coastal waters at depths between 15 and 200 m; found in small schools.

Feeds chiefly on small schooling fishes such as sardines and anchovies.

PRESENT FISHING GROUNDS:

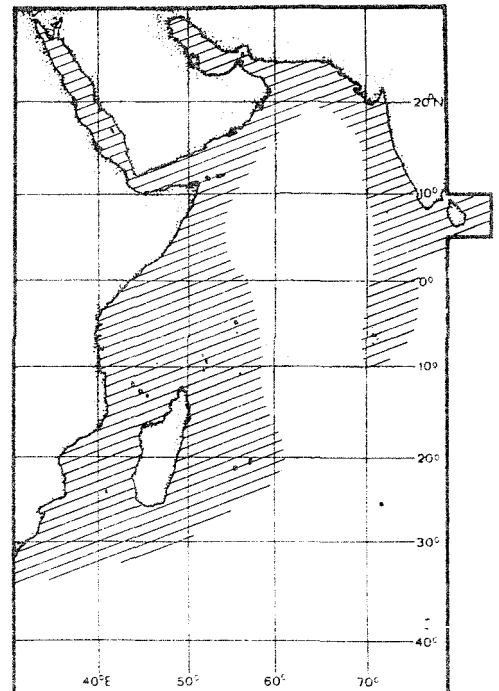
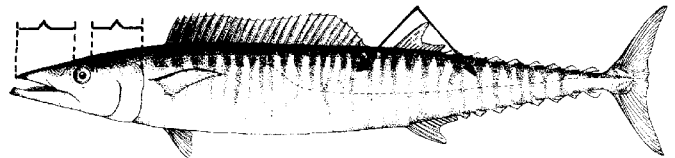
Coastal waters, throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

The total reported catch from Fishing Area 51 was about 13 000 t in 1980.

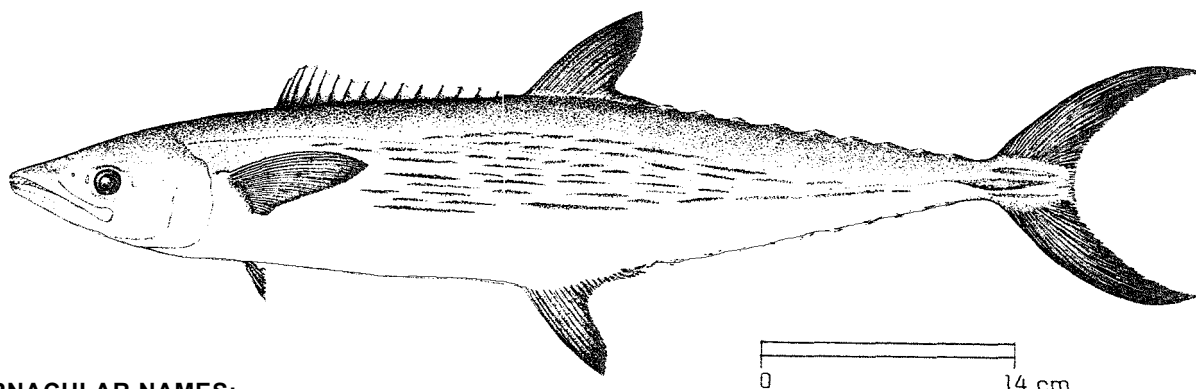
Caught mainly with drift gillnets, bamboo stake traps, midwater tawls, and by trolling.

Marketed mainly fresh; also dried salted; commonly made into fish balls.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)Scomberomorus lineolatus (Cuvier, 1831)OTHER SCIENTIFIC NAMES STILL IN USE: Cybium lineolatum Cuvier, 1831
Indocybium lineolatum: Munro, 1955

VERNACULAR NAMES:

FAO : En - Streaked seerfish
Fr - Thazard cirrus
Sp - Carite rayado

NATIONAL:

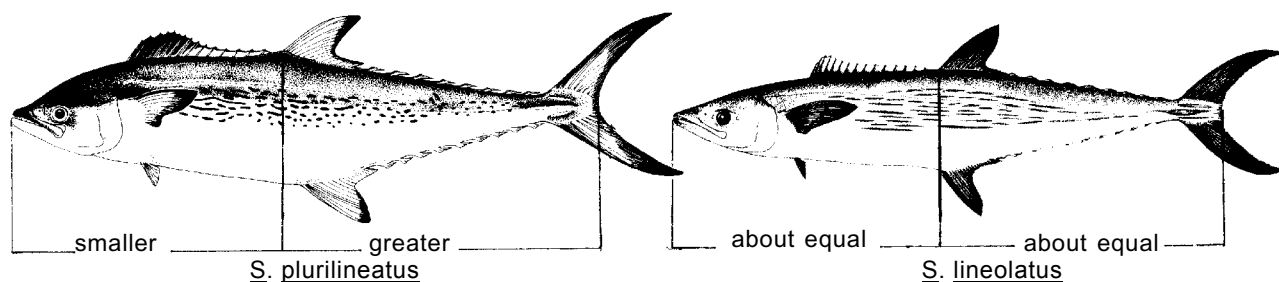
DISTINCTIVE CHARACTERS:

Body elongate, strongly compressed. Upper jaw reaching to below hind margin of pupil; teeth in jaws pointed and strongly compressed; gillrakers 1 or 2 on upper limb and 6 to 11 on lower limb of first gill arch (total 7 to 13). Two dorsal fins, the first with 15 to 18 spines and the second with 15 to 19 rays followed by 7 to 10 finlets; anal fin with 17 to 22 rays, originating below anterior part of second dorsal fin and followed by 7 to 10 finlets. Lateral line running almost straight to below second dorsal finlet, then slightly bent downward toward keel of caudal peduncle (which is very wide). Pectoral fins covered with scales. No swimbladder.

Colour: back blue/grey; sides silvery/white, upper part of body marked with a series of irregular, horizontal, narrow black lines sometimes breaking up into spots ventrally.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Scomberomorus plurilineatus: a pattern predominantly of lines (instead of lines and spots); distance from origin of second dorsal fin to caudal fork greater than to tip of snout (about equal in S. lineolatus); rays in second dorsal fin usually 19 to 21 (usually 18 or 19 in S. lineolatus).



All other Scomberomorus species in the area: either vertical bars (S. commerson) or prominent round spots (S. guttatus and S. koreanus). Also, lateral line abruptly bent downward below end of second dorsal fin, and fewer gillrakers (0 to 2 on the upper limb and 1 to 8 on the lower limb of the first arch in S. commerson; 1 or 2 and 6 to 11 in S. lineolatus).

Acanthocybium solandri: dark lines on body vertical; snout as long as rest of head (shorter in S. lineolatus).

SIZE:

Maximum: 80 cm; common to 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found along both coasts of India and Sri Lanka westward to Thailand, Malaysia and Java. Records from East Africa are attributable to S. plurilineatus.

Little is known about the biology of this species.

PRESENT FISHING GROUNDS:

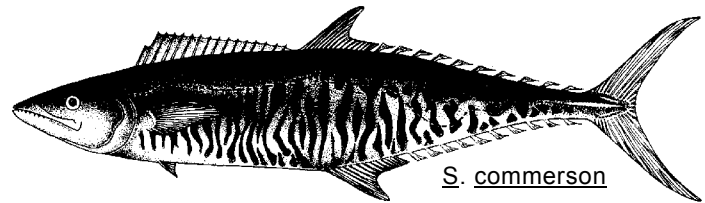
Coastal waters, throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

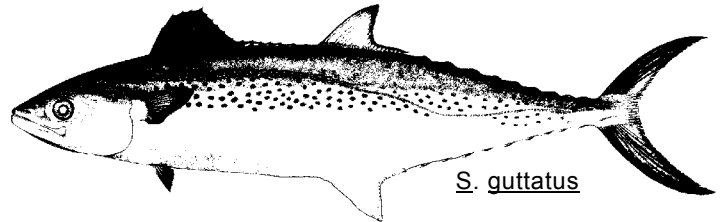
Separate statistics are not reported for this species. The total reported catch of unclassified Scomberomorus species from Fishing Area 51 (excluding S. commerson, for which separate statistics are available) was about 13 000 t in 1981.

Caught with drift gillnets, midwaters trawls, purse seines, and by trolling.

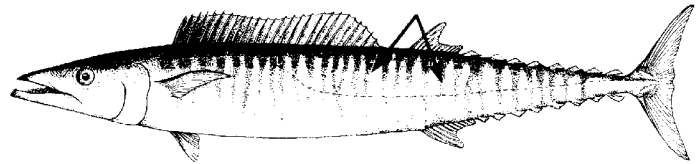
Marketed mainly fresh; also dried salted.



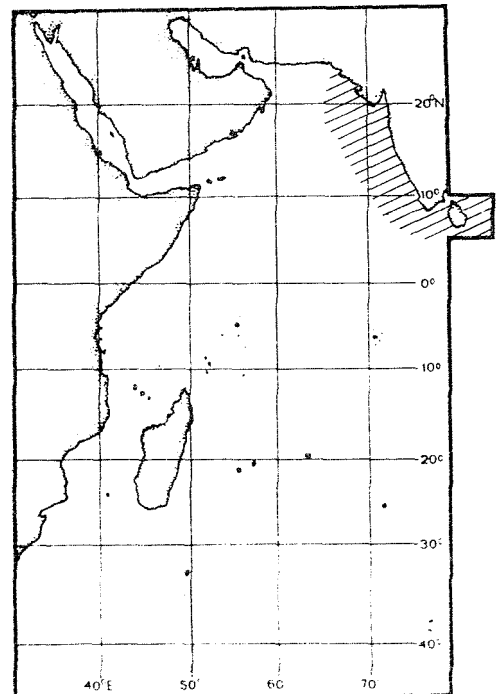
S. commerson



S. guttatus

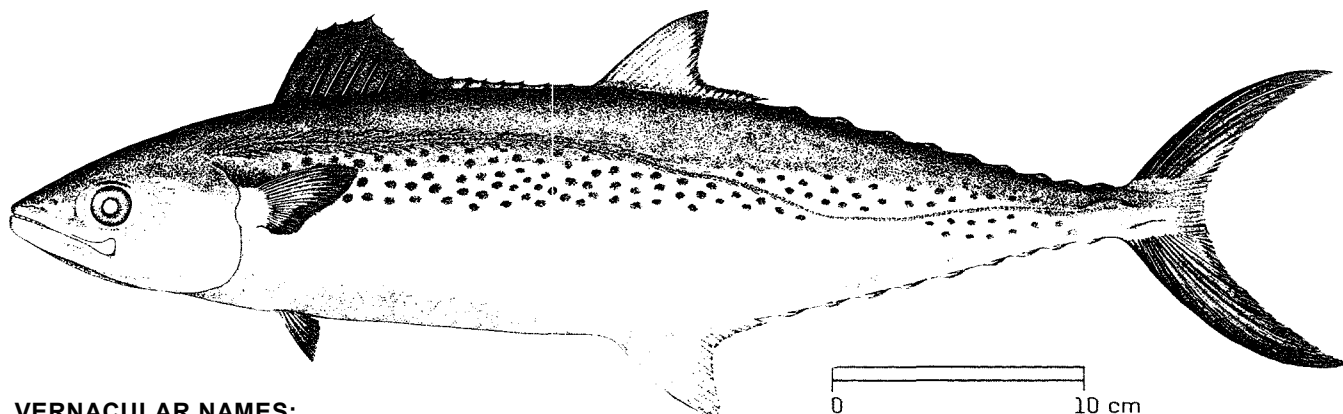


Acanthocybium solandri



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)Scomberomorus guttatus (Bloch & Schneider, 1801)OTHER SCIENTIFIC NAMES STILL IN USE: Cybium guttatum: Cuvier 1829
Indocybium guttatum: Munro, 1955

VERNACULAR NAMES:

FAO : En - Indo-Pacific king mackerel
Fr - Thazard ponctué (Indo-Pacifique)
Sp - Carite del Indo-Pacífico

NATIONAL:

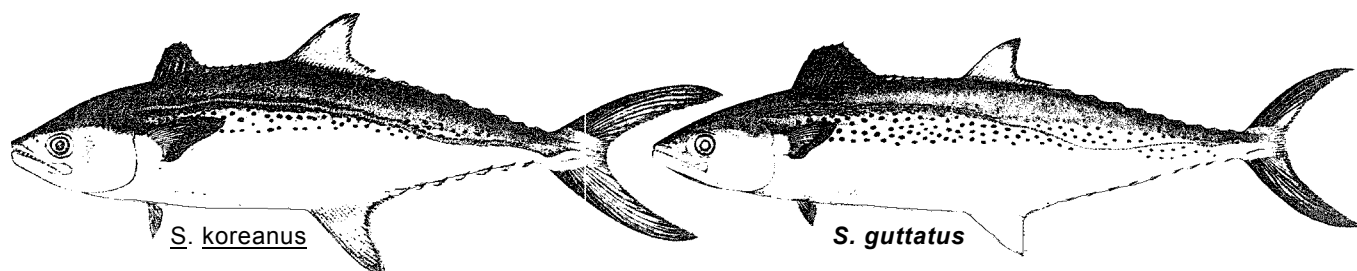
DISTINCTIVE CHARACTERS:

Body elongate, strongly compressed. Head pointed, nearly equal to depth of body; upper jaw almost reaching to below hind margin of eye; teeth moderately compressed, flattened, those in lower jaw longer; gillrakers 1 or 2 on upper limb and 7 to 12 on lower limb of first gill arch. Two dorsal fins, the first with 15 to 18 spines and the second with 18 to 24 rays followed by 7 to 10 finlets; anal fin with 19 to 23 rays originating below anterior part of second dorsal fin and followed by 7 to 10 finlets. Lateral line, with many fine branches anteriorly almost straight to below middle of second dorsal fin, and gently bent downward to middle of caudal peduncle. Vertebrae 47 to 52. Intestine with 2 folds and 3 limbs.

Colour: blue on back, silvery on sides; about 3 irregular rows of dark round spots (smaller than eye) along sides of body; spinous dorsal fin dark up to the 8th spine, white posteriorly, with the distal margin black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

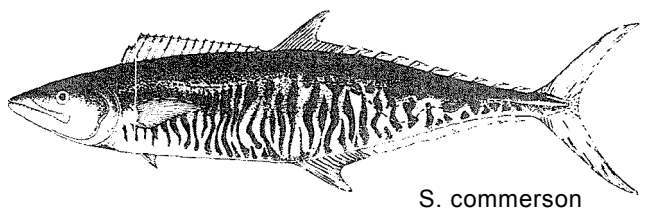
Scomberomorus koreanus: body deeper and head shorter, so that body depth is greater than head length; 46 (usually) or 47 vertebrae (47 to 52 in S. guttatus); 4 folds and 5 limbs to intestine.



Other Scomberomorus species: vertical lines or bars (S. commerson) or horizontal lines (S. lineatus and S. plurilineatus) long sides.

SIZE :

Maximum: 76 cm; common to 55 cm.

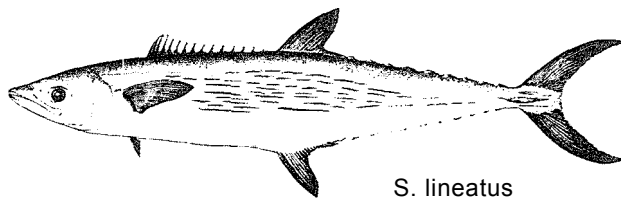


GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found from the "Gulf" westward along the coasts of India and Sri Lanka to the East Indies, South China Sea and Sea of Japan.

A pelagic migratory fish inhabiting coastal waters, at depths between 15 and 200 m; sometimes entering turbid estuarine waters; usually found in small schools.

Feeds mainly on small schooling fishes (especially sardines and anchovies), squids and crustaceans.



PRESENT FISHING GROUNDS:

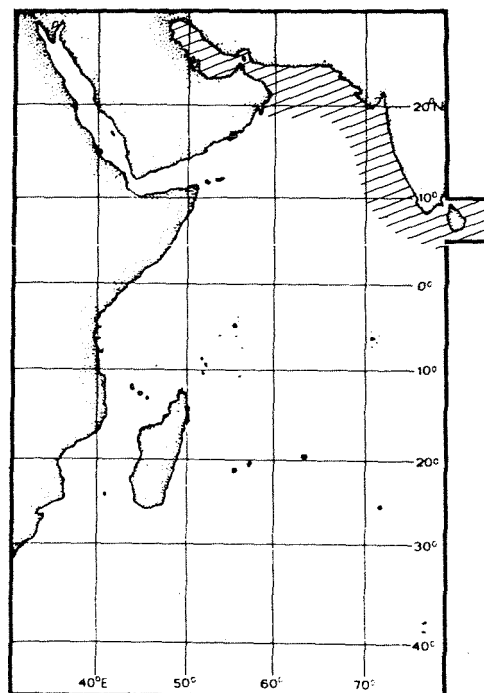
Coastal waters, throughout its range at depths from 15 to 80 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of unclassified Scomberomorus species from Fishing Area 51 (excluding S. commerson, for which separate statistics are available was about 13 000 t in 1481.

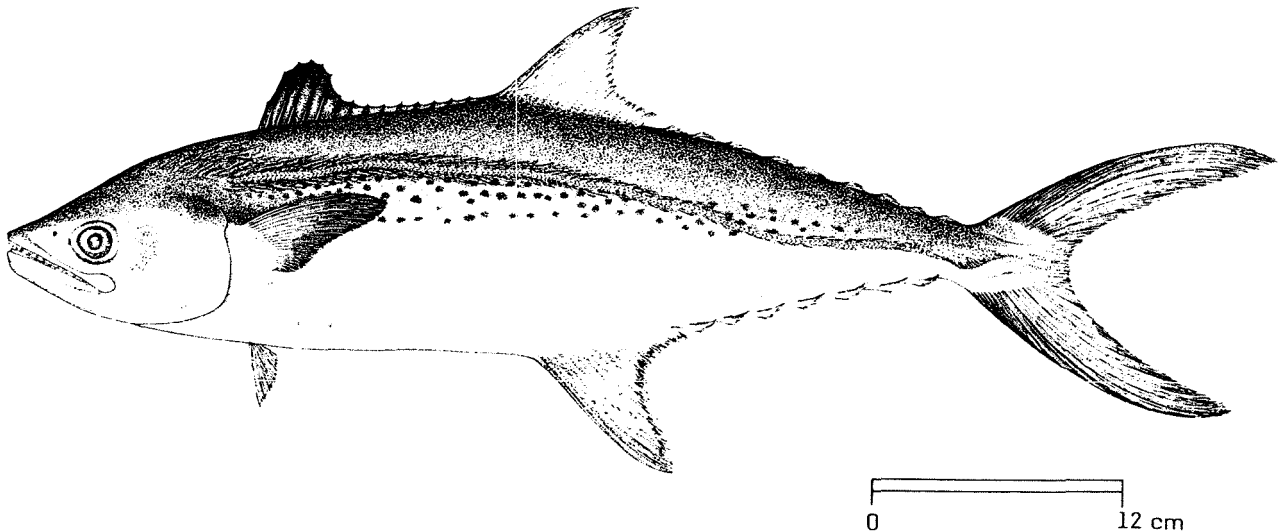
Caught with drift gillnets, midwater trawls, purse seines, bamboo stake traps, and by trolling.

Marketed mainly fresh; also dried salted; highly esteemed food fish.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)Scomberomorus koreanus (Kishinouye, 1915)OTHER SCIENTIFIC NAMES STILL IN USE: Scomberomorus guttatus (Bloch & Schneider, 1801)

VERNACULAR NAMES:

FAO : En - Korean seerfish
 Fr - Thazard coréen
 Sp - Carite coreano

NATIONAL

DISTINCTIVE CHARACTERS:

Body elongate, strongly compressed, body depth much greater than head length. Snout much shorter than rest of head; posterior part of maxilla exposed, reaching to a vertical from posterior margin of orbit; gillrakers on first arch few: 1 or 2 on upper limb and 9 to 12 on lower limb, 11 to 15 total. Two dorsal fins, the first with 14 to 17 spines and the 2nd with 20 to 24 rays followed by 7 to 9 finlets; anal fin with 20 to 24 rays and followed by 7 to 9 finlets. Lateral line with many fine branches anteriorly gradually curving down toward caudal peduncle keel. Vertebrae 46. Intestine with 4 folds and 5 limbs.

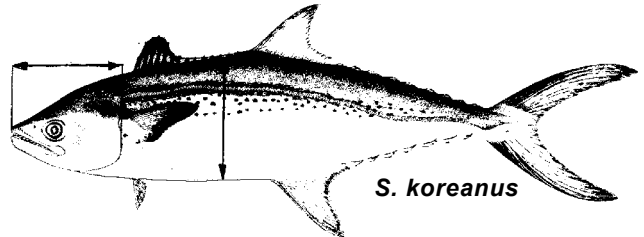
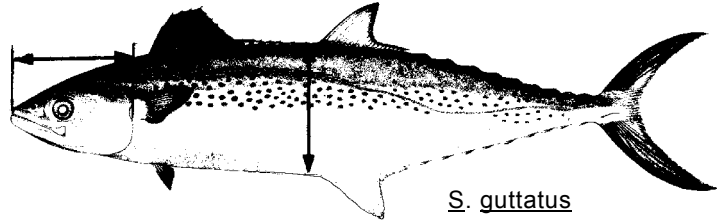
Colour: back iridescent greyish blue, sides silvery, with 2 or 3 irregular rows of small, dark, round spots (smaller than eye size); fins blackish; first dorsal fin black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Scomberomorus guttatus: body not as deep and head longer, so that body depth is less than, or only slightly greater than head length; vertebrae 47 to 52 (46 or 47 in S. koreanus); 2 folds to intestine.

S. lineolatus and S. plurilineatus: a pattern of narrow horizontal lines that break up into some small spots.

S. commerson: a sharp dip in lateral line under second dorsal fin; fewer gillrakers on the first arch (1 to 8 compared to 11 to 15); body marked with vertical bars.



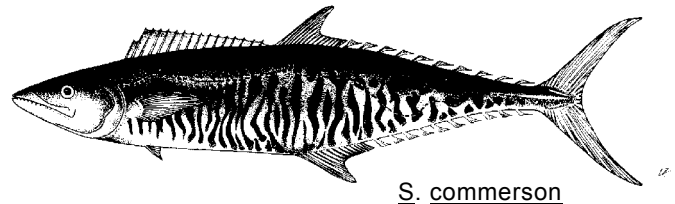
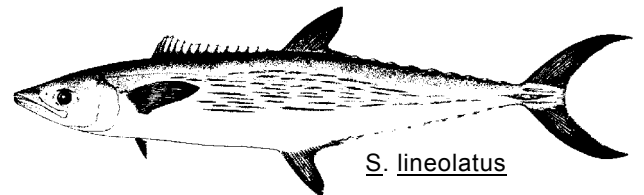
SIZE:

Maximum: 150 cm fork length (15 kg); common to 60 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, only known from the west coast of India from Bombay southward and around Cape Comorin to Sri Lanka. Its range extends along the continental shelf eastward to Sumatra and Singapore, and northward to China, Korea, and Japan.

Feeds on small schooling fishes such as anchovies and sardines and on shrimps.



PRESENT FISHING GROUNDS:

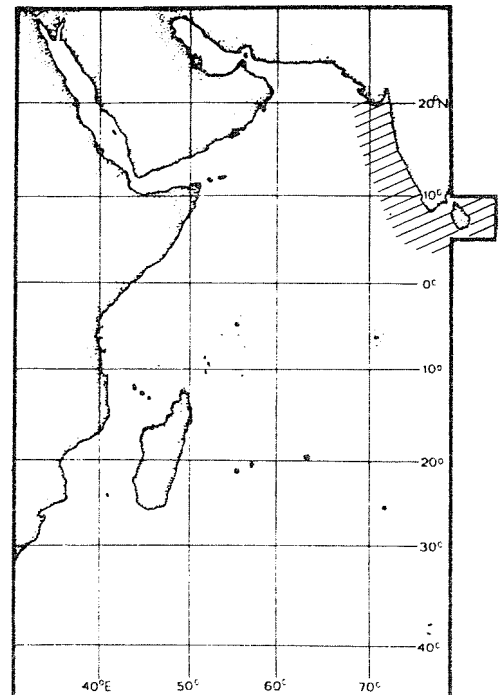
In the area, taken mainly in Palk Bay between India and Sri Lanka.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of unclassified Scomberomorus species from Fishing Area 51 (excluding S. commerson for which separate statistics are available) was about 13 000 t in 1981.

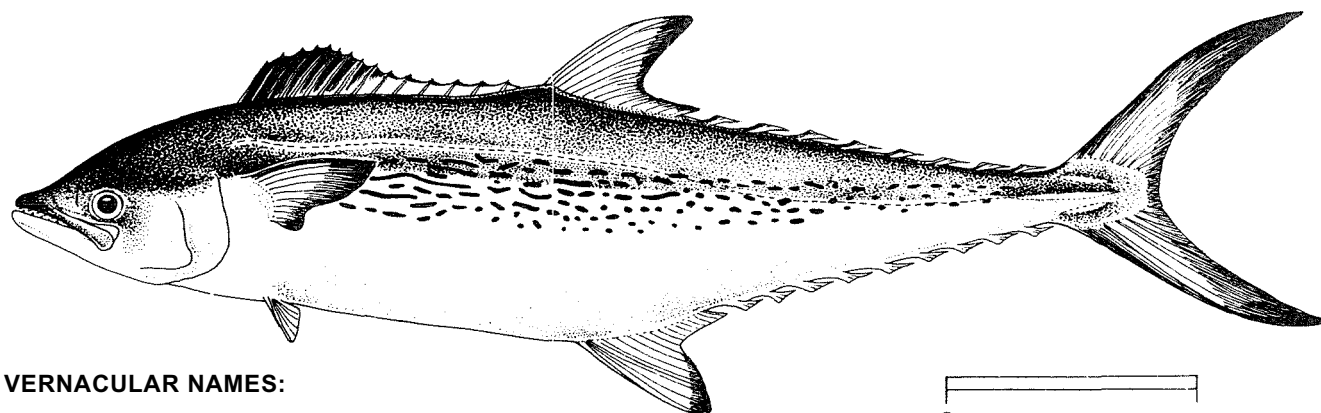
Taken by drift gillnets in Palk Bay and in the Gulf of Mannar.

Marketed fresh and dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)*Scomberomorus plurilineatus* Fourmanoir, 1966OTHER SCIENTIFIC NAMES STILL IN USE: *Scomberomorus leopardus* (Shaw, 1803)

VERNACULAR NAMES:

FAO : En - Kanadi kingfish
Fr - Thazard kanadi
Sp - Carite canadt

NATIONAL:

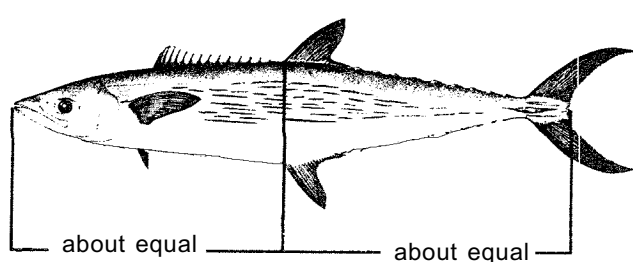
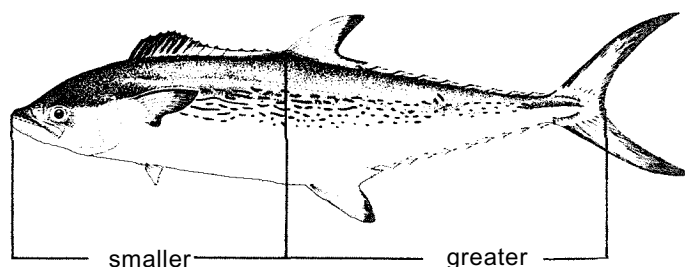
DISTINCTIVE CHARACTERS:

Body elongate, strongly compressed. Snout much shorter than rest of head; posterior part of maxilla exposed; gillrakers on first arch few; 2 or 3 on upper limb; 9 to 13 on lower limb; 12 to 15 total. Two dorsal fins, the first with 15 or 16 spines, rarely 17; and a second with 19 to 21 rays followed by 8 to 10 finlets; anal fin with 19 to 21 rays followed by 8 or 9 finlets. Lateral line without any fine branches anteriorly gradually curving downward toward caudal peduncle keel.

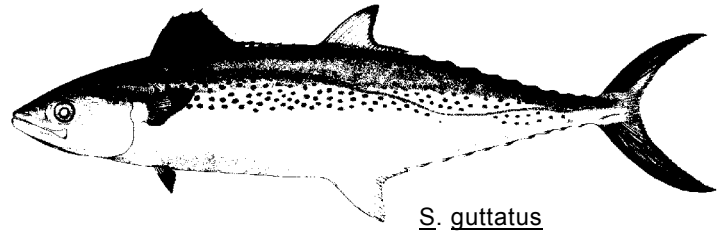
Colour: back iridescent blue-grey, sides silvery, becoming whitish ventrally; a series of 6 to 8 interrupted horizontal black lines on sides of body; first dorsal fin black except for posterior pale area; second dorsal, anal, and finlets mostly dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Scomberomorus lineolatus: a pattern of lines and spots (instead of mostly lines); distance from origin of second dorsal fin to caudal fork about equal to distance from origin of second dorsal fin to tip of snout (greater in *S. plurilineatus*); rays in second dorsal fin usually 15 to 19 (usually 19 to 21 in *S. plurilineatus*).

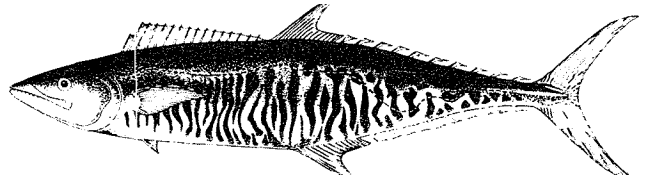
*S. lineolatus**S. plurilineatus*

S. guttatus and S. koreanus: pattern of prominent round spots on sides; anterior part of lateral line with many fine branches.



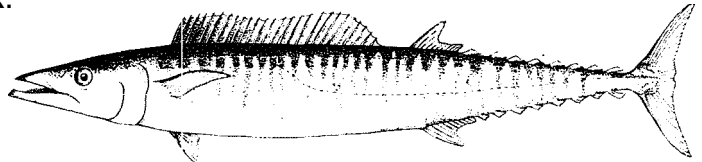
S. guttatus

S. commerson: either uniform or pattern of vertical bars on sides; lateral line abruptly bent downward below end of second dorsal fin; gillrakers 1 to 8 (12 to 15 in S. plurilineatus).



S. commerson

Acanthocybium solandri: no gillrakers; 23 to 27 spines in the first dorsal fin (compared to 15 to 17 in S. plurilineatus); snout about as long as rest of head (much shorter in Scomberomorus species); posterior end of maxilla concealed under preorbital bone (instead of exposed).



Acanthocybium solandri

SIZE:

Maximum: 120 cm fork length; common: to 80 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

East African coast from Algoa Bay, South Africa, northward through the Mozambique Channel to Madagascar, Zanzibar, and Kenya (1°30'S). Also found in the Seychelles.

Coastal waters within the 200 m contour, usually in water less than 50 m.

Feeds on small schooling fishes, especially sardines and anchovies, squids and crustaceans.

PRESENT FISHING GROUNDS:

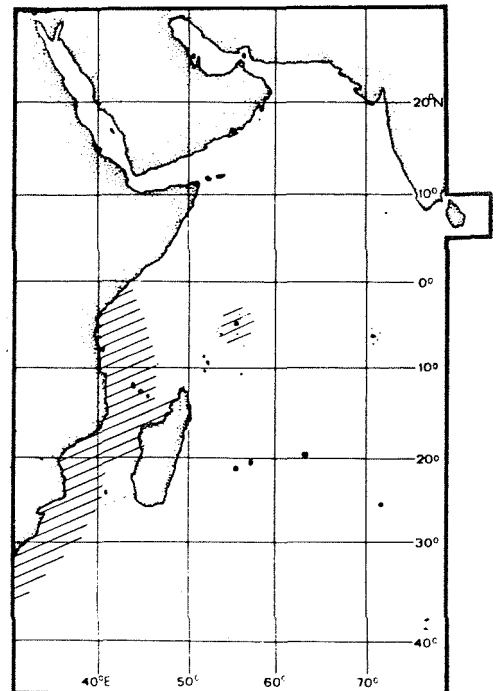
There are important fisheries in the Malindi area of Kenya, Zanzibar Channel, the Mozambique Channel, and Natal. Also fished on the northwest coast of Madagascar.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of Scomberomorus species from Fishing Area 51 (excluding S. commerson, for which separate statistics are available) was about 19 000 tons in 1980.

In the Malindi area of Kenya, catches are mainly made by trolling and handlines. In the Zanzibar Channel, gillnets predominate, but catches are also made by trolling, handlines and use of the "Mensab" net, a communal trap net of Arabian origin.

Marketed mainly fresh but does not keep well on ice and does not make a good sun-dried salted product.

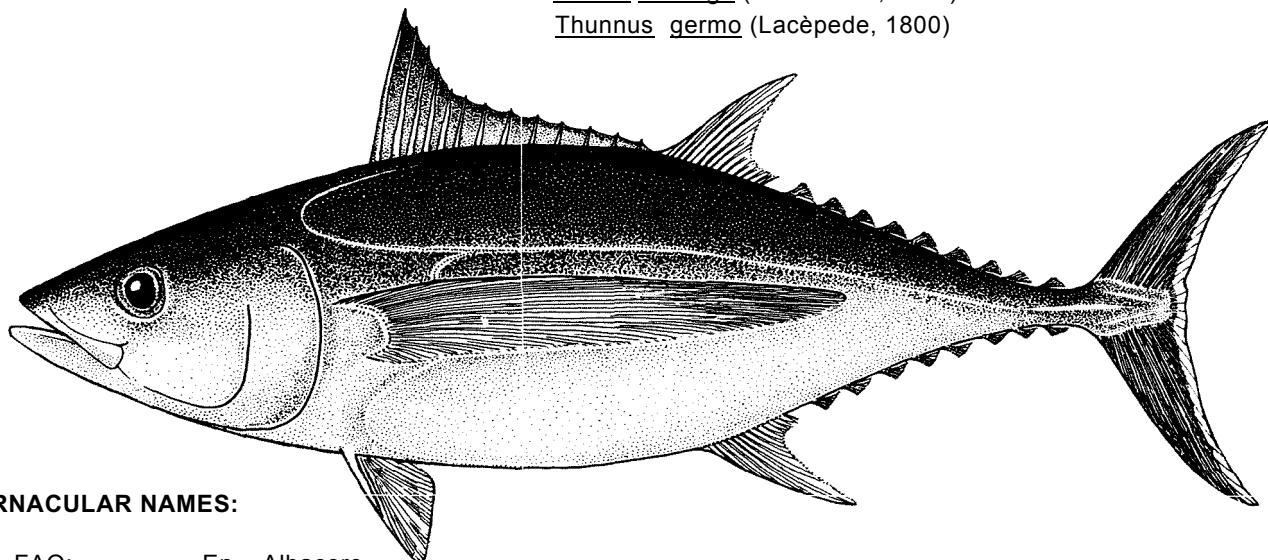


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)Thunnus alalunga (Bonnaterre, 1788)

OTHER SCIENTIFIC NAMES STILL IN USE:

Germo alalunga (Bonnaterre, 1788)Thunnus germo (Lacépède, 1800)

VERNACULAR NAMES:

FAO: En – Albacore
Fr – Germon
Sp – Atún blanco (=Albacora)

NATIONAL:

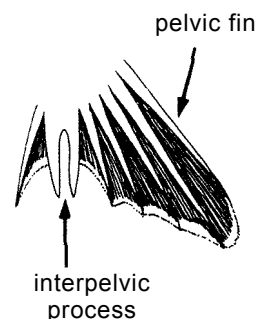
DISTINCTIVE CHARACTERS:

A large species with an elongate, fusiform body, deepest at a more posterior point than in other tunas (at, or only slightly anterior to, second dorsal fin rather than near middle of first dorsal fin base). Eyes rather large; gillrakers 25 to 31 on first arch. Two dorsal fins separated only by a narrow interspace, the second clearly lower than the first and followed by 7 to 9 finlets; pectoral fins remarkably long, usually 30% of fork length or longer, reaching well beyond origin of second dorsal fin (usually up to second dorsal finlet); 2 flaps (interpelvic process) between pelvic fins; anal fin followed by 7 or 8 finlets. Small scales on body; corselet of larger scales developed but not very distinct. Caudal peduncle very slender, bearing on each side a strong lateral keel between 2 smaller keels. Liver striated on ventral surface. Swimbladder present.

Colour: back metallic dark blue, lower sides and belly whitish; a faint lateral iridescent blue band runs along sides in live fish; first dorsal fin deep yellow, second dorsal and anal fins light yellow, anal finlets dark; posterior margin of caudal fin white.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

All other species of Thunnus: pectoral fins shorter, never reaching beyond posterior end of second dorsal fin base in adults (however, young specimens of T. alalunga, less than 30 cm, have pectoral fins about equal in length to similar-sized specimens of T. albacares and T. obesus); body deepest more anteriorly (at level of first dorsal fin origin); no white margin to caudal fin. Further distinguishing characters of other species of Thunnus are the following:

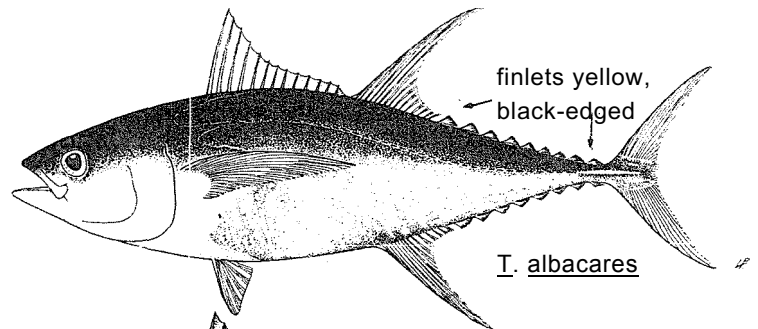


T. albacares: no striations on ventral surface of liver, and belly frequently crossed by about 20 broken, nearly vertical striations; also, second dorsal and anal fins greatly elongate in large adults; dorsal and anal finlets yellow, with a narrow black margin.

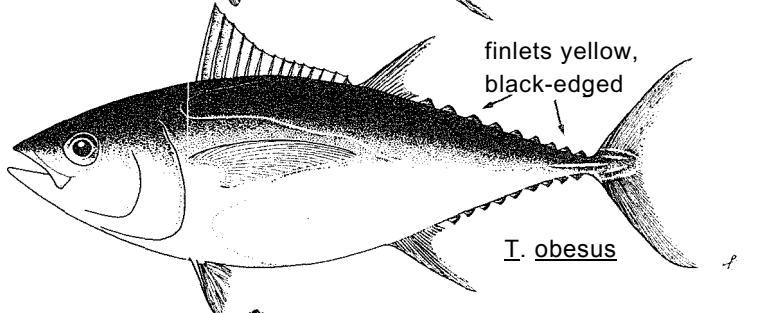
T. obesus: dorsal and anal finlets bright yellow, with distinct black margins (entire finlets dark in T. alalunga).

T. maccovii: pectoral fins very short, never reaching the space between dorsal fins; second dorsal fin reddish brown; more gillrakers (31 to 40; 25 to 31 in T. alalunga).

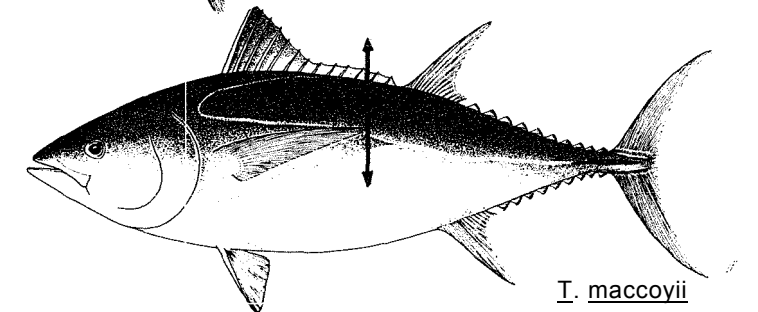
T. tonggol: lower sides and belly with colourless, elongated, oval spots arranged in horizontal rows; swimbladder absent, ventral surface of liver not striated.



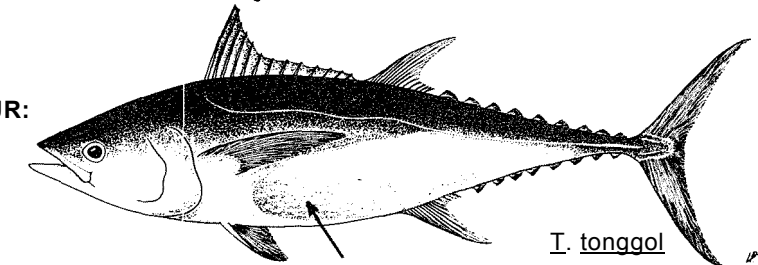
T. albacares



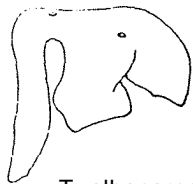
T. obesus



T. maccovii



T. tonggol



T. albacares,
T. tonggol

liver



T. alalunga

SIZE:

Maximum: 120 cm fork length; common to 100 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

A cosmopolitan species, often extending into cool waters. In the Indian Ocean its range extends in a broad band, about 10°N to 30°S. It is found from South Africa to about 508 off the East African coast through the Seychelles to off the southern coast of Sri Lanka.

Oceanic, the young often in large schools; found below the thermocline, particularly larger individuals, or at temperatures of 17° to 21° C.

Feeds on many kinds of organisms, particularly fishes, squids and crustaceans.

FAO Species Synopses No. 66 (W. Atlantic), No. 77 (as G. alalunga, E. Atlantic) and No. 52 (as T. germo, Indo-Pacific), and No. 109 (Atlantic).

PRESENT FISHING GROUNDS:

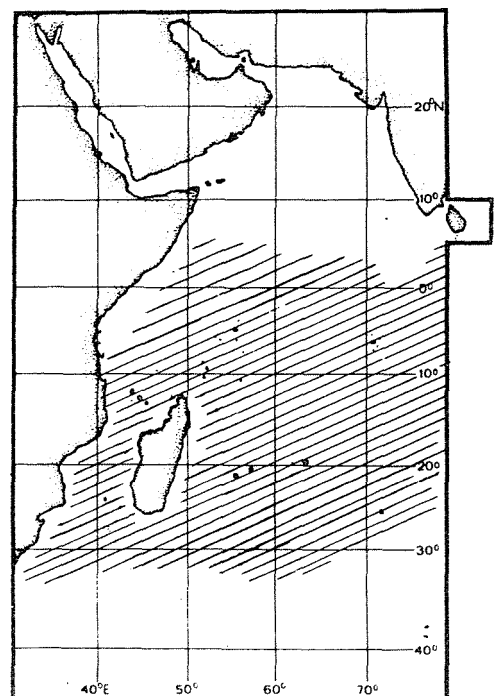
Oceanic waters, throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

The catch from Fishing Area 51 totalled about 3 300 t in 1981

Caught with purse seines, longlines; also by trolling.

Marketed mainly canned or frozen.

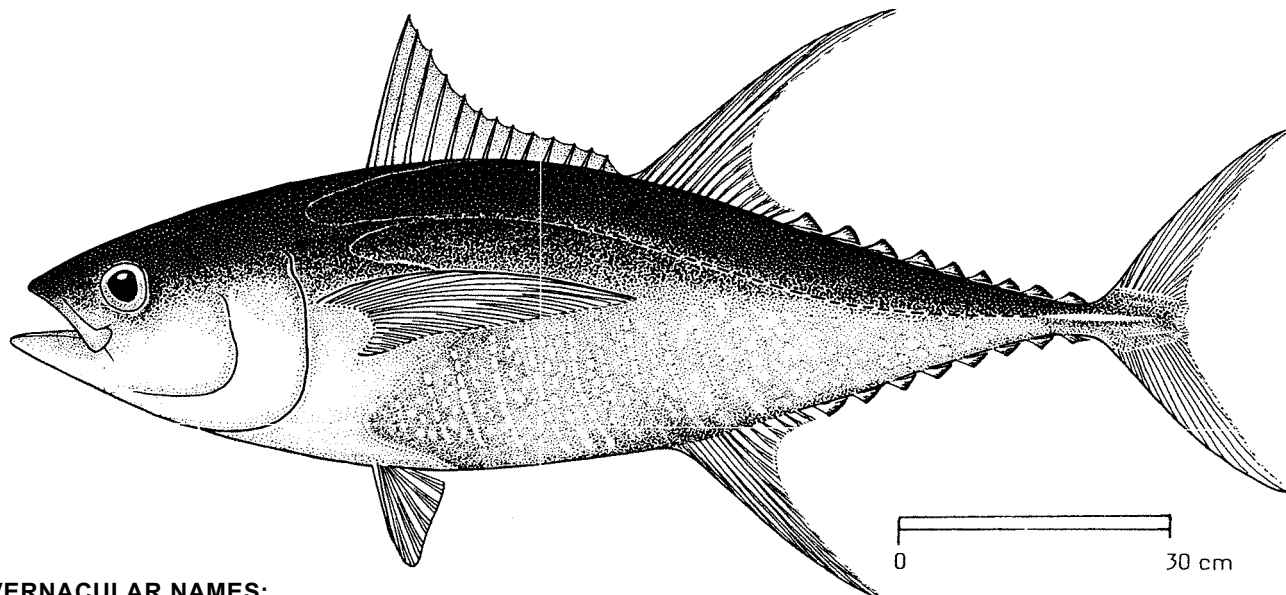


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)Thunnus albacares (Bonnaterre, 1788)

OTHER SCIENTIFIC NAMES STILL IN USE : Neothunnus macropterus (Temminck & Schlegel, 1844)
Neothunnus albacora (Lowe, 1839)
Thynnus argentivittatus (Cuvier, 1831)



VERNACULAR NAMES:

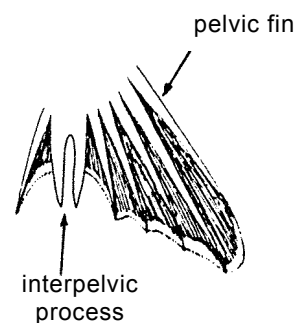
FAO: En - Yellowfin tuna
 Fr - Albacore (= Thon albacore, Area 31)
 Sp - Rabil

NATIONAL:

DISTINCTIVE CHARACTERS:

A large species with an elongate, fusiform body, slightly compressed from side to side. Gillrakers 26 to 34 on first arch. Two dorsal fins, separated only by a narrow interspace, the second followed by 8 to 10 finlets; anal fin followed by 7 to 10 finlets; 2 flaps (interpelvic process) between pelvic fins; large specimens have very long second dorsal and anal fins, becoming well over 20% of fork length; pectoral fins moderately long, usually reaching beyond second dorsal fin origin but not beyond end of its base, usually 22 to 31% of fork length. Body with very small scales; corselet of larger scales developed but not very distinct. Caudal peduncle very slender, bearing on each side a strong lateral keel between 2 smaller keels. No striations on ventral surface of liver. Swimbladder present.

Colour: back metallic dark blue changing through yellow to silver on belly; belly frequently crossed by about 20 broken, nearly vertical lines; dorsal and anal fins, and dorsal and anal finlets, bright yellow, the finlets with a narrow black border.



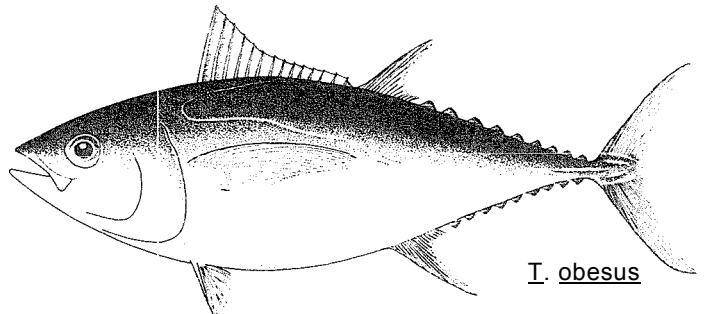
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Thunnus obesus: striations present on ventral surface of liver; dorsal and anal fins never elongate. In specimens of similar size, T. obesus is generally heavier, deeper, and has a larger eye.

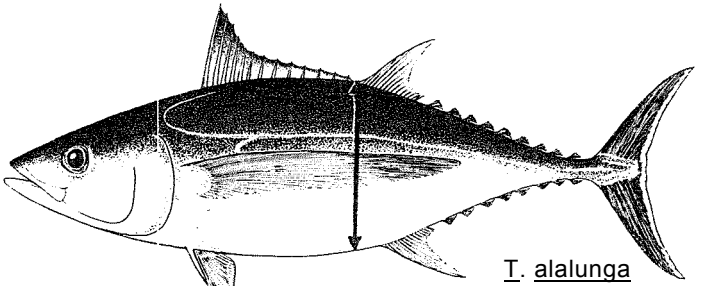
T. alalunga: pectoral fins much longer in adults (but not in young up to 30 cm), usually reaching to second dorsal finlet (usually 30% of fork length or more), greatest body depth near origins of second dorsal and anal fins instead of more anteriorly; a narrow white posterior margin to caudal fin; striations present on ventral surfaces of liver.

T. maccoyii: pectoral fins shorter, never reaching to interspace between dorsal fins; liver ventrally striated; also, restricted to southernmost part of area.

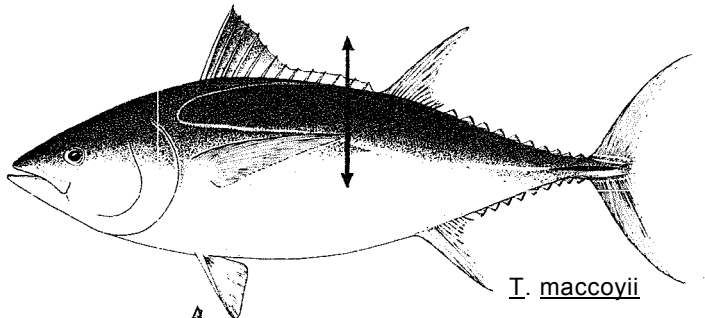
T. tonggol: lower sides and belly with colourless, elongated, oval spots arranged in horizontal rows; swim bladder absent.



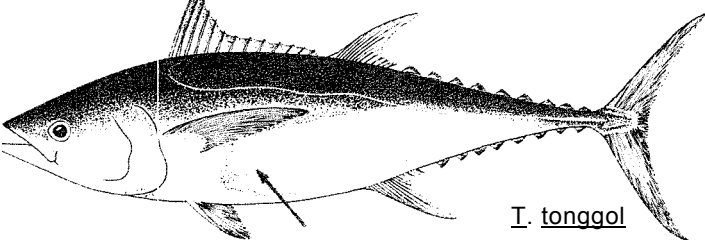
T. obesus



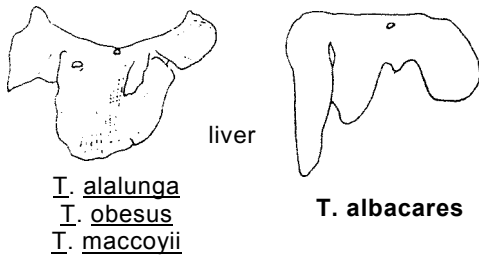
T. alalunga



T. maccoyii



T. tonggol



liver

T. alalunga
T. obesus
T. maccoyii

T. albacares

SIZE:

Maximum: 195 cm fork length; common to 150 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

A pantropical species. Known from the entire area north of 30°S except for the Red Sea and the "Gulf".

Oceanic, above and below the thermocline. Schools by size, also with other species. Peak spawning occurs during summer, in batches.

Feeds on a wide variety of fishes, crustaceans, and cephalopods.

FAO Species Synopses No. 69 (W. Atlantic) and No. 59 (Pacific as T. (Neothunnus) albacares), No. 76 (E. Atlantic as Neothunnus albacora), and No. 53 (Indian Ocean as Neothunnus macropterus)

PRESENT FISHING GROUNDS:

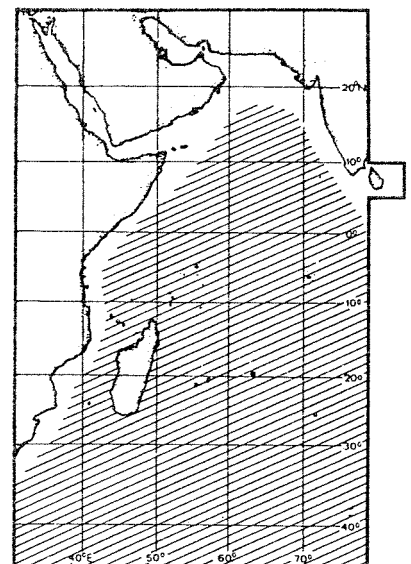
Open waters, throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

The catch reported from Fishing Area 51 totalled about 27 000 t in 1981.

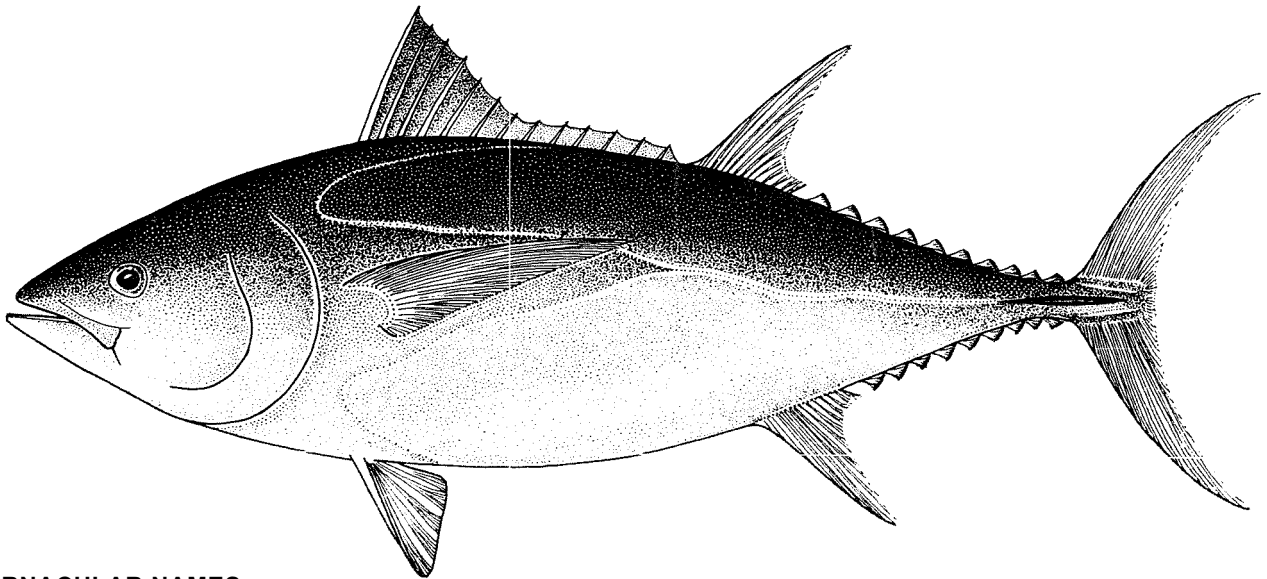
Caught mainly with longlines and purse seines.

Marketed mainly canned or frozen.



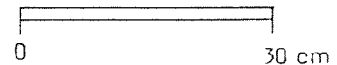
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)*Thunnus maccoyii* (Castelnau, 1872)OTHER SCIENTIFIC NAMES STILL IN USE: *Thunnus thynnus maccoyii* (Castelnau, 1872)

VERNACULAR NAMES:

FAO: En - Southern bluefin tuna.
Fr - Thon rouge du Sud
Sp - Atún del Sur

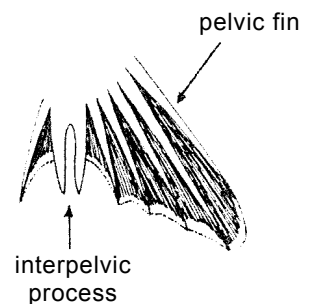


NATIONAL:

DISTINCTIVE CHARACTERS:

A very large species with a fusiform and rounded body (nearly circular in cross-section), very robust in front. Two dorsal fins separated only by a narrow interspace, the second higher than the first; 8 to 10 finlets present behind the second dorsal and 7 to 9 behind the anal fin; pectoral fins very short, less than 80% of head length, never reaching the interspace between the dorsal fins; 2 separate flaps (interpelvic process) between the pelvic fins; a well-developed, although not particularly conspicuous corselet; very small scales on rest of body. Caudal peduncle slender, with a strong lateral keel between 2 small keels located at the bases of the caudal fin lobes. Ventral surface of liver striated. Swimbladder present.

Colour: back dark blue or black, lower sides and belly silvery white with colourless transverse lines alternated with rows of colourless dots (the latter dominate in older fish), visible only in fresh specimens; first dorsal fin yellow or bluish; anal fin and finlets dusky yellow edged with black; lateral keel yellow in adults.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

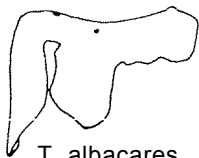
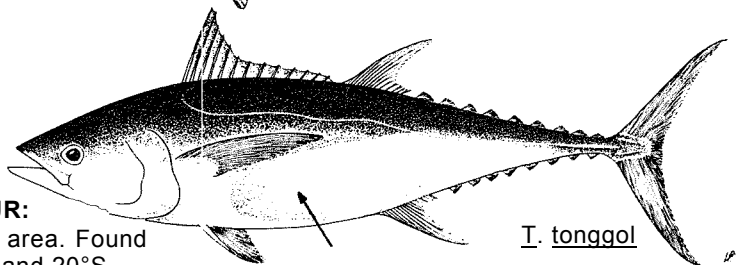
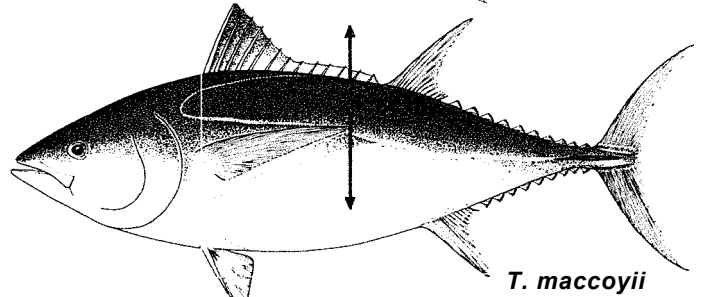
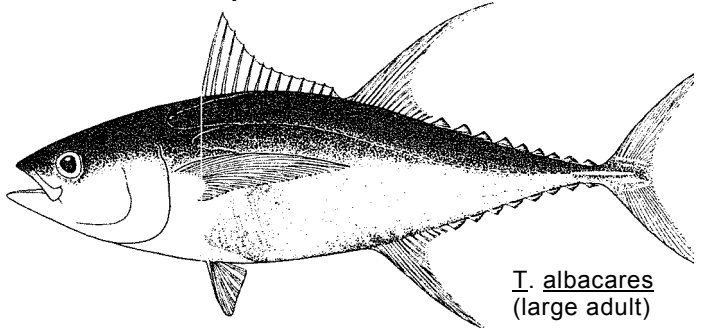
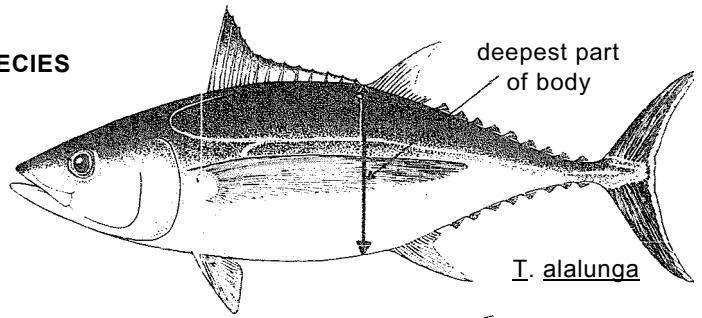
Other species of *Thunnus*: fewer gillrakers, at most 33 on first arch (31 to 40 in *T. maccoyii*); pectoral fins longer, more than 80% of head length (or 23% of fork length) and reaching at least to space between dorsal fins.

Further distinguishing characters of these species are the following:

T. alalunga: pectoral fin usually reaching nearly to second dorsal finlet; caudal fin with a distal white margin; body depth greatest more posteriorly, near origin of second dorsal and anal fins.

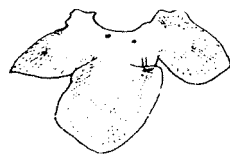
T. albacares: ventral surface of liver without striations; dorsal and anal fins bright yellow and becoming very elongate in large specimens; dorsal and anal finlets bright yellow with black margins; body frequently crossed by about 20 broken, nearly vertical lines.

T. tonggol: lower sides and belly with colour less elongated, oval spots arranged in horizontal rows; ventral surface of liver without striations; swimbladder absent.



T. albacares,
T. tonggol

liver



T. maccoyii

SIZE:

Maximum: 2000 cm fork length; common to 160 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Present only in the southernmost part of the area. Found throughout the southern Ocean mainly between 30° and 20°S.

A pelagic schooling species associated with the West Wind Drift across the Indian Ocean.

Preys on fishes, crustaceans, cephalopods and salps.

FAO Species Synopsis No. 60.

PRESENT FISHING GROUNDS:

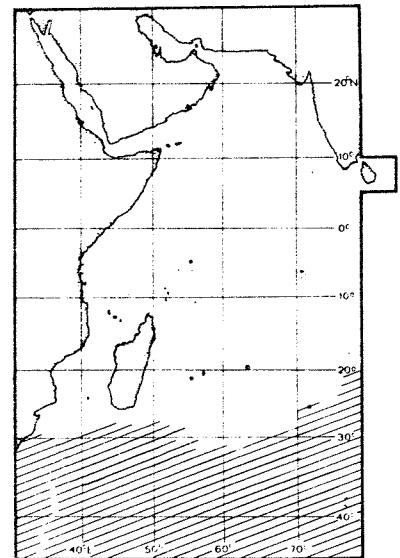
Offshore surface waters in the southernmost part of the area.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

The catch reported from Fishing Area 51 totalled 4 100 t in 1981.

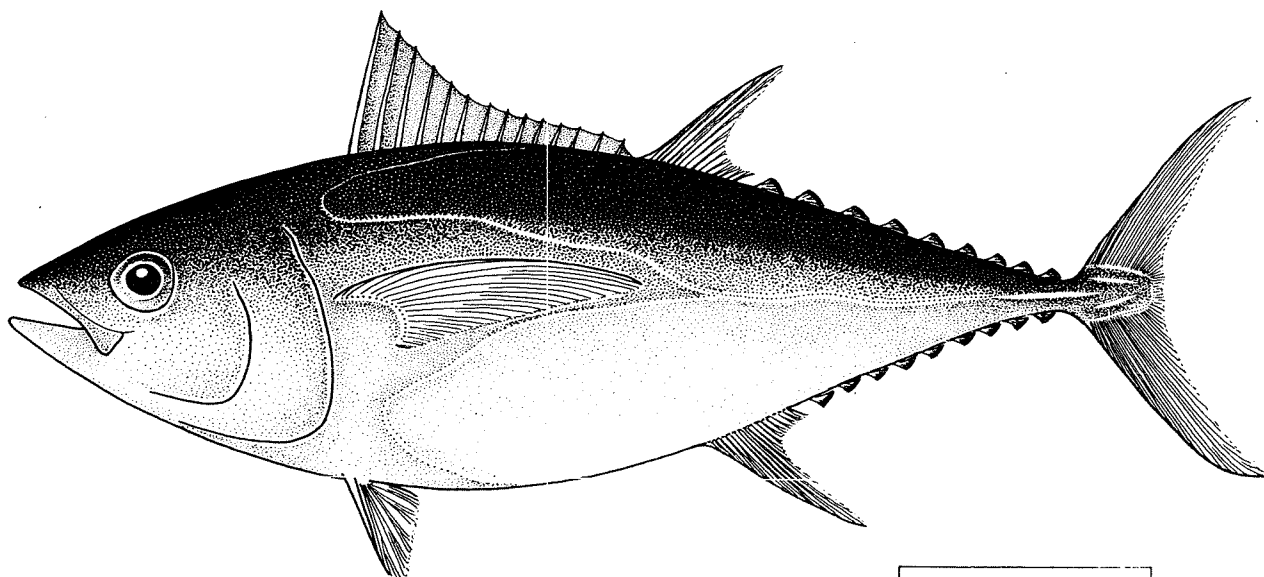
Primarily taken on longlines in Fishing Area 51.

Canning is the most important form of local utilization of this highly esteemed fish.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)Thunnus obesus (Lowe, 1839)OTHER SCIENTIFIC NAMES STILL IN USE: Parathunnus mebachi Kishinouye, 1923
Parathunnus sibi (Temminck & Schlegel, 1844)

VERNACULAR NAMES:

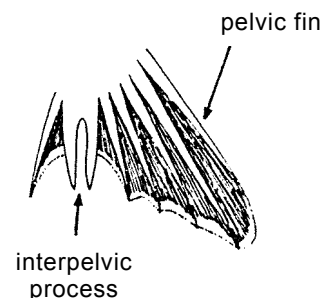
FAO : En - Bigeye tuna
Fr - Thon obèse (= Patudo, Area 31)
Sp - Patudo

NATIONAL:

DISTINCTIVE CHARACTERS:

A large species with robust, fusiform body, slightly compressed from side to side. Gillrakers 23 to 31 on first arch. Two dorsal fins, separated only by a narrow interspace, the second followed by 8 to 10 finlets; pectoral fins moderately long (22 to 31% of fork length) in large specimens (over 110 cm fork length), but very long (as long as in T. alalunga) in smaller specimens; 2 flaps (interpelvic process) between pelvic fins; anal fin followed by 7 to 10 finlets. Very small scales on body; corselet of larger and thicker scales developed, but not very distinct. Caudal peduncle very slender, with a strong lateral keel between 2 smaller keels. Ventral surface of liver striated. Swimbladder present.

Colour: back metallic dark blue, lower sides and belly whitish; a lateral iridescent blue band runs along sides in live specimens; first dorsal fin deep yellow, second dorsal and anal fins light yellow, finlets bright yellow edged with black.



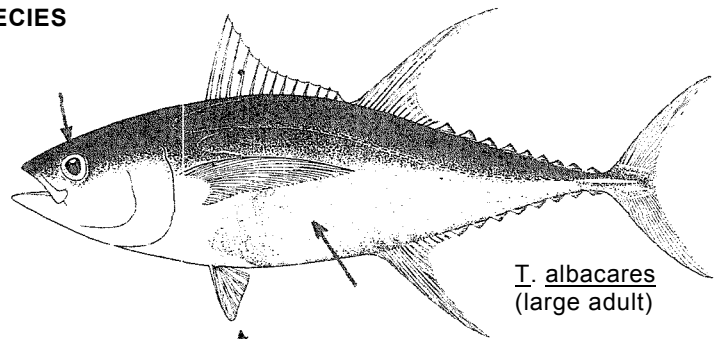
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

T. albacares: no striations on ventral surface of liver; second dorsal and anal fins elongate in large adults; belly frequently crossed by about 20 broken, nearly vertical lines. In specimens of similar size, *T. albacares* is generally lighter-weight, slimmer, and has a smaller eye.

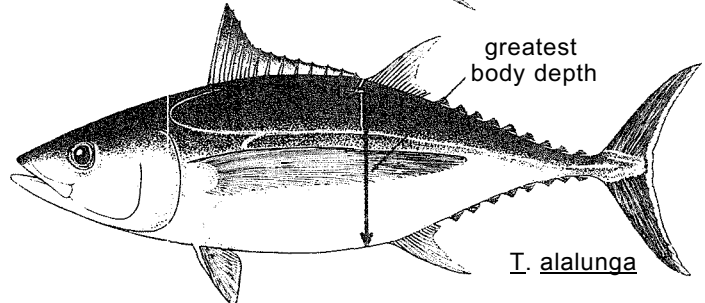
T. alalunga: a narrow white border to caudal fin, the greatest body depth nearest the second dorsal and anal fin origins instead of more anteriorly, and pectoral fins longer in adults (reaching to about second dorsal finlet, usually 30% of fork length or more).

T. maccoyii: pectoral fin much shorter, never reaching the interspace between dorsal fins; also, restricted to southernmost part of area.

T. tonggol: lower sides and belly with colourless, elongated oval spots arranged in horizontal rows; swimbladder absent; ventral surface of liver not striated.

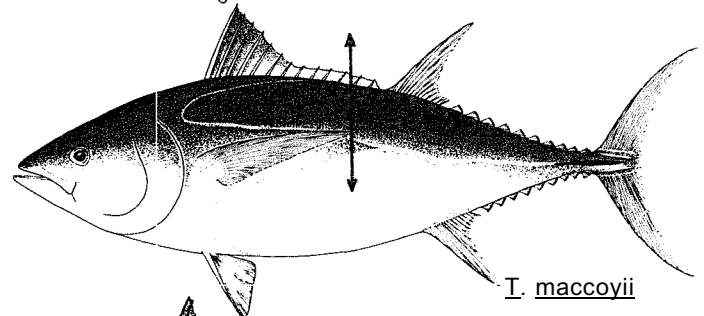


T. albacares
(large adult)

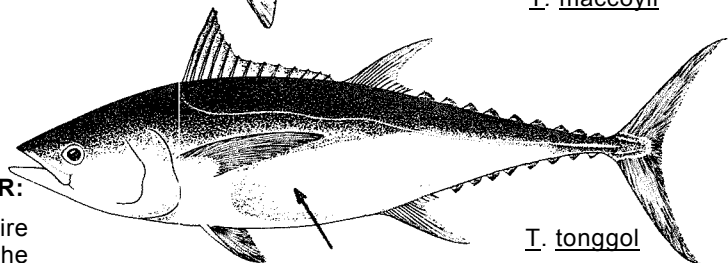


greatest body depth

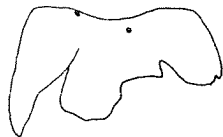
T. alalunga



T. maccoyii



T. tonggol



T. albacares,
T. tonggol



T. obesus

liver

SIZE:

Maximum: over 200 cm fork length; common to 180 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

A pantropical species. Known from the entire area north of 30°S, except for the Red Sea and the "Gulf".

A pelagic oceanic species, taken from the surface to depths of 250 m. Juveniles school with yellowfin and/or skipjack tuna.

Feeds on a wide variety of fishes, cephalopods and crustaceans.

FAO Species Synopses No. 54 (as *Parathunnus mebachi* from the Indian Ocean) and No. 57 (as *P. sibi* from the Pacific).

PRESENT FISHING GROUNDS:

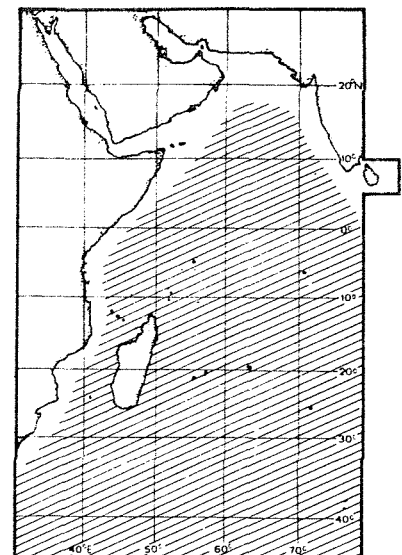
Open waters, throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

The catch reported from Fishing Area 51 totalled about 21 800 t in 1981.

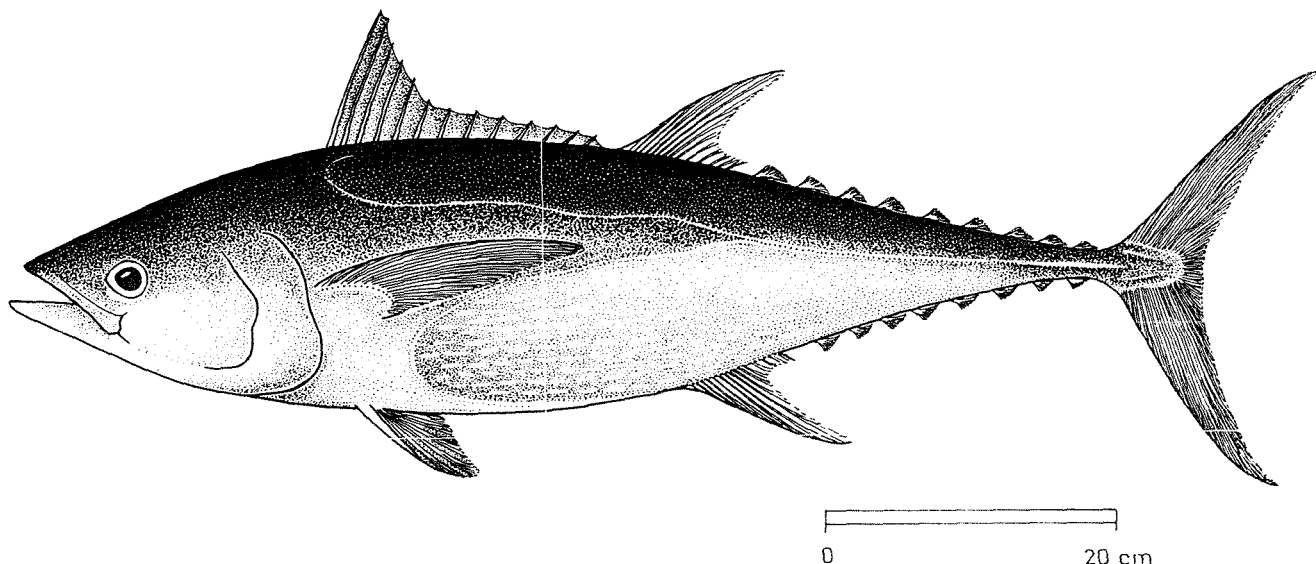
Caught mainly with longlines; occasionally, purse seines are also used.

Marketed mainly canned or frozen.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SCOMBRIDAE

FISHING AREA 51
(W. Indian Ocean)Thunnus tonggol (Bleeker, 1851)OTHER SCIENTIFIC NAMES STILL IN USE: Kishinoella tonggol (Bleeker, 1851)

VERNACULAR NAMES:

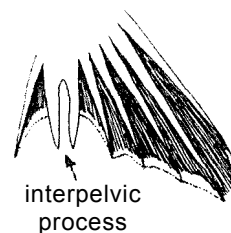
FAO : En - Longtail tuna
 Fr - Thon mignon
 Sp - Atún tongol

NATIONAL:

DISTINCTIVE CHARACTERS:

A small species with a fusiform and rounded body. Gillrakers few, 19 to 27 on first arch. Two dorsal fins, separated only by a narrow interspace, the second higher than the first and followed by 9 finlets; anal fin followed by 8 finlets; pectoral fins with 30 to 35 rays, short to moderately long, 22 to 31% of fork length in smaller specimens (under 60 cm fork length) and 16 to 22% in larger individuals; 2 flaps (interpelvic process) between pelvic fins. Very small scales on body; corselet of larger scales well developed but not particularly conspicuous. Caudal peduncle with a strong lateral keel between 2 smaller keels. Ventral surface of liver not striated; no swimbladder.

Colour: back dark blue or black, lower sides and belly silvery white with colourless elongate oval spots arranged in horizontally oriented rows; dorsal, pectoral, and pelvic fins blackish, tip of second dorsal and anal fins washed with yellow; anal fin silvery; dorsal and anal finlets yellow with greyish margins; caudal fin blackish, with streaks of yellowish green.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

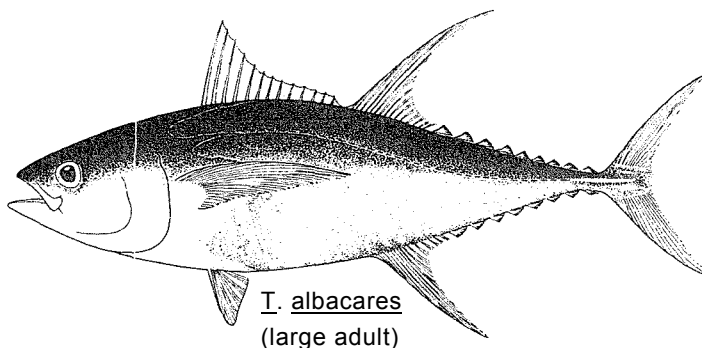
All other *Thunnus* species: more gillrakers (23 to 34; 19 to 26 in *T. tonggol*), although there is some overlap with *T. obesus* (23 to 31); no pale spots and streaks oriented horizontally; smaller individuals of other species sometimes have pale markings, but these are at least partly oriented vertically. Further distinguishing characters of these species are the following:

T. albacares: gillrakers 26 to 34; swimbladder present, and greatly elongated second dorsal and anal fins developed in large adults.

T. maccoyii: gillrakers 31 to 40; pectoral fins shorter, never reaching to interspace between dorsal fins; swimbladder present and liver ventrally striated; also, restricted to the southernmost part of the area.

T. obesus: gillrakers 23 to 31; swimbladder present, and liver ventrally striated.

T. alalunga: pectoral fins much longer, reaching backward well beyond end of second dorsal fin; greatest body depth nearest the second dorsal and anal fin origins instead of more anteriorly; also, caudal fin white-edged; swimbladder present, and liver ventrally striated.

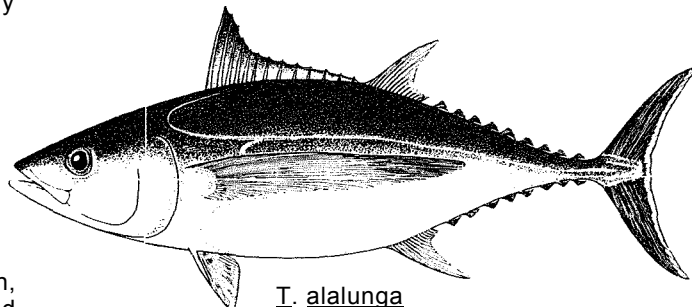


T. albacares
(large adult)



ventral surface of liver striated

T. maccoyii, *T. obesus*
T. alalunga



T. alalunga

SIZE:

Maximum: 130 cm; common to 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known from Somalia, the Red Sea, Gulf of Aden, Pakistan, the coasts of India, the Maldive Islands and Sri Lanka; eastward to Japan and Australia.

A largely coastal species but avoids low salinity areas near mouths of large rivers. Reported to occur in small schools off the coasts of India and in large schools off the west coast of Australia.

Feeds on a wide variety of fishes, cephalopods, and crustaceans, particularly stomatopod larvae and prawns.

FAO Species Synopsis No. 74.

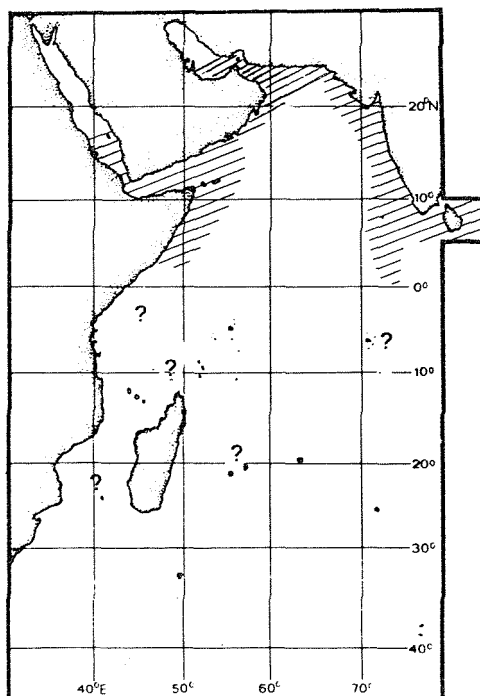
PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with longlines.
Marketed mainly fresh and dried salted.



SCOMBRO

1983

FAO SPECIES IDENTIFICATION SHEETS

**FISHING AREA 51
(W. Indian Ocean)**

SCOMBROLABRACIDAE

Longfin escolar

A single species in the area - see species sheet for:

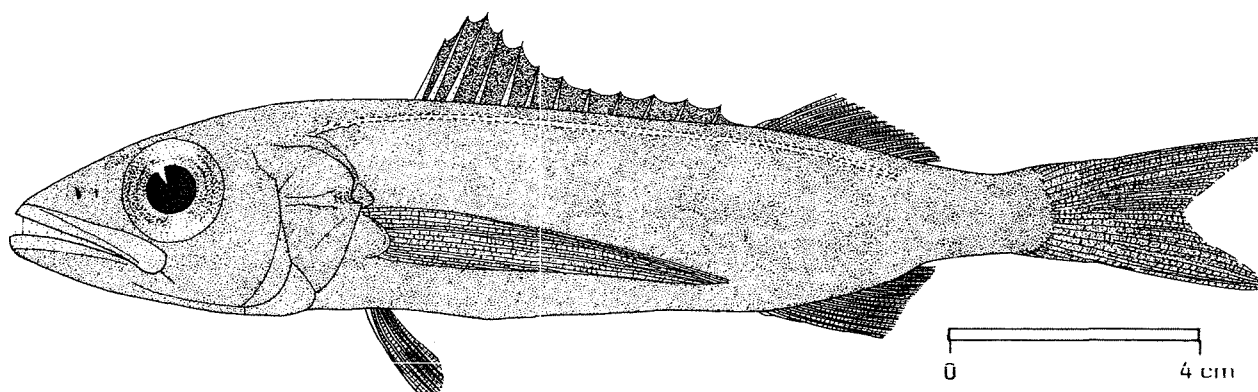
Scombr labrax heterolepis Roule, 1922 SCOMBRO Scombro 1

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBROLABRACIDAE

FISHING AREA 51
(W. Indian Ocean)Scombrolabrax heterolepis Roule, 1922

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Longfin escolar
 Fr - Escolier aile longue
 Sp - EscolarIn

NATIONAL:

DISTINCTIVE CHARACTERS:

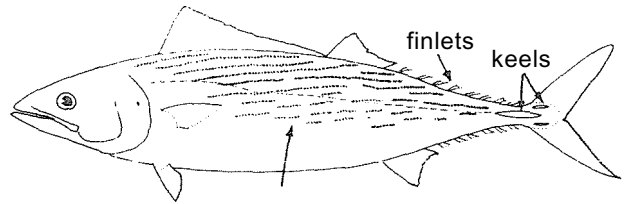
Body moderately elongate and compressed. Head large, with a flat interorbital region; eye very large, its diameter almost as long as snout; mouth large, a little protrusible, lower jaw slightly projecting; 2 or 3 large fangs at front of upper jaw, strong lateral teeth present in both jaws, those in upper more numerous and smaller than those of lower jaw; several small teeth on vomer and small uniserial teeth present on palatines; 2 nostrils on each side of snout. Four or 5 well developed denticulate gillrakers on lower limb of first arch, about 10 clusters of minute spines on upper limb and a large denticulate raker at corner of first arch. Two dorsal fins, first dorsal fin with 12 spines and second dorsal fin with 1 spine and 14 or 15 soft rays, base of first dorsal fin about twice base of second dorsal fin; origin of first dorsal fin slightly posterior to pectoral fin base; anal fin with 2 spines and 16 to 18 soft rays, similar to second dorsal fin in size and shape; pectoral fins very long, reaching nearly anal fin origin; pelvic fins well developed, originating below origin of pectoral fin; caudal fin forked and rather small. No keels on caudal peduncle. Lateral line single, running closely to dorsal contour, ending slightly before end of second dorsal fin. Lateral line scales about 44 to 49; scales irregular in size and shape, very deciduous (easily shed). Vertebrae 30 (13 + 17).

Colour: body uniform dark brown with no distinct markings, fins darker. Buccal cavity black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Scombridae: caudal fin lunate; back blue or blue-black with bars, spots or other dark markings; keels present on caudal peduncle; dorsal and anal finlets present.

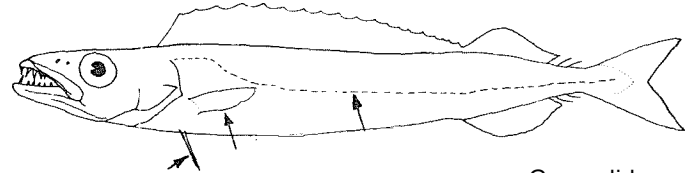
Gempylidae: eyes smaller, their diameter not exceeding half length of snout; pectoral fins short, far anterior to anal fin origin; if only a single lateral line present, not running closely to dorsal contour.



Scombridae

SIZE:

Maximum: 25 cm standard length.



Gempylidae

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widely distributed in the tropical and subtropical parts of the Indian, Pacific and Atlantic Oceans. No records from the eastern Pacific and Southeast Atlantic.

A rather rare fish, inhabiting the continental shelf and slope between 100 and 900 m depth.

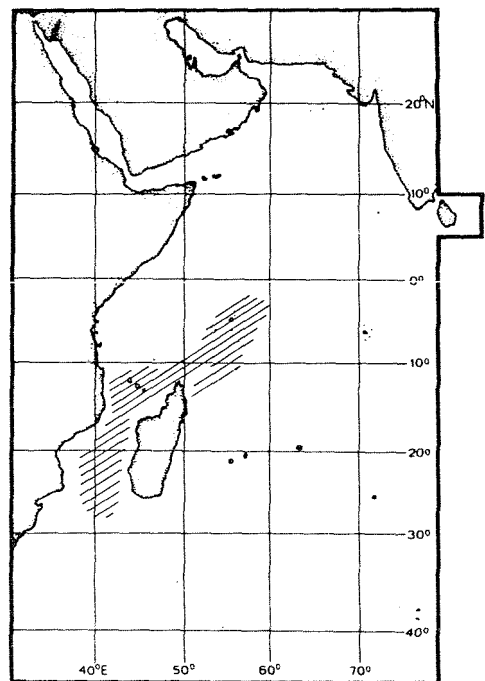
PRESENT FISHING GROUNDS:

Not commercially fished at present.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught incidentally by trawls.



FAO SPECIES IDENTIFICATION SHEETS

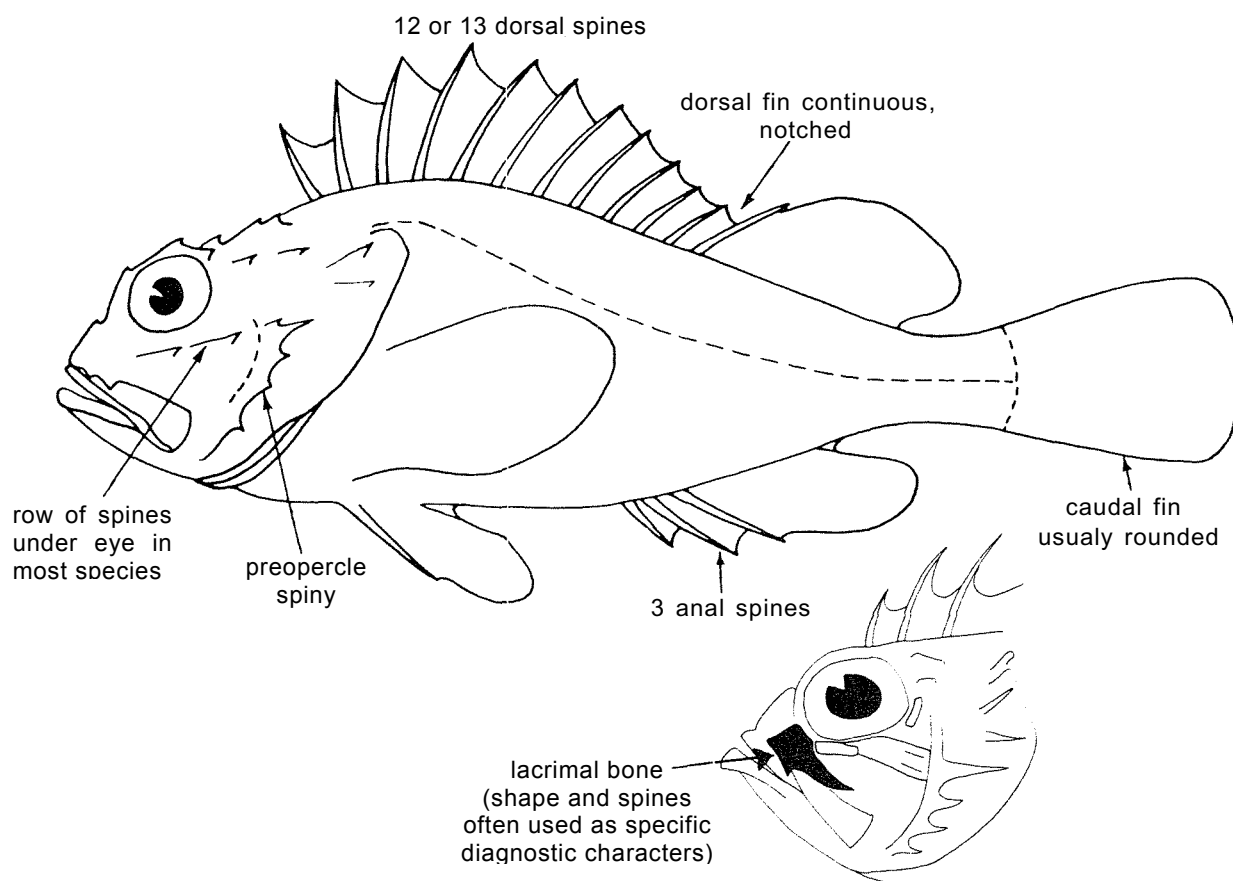
FISHING AREA 51
(W. Indian Ocean)

SCORPAENIDAE

Scorpionfishes, rockfishes, rosefishes, stingfishes,
stonefishes, turkeyfishes and waspfishes

Moderately compressed to robust fishes, usually basslike in appearance, with large spiny heads. Mouth moderate to large, terminal, oblique, protractile; teeth usually villiform (small canine teeth present in some species) arranged in bands or patches on upper jaw (premaxilla only), lower jaw (mandible), and roof of mouth (always on vomer, sometimes on palatines); eyes moderate to large; a ridge of bone (suborbital stay) below eye extending posteriorly and firmly attaching to preopercle; preopercular margin with 3 to 5 spines (usually 5), the uppermost 3 better developed; opercle with 2 divergent spines or a single spine; other spines scattered on head; gill openings usually wide (restricted in some species), gillrakers usually short, tubercular in form. A single dorsal fin, usually notched at posterior end of spinous part, with 8 to 18 spines and 4 to 14 segmented rays; anal fin with 2 to 4 spines and 5 to 14 segmented rays; posteriormost segmented rays of dorsal and anal fins split to base in most species, appearing as two rays but counted as one; pectoral fin broad-based, large, fanlike, with 11 to 23 rays; lower rays sometimes thickened; in some species, the lowermost 1 to 3 pectoral rays detached from remainder of fin; in others pectoral-rays greatly elongate; pelvic fins thoracic in position, with 1 spine and 3 to 5 branched or simple rays; caudal fin rounded to square-cut, never forked. Venom glands associated with fin spines. Body with or without scales (excluding lateral line). In species which have them, scales may be ctenoid (rough to touch), cycloid (smooth), both ctenoid and cycloid, or rudimentary and deeply embedded in skin. Lateral line always present, sometimes incomplete or represented only as a scaleless groove. Fleshy skin flaps, cirri, tentacles, or warts present on head and body of many species.

Colour: inshore scorpionfishes are mostly brown or variously mottled and barred with dark pigment on a lighter background, often with a pale or reddish belly. Those from deeper water are mostly red, often with spots of darker red, brown or black and with white skin filaments.



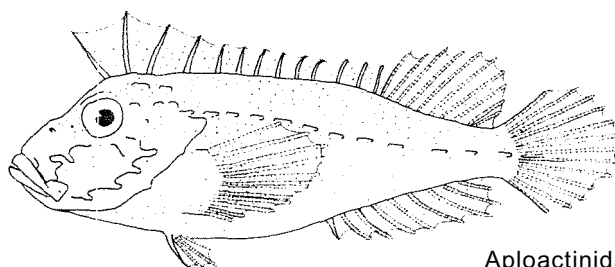
Small to moderate-sized marine bottom-living fishes. Adults range in size from 5 to 40 cm, with most reaching 8 to 25 cm. They occur in tropical, temperate, and cold waters of all seas. Most are found inshore, living among rocks, coral reefs and seaweeds. Others live on sandy or muddy bottoms. Some occur in deeper water to a depth of 2 359 m. There are about 375 species in the family, of which 82 occur in the Western Indian Ocean.

Within Fishing Area 51, these fishes are usually not of great commercial importance, since many species are rather small and not abundant enough to support large-scale fisheries. However, larger scorpaenids are often taken in subsistence fisheries and as bycatch of industrial trawl fisheries and are commonly seen in local markets. There are no separate statistics by species reported from Area 51. The flesh is white and very highly valued as food. Some species are greatly prized as aquarium fishes. In other fishing areas, especially the North Atlantic and North Pacific, some scorpionfishes (Sebastes) are abundant and support important fisheries.

Scorpionfishes have venomous spines and should be handled with extreme care. This is especially true for species of Pterois (turkeyfishes) and Synanceia (stonefishes) and their relatives. Wounds can cause intense pain, swelling and respiratory distress. Wounds caused by stonefishes have resulted in fatalities and require immediate medical attention. Immerse wound in hot water to relieve pain. See a physician for treatment of shock and prevention of infection.

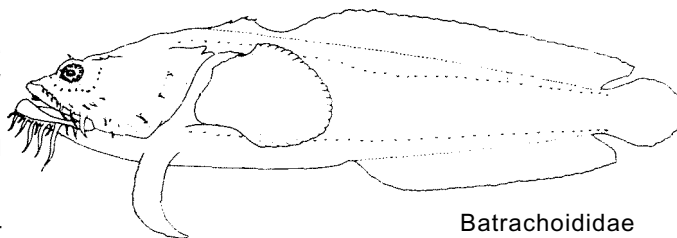
SIMILAR FAMILIES OCCURRING IN THE AREA:

Aploactinidae (velvetfishes): also with a suborbital stay and dorsal fin origin over head as in some scorpaenids, but have unbranched rays in all fins, pelvic fin with 1 spine and 2 or 3 segmented rays, usually blunt head spines and scales which, if present, form spinous points. In velvetfishes there is a fleshy extension on the anterior-most part of the isthmus (absent in species with the branchiostegal membranes fused to the isthmus).



Aploactinidae

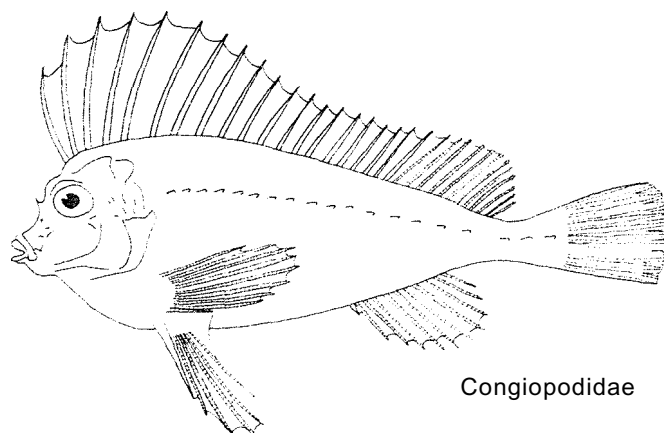
Batrachoididae (toadfishes): without a suborbital stay; 2 or 3 dorsal spines; head strongly depressed; body often with more than one lateral line.



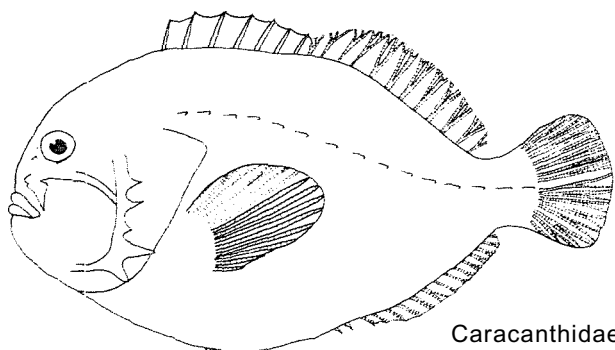
Batrachoididae

Caracanthidae (coral crouchers): also with a sub-orbital stay but have rudimentary pelvic fins, an ovate body covered with soft papillae but without scales; body strongly compressed.

Congiopodidae (horsefishes): also with a suborbital stay, and dorsal origin over head as in some scorpaenids, but have a protruded snout and a single nostril on each side (2 on each side in scorpaenids); restricted to colder waters of the southern hemisphere.



Congiopodidae

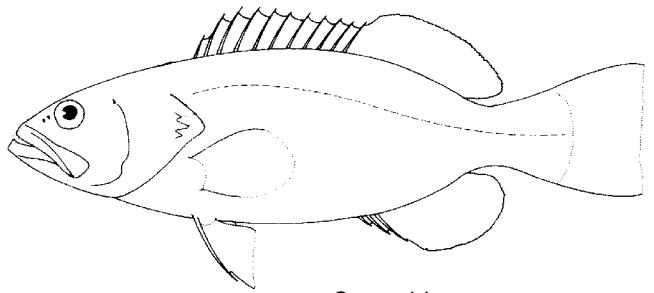


Caracanthidae

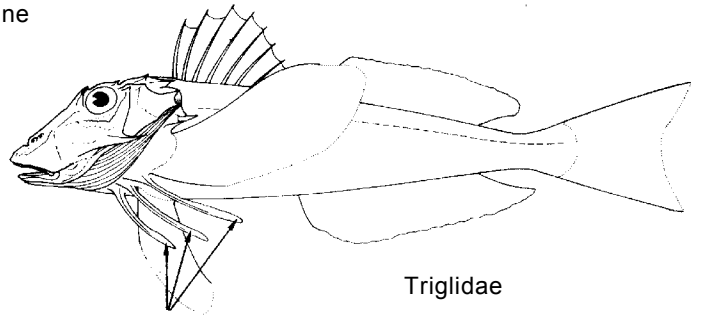
Serranidae (sea basses) and other bass-like families: resemble some red coloured scorpionfishes and have spines on the opercle, but they lack the suborbital stay and other head spines characteristic of scorpaenids.

Triglidae (sea robins): also have a suborbital stay but head very bony (almost encased); 2 separate dorsal fins and lower 3 pectoral fin rays always free from each other and from fin membrane (lower 3 rays free only in a few species of scaleless scorpaenids).

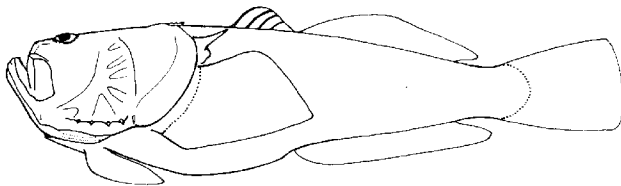
Uranoscopidae (stargazers): without suborbital stay; spinous dorsal fin short, with 1 to 5 spines; pelvic fins insert well in front of pectorals (below pectorals in scorpaenids); a large venomous humeral (cleithral) spine (usually small or absent in scorpaenids).



Serranidae



Triglidae



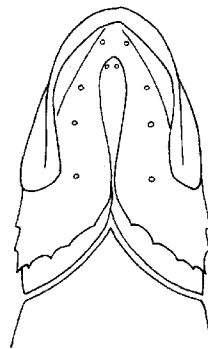
Uranoscopidae

KEY TO THE SUBFAMILIES AND GENERA IN THE AREA*:

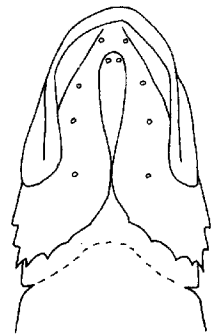
1a. Ventralmost pectoral fin ray not detached or separate from remainder of fin

2a. Branchiostegal membranes not broadly fused to isthmus (Fig.1a)

3a Lateral line forms a broad groove, without tubed scales (Fig.2a); head cavernous and rather weakly ossified ... Setarchinae



a) branchiostegal membrane not fused to isthmus



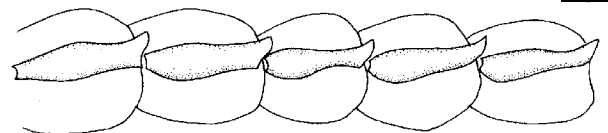
b) branchiostegal membrane fused to isthmus

underside of head

Fig.1



a) Setarchinae



lateral line scales

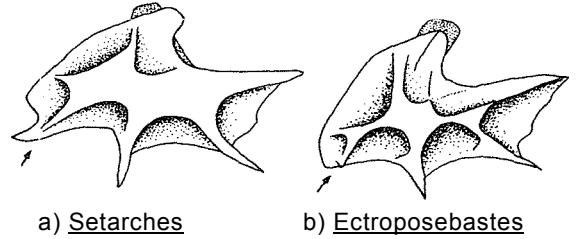
b) other Scorpaenoids

Fig.2

* Key does not apply to some genera outside of the Western Indian Ocean. Last segmented ray in dorsal and anal fins often split to base and counted as one ray

4a. Anterior preorbital spine on lacrimal boned as long as the posterior two (Fig. 3a); top of head scaleless; orbit diameter subequal to interorbital width; anal fin with 3 spines and usually 5 segmented rays; pectoral fin rays 20 to 25 Setarches

4b. Anterior preorbital spine much shorter than the posterior two (Fig.3b); top of head with scales; orbit diameter contained about 2 times in interorbital width; anal fin with 3 spines and usually 6 segmented rays; pectoral rays 18 to 20..... Ectroposebastes



a) Setarches b) Ectroposebastes

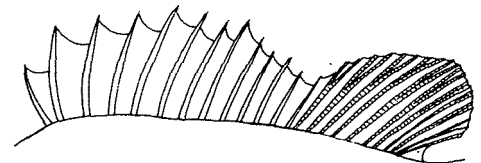
lacrimal bone Fig.3

3b. Lateral line with tubed scales (Fig.2b); head not cavernous, ossification normal

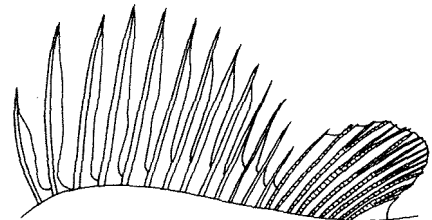
5a. Pectoral fin rays greatly elongate, the longest reaching beyond base of posteriormost segmented anal ray; a single strong spine on opercle (Figs. 5a.b) ... Pteroinae

6a. Dorsal fin spines short; dorsal fin membrane between spines moderately incised (Fig.4a)Brachypterois

6b. Dorsal fin elongate; dorsal fin membrane between spines deeply incised (Fig.4b)



a) Brachypterois



b) other Pteroinae

dorsal fin Fig.4

*Position of this bone above mouth can be seen on family illustration (page 1)

7a. Upper pectoral fin rays branched; pectoral fin membrane between upper rays only slightly incised (Fig.5a)

8a. Anal fin with 3 spines and 5 segmented rays Dendrochirus

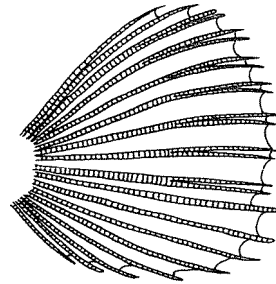
8b. Anal fin with 2 or 3 spines and 7 to 9 segmented rays

9a. Parietal ridges elevated, each forming a thin bony crest in males (Fig.6a); small or slightly developed in females (Fig.6b); anal fin with 3 spines and 8 or 9 segmented rays; upper and lower rays of caudal fin not filamentous at any size.....Ebosia

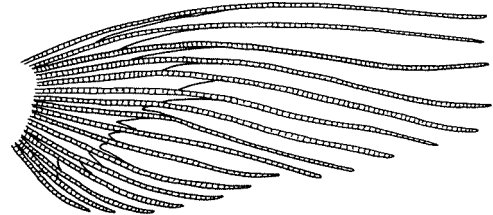
9b. Parietal ridges not elevated in either sex. Anal fin with 2 (3 at small sizes) and 7 or 8 segmented rays; upper and lower rays of caudal fin produced, filamentous in larger individuals (Fig.7)..... Parapterois

7b. All pectoral fin rays unbranched; pectoral fin membrane between upper rays strongly incised (Fig.5b) Pterois

5b. Pectoral fin rays not greatly elongate, the longest not reaching base of posteriormost segmented anal ray; 2 spines on opercle sometimes weak)



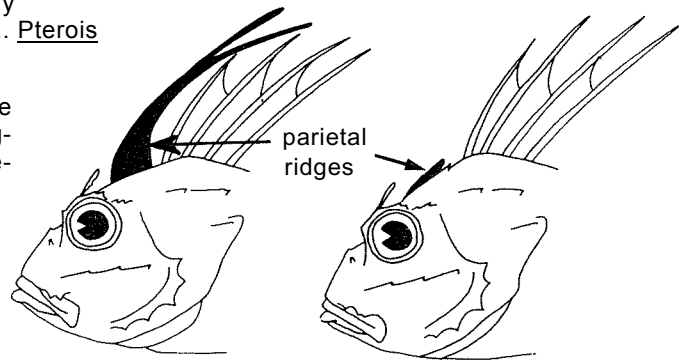
a) slightly incised



b) deeply incised (Pterois)

pectoral fin

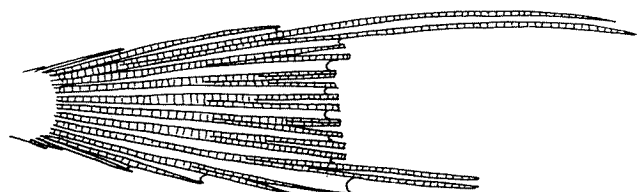
Fig.5



a) male

b) female

Fig.6



caudal fin

Fig.7

10a. Dorsal fin originates behind eye; lacrimal bone not movable (can be rotated only slightly, if at all); scales usually not rudimentary

11a. Suborbital stay tapered posteriorly, rather narrowly attached to preopercle, without spines; profile of nape relatively steeply inclined; spines on top of head relatively moderately developed (Fig.8a) ... Sebastinae (Helicolenus)



a) Sebastinae (Helicolenus)

11 b. Suborbital stay rounded or square posteriorly, broadly attached to preopercle; profile of nape relatively depressed; spines on top of head strongly developed (Fig.8b)..... Scorpaeninae

12a. Lateral line incomplete, not extending beyond spinous part of dorsal fin, with 3 to 5 tubed scales.....Phenacoscorpius

12b. Lateral line complete, extending posteriorly to or near base of caudal fin, with 11 to 35 tubed scales



b) Scorpaeninae (Scorpaena)

13a. Dorsal fin with 13 spines Scorpaenodes

13b. Dorsal fin with 12 spines

14a. All pectoral fin rays unbranched in adults..... Pontinus

14b. Some upper pectoral fin rays branched in adults

Fig.8

15a. Palatine teeth present (Fig.9a)

16a. Prepelvic region without scales or with deeply embedded cycloid scales (Fig.10a). Scorpaena

16b. Prepelvic region fully scaled (Fig.10b)

17a. Scales mostly ctenoid (Fig.11a); posterior preorbital spine on lacrimal bone points posteroventrally (Fig.12a)..... Sebastapistes

17b. Scales mostly cycloid (Fig.11b); posterior preorbital spine on lacrimal bone points anteroventrally (Fig.12b) Parascorpaena*

15b. Palatine teeth absent (Fig.9b)

18a. Fourth dorsal spine especially elongate in specimens longer than about 60 mm standard length; black pigment between dorsal spines 1 to 3 or 2 or 3 (Fig. 13) Iracundus

18b. Fourth dorsal spine not especially elongate in specimens longer than 60 mm standard length; no black pigment between dorsal spines 1 to 3

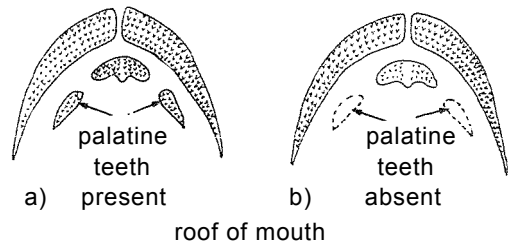


Fig.9

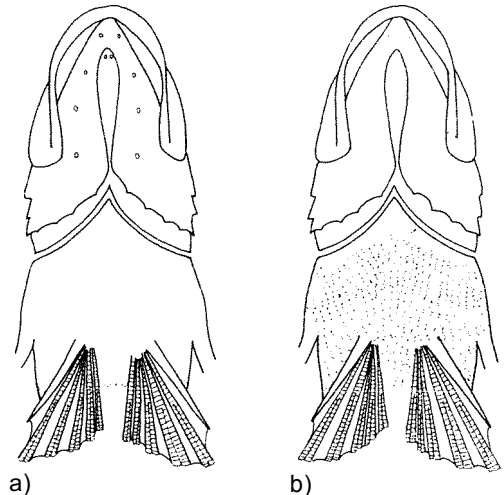


Fig.10

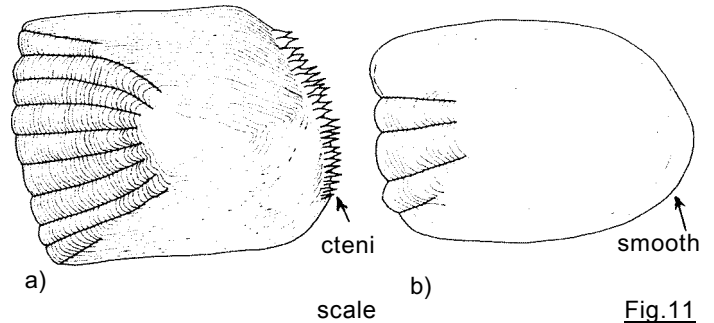
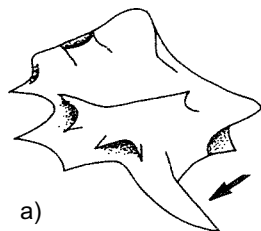


Fig.11



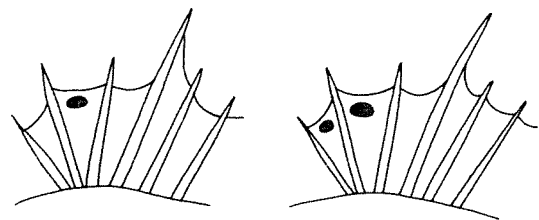
a)



b)

posterior preorbital spine on lacrimal bone

Fig.12



anterior dorsal fin spines of Iracundus

Fig.13

*Limits between this genus and Scorpaena poorly defined

19a. Body strongly compressed

20a. Dorsal fin originates well behind eye (Fig.14); pectoral rays 17 or 18; scales cycloid Rhinopias

20b. Dorsal fin originates just behind eye (Fig.15); pectoral rays 14 or 15; scales forming spiny papillae Taenianotus

19b. Body robust, not strongly compressed ... Scorpaenopsis*

10b. Dorsal fin originates over or before eye; lacrimal bone with strong spines. capable of much rotation, highly movable (Fig.16); scales small, rudimentary or absent Tetraroginae

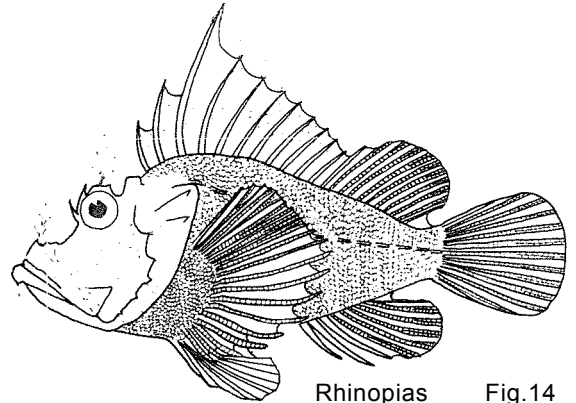
21 a. Palatine teeth present (Fig.9a)

22a. Body scaleless (except for lateral line)

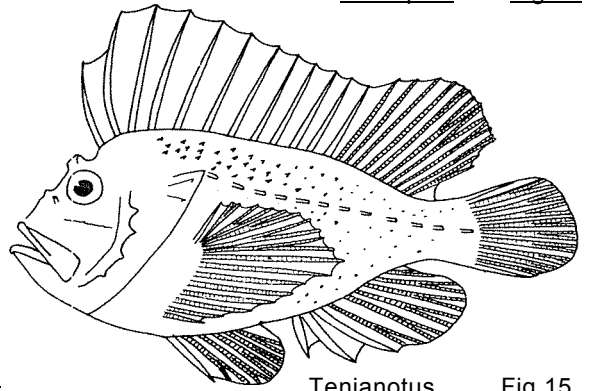
23a. Body robust, not strongly compressed; head profile rounded (Fig.17); 14 to 16 (rarely 13) pectoral rays; dorsal fin with 12 to 14 spines and 5 to 9 segmented rays..... Richardsonichthys

23b. Body notably compressed; head profile angular (Fig.18); 11 to 13 (usually 12) pectoral rays; dorsal fin with 14 to 17 spines and 7 to 9 segmented rays..... Ocosia

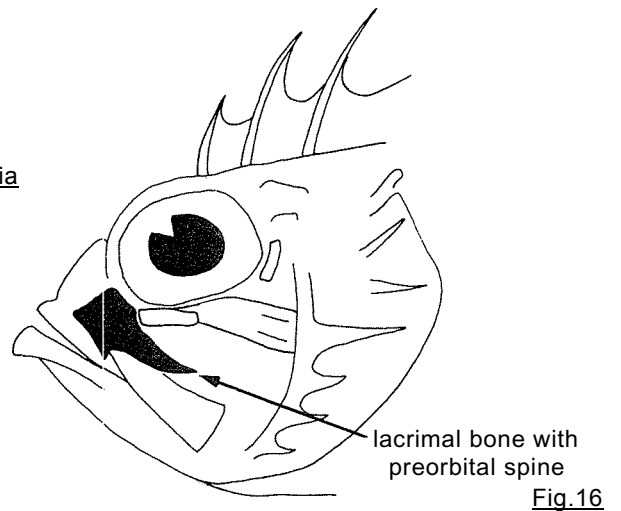
22b. Body with minute, deeply embedded rudimentary cycloid scales



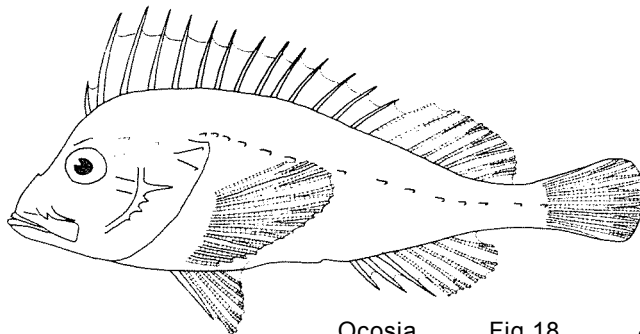
Rhinopias Fig.14



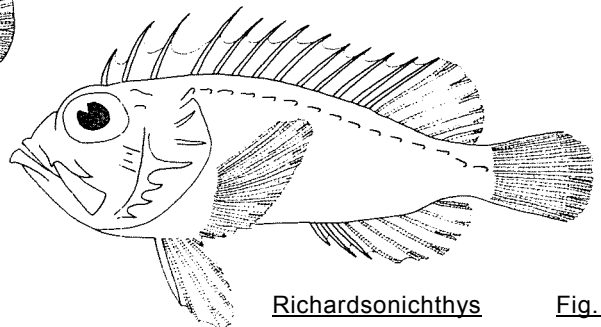
Taenianotus Fig.15



lacrimal bone with preorbital spine Fig.16



Ocosia Fig.18



Richardsonichthys Fig.17

*Limits between this genus and Scorpaena poorly defined

24a. Anterior 3 dorsal fin spines widely separated from remainder of fin; mouth strongly upturned (Fig.19)..... Vespicula

24b. Anterior 3 dorsal fin spines not widely separated from remainder of fin; mouth not strongly upturned (Figs.20,21,22)

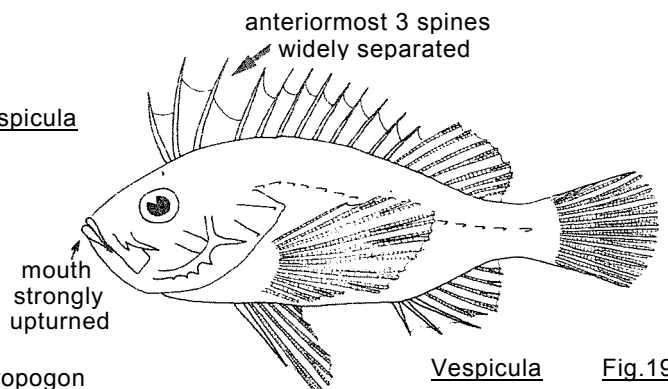
25a. A simple cirrus over eye, on or near posterior end of interorbital ridge (Fig.20) Paracentropogon

25b. No cirrus over eye, on or near posterior end of interorbital ridge

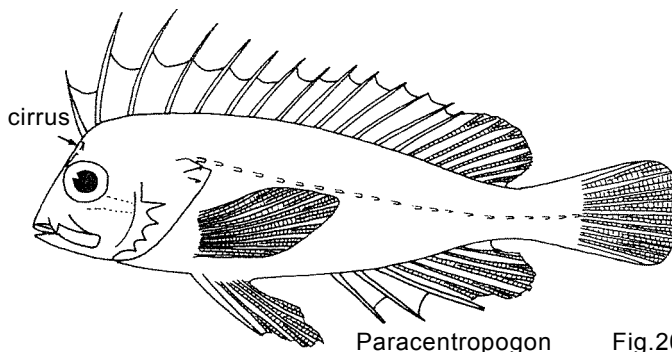
26a. Origin of dorsal fin before or at anterior margin of eye; dorsal fin membrane not strongly incised; body strongly compressed; gillrakers 5 to 8; dorsal fin with 15 to 18 spines and 6 or 7 segmented rays; 10 to 13 pectoral rays (Fig.21) Ablabys*

26b. Origin of dorsal fin at posterior margin of eye; dorsal fin membrane strongly incised; body robust, not strongly compressed; gillrakers 12 to 19; dorsal fin with 13 to 15 spines and 7 or 8 segmented rays; pectoral rays 13 to 16 (Fig.22) Neocentropogon

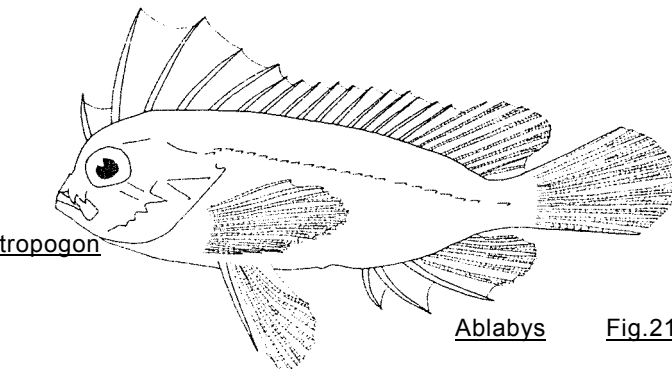
21b. Palatine teeth absent (Fig.9b)



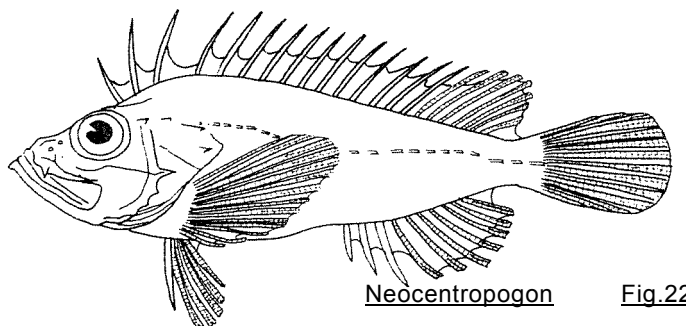
Vespicula Fig.19



Paracentropogon Fig.20



Ablabys Fig.21

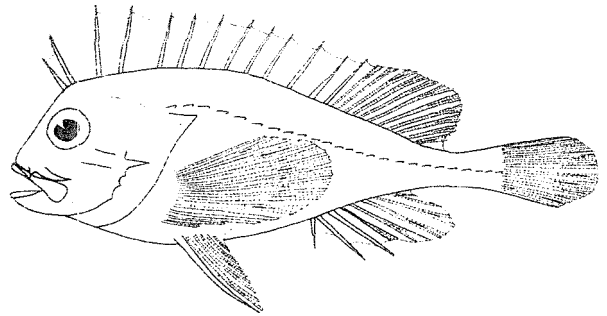


Neocentropogon Fig.22

*Ablabys is a senior synonym of Amblyapistus

27a. Pelvic fin with 1 spine and 5 segmented rays; segmented rays of all fins branched (except at small size); body with small embedded cycloid scales; 20 to 29 lateral line scales (Fig.23) Snyderina

27b. Pelvic fin with 1 spine and 3 segmented rays; segmented rays of all fins simple, unbranched; body scaleless (except for lateral line); 8 to 11 lateral line scales (Fig.24) Coccotropsis

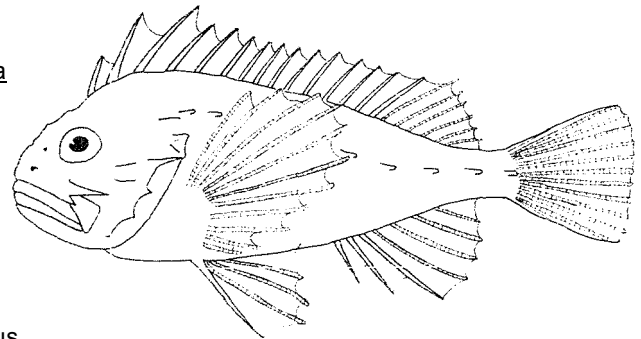


Snyderina Fig.23

2b. Branchiostegal membranes broadly fused to isthmus (Fig.1b)

28a. Dorsal fin with 16 or 17 spines (rarely 15) and 3 to 5 segmented rays; pelvic fin with 1 spine and 3 segmented rays..... Pseudosynanceia

28b. Dorsal fin with 12 to 15 spines and 4 to 7 (usually 6) segmented rays; pelvic fin with 1 spine and 4 or 5 (rarely 3) segmented rays



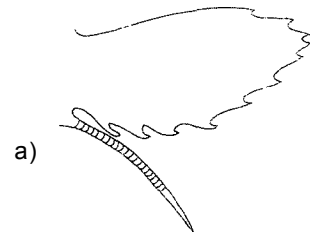
Coccotropsis Fig.24

29a Anal fin with 2 spines and 11 to 14 segmented rays Trachicephalus

29b. Anal fin with 3 spines and 4 to 6 segmented rays Synanceia

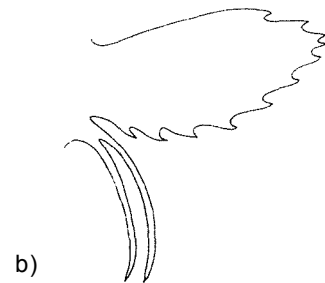
1b. Ventralmost pectoral fin ray(s) detached. separate from remainder of fin

30a. Body covered with Scales; branchiotegeal membranes not fused to isthmus (Fig.1a); posterior half of spinous dorsal fin with a large black blotch Apistinae (Apistus)



30b. Body scaleless, except for lateral line and sometimes a few deeply buried scales above lateral line; branchiostegal membranes broadly fused to isthmus (Fig.1b); posterior half of spinous dorsal fin without large black blotch

31a. Pectoral fin with a single free ray ventrally (Fig.25a) Minoinae (Minous)



31b. Pectoral fin with 2 or 3 free rays ventrally (Figs.25b,c) Choridactylinae

32a. Ventralmost 2 pectoral fin rays free and detached from remainder of fin (Fig.25b); dorsal fin with 15 to 18 spines..... Inimicus



32b. Ventralmost 3 pectoral fin rays free and detached from remainder of fin (Fig.25c); dorsal fin with 12 to 15 spines..... Choridactylus

pectoral fin

Fig.25

LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

- Ablabys binotatus (Peters, 1855)
- Ablabys macracanthus (Bleeker, 1852)
- Ablabys taenianotus (Cuvier, 1829)
- Apistus carinatus (Bloch & Schneider, 1801)
- Brachypterois serrulatus (Richardson, 1846)

<u>Choridactylus multibarbus</u> Richardson, 1848 <u>Choridactylus natalensis</u> (Gilchrist, 1902)	SCORP Chor 1
<u>Coccotropsis gymnoderma</u> (Gilchrist, 1906)	
<u>Dendrochirus biocellatus</u> (Fowler, 1824) <u>Dendrochirus brachypterus</u> (Cuvier, 1829) <u>Dendrochirus zebra</u> (Quoy & Gaimard, 1824)	
<u>Ebosia falcata</u> Eschmeyer & Rama-Rao, 1977	
<u>Ectroposebastes imus</u> (Garman, 1899)	
<u>Helicolenus dactylopterus</u> (Delaroche, 1809) <u>Helicolenus mouchezi</u> (Sauvage, 1875)	SCORP Helic 1
<u>Inimicus filamentosus</u> (Cuvier, 1829) <u>Inimicus sinensis</u> (Valenciennes, 1833)	SCORP Inim 1
<u>Iracundus signifer</u> Jordan & Evermann, 1903	
<u>Minous coccineus</u> Alcock, 1890 <u>Minous dempsterae</u> Eschmeyer, Hallacher & Rama-Rao, 1979 <u>Minous inermis</u> Alcock, 1899 <u>Minous longimanus</u> Regan, 1908 <u>Minous monodactylus</u> (Bloch & Schneider, 1801) <u>Minous trachycephalus</u> (Bleeker, 1854)	SCORP Mino 1
<u>Neocentropogon profundus</u> (Smith, 1958)	
<u>Ocosia ramaraoi</u> Poss & Eschmeyer, 1975	
<u>Paracentropogon longispinis</u> (Cuvier, 1829)	
<u>Parapterois heterurus</u> (Bleeker, 1856)	
<u>Parascorpaena aurita</u> (Rüppell, 1838) <u>Parascorpaena maculipinnis</u> Smith, 1957 <u>Parascorpaena mossambica</u> (Peters, 1855) <u>Parascorpaena picta</u> (Cuvier, 1829)	
<u>Phenacoscorpius adensis</u> Norman, 1939	
<u>Pontinus macrocephalus</u> (Sauvage, 1882) <u>Pontinus tentacularis</u> (Fowler, 1938)	
<u>Pseudosynanceia melanostigma</u> Day, 1875	
<u>Pterois antennata</u> (Bloch, 1787) <u>Pterois mombasae</u> (Smith, 1957)	SCORP Pter 1
<u>Pterois radiata</u> (Cuvier, 1829) <u>Pterois russellii</u> (Bennett, 1831) <u>Pterois volitans</u> (Linnaeus, 1758)	SCORP Pter 2
<u>Rhinopias eschmeyeri</u> Conde, 1977 <u>Rhinopias frondosa</u> (Günther, 1891) <u>Rhinopias sechellensis</u> (Regan, 1908)	
<u>Richardsonichthys leucogaster</u> (Richardson, 1848)	

Scorpaena aquabe Fowler & Steinitz, 1956
Scorpaena scrofa Linnaeus, 1758

Scorpaenodes albaiensis (Evermann & Seale, 1907)
Scorpaenodes corallinus Smith, 1957
Scorpaenodes guamensis (Quoy & Gaimard, 1824)
Scorpaenodes hirsutus (Smith, 1957)
Scorpaenodes investigatori Eschmeyer & Rama-Rao, 1972
Scorpaenodes littoralis (Tanaka, 1917)
Scorpaenodes minor Smith, 1958
Scorpaenodes muciparus (Alcock, 1889)
Scorpaenodes parvipinnis (Garrett, 1863)
Scorpaenodes steinitzi Klausewitz & Froiland, 1970
Scorpaenodes tribulosus Eschmeyer, 1969
Scorpaenodes varipinnis Smith, 1957

SCORP Scorpa 1

Scorpaenopsis barbata (Rüppell, 1838)
Scorpaenopsis diabolus (Cuvier, 1829)
Scorpaenopsis durbanensis (Gilchrist & Thompson, 1909)
Scorpaenopsis gibbosa (Bloch & Schneider, 1801)
Scorpaenopsis lactomaculata (Herre, 1945)
Scorpaenopsis novaequinea (Cuvier, 1829)
Scorpaenopsis rosea (Day, 1867)

SCORP Scorpaen 1

Sebastapistes albobrunea (Günther, 1873)
Sebastapistes bucephalus (Alcock, 1896)
Sebastapistes erostris (Alcock, 1896)
Sebastapistes hassi Klausewitz, 1970
Sebastapistes oglinus (Smith, 1947)
Sebastapistes neilseni Smith, 1964
Sebastapistes nuchalis (Günther, 1871)
Sebastapistes strongia (Cuvier, 1829)
Sebastapistes tristis (Klunzinger, 1884)

SCORP Seta 1

Setarches guentheri Johnson, 1862
Setarches longimanus (Alcock, 1894)

Snyderina guentheri (Boulenger, 1899)

Synanceia nana Eschmeyer & Rama-Rao, J.973
Synanceia verrucosa Bloch & Schneider, 1801

SCORP Syria 1

Taenianotus triacanthus Lacepède, 1802

Trachicephalus uranoscopus (Bloch & Schneider, 1801)

Vespicula dracaena (Cuvier, 1829)

Prepared by S.G. Poss, The Academy of Natural Sciences of Philadelphia, Philadelphia, Pennsylvania, USA and, K.V. Rama-Rao, Estuarine Biological Station, Zoological Survey of India, Hillpatna, India, in consultation with W.N. Eschmeyer, California Academy of Sciences, San Francisco, USA

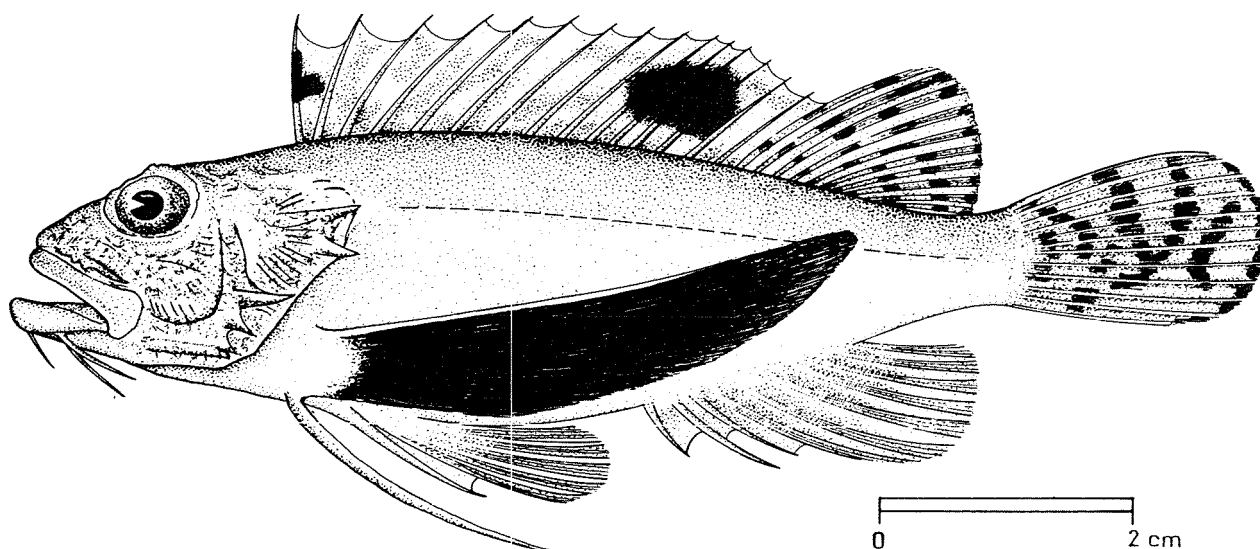
Most drawings provided by S.G. Poss

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCORPAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Apistus carinatus* (Bloch & Schneider, 1801)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Ocellated waspfish
Fr - Rascasse ocellée
Sp - Rascacio ocelado

NATIONAL

DISTINCTIVE CHARACTERS:

Dorsal surface of head rugose; lacrimal with 2 small preorbital spines directed anteroventrally and a strong swordlike spine pointing posteriorly and reaching to below middle of eye; preopercle with a strong spine and 2 or 3 shorter spines below; 2 divergent ridges on opercle, each ending in a spine; a long, slender barbel on chin at symphysis of lower jaw, and a similar barbel attached halfway along lower jaw. Pectoral fins elongate, longest rays reach to or beyond base of posteriormost anal ray; ventralmost pectoral fin ray detached, free from remainder of fin. Body covered with small scales, each with a median ridge that ends in a point and 3 or 4 lobes on posterior margin.

Colour: body greyish dorsally and rosy ventrally; spinous part of dorsal fin grey, darker grey distally, with a black patch between first and second spines and a black blotch between dorsal spines 8 to 14; segmented part of dorsal fin with 3 oblique brown streaks; caudal fin with 4 irregular black bars; pectoral fin black, uppermost pectoral fin ray white; free ray milky white; pelvic fins dark brown.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

All other species of scorpaenids: lowermost pectoral fin ray not detached, or, if so, body scaleless.

SIZE :

Maximum: 15.0 cm (standard length); common to 10 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, from Natal, Mozambique, the Red Sea, the "Gulf", and the west coast of India. Elsewhere from the east coast of India, the Malay Archipelago, Taiwan Island, China, the Philippines, Japan, Western Australia and Queensland.

Found on soft bottoms of the continental shelf, from near shore to a depth of about 60 m.

PRESENT FISHING GROUNDS:

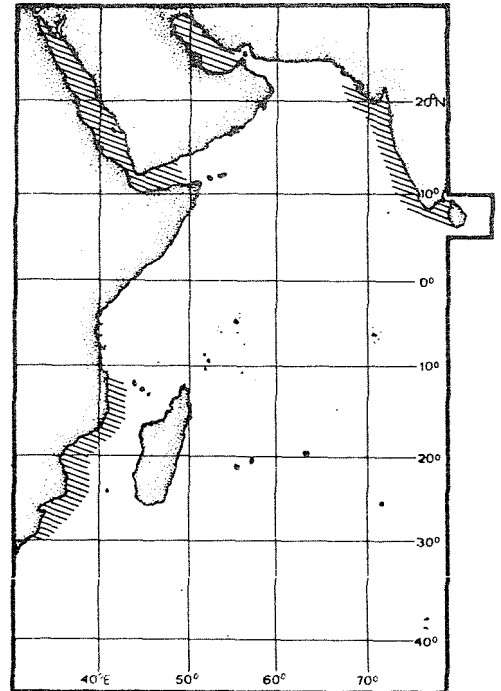
Caught incidentally throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly in bottom trawls; occasionally with shore seines.

Marketed fresh in small quantities, also dried and salted.

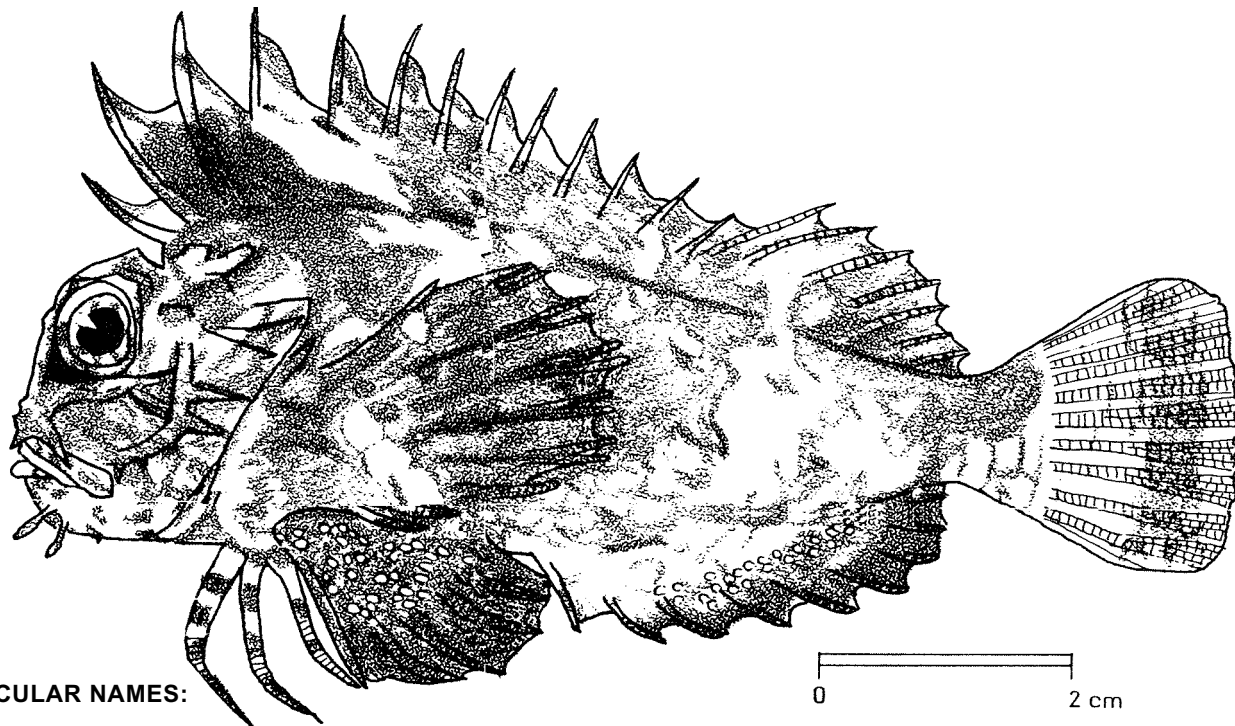


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCORPAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Choridactylis multibarbus* Richardson, 1848

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Orangebanded stingfish
Fr - Poisson pierre orangé
Sp - Pez piedra barbudo

NATIONAL:

DISTINCTIVE CHARACTERS:

Dorsal fin with 12 to 14 (usually 13) spines and 8 or 9 (usually 9) segmented rays; total dorsal fin elements 21 to 23 (usually 22); anal fin with 2 spines and 8 or 9 (usually 8) segmented rays; total anal fin elements 10 or 11 (usually 10); pectoral fin with 12 rays, the lowermost 3 detached from remainder of fin. Body without scales.

Colour: fins blackish brown, with an oblique pale band between the 4th and 6th dorsal spines; margins of pectoral fins orange; caudal fin with a black band at base and another in distal third of fin, pale terminally; distal two thirds of anal fin dark brown or black; inner surface of pectoral fins black with several oblong orange bands; pelvic fins black or dark brown with numerous white spots.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Choridactylus natalensis: uppermost pectoral fin ray filamentous; coloration of inner surface of pectoral fin with dark bands (over rays) on a pale background.

Other species of scaleless scorpaenids: either without detached lower pectoral rays or with 1 or 2 lower pectoral rays detached.

SIZE :

Maximum: 12 cm (standard length); common to 10 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, known from the Red Sea, the "Gulf", Gulf of Oman, and Pakistan. Elsewhere from the east coast of India, Gulf of Thailand, China and the Philippines.

Found on sand or mud bottoms from near shore to a depth of 50 m.

PRESENT FISHING GROUNDS

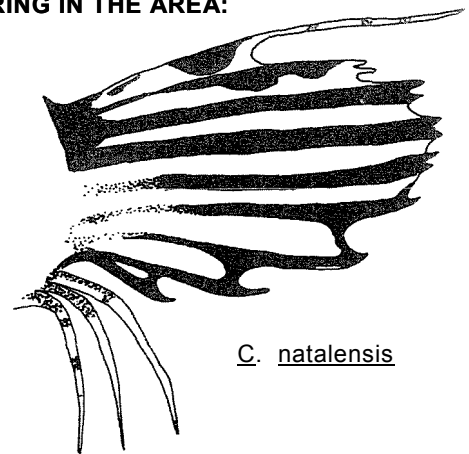
Caught incidentally throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

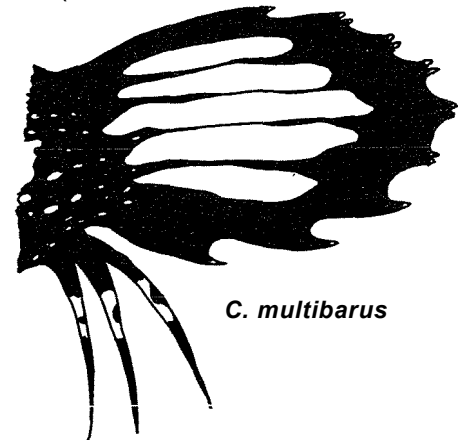
Separate statistics are not reported for this species.

Caught primarily with bottom trawls, occasionally with shore seines.

Marketed fresh in small quantities; also dried and salted.

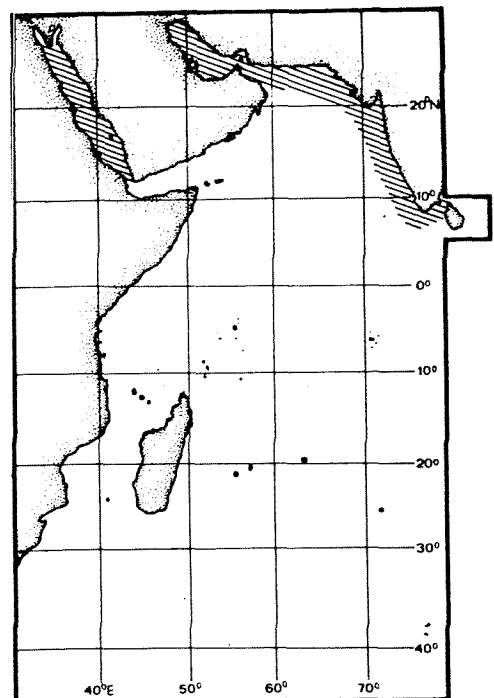


C. natalensis



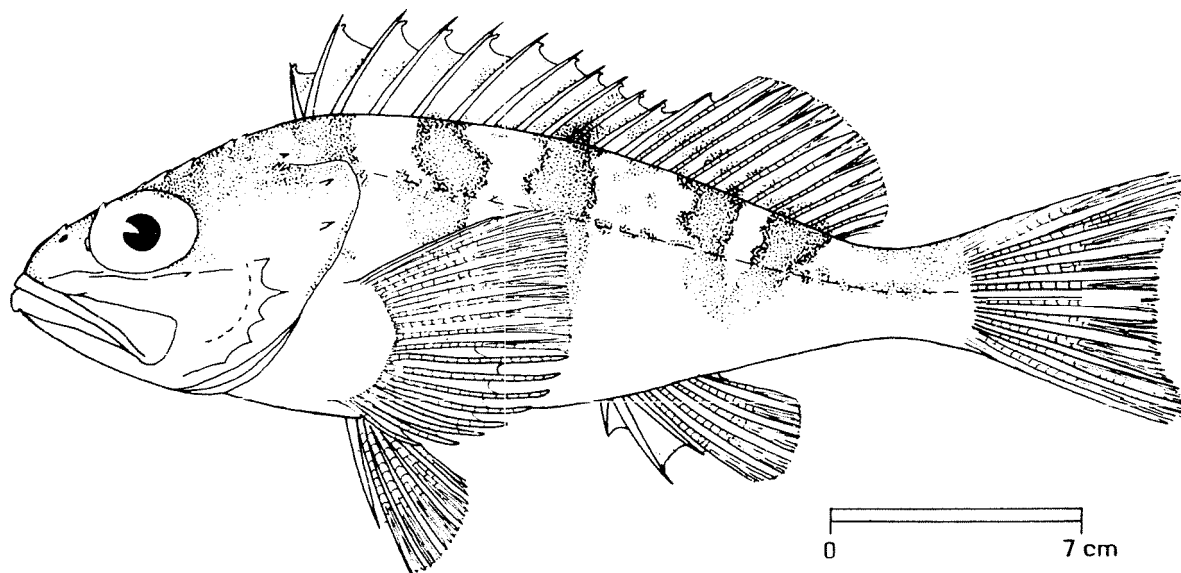
C. multibarus

inner surface of pectoral fin



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCORPAENIDAE

FISHING AREA 51
(W. Indian Ocean)Helicolenus dactylopterus (Delaroche, 1809)OTHER SCIENTIFIC NAMES STILL IN USE: Helicolenus maculatus (Cuvier, 1829)

VERNACULAR NAMES:

FAO : En - Blackbelly rosefish
 Fr - Sébaste chèvre
 Sp - Rascacio rubio

NATIONAL:

DISTINCTIVE CHARACTERS:

A deep-living, large-eyed scorpionfish, with a characteristic preopercular spination, the second spine from above the longest; top of head with low spines and without a pit behind eyes. Usually 11 or 12 segmented rays in dorsal fin; pectoral fins square-cut, fin membrane between lower pectoral fin rays strongly incised. Scales ctenoid (rough to touch).

Colour: red above to pinkish white below. Usually, with darker red bands on side; 3 below anterior, middle, and posterior dorsal fin spines, one V-shaped band below segmented part of dorsal fin and one at base of caudal fin, bands less well marked in larger individuals. Small individuals with black pigment near rear of spinous part of dorsal fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Helicolenus mouchezi: intense dark brown spots on body (lacking in H. dactylopterus); found at New Amsterdam and St. Paul Islands.

Other scorpaenids: fewer segmented dorsal rays (10 or less); uppermost preopercular spine longest (excluding the small accessory spine often found at base of uppermost spine); pectoral fins either elongate or more wedge-shaped; different coloration.

Other bass-like fishes: lack head spines characteristic of scorpaenids.

SIZE:

Maximum: 38 cm (standard length); common to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, only along southern coast of Natal and Madagascar. Elsewhere southward from Natal to the Cape and northwest to the Gulf of Guinea, Mauritania, Azores, Mediterranean Sea, Portugal, Spain, France, Guyana, Venezuela, Columbia, Mexico, northern Gulf of Mexico, Florida north to Nova Scotia, northern Argentina and Uruguay, Japan, Australia and New Zealand.

Found on soft bottoms of the continental shelf and upper slope, at depths of 55 to 550 m.

Feeds primarily on benthic crustaceans and fishes but part of diet is formed by pelagic species.

PRESENT FISHING GROUNDS:

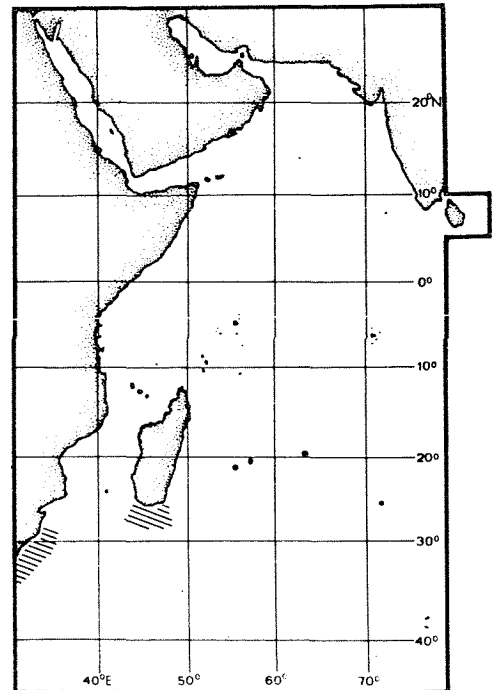
Often taken in large numbers throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with bottom trawls.

Marketed fresh.

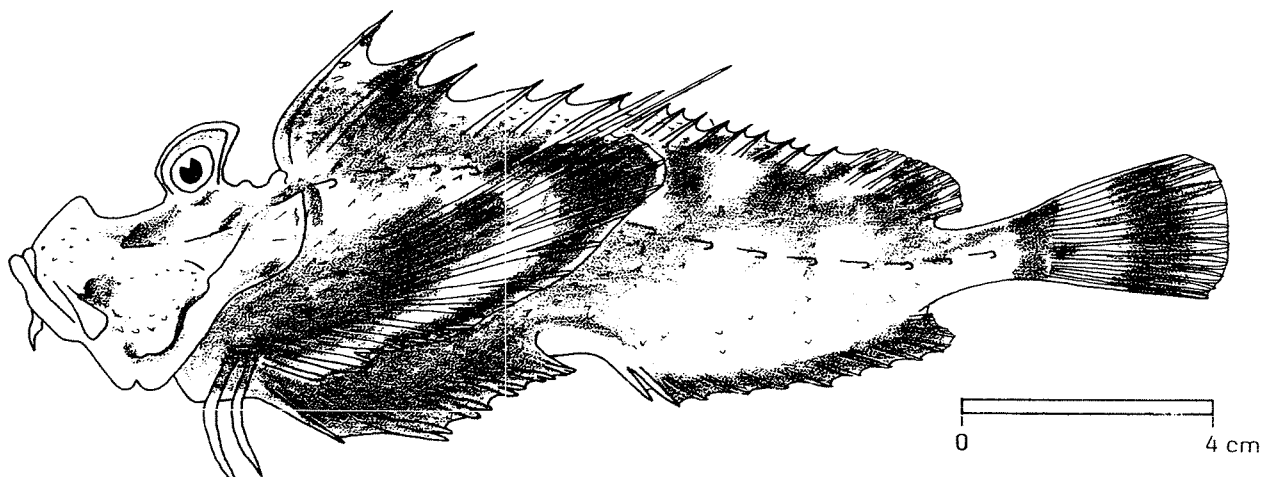


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCORPAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Inimicus filamentosus* (Cuvier, 1829)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Two-stick stingfish
 Fr - Poisson pierre béquillard
 Sp - Pez piedra muletero

NATIONAL:

DISTINCTIVE CHARACTERS:

Orbits extremely elevated, close set and broadly joined at their bases; interorbital width about equal to orbit diameter; a deep, oblong pit below and in front of eye; nape depressed, forming a deep saddle behind orbits. Dorsal fin with 15 or 16 (usually 15) strong, sharp spines and 7 or 8 (usually 8) segmented rays; 23 total dorsal fin elements; anal fin with 2 spines and 9 or 10 (usually 10) segmented rays; the 2 uppermost pectoral fin rays elongate, filamentous in specimens of all sizes, with filament on second ray longer than that on first.

Colour: mostly brown and yellow. Inner surface of pectoral fin coloration diagnostic, mostly brilliant yellow, with black patches near base, brown spots subterminally, and black distally.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Inimicus sinensis: orbits only slightly elevated; upper pectoral fin rays filamentous in juveniles, but not in adults. Coloration of inner surface of pectoral fin with 15 to 35 bright yellow spots on a dark brown or nearly black background.

Other species of scaleless scorpaenids: either no detached pectoral fin ray or 1 to 3 lower pectoral fin rays detached.

SIZE :

Maximum: 25 cm (standard length); common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known from Eilat, Gulf of Aqaba; Zanzibar, Madagascar, Réunion Island, Mauritius and the Maldives.

Found on sandy bottoms, from near shore to a depth of 55 m.

PRESENT FISHING GROUNDS:

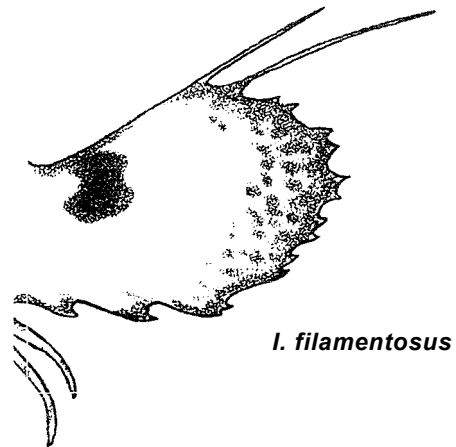
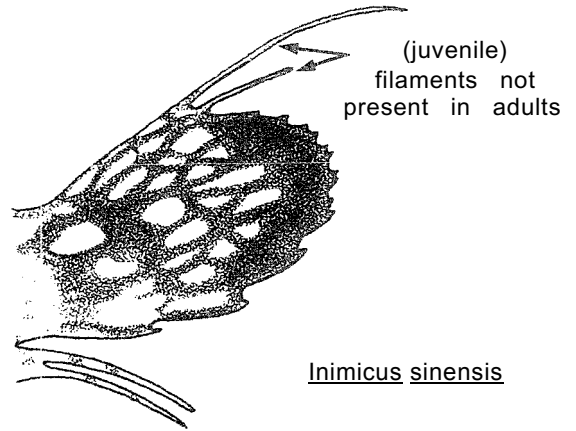
Caught incidentally throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

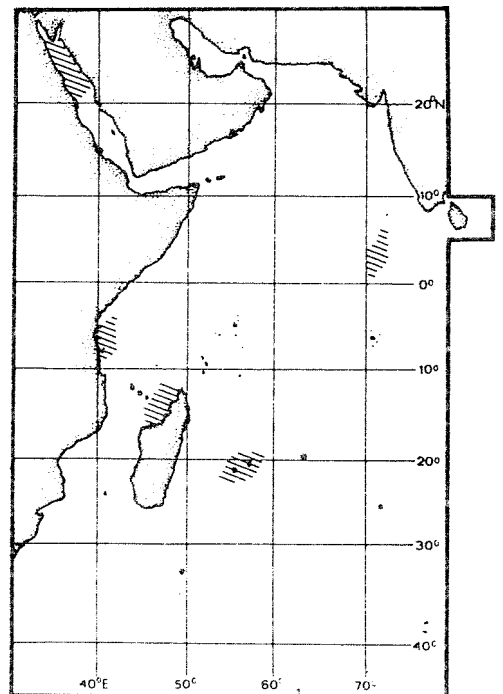
Separate statistics are not reported for this species.

Usually taken in bottom trawls.

Uncommon in markets.



inner surface of pectoral fin



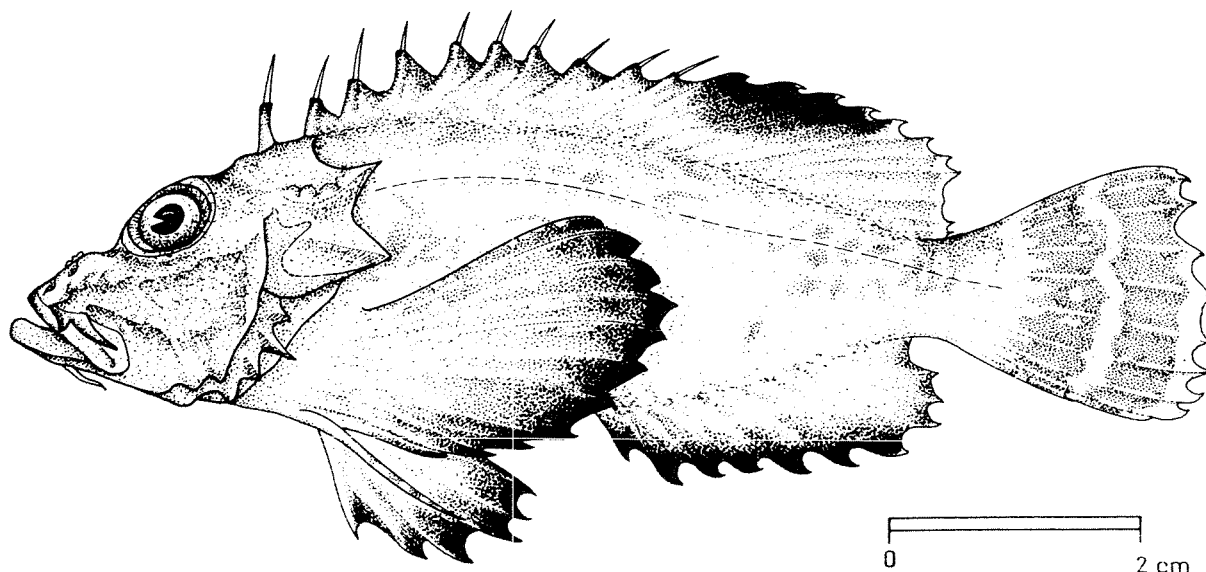
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCORPAENIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Minous monodactylus</i> (Bloch & Schneider, 1801)
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OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Grey stingfish
 Fr - Poisson pierre gris
 Sp - Pez piedra gris

NATIONAL :

DISTINCTIVE CHARACTERS:

Head spines well developed; lacrimal bone movable, with 2 preorbital spines that extend over maxilla, the first points anteroventrally, the second posteroventrally, ventrally, second spine bayonet-shaped, well separated from first and at least twice its length. Dorsal fin with 9 to 11 (usually 10) sharp, strong spines and 10 to 12 (usually 11) segmented rays; total dorsal fin elements 19 to 21 (usually 21); first dorsal spine equal to or longer than the second, well separated from second; anal fin with 2 spines and 7 to 10 (usually 9) segmented rays; spines difficult to distinguish from segmented rays, total anal fin elements 9 to 12 (usually 11); pectoral fin reaches to anterior third of anal fin; lowermost pectoral fin ray detached from remainder of fin.

Colour: dorsal part of body with pale bars and stripes; ventral surface usually pale, without markings. Anterior part of segmented dorsal fin with a large black area or spot, usually followed by oblique pale bars; inner side of pectoral fin and pectoral fin axil pale, without distinctive markings; lateral side of pectoral and pelvic fins and anal fin blackish distally. Caudal fin with 2 broad vertical bars.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other species of Minous: first dorsal fin spine much shorter than second, both close together (first dorsal spine equal to or longer than second, with both spines well separated in M. monodactylus).

Other species of scaleless scorpaenids: either no detached rays in pectoral fins or 2 or 3 ventralmost rays detached (a single ray detached in M. monodactylus).

SIZE:

Maximum: 10 cm (standard length); common to 8 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, known from the Red Sea, the "Gulf", Pakistan, the west coast of India, Mauritius, Maldives and Sri Lanka. Elsewhere, from the east coast of India, the Gulf of Thailand, Singapore, Indonesia, Hong Kong, China and Taiwan Island.

Found on soft bottoms of the continental shelf, from near shore to a depth of about 55 m.

PRESENT FISHING GROUNDS:

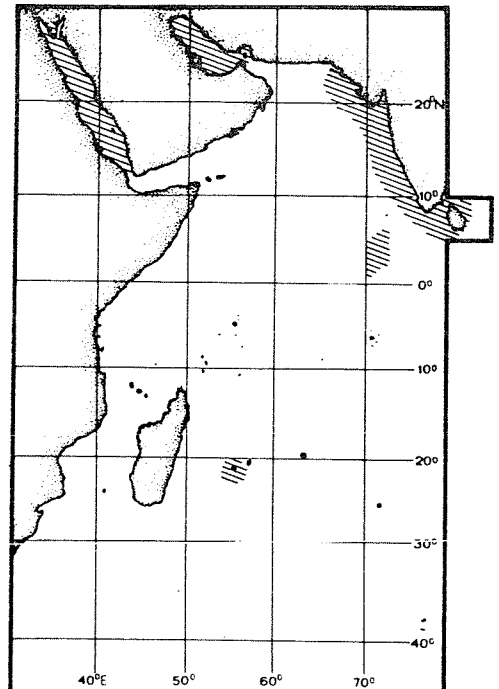
Caught incidentally throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly in bottom trawls; occasionally in shore seines.

Marketed fresh in small quantities; also dried and salted.

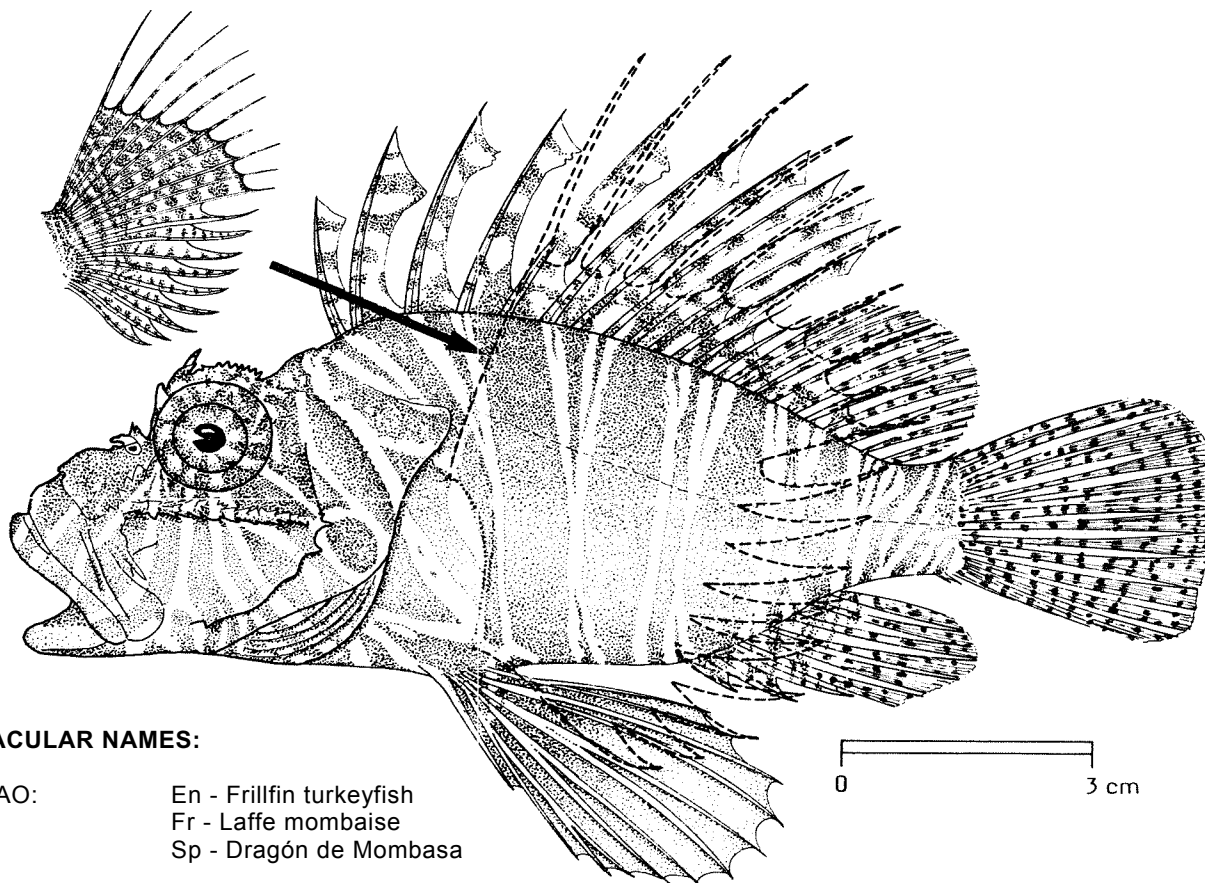


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCORPAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Pterois mombasae* (Smith, 1957)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Frillfin turkeyfish
Fr - Laffe mombaise
Sp - Dragón de Mombasa

NATIONAL :

DISTINCTIVE CHARACTERS:

Body compressed. Head spines well developed. Dorsal fin with 13 spines, all shorter than body depth; anal fin with 3 spines; pectoral fin rays 19, all simple;; pectoral fin reaches caudal fin base, with upper rays nearly free from fin membrane; caudal fin rounded. Scales etenoid (rough).

Colour: reddish-brown, slightly lighter below. Head and body covered with nearly regular brown bars that are separated by paler lines of nearly equal width; lines on head radiate from eye and enclose a brown ocellus on subopercle; 8 to 10 pale lines on body, most bifurcate above and below; bars on caudal peduncle thinner, extend posterodorsally. Dorsal fin spines with black and brown annular markings; segmented part of dorsal and anal fins pinkish, with black spots; pectoral fins brownish, with nearly continuous rows of darker spots; pelvic fins brown, rays lighter.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pterois russellii: small cycloid scales, pectoral fins with 13 rays; no black spots on caudal fin.

Pterois volitans: small cycloid scales; pectoral fins with 14 rays; dorsal fin spines longer than body depth.

Other species of Pterois: 12 dorsal fin spines (13 in P. mombasae).

Other species of Pteroinae: some of upper pectoral fin rays branched; pectoral fin membrane not strongly incised.

SIZE:

Maximum: 16 cm (standard length); common to 12 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, known from Sri Lanka, and along the east coast of Africa from Mombasa to Natal. Elsewhere along the east coast of India.

Found on rocky bottoms and around reefs on the continental shelf, from inshore waters to 60 m depth.

PRESENT FISHING GROUNDS:

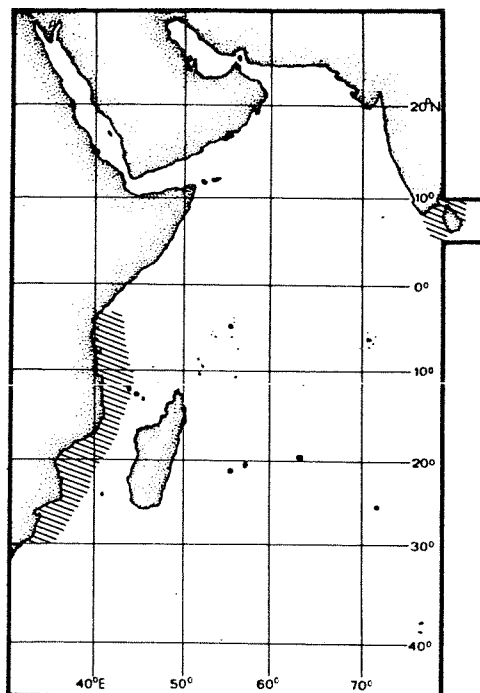
Caught incidentally throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly in bottom trawls; occasionally in shore seines.

Marketed fresh in small quantities, whole.



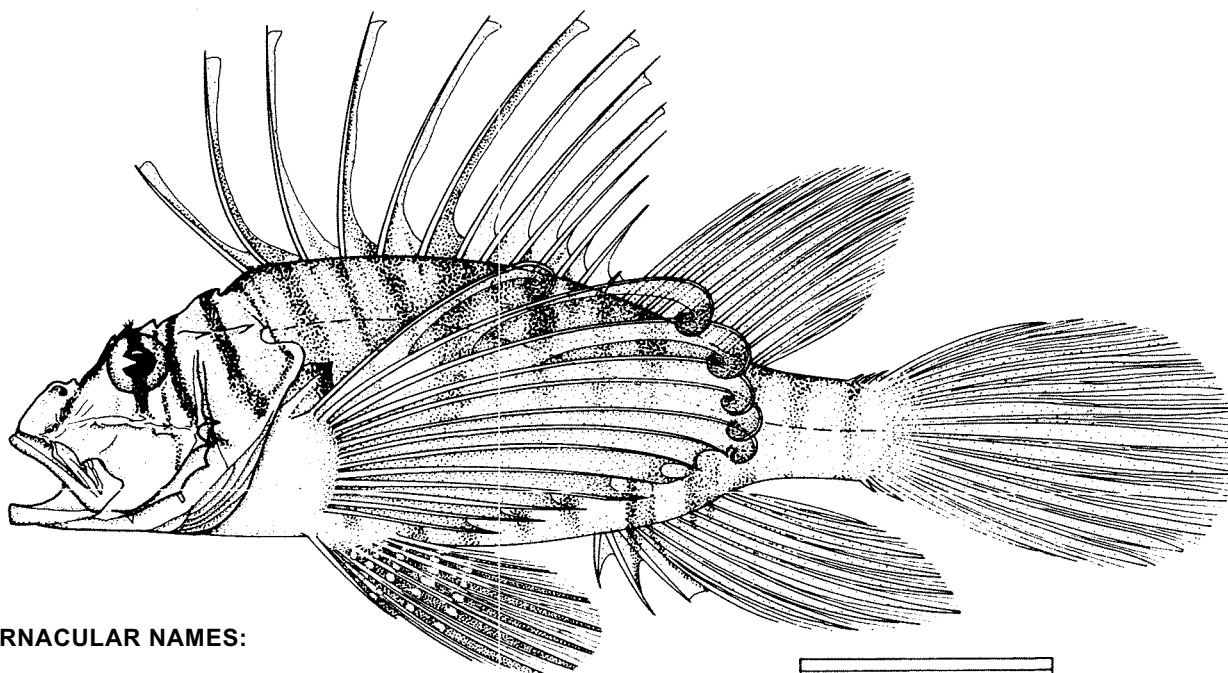
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SCORPAENIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Pterois russellii</i> Bennett, 1831
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OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Plaintail turkeyfish
Fr - Laffe gouvernail
Sp - Dragón timonel

NATIONAL

0 4 cm

DISTINCTIVE CHARACTERS:

Body moderately compressed. Head with feeble spination in young, better developed in adults. Dorsal fin with 13 long spines; dorsal fin membrane strongly incised, almost the entire height of fin; 3 anal spines; pectoral fin with 13 unbranched segmented rays, the longest reaching to or beyond end of segmented part of dorsal fin (extends beyond caudal fin in young); upper 3 or 4 pectoral fin rays free from the fin membrane for about half their length; caudal fin rounded. Scales small and cycloid (smooth).

Colour: reddish-brown, 4 dark crossbars on head. Segmented part of dorsal, anal and caudal fins plain, without spots; pectoral fin membrane usually covered with dark spots; pelvic fins mostly dusky, with light round spots, mainly on proximal half.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other species of *Pterois*: caudal fin, and in some species, also dorsal and anal fins covered with dark spots. Furthermore, dorsal fin with 12 spines in *P. antennata* and *P. radiata* (13 in *P. russellii*) and pectoral fin membrane between upper rays entirely absent distally in *P. mombasae*

SIZE:

Maximum: 30 cm (standard length); common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, from the east coast of Africa, Mauritius, the "Gulf", Pakistan, west coast of India, and Sri Lanka. Elsewhere, from the east coast of India, Indo-Malayan archipelago, south China, New Guinea and Western Australia.

Found on soft bottoms of the continental shelf, from inshore waters to a depth of 60 m.

PRESENT FISHING GROUNDS:

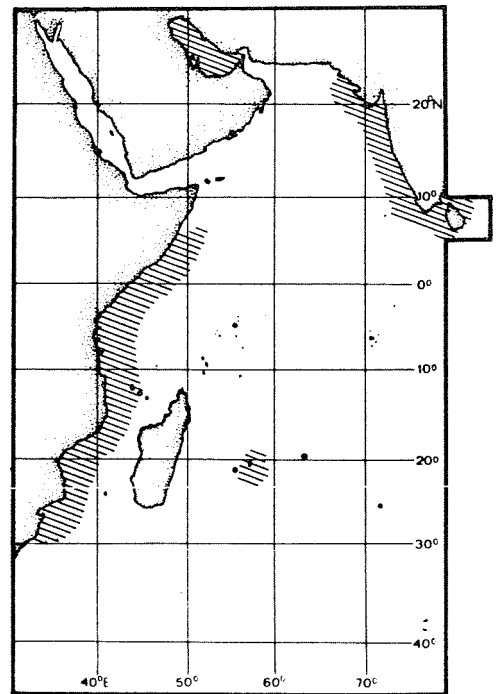
Caught incidentally throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Separate statistics are not reported for this species.

Caught mainly in bottom trawls, occasionally with shore seines.

Marketed fresh in small quantities.

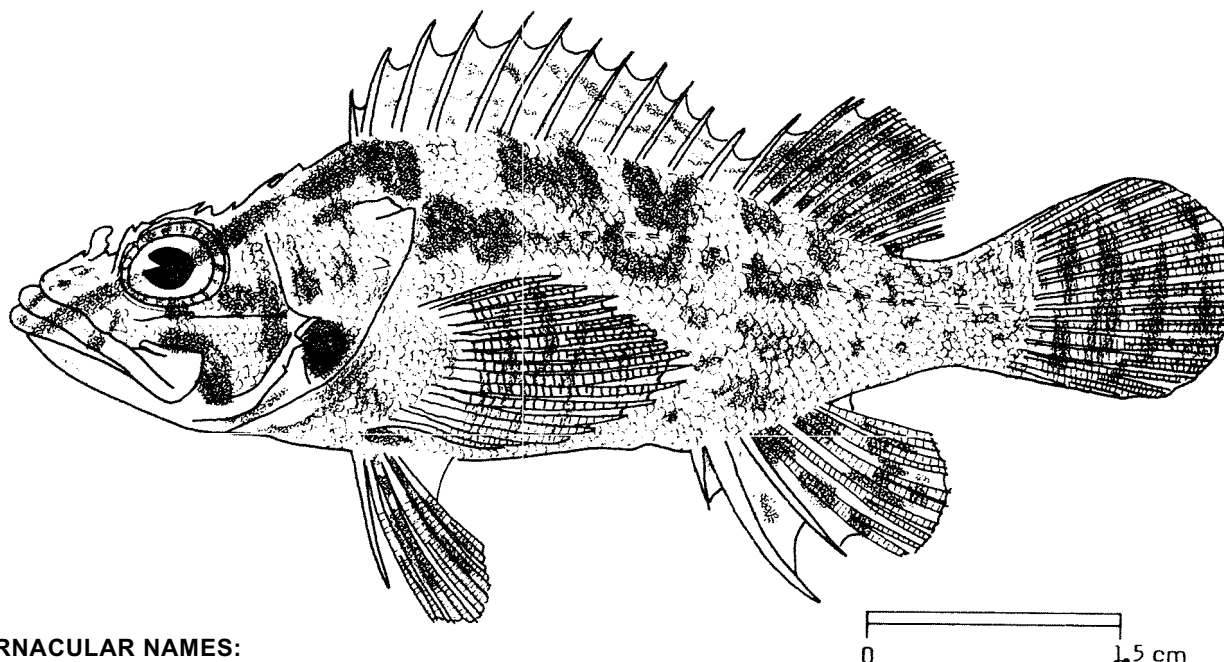


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCORPAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Scorpaenodes littoralis* (Tanaka, 1917)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Shore scorpion fish
Fr - Rascasse littorale
SP - Rascacio costero

NATIONAL:

DISTINCTIVE CHARACTERS:

A small inshore scorpionfish. Suborbital ridge with a single row of 3 spines; interorbital spines usually present but sometimes not well marked. Dorsal fin normally with 13 spines and 9 segmented rays; pectoral fins with 17 to 19 rays (usually 18 or 19). About 45 vertical scale; rows.

Colour: head and body with dense red and brown mottling standing in sharp contrast to a pale background. Markings on head dark brown; a large, nearly black spot on subopercle behind uppermost 3 preopercular spines; markings on body red, especially posteriorly and ventrally. Dorsal fin marbled with red, brown and white streaks; other fins with numerous red spots on fin rays.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other species of Scorpaenodes: without prominent dark spot on subopercle behind uppermost 3 preopercular spines.

Other species of Scorpaeninae: dorsal fin with 12 spines (13 in S. littoralis).

SIZE :

Maximum: 10.5 cm (standard length); common to 7 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, currently only known from the coast of South Africa. Elsewhere, from Japan, Taiwan Island, Australia, Hawaii and the Marquesas Islands.

Found on rocky bottoms, in caves, and on coral reefs at depths of 3 to 41m.

PRESENT FISHING GROUNDS:

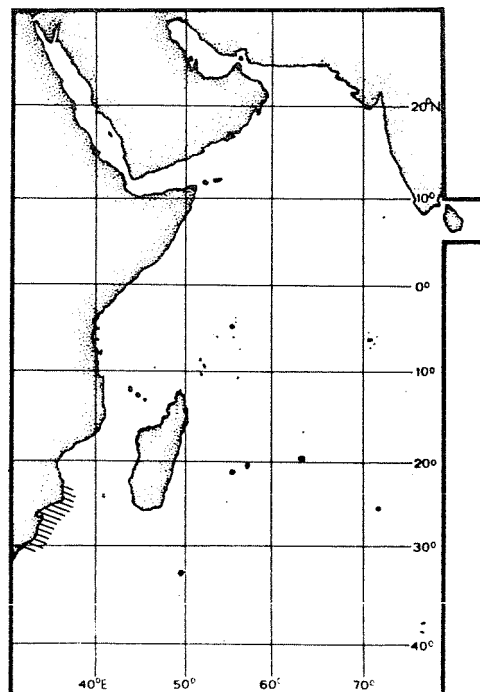
Caught incidentally throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Occasionally taken in bottom trawls.

Not utilized commercially.

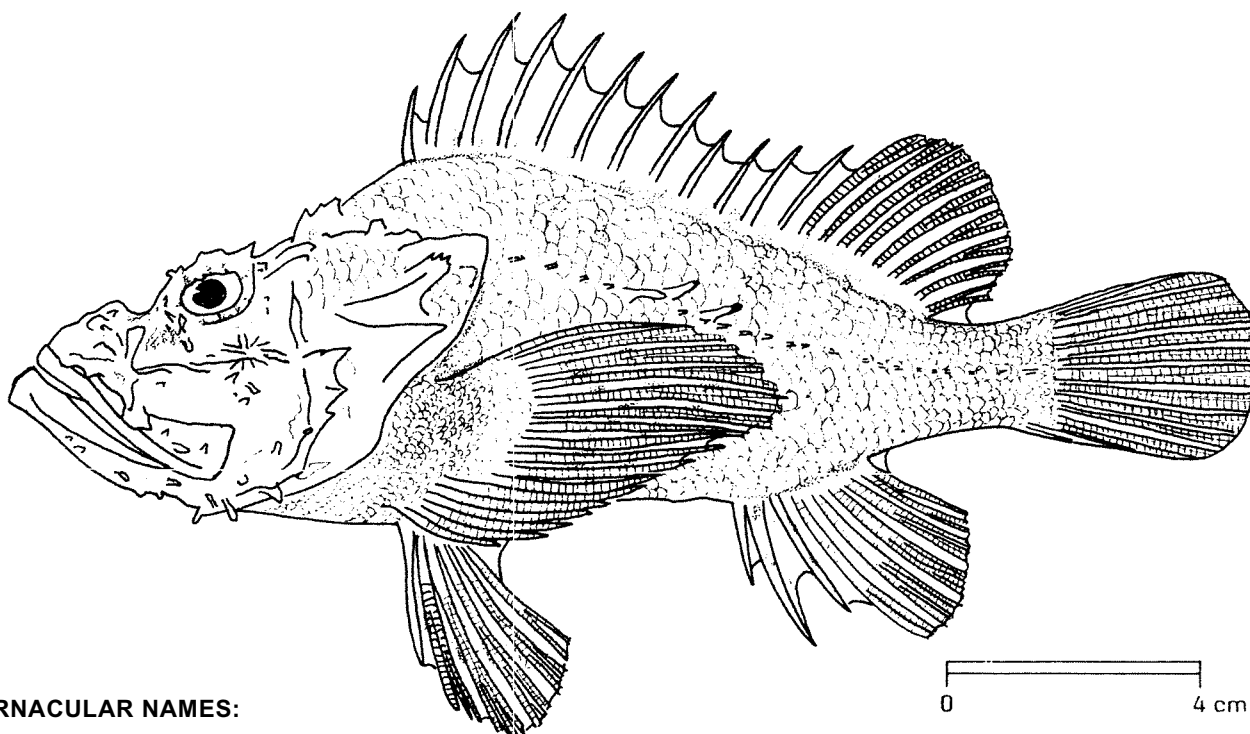


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCORPAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Scorpaenopsis gibbosa* (Bloch & Schneider, 1801)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Humpbacked scorpionfish
 Fr - Rascasse bossue
 Sp - Rascacio jorobado

NATIONAL

DISTINCTIVE CHARACTERS:

A robust fish, with a markedly humped back (size of hump increases with age). Pectoral fin with 17 or 18 rays (usually 17); 43 to 48 scales above lateral line.

Colour: variable, usually reddish and marbled and mottled with green, yellow, maroon and white. Dorsal fin green or grading to red, with orange mottling; anal fin brown or maroon, spotted and marbled, often with a broad oblique brown bar; caudal fin with a pink to brown crossbar at base, followed by a pinkish bar and a wide maroon bar that is streaked with green and white; pectoral fins grading from maroon with green mottling at base to dark maroon brown, and yellowish-orange terminally; inner surface of pectoral fins blue at base, bright orange yellow, with black spots and a black subterminal bar over body of fin, yellowish-white terminally.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Scorpaenopsis diabolus: has a strongly arched back and upturned mouth like S. gibbosa but does not have a subterminal black band on the inner surface of the pectoral fin; usually 18 pectoral rays usually 17 in S. gibbosa).

Other species of Scorpaenopsis: back not strongly arched; mouth terminal or only slightly upturned.

Other species of Scorpaeninae: either with 13 dorsal spines (12 in S. gibbosa), or with palatine teeth, or with a compressed body.

SIZE:

Maximum: 21 cm (standard length); common to 17 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

From South Africa, Madagascar, Seychelles, Mozambique, Tanzania, Kenya, Somalia, Red Sea and Laccadive Islands.

An inshore species found among rocks and coral.

PRESENT FISHING GROUNDS:

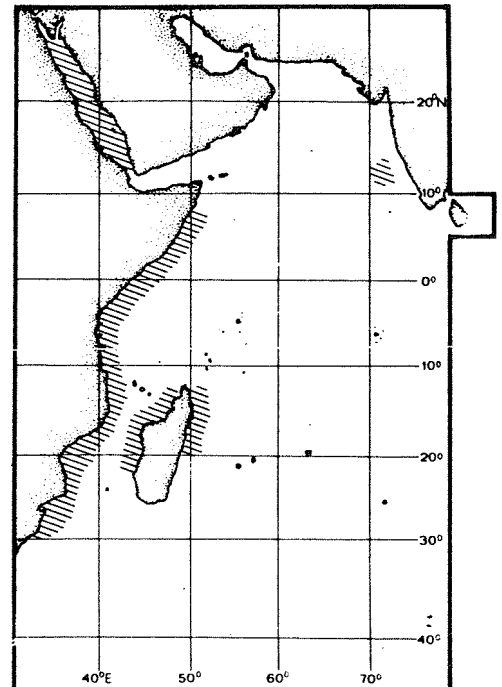
Caught incidentally throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Occasionally taken in bottom trawls; also by spearing and native fishing methods.

Marketed fresh in small quantities.



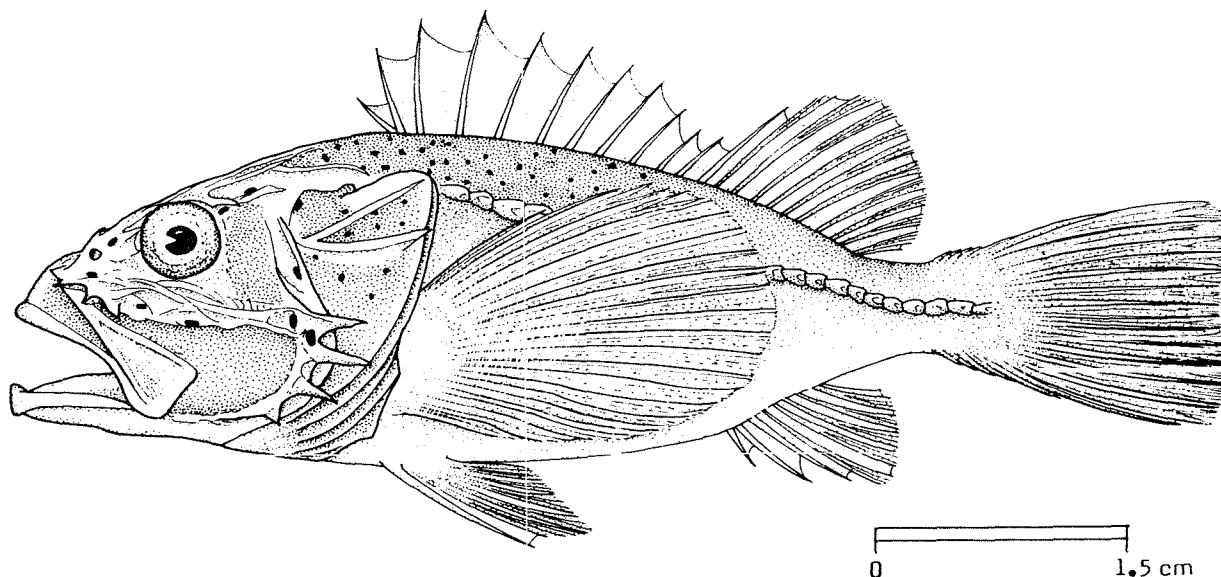
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCORPAENIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Setarches guentheri</i> Johnson, 1862
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OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Deepwater scorpionfish
 Fr - Rascasse serran
 Sp - Rascacio serrano

NATIONAL:

DISTINCTIVE CHARACTERS:

Head cavernous, with weak ossification; top of head scaleless; second preopercular spine subequal to, or longer than first and third preopercular spines; anteriormost preorbital spine on lacrimal as long as the posterior two. Dorsal fin usually with 12 spines and 10 segmented rays; anal fin with 3 spines and 5 segmented rays; pectoral fin rays 20 to 25. Body covered with tiny cycloid scales. Lateral line a continuous trough covered by thin membranous scales which lack distinct tubes (often lost during capture).

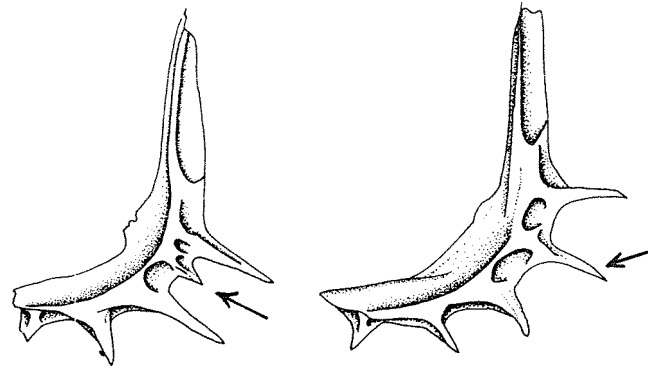
Colour: body greyish or pinkish.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Setarches longimanus: second preopercular spine much shorter than first third (subequal or longer in S. guentheri).

Ectroposebastes imus: scales present on top of head; anteriormost preorbital spine on lacrimal bone much shorter than the posterior 2; pectoral fin rays 18 to 20, usually 19 (20 to 25 in S. guentheri).

Other scorpaenids: head not cavernous and weakly ossified; lateral line scales form tubes.



S. longimanus

S guentheri

preopercular spines

SIZE:

Maximum: 20 cm (standard length); common to 8 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, from Natal and Durban to Zanzibar, the west coast of India, and Sri Lanka. Elsewhere, in the western Atlantic, Gulf of Guinea, Cape Verde Islands, Senegal, Morocco, Madeira, Bay of Bengal, Andaman Sea, Indo-Australian Archipelago, the Philippines, Japan, Western Australia, Fiji and Hawaii. This is the most widely distributed scorpaenid.

An offshore species, living on or near the bottom, depth of capture 180 to 650 m.

PRESENT FISHING GROUNDS:

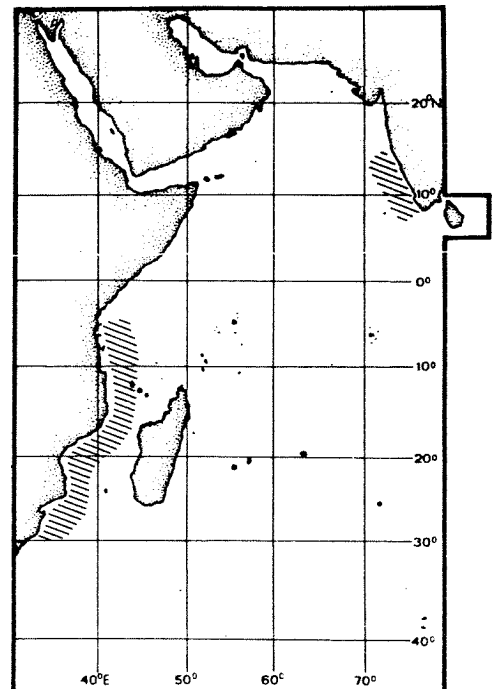
Caught in large numbers as bycatch in trawl fisheries throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with bottom trawl.

Marketed fresh in small quantities.

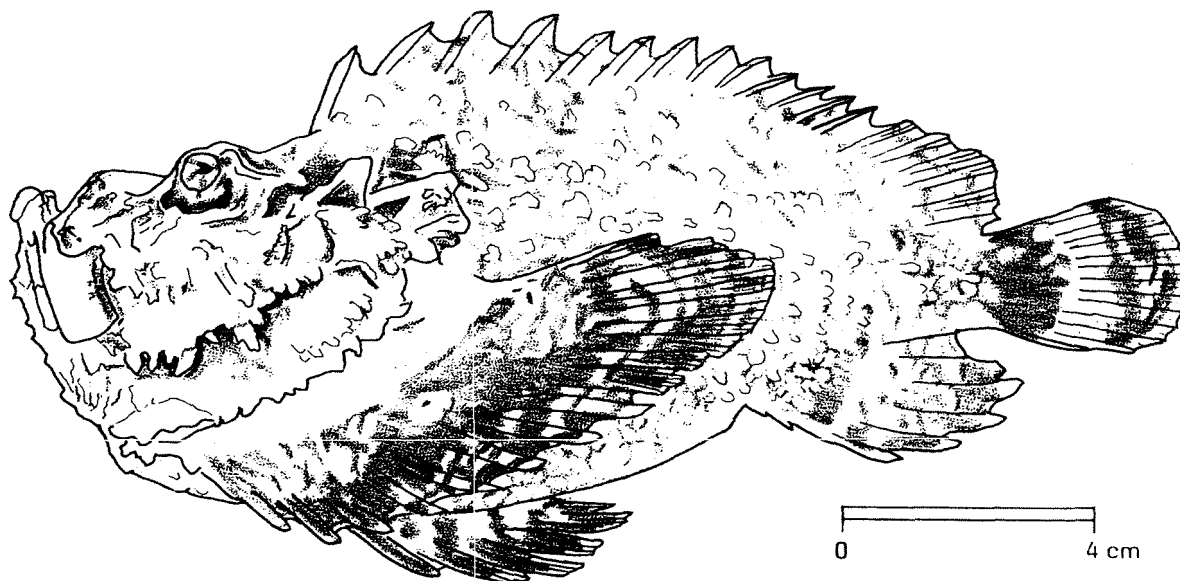


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCORPAENIDAE

FISHING AREA 51
(W. Indian Ocean.)*Synanceia verrucosa* Bloch & Schneider, 1801

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Stonefish
Fr - Poisson pierre commun
Sp - Pez piedra común

NATIONAL:

DISTINCTIVE CHARACTERS:

Head strongly depressed, eyes only slightly elevated and far apart, separated by a deep depression; occipital area elevated, bordered laterally by a pit behind each eye; a small pit below and before eye, pit smaller than orbit; gill slits restricted by fusion of branchiostegal membranes to isthmus. Dorsal fin with 12 to 14 (usually 13) spines of nearly equal length covered by thick skin, with prominent venom glands; and with 5 to 7 segmented rays; anal fin with 3 spines and 5 segmented rays; pectoral fins with 18 or 19 (usually 18) rays; pelvic fins with 1 spine and 5 segmented rays; all segmented rays usually branched and covered with thick skin.

Colour: body brownish; pectoral, pelvic and caudal fins tipped with white; caudal fin with subterminal dark bands; a paler area on body, usually well marked, between the segmented part of dorsal and anal fins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Synanceia nana: 14 pectoral fin rays (18 or 14 in S. verrucosa).

Pseudosynanceia melanostigma: pelvic fins with 1 spine and 3 segmented rays.

Trachicephalus uranoscopus: pelvic fins with 1 spine and 4 segmented rays; pectoral fin rays 14 or 15.

Other species of scaleless scorpaenids: 1, 2 or 3 lower pectoral fin rays free from remainder of fin (none in S. verrucosa).

SIZE:

Maximum: 40 cm (standard length); common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, from 26°S northward; coasts of Natal, Mozambique, Zanzibar, Kenya, the Red Sea, Madagascar, Aldabra, Seychelles, Réunion, Mauritius, Laccadives, Maldives and Sri Lanka. Elsewhere, from the Andaman and Nicobar Islands to Tahiti and from Australia north to Japan.

Found in shallow waters among coral reefs and coral rubble; in pools at low tide levels. Venom associated with fin spines can cause death in humans.

PKESEN I FISHING GROUNDS:

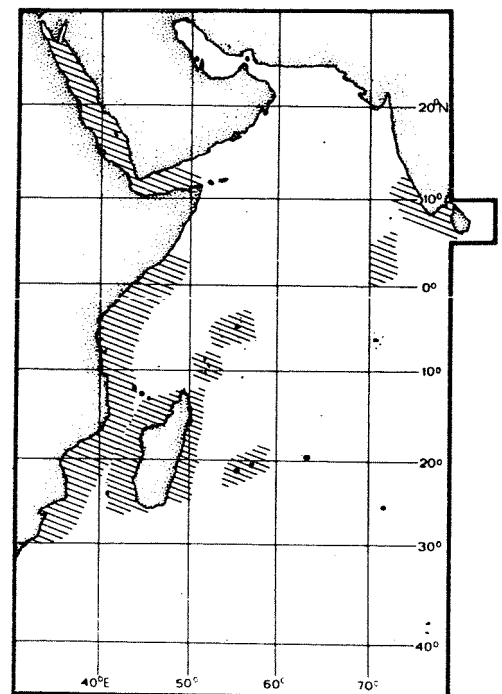
Caught incidentally throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly by spearing and native fishing methods.

Uncommon in markets.



FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

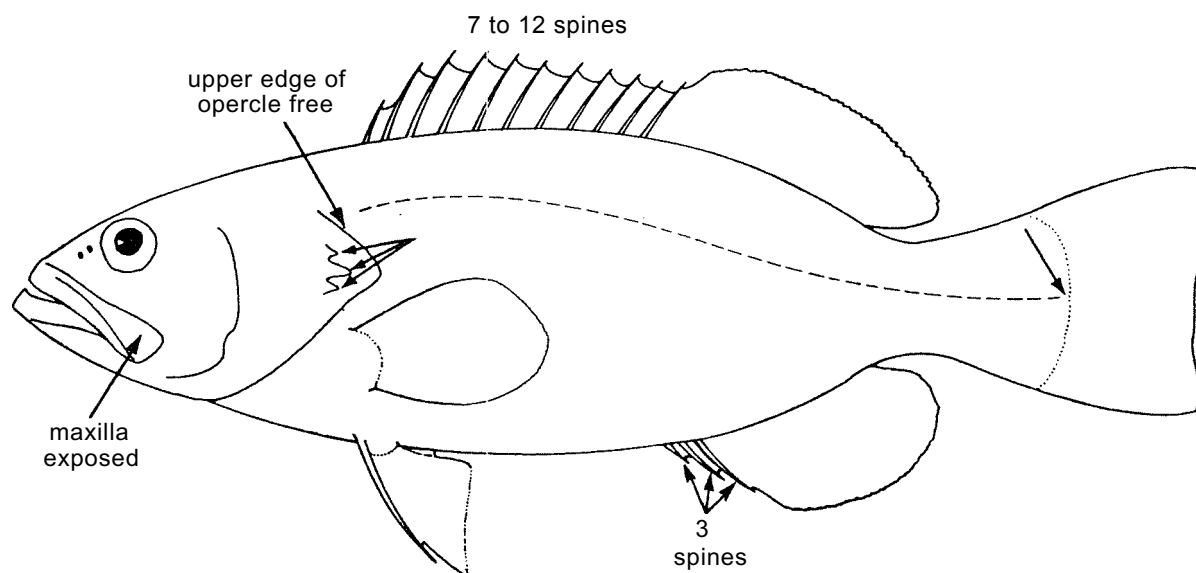
SERRANIDAE*

(Subfamilies Epinephelinae and Serraninae)

Groupers, seabasses, rockcods, hinds, combers, coral trouts, lyretails

Body robust or somewhat compressed, oblong-oval to rather elongate. Mouth large, with small, slender, inwardly-depressible teeth on jaws, vomer and palatines (*Anyperodon* lacks palatine teeth); enlarged caniniform teeth often present at front of jaws; no molars or incisiform teeth; maxilla exposed, with or without supramaxilla. A single dorsal fin with 7 to 12 strong spines and 10 to 19 soft rays; anal fin with 3 spines and 7 to 10 soft rays (last dorsal and anal fin rays usually split to their base, but counted as a single ray); caudal fin rounded or truncate in most species, emarginate to lunate in a few, with 15 branched rays; pelvic fin insertion under or a little behind pectoral fin base; pelvic fins with 1 spine and 5 soft rays; no scaly process at base of pelvic fins; pectoral fins broadly rounded, the base scaly. Edge of preopercle serrate; opercle with 2 or 3 flat points or spines (most species with 3 distinct spines); gill membranes separate, joined to isthmus far forward, with 7 branchiostegal rays. Scales small, adherent, ctenoid (rough to touch) or cycloid (smooth). Lateral line single.

Colour: variable with patterns of light or dark stripes, spots, vertical or diagonal bars, or nearly plain. Many species are capable of rapid colour changes. Xanthic (yellow) phases are known in some species and several species have distinctively coloured deep- and shallow-water forms. Colour patterns are generally the most useful field characters as the morphometric and meristic characters often overlap to a considerable degree.



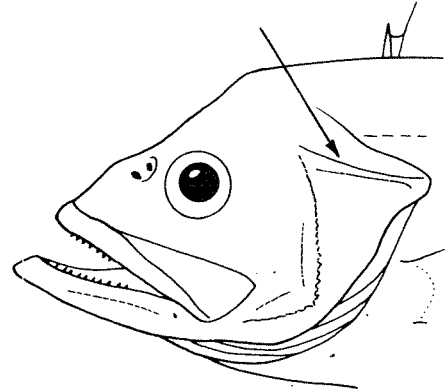
*Not included here are the subfamilies Liopropominae and Anthiinae, which are mostly small fishes and not of commercial importance

Seabasses and groupers are mostly demersal fishes of tropical and subtropical areas ranging from shallow coastal waters to moderate depths, rarely occurring beyond 200 m. A few species are, however, abundant and commercially important in temperate waters. Some serranids show preference for seagrass beds and mud or sandy bottom, but most are fishes of the coral and rocky reefs. Juveniles of a few species are common in the lower reaches of estuaries. Except for breeding aggregations, most species are solitary. All are predators on fishes and invertebrates sometimes including crabs and spiny lobsters. Most are either synchronous or transforming hermaphrodites that begin life as females and later become males; a few have separate sexes.

This family includes a large number of species ranging in size from a few centimetres to over 2 m and 400 kg. Many are excellent foodfishes sought in commercial fisheries; others are of local interest to sports-fishermen and in subsistence fisheries. The catch of groupers and seabasses reported from Fishing Area 51 in 1981 totalled about 9 000 tons. Most species are taken in traps, on hook and line, or on longlines, and those inhabiting soft bottoms are caught in bottom trawls.

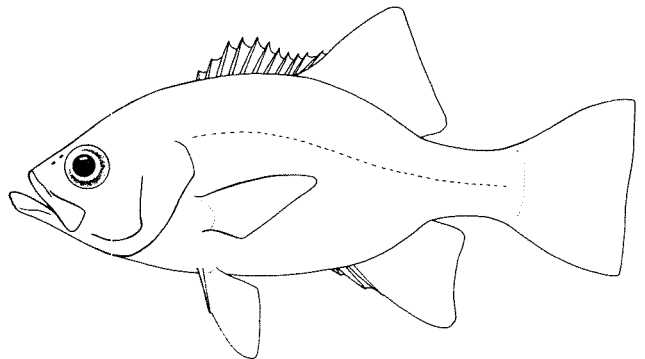
SIMILAR FAMILIES OCCURRING IN THE AREA:

Polyprionidae (previously considered as part of Serranidae). distinct horizontal ridge across opercle; rear edge of opercle with 1 spine (2 or 3 spines in Serranidae).



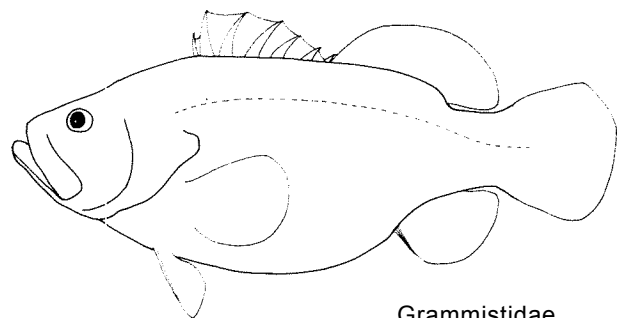
Polyprionidae

Dinopercidae (previously considered as part of Serranidae): anterior dorsal and anal fin rays much longer than posterior ones; anal fin soft rays 13 (7 to 10 in Serranidae).



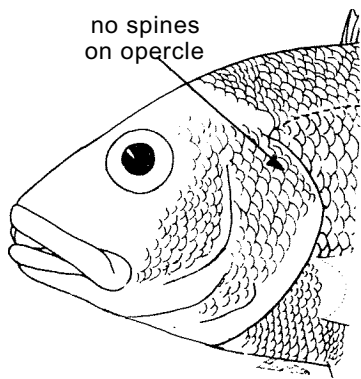
Dinopercidae

Grammistidae: skin with a thick coat of bitter-tasting mucus (bitter taste caused by a toxin called "grammistin"); no distinct canine teeth.



Grammistidae

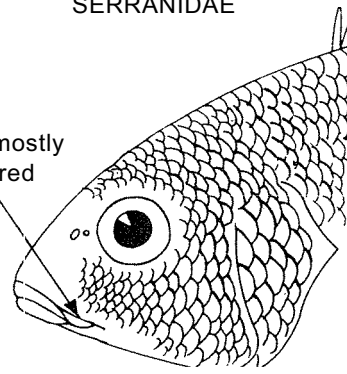
Lutjanidae: maxilla mostly covered by preorbital bone when mouth is closed (maxilla exposed in Serranidae); no spines on opercle.



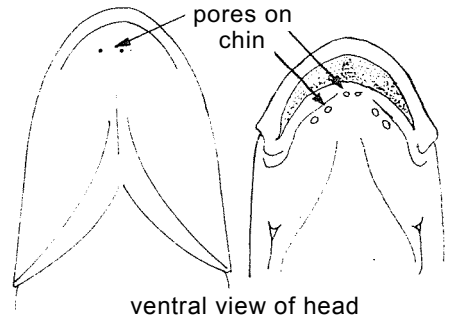
Lutjanidae

Haemulidae (Pomadasyidae of some authors): no teeth on roof of mouth; 2 or more distinct pores on chin; maxilla mostly covered by preorbital bone when mouth is closed; no spines on opercle.

maxilla mostly covered



Pomadasys



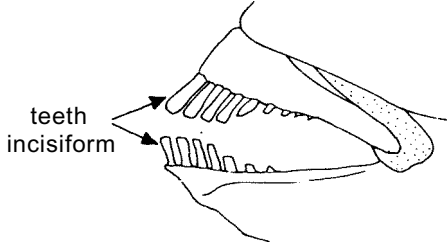
ventral view of head

Pomadasys

Plectorhynchus

Sparidae: jaws with incisiform and/or molariform teeth, canines in some species (no incisiform or molariform teeth in Serranidae); maxilla mostly covered by preorbital bone when mouth is closed; no spines on opercle; edge of preopercle not serrated.

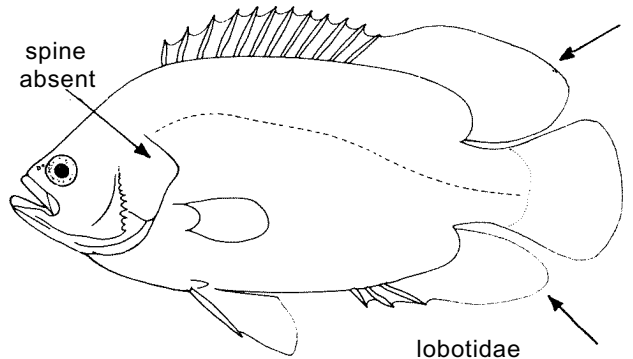
Lobotidae: dorsal and anal fin lobes greatly enlarged; no spine on opercle; no teeth on roof of mouth; branchiostegal rays 6 (7 in Serranidae).



teeth incisiform

Sparidae
(example of dentition)

Haemulidae



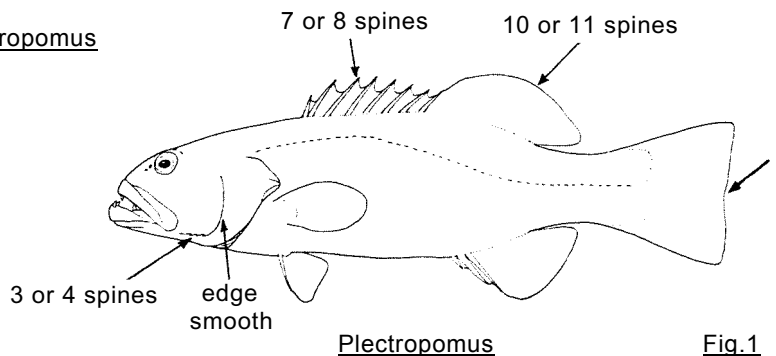
spine absent

lobotidae

KEY TO GENERA OCCURRING IN THE AREA:

1a. Dorsal fin spines 7 or 8, soft rays 10 or 11; caudal fin truncate or lunate; vertical edge of preopercle smooth, lower edge with 3 or 4 large, anteriorly directed spines (Fig.1) Plectropomus

1b. Dorsal fin spines 9 to 11, soft rays 10 to 19

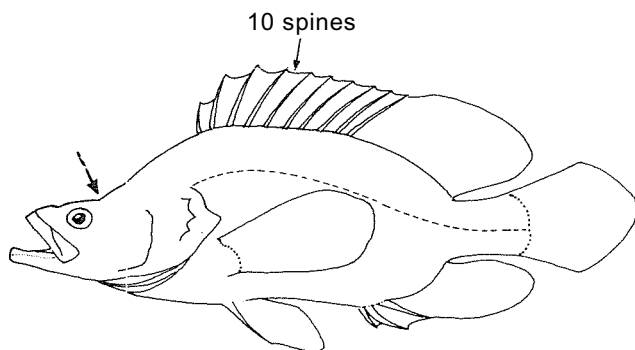


Plectropomus

Fig.1

2a. Rear nostrils as long vertical slits; dorsal fin spines 10; jaws without distinct canines; scales cycloid (smooth to touch); dorsal profile of head in adults markedly concave (Fig.2)..... Cromileptes

2b. Rear nostrils round or oblong, but not slit-like; scales ctenoid (rough to touch); except in large adults of some species



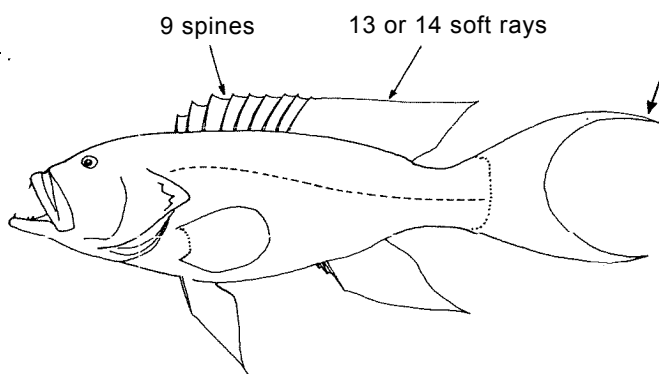
3a. Scales moderate, 4 to 9 in a series from dorsal fin origin to lateral line; dorsal fin spines 10; no supramaxilla

4a. Soft dorsal rays 10; lateral line scales 39 to 42..... Chelidoperca

Cromileptes Fig.2

4b. Soft dorsal rays 13 to 15; lateral line scales 70 to 77 Serranus

3b. Scales smaller, 12 to 20 in a series from dorsal fin origin to lateral line; dorsal fin spines 9 or 11; supramaxilla present



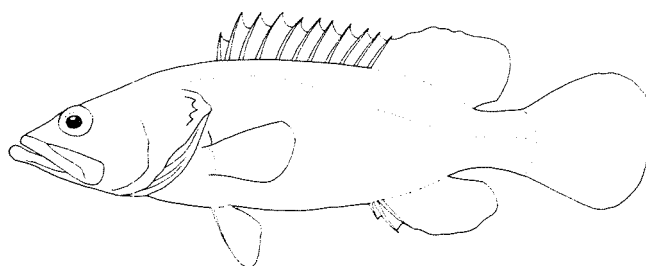
5a. Caudal fin lunate, with lobes produced in adults; gillrakers all rudimentary; dorsal fin with 9 spines and 13 or 14 rays (Fig.3)Variola

Variola Fig.3

5b. Caudal fin truncate, emarginate or rounded; gillrakers not all rudimentary

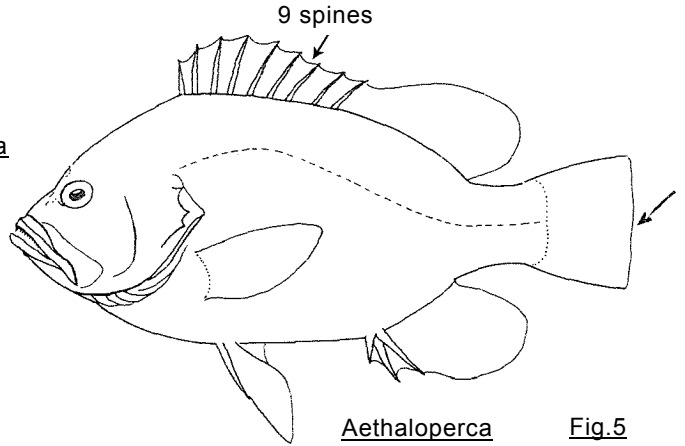
6a. No teeth on palatines (roof of mouth); body elongate, compressed (Fig.4) Anyperodon

6b. Palatines with teeth



Anyperodon Fig.4

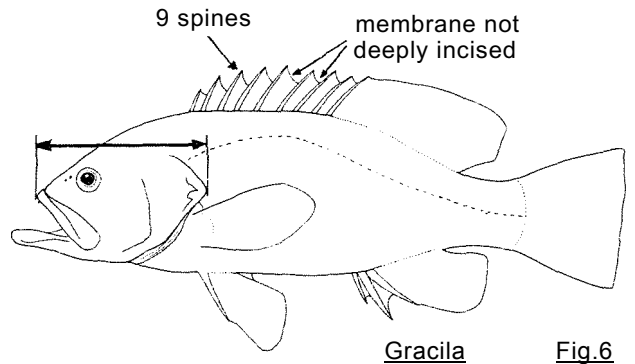
7a. Body depth contained 2.1 to 2.4 times in standard length; dorsal fin spines 9, dorsal soft rays 17 or 18; caudal fin truncate (Fig.5); colour dark brown; inside of mouth and gill cavity reddish orangeAethaloperca



7b. Body depth contained 2.3 to 3.8 times in standard length; dorsal fin with 9 to 11 spines and 10 to 19 soft rays; caudal fin rounded, truncate or emarginate

8a. Dorsal fin spines 9

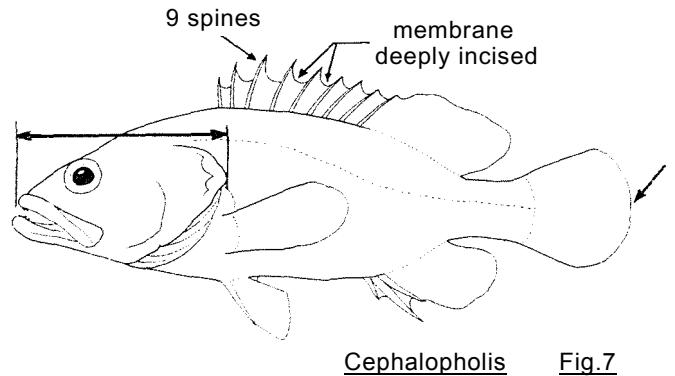
9a. Caudal fin truncate or emarginate; head small, its length contained 3.0 to 3.1 times in standard length; membrane between dorsal spines not deeply incised (Fig.6)Gracila



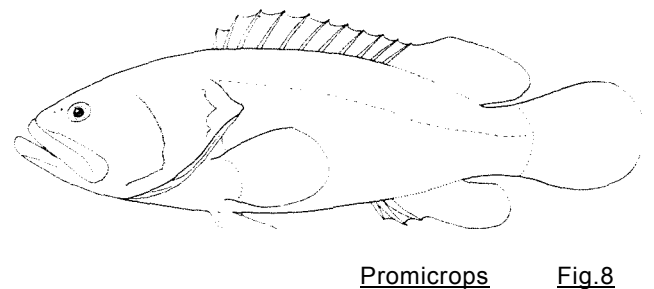
9b. Caudal fin rounded; head larger, its length contained 2.3 to 2.8 times in standard length; membrane between dorsal spines deeply incised (Fig.7)Cephalopholis

8b. Dorsal fin spines 11

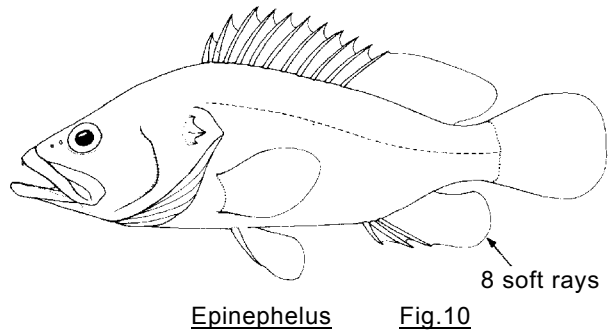
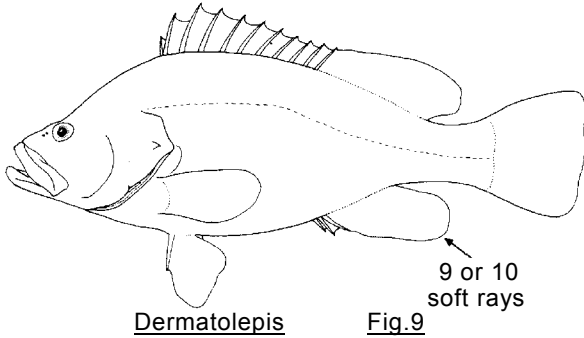
10a. Lateral line tubes branched; eye diameter $\frac{1}{2}$ or less of interorbital width (in fish 20 cm standard length or larger), subequal to greatest width of maxilla (Fig.8)..... Promicrops



10b. Lateral line tubes not branched; eye diameter more than $\frac{1}{2}$ interorbital width (except in fishes longer than 100 cm)



- 11a. Scales all cycloid (smooth when stroked toward the head); head and body strongly compressed; anal fin rays 9 or 10 (Fig-9) Dermatolepis
- 11b. Scales on body ctenoid (rough when stroked toward the head), at least in juveniles; head and body not strongly compressed; anal fin rays 8 in most species (Fig.10) Epinephelus



LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

<u>Aethaloperca rogae</u> (Forsskål, 1775)	SERRAN Aethal 1
<u>Anyperodon leucogrammicus</u> (Valenciennes, 1828)	SERRAN Anyper 1
<u>Cephalopholis analis</u> (Valenciennes, 1828)	SERRAN Cephal 8
<u>Cephalopholis argus</u> (Schneider, 1801)	SERRAN Cephal 9
<u>Cephalopholis aurantia</u> (Valenciennes, 1828)	SERRAN Cephal 10
<u>Cephalopholis boenack</u> (Bloch, 1790)	SERRAN Cephal 11
<u>Cephalopholis formosa</u> (Shaw, 1804)	SERRAN Cephal 12
<u>Cephalopholis hemistiktos</u> (Rüppell, 1830)	SERRAN Cephal 13
<u>Cephalopholis leopardus</u> (Lacepède, 1802)	SERRAN Cephal 14
<u>Cephalopholis miniata</u> (Forsskål, 1775)	SERRAN Cephal 1
<u>Cephalopholis nigripinnis</u> (Valenciennes, 1828)	SERRAN Cephal 15
<u>Cephalopholis oligosticta</u> (Randall & Ben Tuvia, 1983)	SERRAN Cephal 16
<u>Cephalopholis sexmaculata</u> (Rüppell, 1828)	SERRAN Cephal 17
<u>Cephalopholis sonnerati</u> (Valenciennes, 1828)	SERRAN Cephal 3
<u>Chelidoperca occipitalis</u> Kotthaus, 1973	
<u>Cromileptes altivelis</u> (Valenciennes, 1828)	SERRAN Cromil 1
<u>Dermatolepis striolatus</u> Playfair, 1866	SERRAN Dermat 2
<u>Epinephelus albomarginatus</u> Boulenger, 1903	SERRAN Epin 26
<u>Epinephelus andersoni</u> Boulenger, 1903	SERRAN Epin 27
<u>Epinephelus areolatus</u> (Forsskål, 1775)	SERRAN Epin 4
<u>Epinephelus bleekeri</u> (Vaillant, 1877)	SERRAN Epin 6
<u>Epinephelus caeruleopunctatus</u> (Bloch, 1790)	SERRAN Epin 28
<u>Epinephelus chlorostigma</u> (Valenciennes, 1828)	SERRAN Epin 29
<u>Epinephelus diacanthus</u> Valenciennes, 1828)	SERRAN Epin 30
<u>Epinephelus epistictus</u> (Temminck & Schlegel, 1842)	SERRAN Epin 31
<u>Epinephelus fasciatus</u> (Forsskål, 1775)	SERRAN Epin 8
<u>Epinephelus faveatus</u> (Valenciennes, 1828)	SERRAN Epin 32
<u>Epinephelus flavocaeruleus</u> (Lacepède, 1802)	SERRAN Epin 33
<u>Epinephelus fuscoquattatus</u> (Forsskål, 1775)	SERRAN Epin 9
<u>Epinephelus guaza</u> (Linnaeus, 1758)	SERRAN Epin 1
<u>Epinephelus hexagonatus</u> (Schneider, 1801)	SERRAN Epin 34
<u>Epinephelus latifasciatus</u> (Temminck & Schlegel, 1842)	SERRAN Epin 35
<u>Epinephelus longispinis</u> (Kner, 1865)	SERRAN Epin 36
<u>Epinephelus magniscuttis</u> Postel, Fourmanoir & Guezé, 1964	SERRAN Epin 37

<u>Epinephelus malabaricus</u> (Schneider, 1801)	SERRAN Epin 38
<u>Epinephelus melanostigma</u> Schultz, 19535	SERRAN Epin 39
<u>Epinephelus merra</u> Bloch, 1793	SERRAN Epin 40
<u>Epinephelus microdon</u> (Bleeker, 1856)	SERRAN Epin 41
<u>Epinephelus miliaris</u> (Valenciennes, 1830)	SERRAN Epin 42
<u>Epinephelus modestus</u> Gilchrist & Thompson, 1909	SERRAN Epin 43
<u>Epinephelus morrhua</u> (Valenciennes, 1833)	SERRAN Epin 44
<u>Epinephelus multinotatus</u> (Peters, 1876)	SERRAN Epin 45
<u>Epinephelus ongun</u> (Boch, 1790)	SERRAN Epin 46
<u>Epinephelus poecilonotus</u> (Temminck & Schlegel, 1842)	SERRAN Epin 47
<u>Epinephelus posteli</u> Fourmanoir & Crosnier, 1964	SERRAN Epin 48
<u>Epinephelus quoyanus</u> (Valenciennes, 1830)	SERRAN Epin 49
<u>Epinephelus radiatus</u> (Day, 1867)	SERRAN Epin 50
<u>Epinephelus retouti</u> Bleeker, 1874	SERRAN Epin 51
<u>Epinephelus rivulatus</u> (Valenciennes, 1830)	SERRAN Epin 52
<u>Epinephelus septemfasciatus</u> (Thunberg, 1793)	SERRAN Epin 53
<u>Epinephelus spilotoceps</u> Schultz, 1953	SERRAN Epin 54
<u>Epinephelus stoliczkae</u> (Day, 1875)	SERRAN Epin 55
<u>Epinephelus summana</u> (Forsskål, 1775)	SERRAN Epin 11
<u>Epinephelus tauvina</u> (Forsskål, 1775)	SERRAN Epin 12
<u>Epinephelus tukula</u> Morgans, 1959	SERRAN Epin 56
<u>Epinephelus undulosus</u> (Quoy & Gaimard, 1.824)	SERRAN Epin 57
<u>Gracila albomarginata</u> (Fowler & Bean, 1930)	SERRAN Gracil 1
<u>Gracila polleni</u> (Bleeker, 1868)	SERRAN Gracil 2
<u>Plectropomus laevis</u> (Lacepède, 1802)	SERRAN Plect 3
<u>Plectropomus leopardus</u> (Lacepède, 1802)	SERRAN Plect 1
<u>Plectropomus maculatus</u> (Bloch, 1790)	SERRAN Plect 4
<u>Plectropomus punctatus</u> Quoy & Gaimard, 1824	SERRAN Plect 5
<u>Plectropomus truncatus</u> Fowler & Bean, 1930	SERRAN Plect 2
<u>Promicrops lanceolatus</u> (Bloch, 1790)	SERRAN Promic 1
<u>Serranus cabrilla</u> (Linnaeus, 1756)	SERRAN Serran 1
<u>Serranus novemcinctus</u> Kner, 1865	SERRAN Serran 6
<u>Variola albimarginata</u> Baissac, 1953	SERRAN Vari 2
<u>Variola louti</u> (Forsskål, 1775)	SERRAN Vari 1



Aethaloperca rogae 276 mm S.L.
Red Sea



Anyperodon leucogrammicus 242 mm S.L.
Palau Is.



Cephalopholis analis 118 mm S.L.
Maldiva Is.



Cephalopholis argus 212 mm S.L.
Red Sea



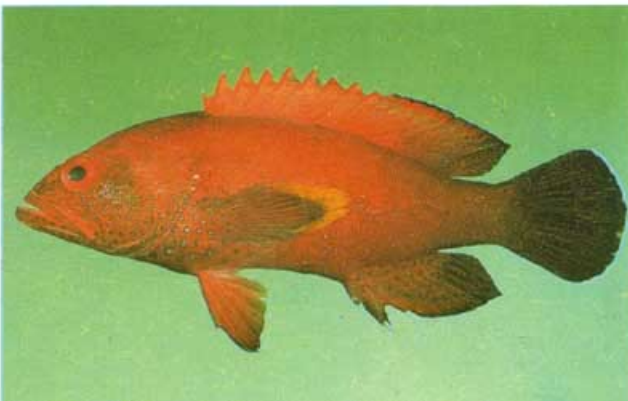
Cephalopholis aurantia 235 mm S.L.
Mauritius



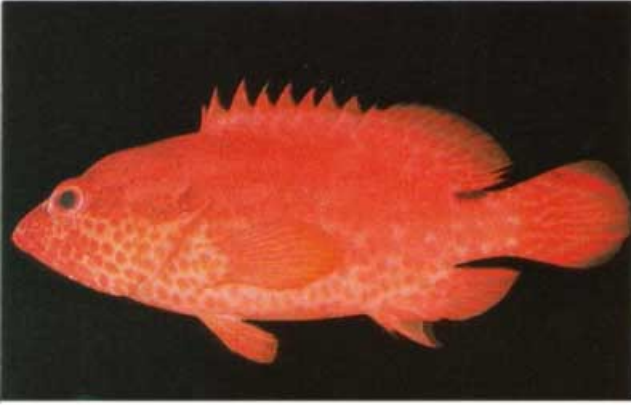
Cephalopholis boenack 137 mm S.L.
Pulau Tulai, Malaysia



Cephalopholis formosa 108 mm S.L.
Phuket, Thailand



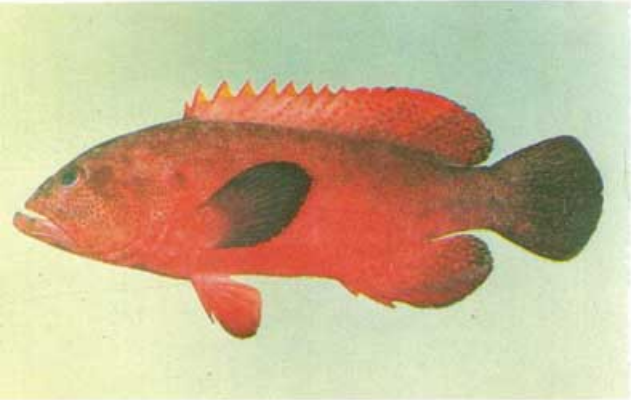
Cephalopholis hemistiktos 120 mm S.L.
Red Sea



Cephalopholis leopardus 92 mm
Palau Is.



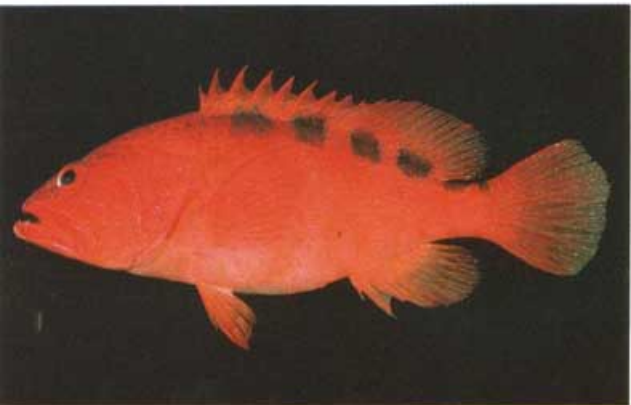
Cephalopholis miniata 254 mm S.L.
Ryukyu Is.



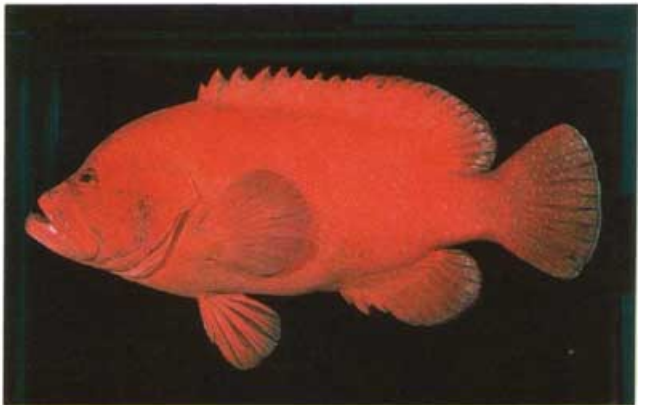
Cephalopholis nigripinnis 139 mm S.L.
Mauritius



Cephalopholis oligosticta 175 mm S.L.
Red Sea



Cephalopholis sexmaculata 200 mm S.L.
Red Sea



Cephalopholis sonnerati 330 mm S.L.
Mauritius



Epinephelus albomarginatus 227 mm S.L.
Durban, Natal



Epinephelus andersoni
Durban, Natal



Epinephelus areolatus 218 mm S.L.
Red Sea



Epinephelus bleekeri 337 mm S.L.
Cochin, India



Epinephelus caeruleopunctatus 237 mm S.L.
Salomon Is.



Epinephelus chlorostigma 327 mm S.L.
Red Sea



Epinephelus diacanthus 329 mm S.L.
Cochin, India



Epinephelus epistictus 326 mm S.L.
Cochin, India



Epinephelus fasciatus 153 mm S.L.
Mauritius

PLATE IV

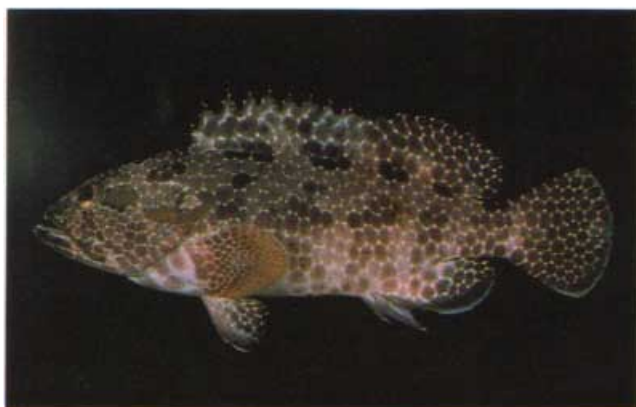
FAO Sheets



Epinephelus fuscoguttatus 90 mm S.L.
Red Sea



Epinephelus quaza 208 mm S.L.
Durban, Natal



Epinephelus hexagonatus 156 mm S.L.
Mauritius



Epinephelus latifasciatus 274 mm S.L.
Cochin, India



Epinephelus macrospilos 188 mm S.L.
Natal



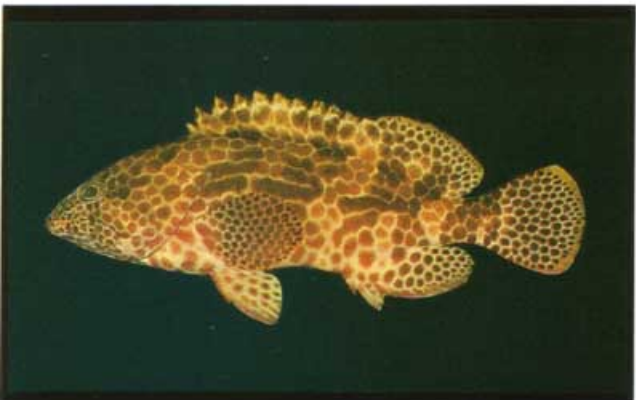
Epinephelus magniscuttis 335 mm S.L.
Natal



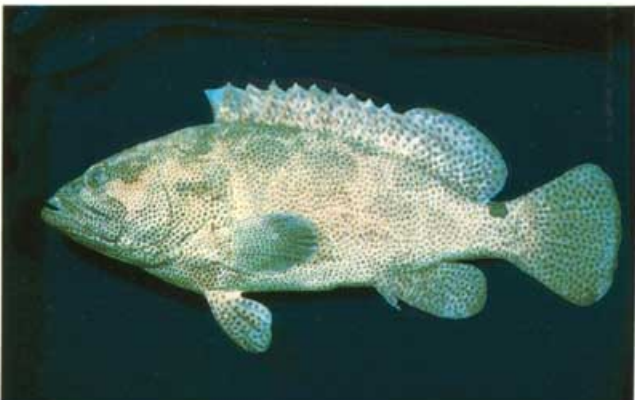
Epinephelus malabaricus 584 mm S.L.
Red Sea



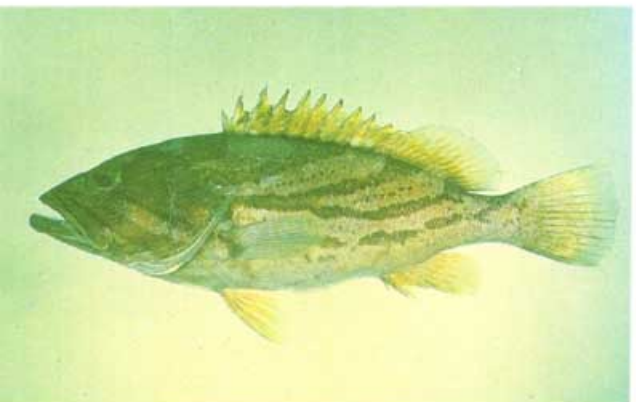
Epinephelus melanostigma 120 mm S.L.
Natal



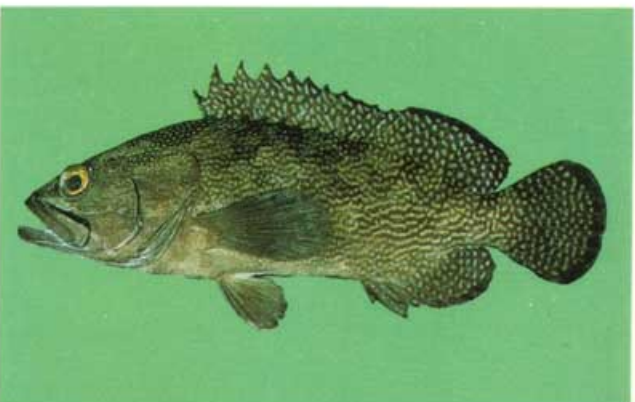
Epinephelus merra 176 mm S.L.
Tahiti



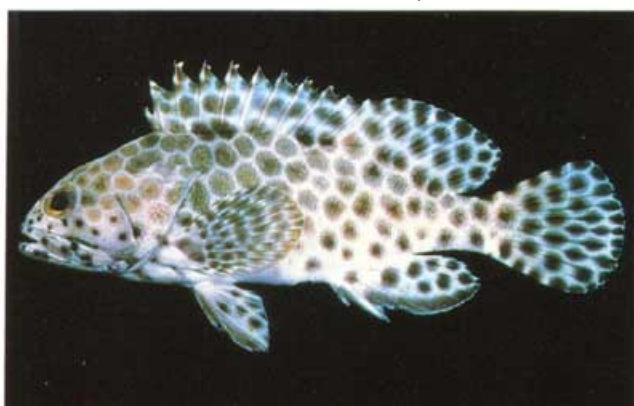
Epinephelus microdon 408 mm S.L.
Red Sea



Epinephelus morrhua 345 mm S.L.
Red Sea



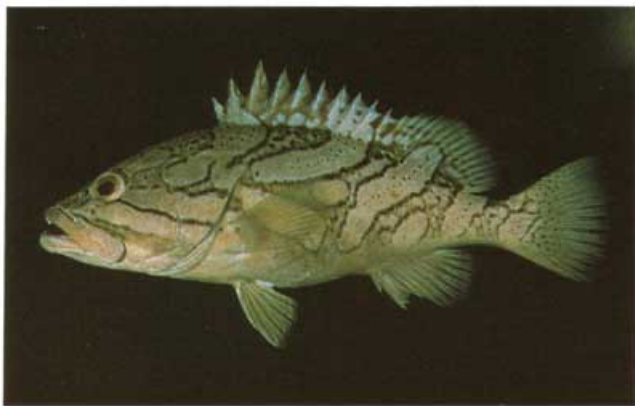
Epinephelus ongus 222 mm S.L.
Ponape



Epinephelus quoyanus 134 mm S.L.
Darwin, Australia

PLATE VI

FAO Sheets



Epinephelus radiatus 295 mm S.L.
Okinawa



Epinephelus rivulatus 221 mm S.L.
Natal



Epinephelus spilotoceps 182 mm S.L.
Eniwetok, Marshall Is.



Epinephelus stoliczkae 202 mm S.L.
Muscat, Gulf of Oman



Epinephelus summana 334 mm S.L.
Red Sea



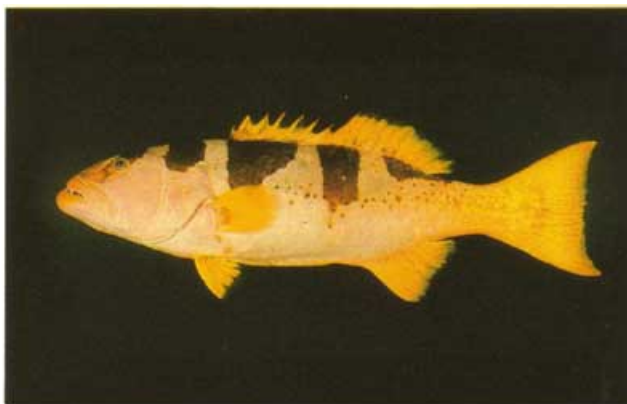
Epinephelus tauvina 310 mm S.L.
Red Sea



Epinephelus undulosus 158 mm S.L.
Philippines



Gracila polleni 147 mm S.L.
Philippines



Plectropomus laevis 492 mm S.L.
Eniwetok, Marshall Is.



Plectropomus maculatus 380 mm S.L.
Red Sea



Plectropomus punctatus 440 mm S.L.
Seychelles



Plectropomus truncatus 316 mm S.L.
Red Sea



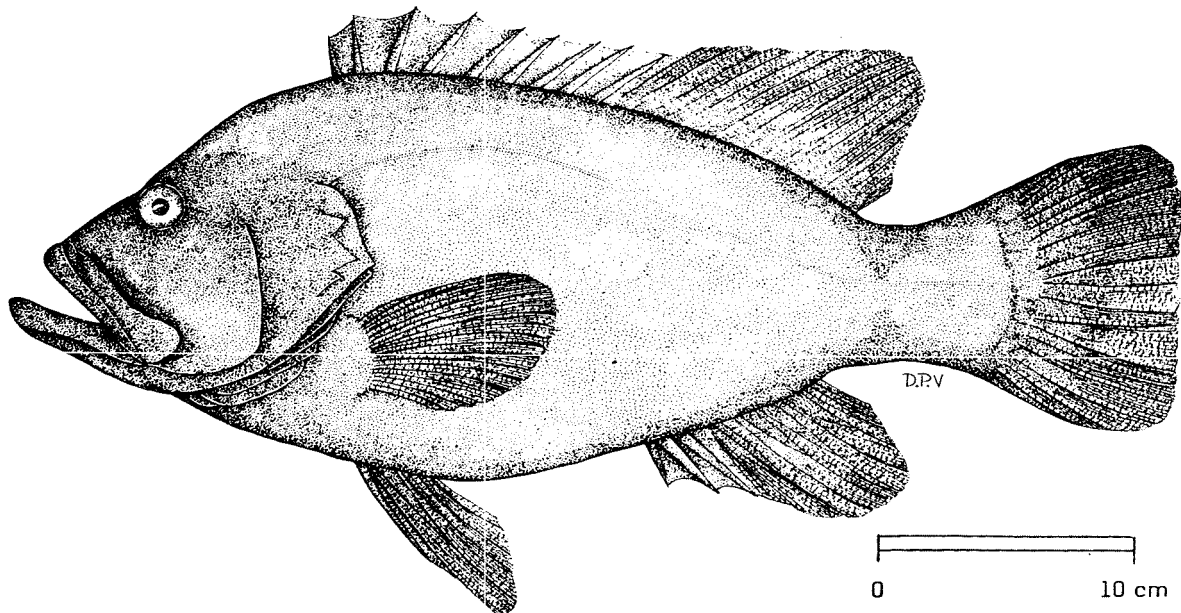
Variola albomarginata 254 mm S.L.
Reunion Is.



Variola louti 273 mm S.L.
Eniwetok, Marshall Is.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Aethaloperca roгаа (Forsskål, 1775)OTHER SCIENTIFIC NAMES STILL IN USE: Cephalopholis roгаа (Forsskål, 1775)

VERNACULAR NAMES:

FAO: En - Redmouth grouper
Fr - Vielle roгаа
Sp - Cherna roгаа

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth greater than head length, contained 2.1 to 2.4 times in standard length. Dorsal profile of head steep; hump on nape in large specimens; teeth in 3 or 4 rows at sides of lower jaw; preopercle finely serrated; gillrakers on lower limb of first arch 9 plus some rudiments. Dorsal fin with 9 spines and 17 or 18 soft rays; anal fin with 3 spines and 9 soft rays; pelvic fins subequal to pectorals, reaching anus or beyond; caudal fin truncate.

Colour: uniformly dark brown or black; inside of mouth and gill cavity scarlet; young with crescentic white margin to caudal fin and soft-rayed part of dorsal fin edged with white.

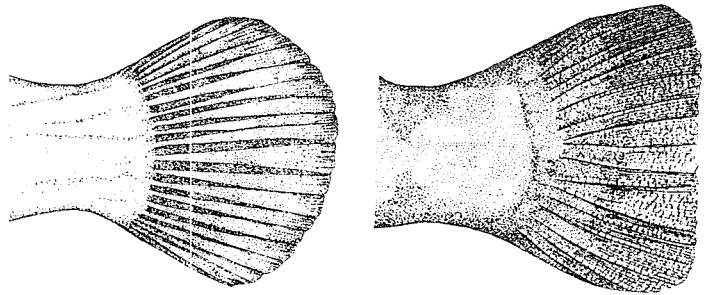
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Cephalopholis species: caudal fin rounded;
body not so deep.

Gracila albomarginata: body not so deep; soft
dorsal rays 15 (17 or 18 in A. rogae): dorsal profile
of head not steep.

SIZE:

Maximum. 60 cm.



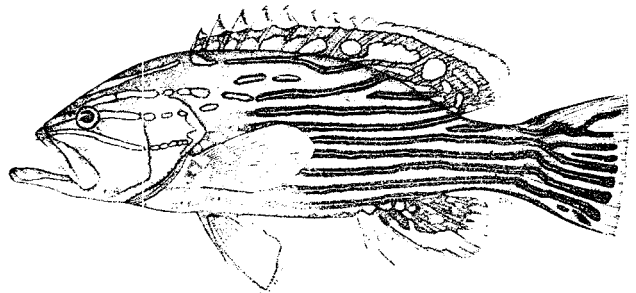
Cephalopholis

Aethaloperca rogae

caudal fin

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

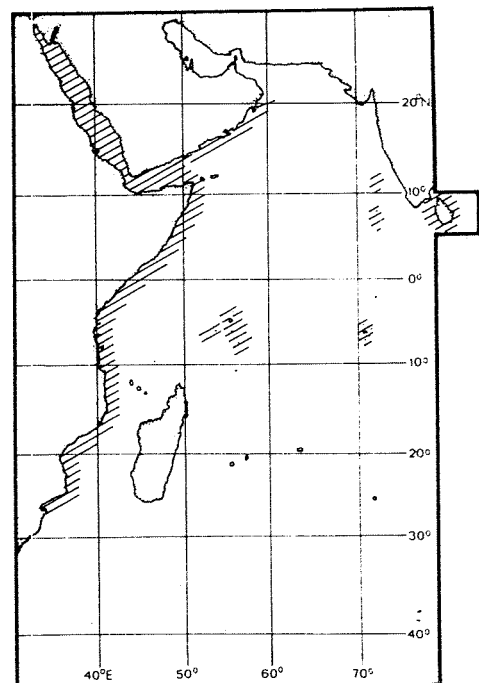
Within the area, recorded from the southern
coast of the Arabian peninsula, the Red Sea, East
African coast, Seychelles, Chagos Archipelago, Mal-
dives, Laccadives and Sri Lanka. Also in the
Eastern Indian Ocean and the Western Central Paci-
fic, to Japan and the Philippines.



Gracila albomarginata

PRESENT FISHING GROUNDS:

Apparently rare.

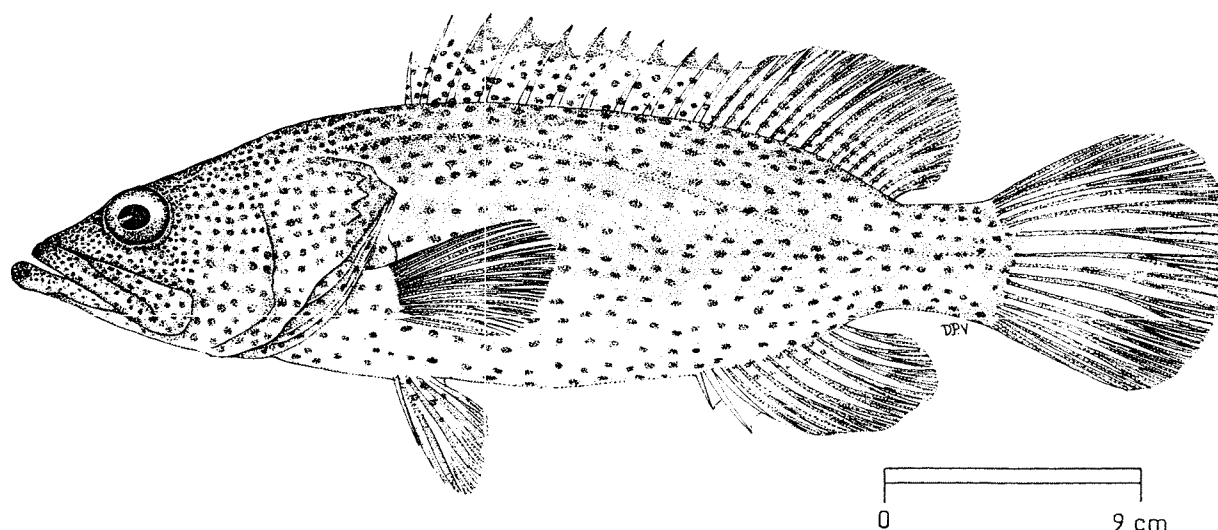


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Anyperodon leucogrammicus* (Valenciennes, 1828)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Slender grouper
 Fr - Mérou élégant
 Sp - Mero elegante

NATIONAL:

DISTINCTIVE CHARACTERS:

Head and body compressed; body depth 3.2 to 3.5 times in standard length. Head length distinctly greater than body depth; preopercle rounded; lower serrae not much enlarged; no teeth on palatine bones on each side of roof of mouth; 2 rows of small teeth at sides of lower jaw. Dorsal fin with 11 spines and 14 to 16 soft rays; anal fin with 3 spines and 8 or 9 soft rays; pectoral rays 15 to 17; caudal fin rounded. Pored lateral line scales 63 to 71; lateral scales series 110 to 125.

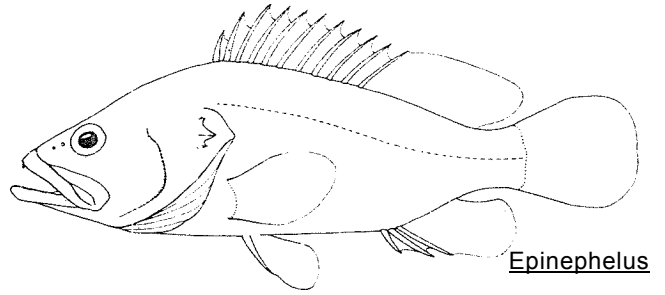
Colour: head and body greenish grey, with numerous small orange-red spots extending onto dorsal fin and base of caudal fin; 2 or 3 horizontal bluish-white streaks often present on body. Juveniles with alternating blue and red stripes and 1 or 2 black spots at base of caudal fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus species: palatine bones with teeth; body less compressed.

SIZE:

Maximum: 52 cm.



GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout the tropical Indo-West Pacific; in the Western Indian Ocean it is known to occur along the East African coast from the Red Sea south to Mozambique, and around the Seychelles, Reunion and Chagos Archipelago.

Fairly common on coral reefs in less than 20 m depth.

PRESENT FISHING GROUNDS:

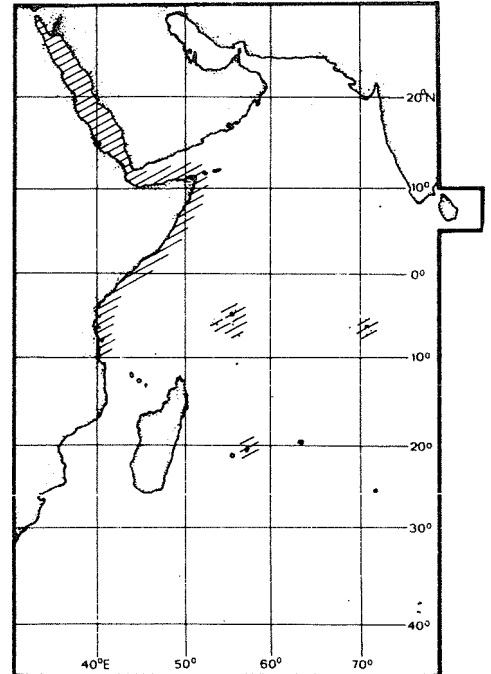
Coral reefs in depths of 5 to 30 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

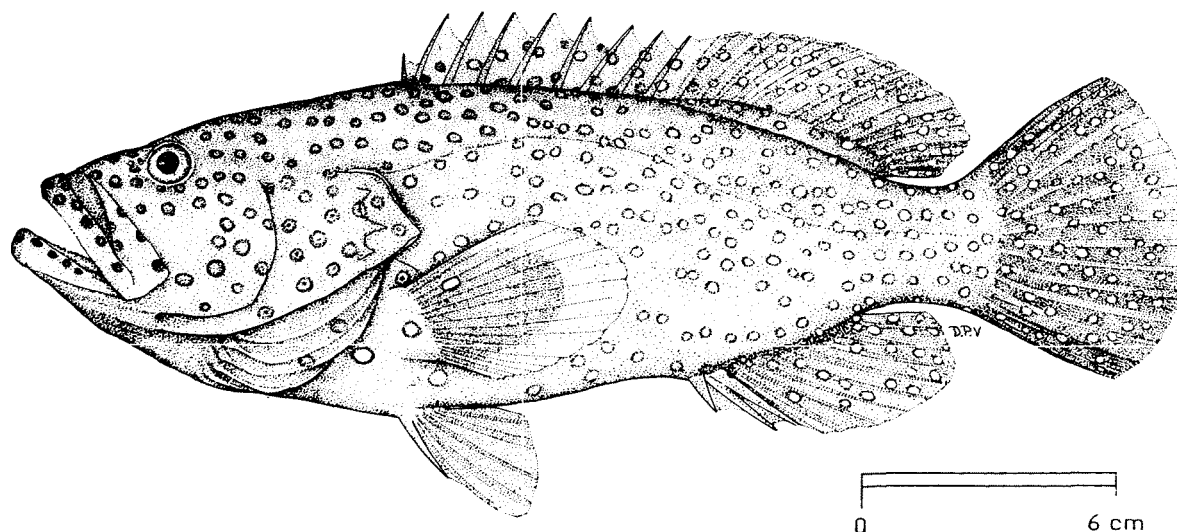
Caught with hook and line, traps and gillnets.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Cephalopholis miniata (Forsskål, 1775)OTHER SCIENTIFIC NAMES STILL IN USE: Epinephelus miniatus Forsskål, 1775

VERNACULAR NAMES:

FAO : En - Vermilion seabass
 Fr - Vielle étoilée
 Sp - Cherna estrellada

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth 2.5 to 2.9 times in standard length, less than head length. Maxilla scaly, reaches to or beyond vertical at rear edge of orbit; preopercle rounded, the lower edge fleshy; lower gillrakers 14 to 16. Dorsal fin with 9 spines and 14 to 16 soft rays; anal fin with 3 spines and 9 soft rays; pectoral fin rays 17 or 18; anal fin with 3 spines and 9 soft rays; pectoral fin rays 17 or 18; pectoral fins 1.3 to 1.7 times in head; pelvic fins 1.7 to 2.3 times in head, not reaching past anus; caudal and anal fins rounded. Pored lateral line scales 47 to 56; lateral scale series 99 to 115.

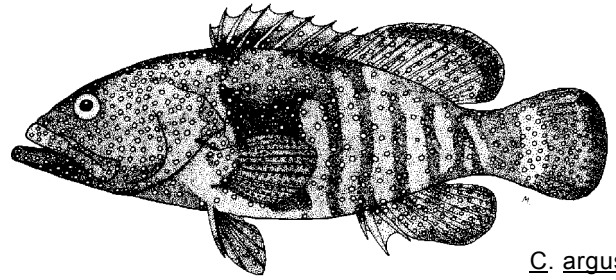
Colour: orange-red, with numerous small blue spots on body, head and median fins; blue spots extend onto maxilla and lips, but not on underside of lower jaw. Pectoral fins orange-red at base, rest of fin yellow-orange.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

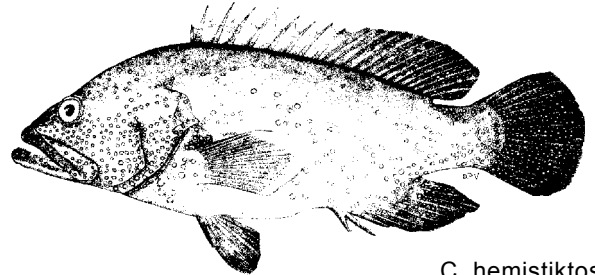
Cephalopholis argus: ground colour of body dark brown; underside of lower jaw with blue spots; pectoral fins 1.5 to 2.0 times in head length (1.7 to 2.3 times in C. miniata); auxiliary scales present on body scales, dorsal soft rays usually 16 (14 to 16 in C. miniata).

C. hemistiktos: no spots on dorsal part of body; pectoral fin dusky brown; dorsal fin rays usually 14; anal fin pointed.

C. oligosticta: lower edge of preopercle bony (exposed); pored lateral line scales 60 to 71 (47 to 55 in C. miniata).



C. argus



C. hemistiktos

SIZE:

Maximum: 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout the Western Indian Ocean southward to Durban and including the Red Sea and the "Gulf". Also widespread in the Eastern Indian Ocean and the Western Central Pacific.

Generally found on well-developed coral reefs in depths of 2to48m.

PRESENT FISHING GROUNDS:

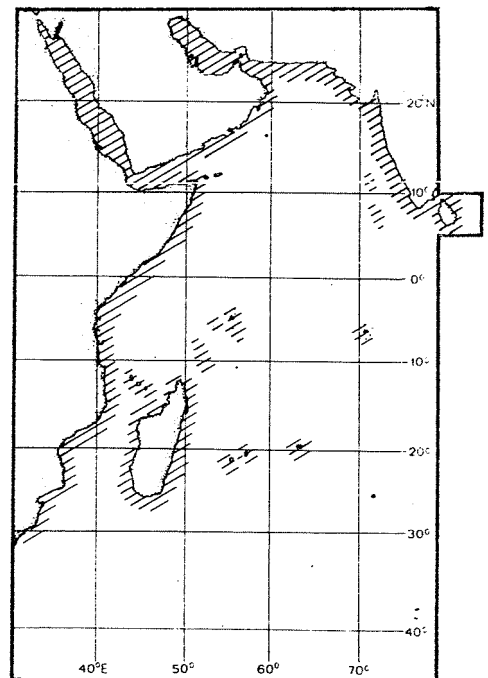
Coastal coral reefs.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species, although it is commonly seen in markets.

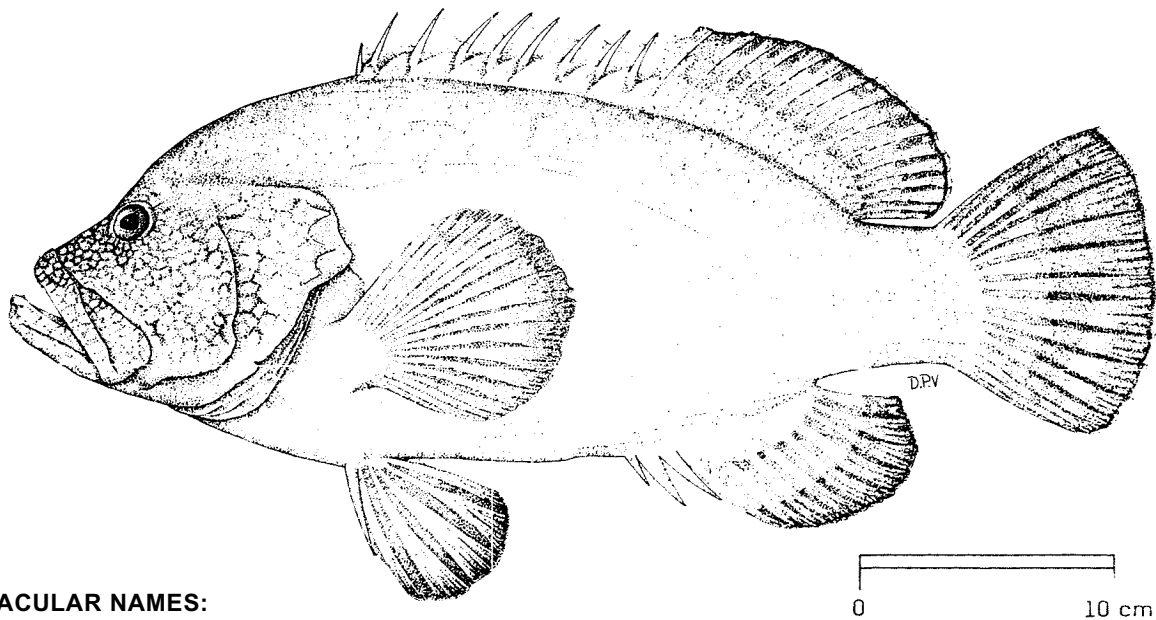
Caught with hook and line, traps and gillnets.

Marketed fresh and dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Cephalopholis sonnerati* (Valenciennes, 1828)OTHER SCIENTIFIC NAMES STILL IN USE: *Cephalopholis purpureus* Fourmanoir, 1966

VERNACULAR NAMES:

FAO : En - Tomato hind
 Fr - Vielle ananas
 Sp - Cherna piva

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth 2.3 to 2.6 times in standard length, greater than or subequal to head length. Dorsal profile of head above eye and nape strongly convex in adults. Maxilla reaches past eye; preopercle rounded, the lower edge fleshy; lower gillrakers 14 to 16. Dorsal fin with 9 spines and 15 soft rays; anal fin with 3 spines and 9 soft rays; pectoral fin rays 18 to 20; pectoral fins subequal to or less than pelvic fins, 1.5 to 1.7 times in head length; caudal and anal fins rounded. Pored lateral line scales 66 to 76; lateral scale series 110 to 140.

Colour: body bright orange-red to red, usually with scattered faint bluish-white spots; head purplish with numerous close-set orange-red spots, often with a dark reddish spot about as large as eye on opercular flap; fins red, the membranes of soft dorsal, caudal and anal fins dusky; body, caudal and soft dorsal fins with purple spots. Large specimens over 30 cm standard length darker than small fish, especially posteriorly; at 40 cm, the fish is usually entirely dark dusky reddish.

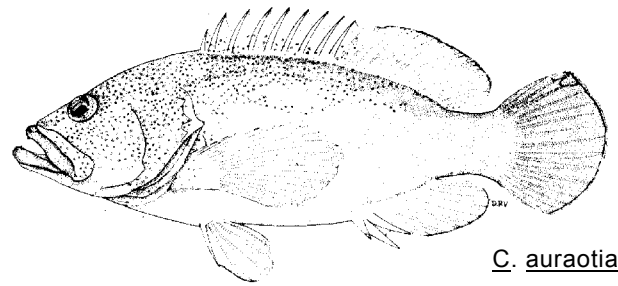
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Cephalopholis aurantia: body depth less (2.7 to 2.9 times in standard length versus 2.3 to 2.6 in C. sonnerati); lateral line scales fewer (47 to 53 versus 66 to 76 in C. sonnerati). Colour: orange or golden.

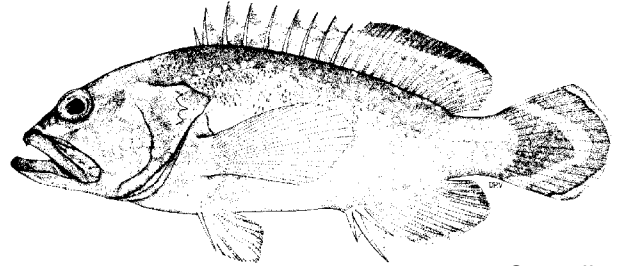
C. analis: body depth distinctly less than head length, 2.7 to 3.1 times in standard length; lateral line scales 48 to 53.

C. nigripinnis: lateral line scales 53 to 70; body depth less. 2.7 to 3.2 times in standard length); pelvic fins distinctly shorter than pectorals, not reaching anus.

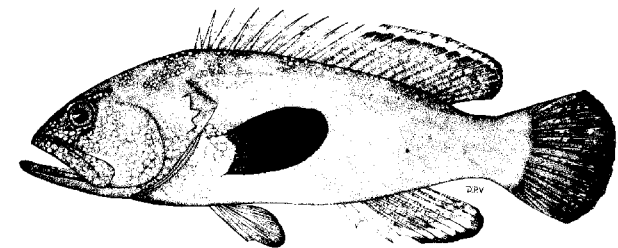
Other Cephalopholis species: in most body depth less (2.6 to 3.2 times in standard length); colour not bright red with purple network on head.



C. aurantia



C. analis



C. nigripinnis

SIZE:

Maximum: 57 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread in the Western Indian-Ocean south to Durban, but not reported from the red sea or the "Gulf". Also found in the Eastern Indian Ocean and the Western Central Pacific east to the Marshall Islands and Samoa.

A common species; adults in fairly deep water (30 to 100 m).

PRESENT FISHING GROUNDS:

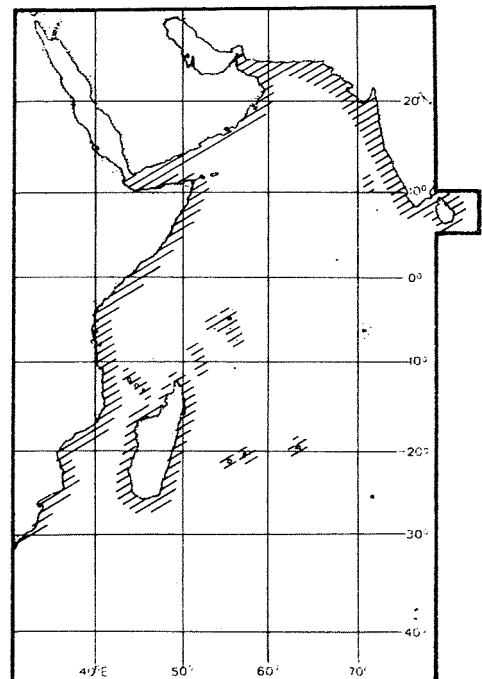
Coral reef areas in 30 to 100 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species, but it is commercially important in coral reef areas.

Caught with hook and line, traps and gillnets.

Utilized fresh and dried salted.

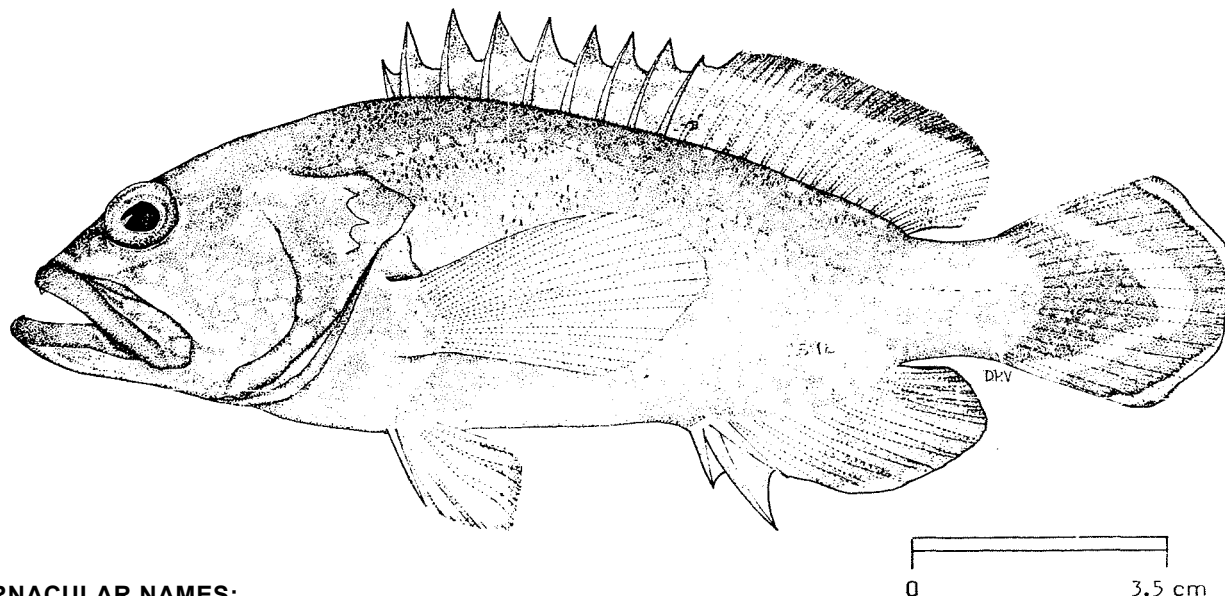


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Cephalopholis analis* (Valenciennes, 1828)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Strawberry hind
 Fr - Vielle fraise
 Sp - Cherna frutillera

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth 2.7 to 3.1 times in standard length, distinctly less than head length. Interorbital area convex; maxilla scaly, reaching to or well beyond vertical at rear edge of eye; preopercle rounded, the lower edge fleshy; subopercle and interopercle smooth or with a few serrae; sides of lower jaw with 4 or 5 rows of teeth, innermost teeth distinctly larger than others; lower gillrakers 14 to 16. Dorsal fin with 9 spines and 15 soft ray, anal fin with 3 spines and 9 or 10 soft rays; pectoral fins 1.4 to 1.6 in head length, pectoral rays 17 or 18; pelvic fins not reaching anus; caudal fin rounded. Pored lateral line scales 48 to 53; lateral scales series 90 to 103.

Colour: head, body and fins mottled orange-red; central rear margin of caudal fin bluish white with a blackish inner edge, becoming broader and submarginal at corners of fin; margin of soft portion of anal fin except posteriorly, and to lesser extent the dorsal fin, bluish usually persisting as dusky in preserved specimens; small pale blotches usually present on head, body and median fins (may be pale bluish on head).

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Cephalopholis aurantia: orange-yellow to dull pink with reddish-orange to yellow dots on head and anterodorsally on body; caudal fin with a narrow, pale bluish rear margin and a conspicuous black submarginal line; pelvic fins 1.8 to 1.9 times in head (1.9 to 2.2 times in head in C. analis).

C. nigripinnis: distal 2/3 of pectoral fin, most of anal fin, rear part of dorsal fin, and all of caudal fin dusky black: usually 2 dark dots at tip of lower jaw; pored lateral line scales 53 to 70 (48 to 53 in C. analis).

C. sonnerati: lateral line scales 73 to 76; lateral scale series 115 to 128 (90 to 103 in C. analis); body reddish (darker posteriorly, especially in specimens larger than 30 cm standard length); head with small red spots separated by a purple network.

SIZE:

Maximum: 22 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the Western Indian Ocean known from the east coast of Africa (but not in the Red Sea), Comores, Seychelles, Mauritius, Réunion and Chagos Archipelago. Also widely distributed in the Eastern Indian Ocean and the Western Central Pacific, eastward to the Pitcairn Islands.

PRESENT FISHING GROUNDS:

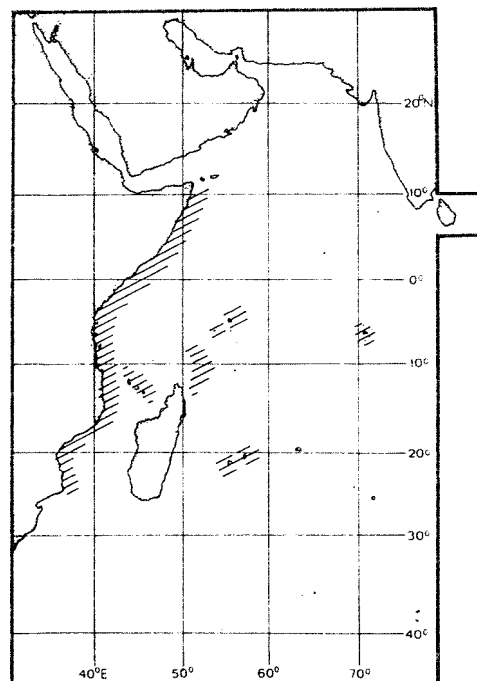
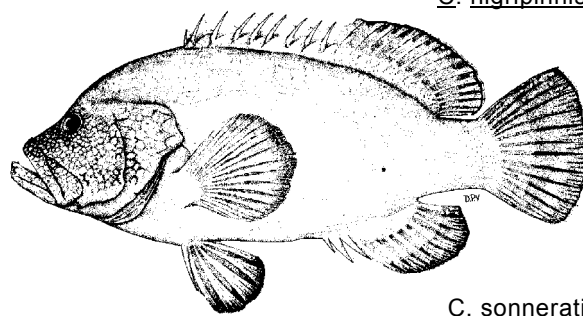
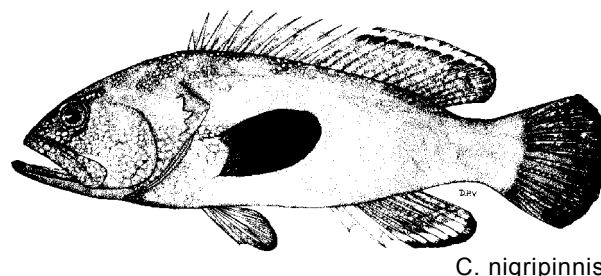
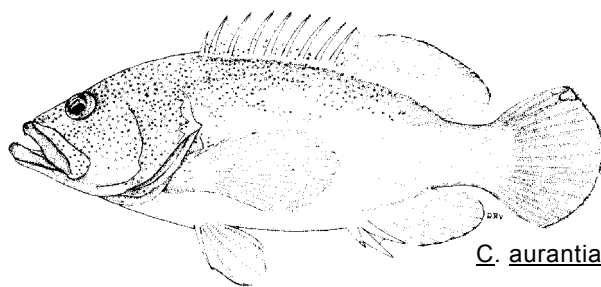
Perhaps the most common species of grouper on coral reefs below 40 m depth. This species is too small to be of significant commercial importance.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught on hook and line and in traps.

Marketed mostly fresh.

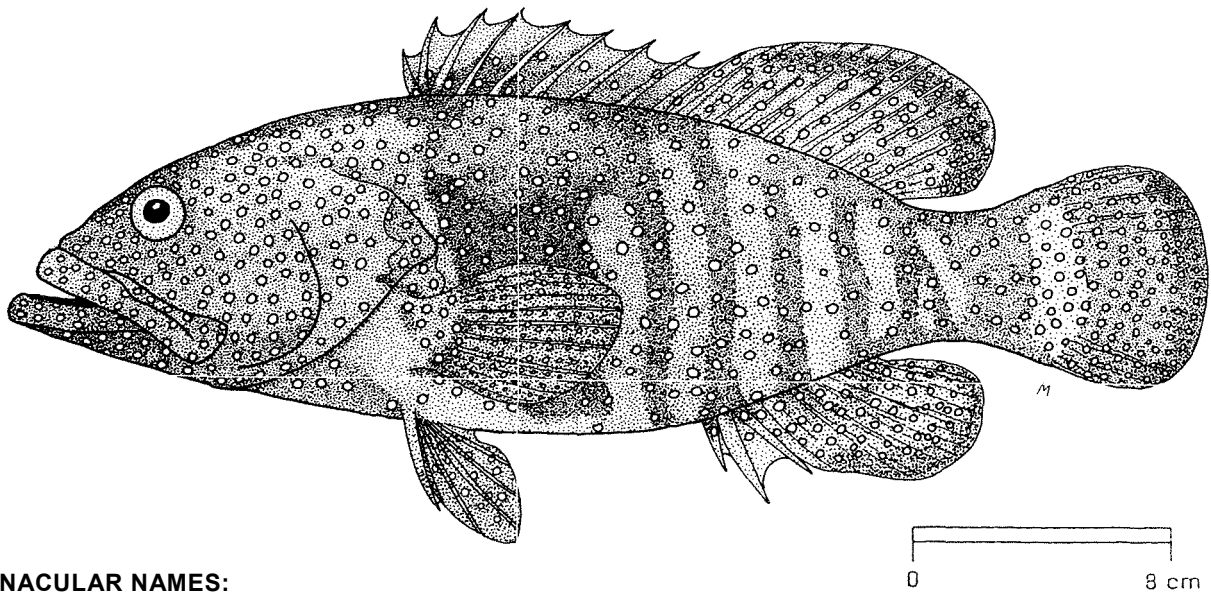


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Cephalopholis argus (Schneider, 1801)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Peacock grouper
 Fr - Vielle cuisinier
 Sp - Cherna pavo real

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth 2.7 to 3.2 times in standard length, distinctly less than head length. Maxilla reaches well past eye; preopercle rounded, its ventral edge fleshy. Dorsal fin with 9 spines and 15 to 17 soft rays; anal fin with 3 spines and 9 soft rays; pectoral rays 16 to 18; pectoral fins 1.5 to 2.0 times in head length; caudal fin rounded. Auxiliary scales present on body; pored lateral line scales 46 to 51; lateral scale series 95 to 110.

Colour: head, body and fins dark brown, covered with small, black-edged blue spots; 5 or 6 broad pale vertical bars often present on rear half of body; a narrow white margin along rear edge of pectoral and median fins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Cephalopholis miniata: body reddish, with small blue spots not extending onto underside of lower jaw; pectoral fins longer, 1.5 to 1.7 times in head (1.5 to 2.0 times in C. argus); dorsal fin soft rays 14 or 15 (15 to 17 in C. argus).

C. hemistiktos: no blue spots on dorsal half of body; pectoral fins longer, 1.4 to 1.6 times in head; dorsal fin soft rays 14 or 15.

C. oligosticta: colour orange-red in life, with a few scattered pale blue spots on head, body and fins; pectoral fins longer, 1.4 to 1.6 times in head; dorsal fin soft rays 15; lower edge of preopercle bony.

SIZE:

Maximum: 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

The most common and widespread species of the genus, extending from the Red Sea and Western Indian Ocean (south to Durban) to the Central Pacific as far as the Pitcairn Islands. Introduced to the Hawaiian Islands.

A shallow-water species generally found on coral reefs to depths of 20 m.

PRESENT FISHING GROUNDS:

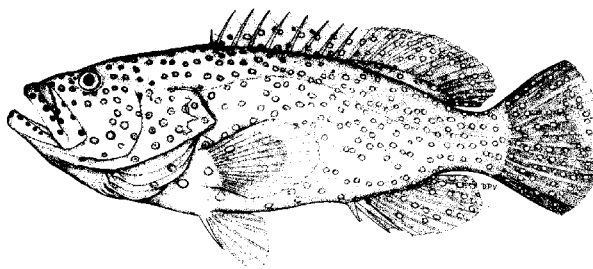
Coral reef areas of the Indo-West Pacific.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

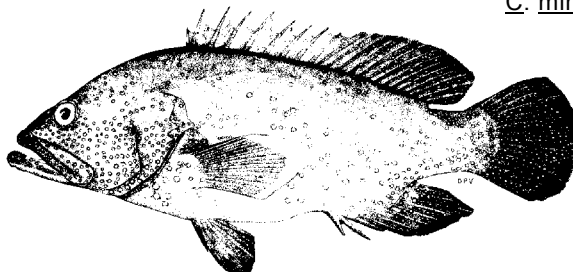
Separate statistics are not reported for this species.

Caught with hook and line, traps and gillnets.

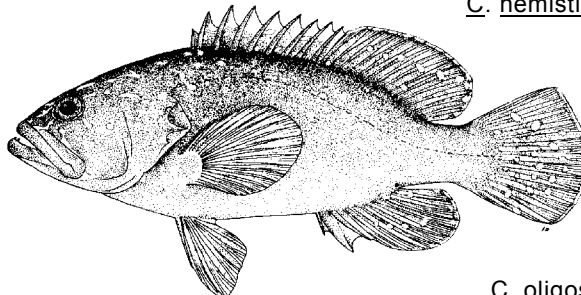
Marketed fresh and dried salted.



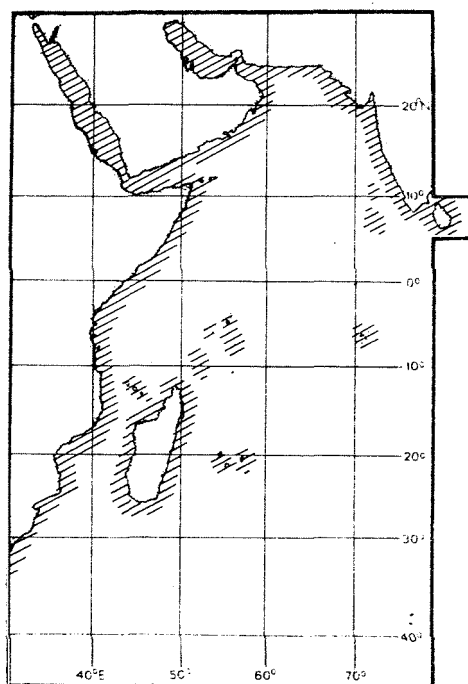
C. miniata



C. hemistiktos



C. oligosticta

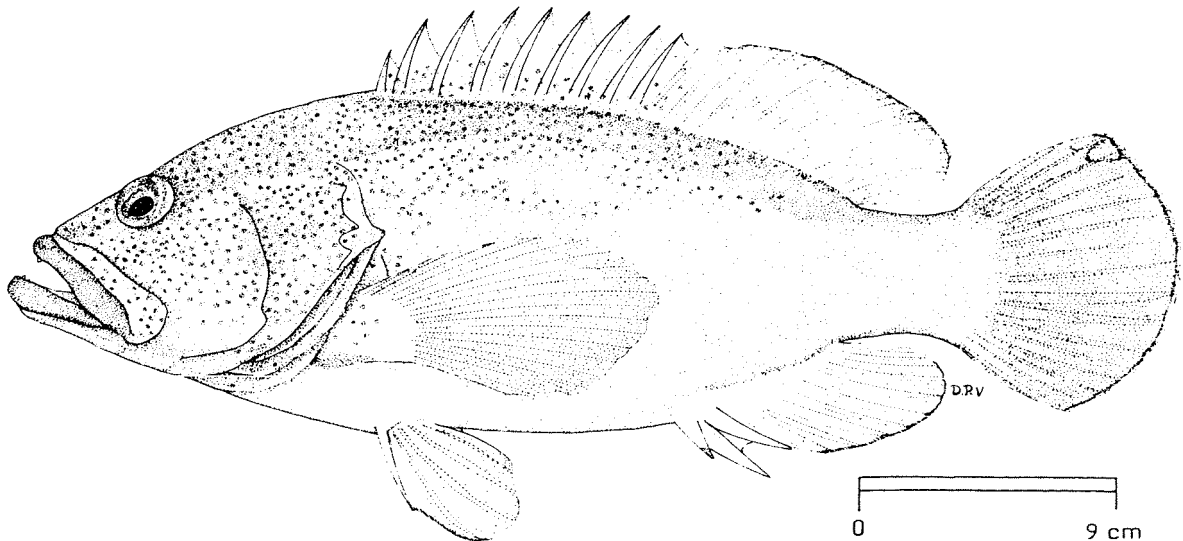


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Cephalopholis aurantia* (Schneider, 1801)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Golden hind
 Fr - Vielle dorée
 Sp - Cherna dorada

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth 2.7 to 2.9 times in standard length, less than head length. Maxilla reaches past eye; preopercle rounded low fleshy; subopercle and interopercle serrated; lower gillrakers 15 to 17. Dorsal fin with 9 spines and 14 or 15 soft rays; anal fin with 3 spines and 9 soft rays; pectoral rays 17 or 18; pectoral fins 1.4 to 1.6 times in head length, reaching well past anus; pelvic fins 1.8 or 1.9 times in head length; caudal fin rounded. Pored lateral line scales 47 to 53; lateral scale series 103 to 117.

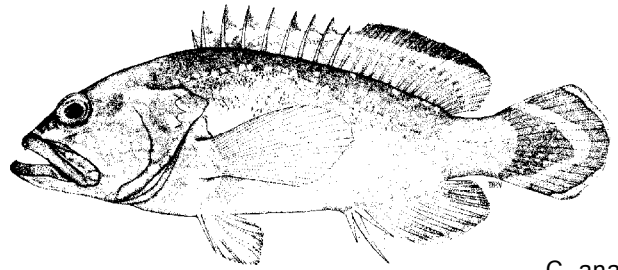
Colour: orange-yellow to dull pink with reddish-orange to yellow dots on head and anterodorsally on body; caudal fin with a narrow, pale, bluish rear margin and conspicuous black submarginal line.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

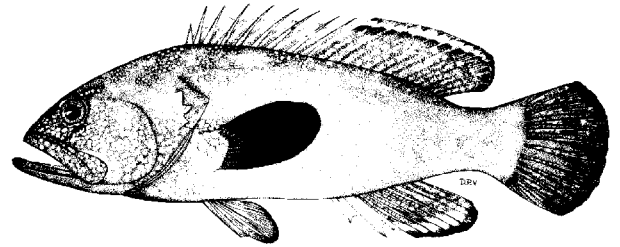
Cephaiopholis analis: mottled orange-red; pale blue margin on rear of caudal fin becomes broader and submarginal at corners: pelvic fins following distinctly short of anus (pelvics of C. aurantia reach to or almost to anus); lateral scale series 90 to 103 (103 to 117 in C. aurantia).

C. nigripinnis: pectoral and median fins dusky black; pored lateral line scales 53 to 70 (47 to 53 in C. aurantia); pelvic fins not reaching anus.

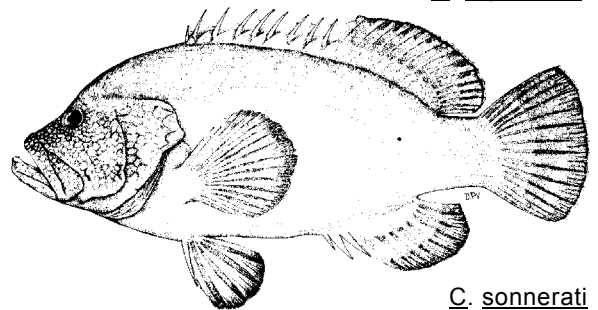
C. sonnerati: pored lateral line scales 66 to 76; lateral scale series 115 to 128; body reddish (darker posteriorly in fish larger than 30 cm); head with sma11 red spots separated by a purple network.



C. analis



C. nigripinnis



C. sonnerati

SIZE:

Maximum: 60 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout most of the Western Indian Ocean, but not in the Red Sea or the "Gulf"; extends south to Durban (South Africa). Also found in the Eastern Indian Ocean and the Western Central Pacific. Few specimens in collections, but this may be due to its occurrence in relatively deep water (generally more than 100 m).

PRESENT FISHING GROUNDS:

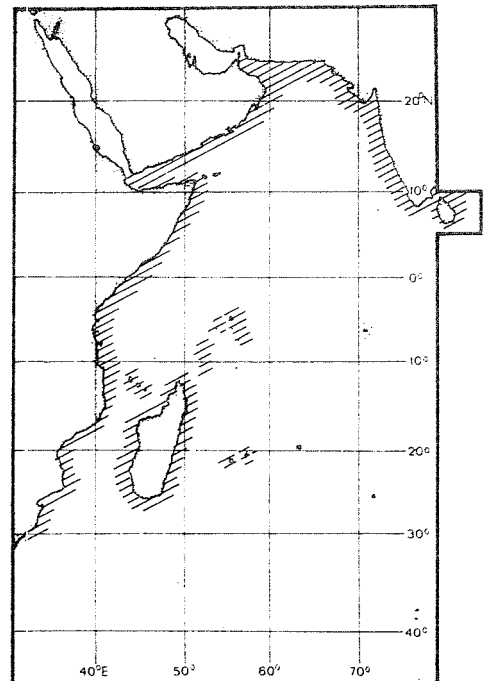
Rocky bottoms in depths of 50 to 150 m

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

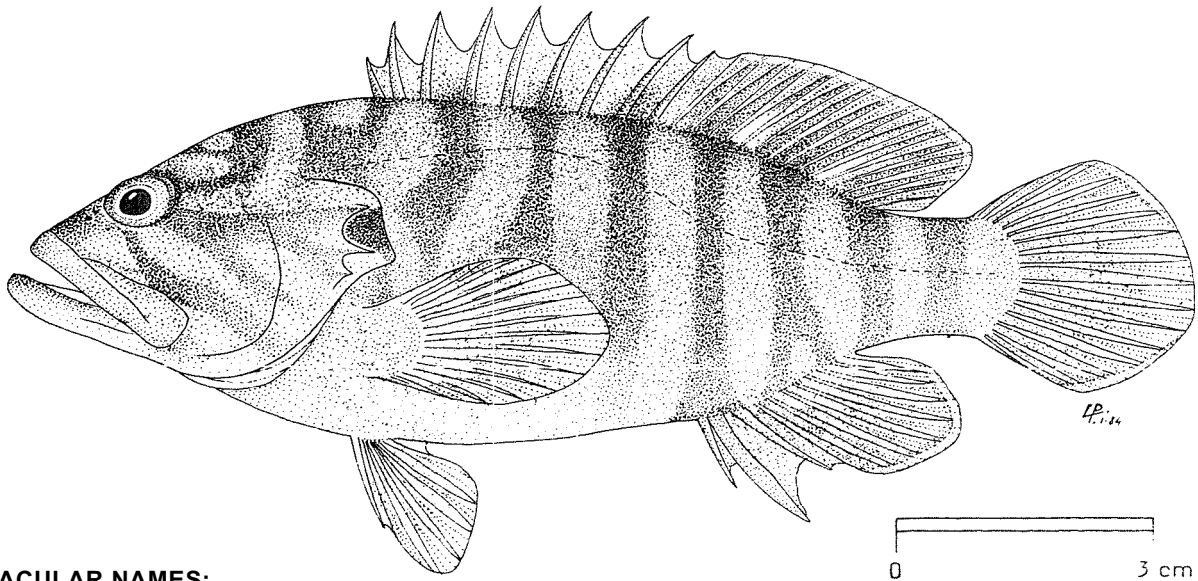
Caught with hook and line, traps and gillnets.

Marketed fresh and dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Cephalopholis boenack (Bloch, 1790)OTHER SCIENTIFIC NAMES STILL IN USE : Cephalopholis pachycentron (Valenciennes, 1828)

VERNACULAR NAMES:

FAO : En - Chocolate hind
 Fr - Vielle chocolat
 Sp - Cherna chocolate

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth 2.6 to 2.8 times in standard length, less than head length. Maxilla reaches past eye; preopercle rounded, lower edge fleshy; lower gillrakers 15 or 16. Dorsal fin with 9 spines and 15 to 17 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fins 1.4 to 1.5 times in head length with 15 to 17 rays; pelvic fins reaching past anus or falling somewhat shorter. Pored lateral line scales 47 to 51; lateral scale series 86 to 97.

Colour: head, body and fins dark brown; body with indications of slightly irregular blackish-brown bars; head with irregular, broad dark bands radiating from eye and a blackish spot between upper 2 opercular spines; soft portions of median fins with a narrow bluish-white margin (except centrally on caudal fin). No blue spots. (Mention of blue spots for this species in the literature appear to be based on misidentifications of the Western Pacific C. microprion (Bleeker).

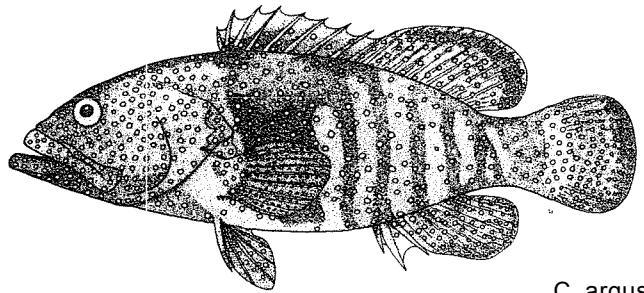
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Cephalopholis argus: small blue spots all over head, body and fins; anal fin rays 9 (8 in C. boenack); auxiliary scales on body.

Other species of Cephalopholis: usually 9 anal fin rays; colour pattern not as above.

SIZE:

Maximum: 20 cm.



C. argus

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

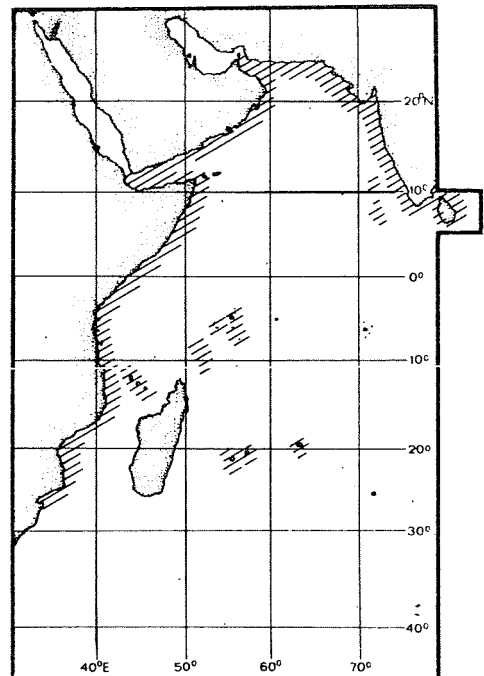
Throughout most of the Western Indian Ocean, south to Delagoa Bay, Mozambique, but not in the Red Sea or the "Gulf". Also present in the Eastern Indian Ocean and the Western Central Pacific.

PRESENT FISHING GROUNDS:

Taken incidentally by other fisheries throughout its range.

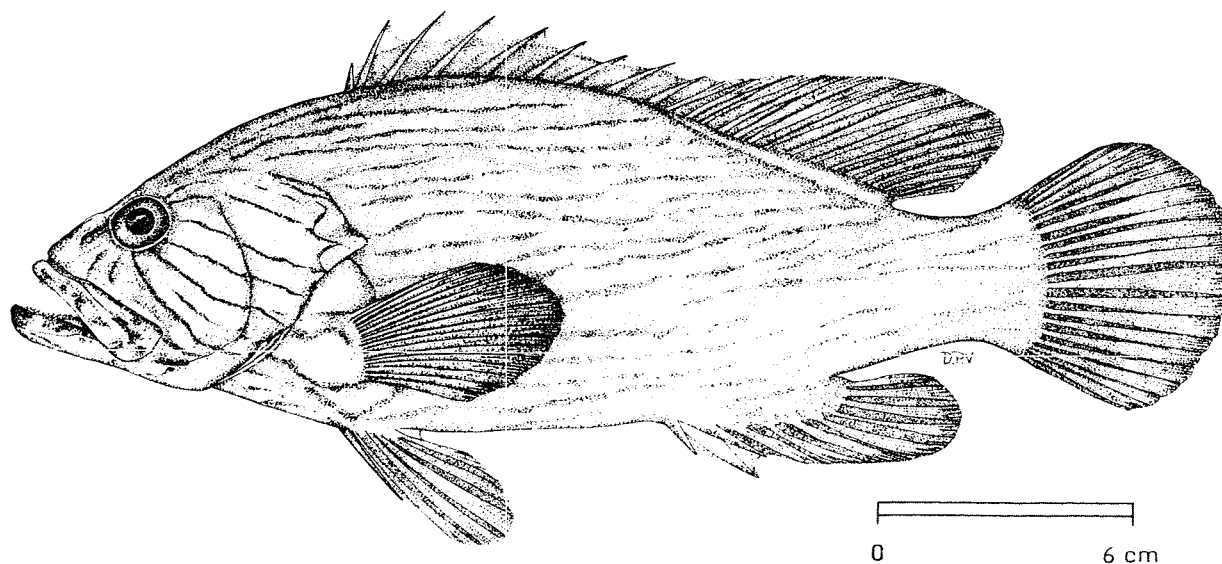
CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

This species is probably too small to be of commercial importance.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Cephalopholis formosa (Shaw, 1804)OTHER SCIENTIFIC NAMES STILL IN USE : (often misidentified as Cephalopholis boenack, which is a different species)

VERNACULAR NAMES:

FAO : En - Bluelined hind
 Fr - Vielle lignes bleues
 Sp - Cherna rayada

NATIONAL :

DISTINCTIVE CHARACTERS :

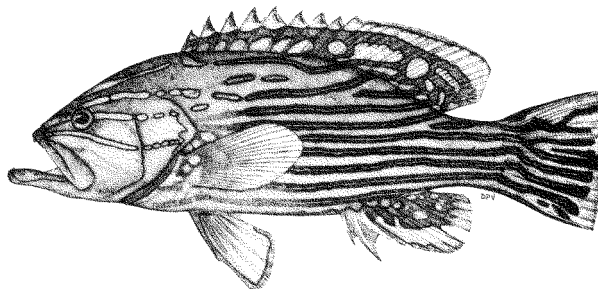
Body depth 2.5 to 2.9 times in standard length. Middle opercular spine much closer to lower than to upper spine; preopercle very finely serrate, the lower edge fleshy; a small knob on lower edge of maxilla near distal end; lower gillrakers 14 to 16. Dorsal fin with 9 spines and 17 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fin rays 17; caudal fin rounded. Pored lateral line scales 49 to 52; lateral scale series 99 to 102.

Colour: head and body usually dark brown, with wavy longitudinal blue lines; some specimens with ground colour yellowish or reddish brown on ventral half of head and body.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Cephalopholis species: no blue lines on dark brown background of head and body

Gracila polleni: caudal fin truncate; body and fins yellowish, with horizontal blue lines; anal fin rays 9.



Gracila polleni

SIZE :

Maximum: 34 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Northern part of the Western Indian Ocean (northward from about 8° S), but not in the Red Sea or the "Gulf". Also present in the Eastern Indian Ocean and the Western Central Pacific to China, and southern Japan.

PRESENT FISHING GROUNDS :

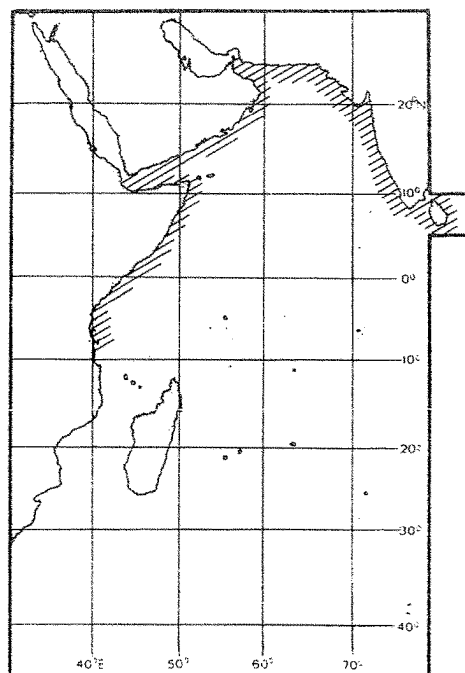
Coral reefs and rocky bottoms in depths of 10 to 30 m.

CATCHES, FISHWG GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line, traps and gillnets.

Marketed fresh and dried salted.

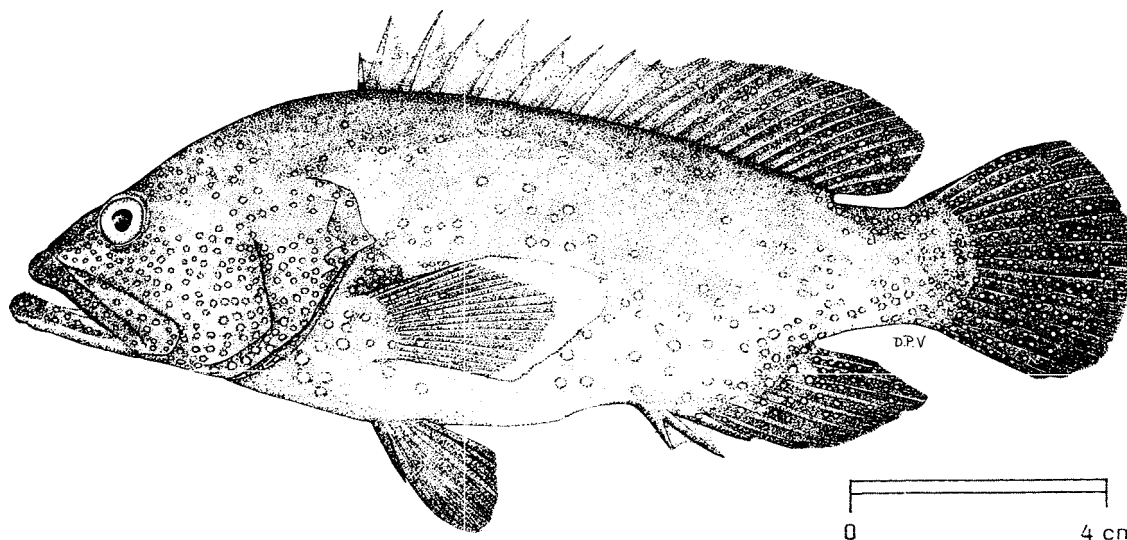


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Cephalopholis hemistiktos* (Rüppell, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Yellowfin hind
 Fr - Vielled'Arabie
 Sp - Cherna aràbiga

NATIONAL :

DISTINCTIVE CHARACTERS :

Body depth less than head length, 2.7 to 3.0 times in standard length. Maxilla reaches to or beyond vertical at rear edge of eye; preopercle rounded, the lower edge fleshy; lower gillrakers 13 to 15. Dorsal fin with 9 spines and 14 (rarely 15) soft rays; anal fin with 3 spines and 9 soft rays; pectoral fins 1.4 to 1.6 times in head length, and with 16 to 18 rays; anal fin pointed, reaching to or beyond base of caudal fin; caudal fin rounded. Pored lateral line scales 48 to 52; lateral scale series 95 to 115.

Colour: dark brown to red (fish from deeper water more reddish) with small, dark-edged, blue spots on ventrolateral parts of head and body, caudal fin and rear part of dorsal and anal fins; pectoral fins brown, with a few dark-edged blue spots at base, the distal margin broadly yellow.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Cephalopholis argus: blue spots dorsally on body; no yellow margin on pectoral fins; soft rays of dorsal fin 15 to 17 (14, rarely 15, in C. hemistiktos); anal fin rounded.

C. miniata: blue spots on head and body not more numerous ventrally; anal fin rounded; pectoral fins orange.

C. sexmaculata: four squarish black blotches on body at base of dorsal fin extending onto the fin and 2 more on caudal peduncle; pectoral fins yellow-orange.

SIZE :

Maximum: 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Known with certainty only from the Red Sea, Gulf of Oman and the "Gulf"; records from elsewhere are apparently based on misidentifications of other species.

A coral reef fish that is the most abundant species of Cephalopholis in the Red Sea. In shallow water, the ground colour is dark brown; at 15 m, the colour is more red than brown, and at 30 to 55 m, the ground colour is completely red.

PRESENT FISHING GROUNDS :

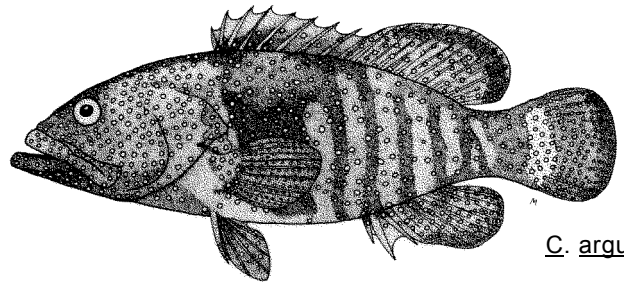
Coral reefs in depths of 5 to 60 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

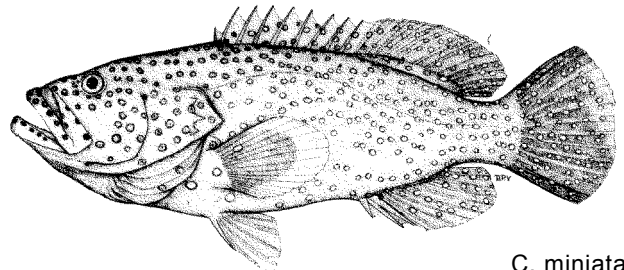
Separate statistics are not reported for this species.

Caught with hook and line, traps and gillnets.

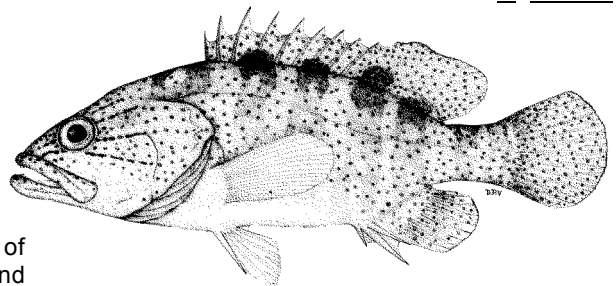
Marketed fresh.



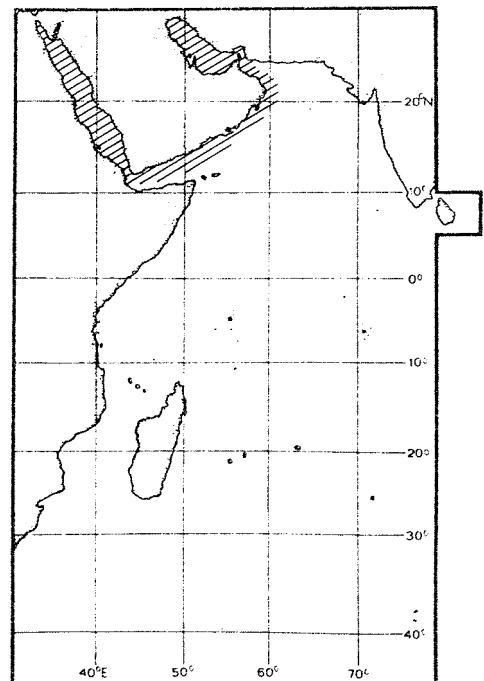
C. argus



C. miniata



C. sexmaculata

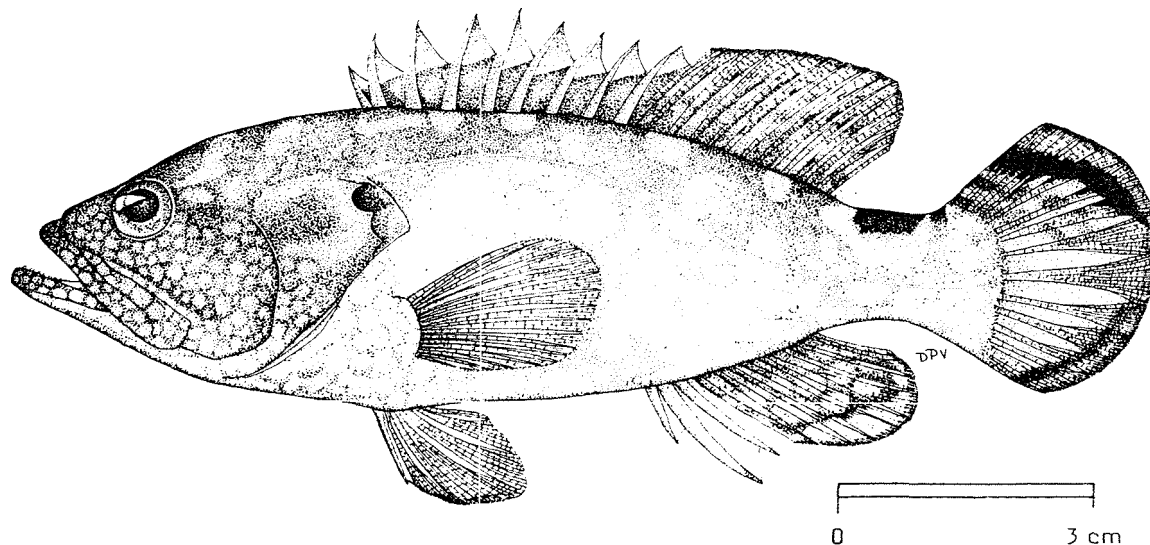


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Cephalopholis leopardus (Lacepede, 1802)

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES:

FAO : En - Leopard hind
 Fr - Vielle léopard
 Sp - Cherna leopardo

NATIONAL:

DISTINCTIVE CHARACTERS

Body depth less than head length, 2.6 to 2.8 times in standard length. Maxilla reaches well past eye; preopercle rounded, the lower edge fleshy; sides of lower jaw with 3 to 5 rows of teeth; lower gillrakers 14 to 17. Dorsal fin with 9 spines and 14 (rarely 15) soft rays; anal fin with 3 spines and 9 (rarely 10) soft rays; pectoral rays 16 to 18; pectoral fins 1.4 to 1.7 times in head; pelvic fins usually not reaching anus; caudal and anal fins rounded. Pored lateral line scales 46 to 53; lateral scale series 80 to 90.

Colour: body, cheeks, lips and bases of all fins with pinkish red spots; a red-brown blotch on top of caudal peduncle set right behind base of dorsal fin, followed by a smaller and fainter blotch; caudal fin with an oblique, red-brown band dorsally and an oblique dark red line ventrally (the latter very faint on preserved fish).

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other Cephalopholis species: no dark saddle-blotches on peduncle.

SIZE :

Maximum : 20 cm.

GEOGRAPHICAL DISTRIBUTION A BEHAVIOUR :

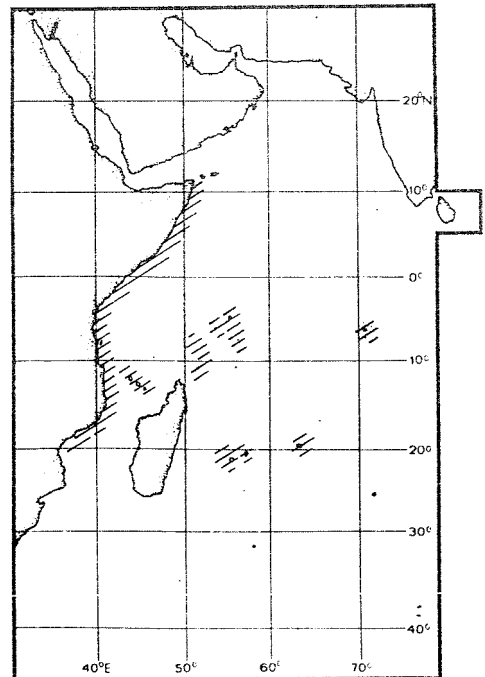
A coral-reef species known from the East African coast from about 12°N to Mozambique, Mafia Islands, Comores, Aldabra, Seychelles, Mauritius, Reunion, Rodriguez Island and Chagos Archipelago. Absent from the Red Sea and the "Gulf". Also found in the Eastern Indian Ocean and the Western Central Pacific to China, Japan, Marshall Islands and French Polynesia.

PRESENT FISHING GROUNDS :

Taken incidentally throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

This species is probably too small to be of commercial importance.

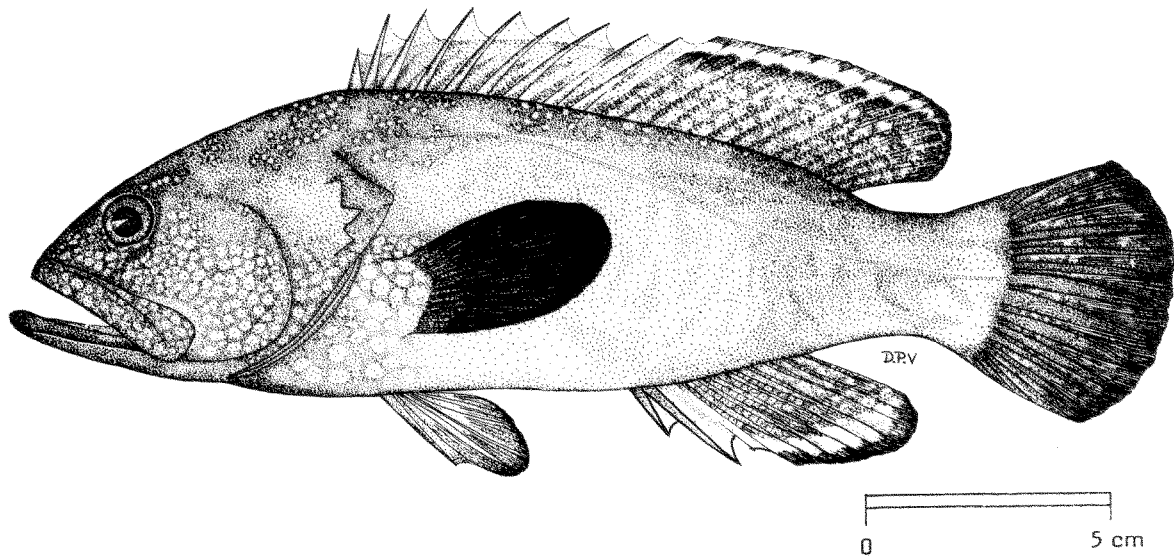


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Cephalopholis nigripinnis (Valenciennes, 1828)

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES :

FAO : En - Duskyfin hind
 Fr - Vielle aile noire
 Sp - Cherna alinegra

NATIONAL:

DISTINCTIVE CHARACTERS :

Body depth contained 2.6 to 3.2 times in head length and 2.4 to 2.9 times in standard length. Preopercle rounded, lower edge fleshy; maxilla end with distinct knob ventrally covered by upper lip; sides of lower jaw with 4 or 5 rows of teeth; lower gillrakers 15 to 17. Dorsal fin with 9 spines and 15 (rarely 16) soft rays; anal fin with 3 spines and 9 soft rays; pectoral fin rays 17 to 19; pelvic fins not reaching anus, 1.9 to 2.2 times in head length; pectoral fin 1.3 to 1.6 times in head length; caudal and anal fins rounded. Pored lateral line scales 53 to 70; lateral scale series 89 to 110.

Colour: head and body mostly reddish; distal 2/3 of pectoral fin, most of anal fin, rear part of dorsal fin and all of caudal fin and peduncle dusky black; 2 dark spots usually present at tip of lower jaw. Specimens from deep water may lack the darker pigmentation in the fins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Cephalopholis aurantia: pored lateral line scales 47 to 53 (53 to 70 in C. nigripinnis); fins not dusky black; pelvic fins reach anus.

C. sonnerati: pored lateral line scales 72 to 76; lateral scale series 110 to 128 (89 to 110 in C. nigripinnis); pelvic fins reach to or beyond anus; total length more than 30 cm.

Other Cephalopholis species: colour pattern not as above.

Gracila species: caudal fin truncate; colour pattern not as above.

SIZE :

Maximum: 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR :

Widely distributed in the Western Indian Ocean but absent from the Red Sea and the "Gulf". Also present in the Eastern Indian Ocean.

PRESENT FISHING GROUNDS :

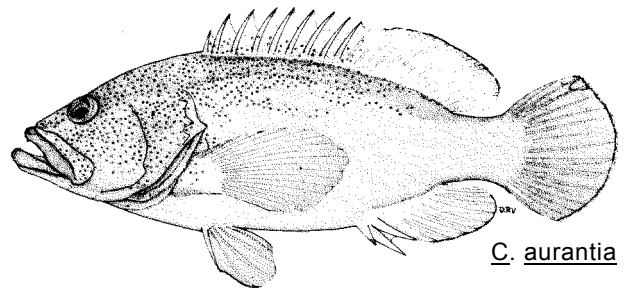
Coral reefs in depths of 5 to 40 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

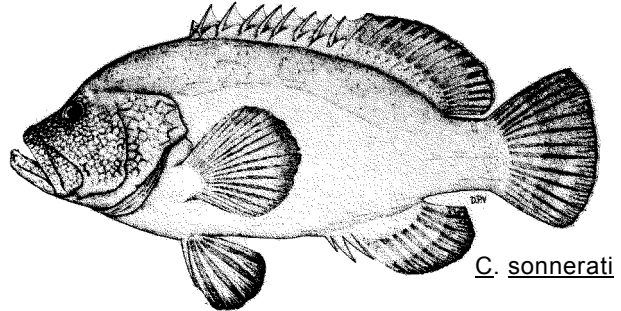
Separate statistics are not reported for this species.

Caught with hook and line and in traps.

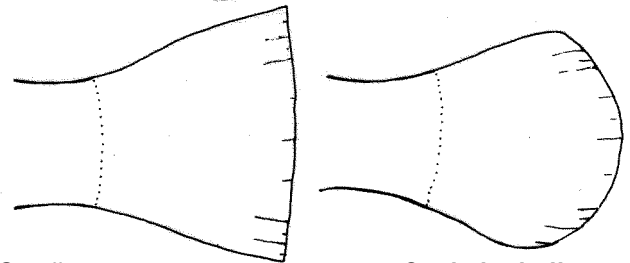
Marketed fresh and dried salted.



C. aurantia



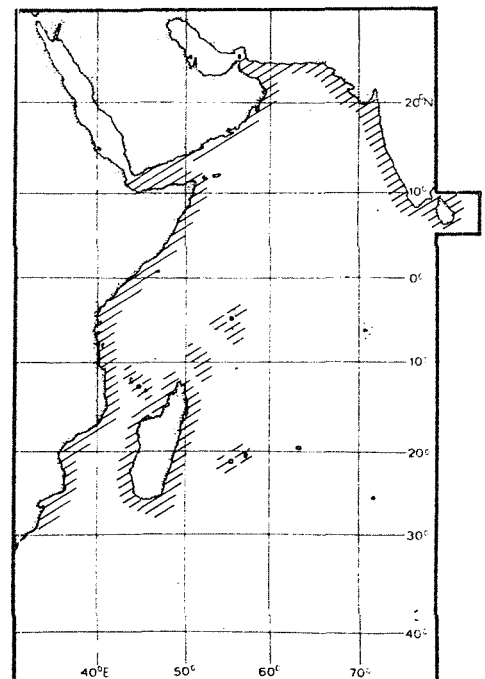
C. sonnerati



Gracila

caudal fin

Cephalopholis

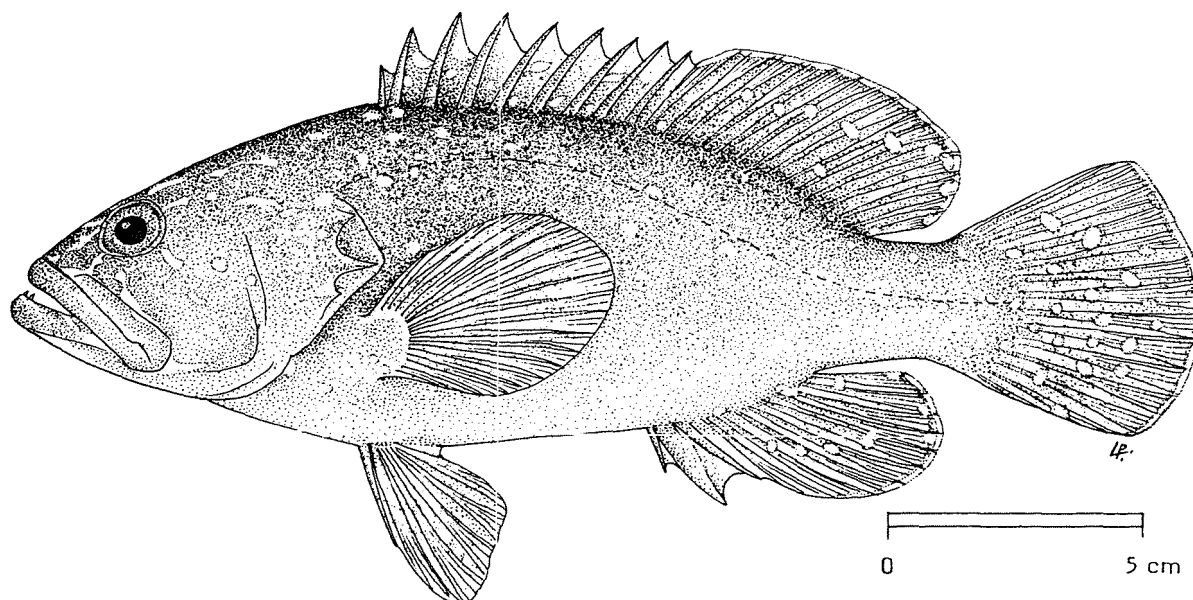


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Cephalopholis oligosticta* (Randall & Ben Tuvia, 1983)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Roughcheek hind
Fr - Vielle de la Mer Rouge
Sp - Cherna del Mar Rojo

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.6 to 3.0 times in standard length, less than head length. Maxilla with a few scales, reaching well past orbit; preopercle rounded, the lower bony edge exposed, coarsely serrate; lower gillrakers 14 to 16. Dorsal fin with 9 spines and 15 soft rays; anal fin with 3 spines and 9 soft rays; pectoral fin rays 16 to 18; pectoral fins 1.4 to 1.6 times in head length; pelvic fins 1.6 to 2.0 times in head, nearly or just reaching anus; caudal and anal fins rounded. Pored lateral line scales 60 to 71; lateral scale series 107 to 123.

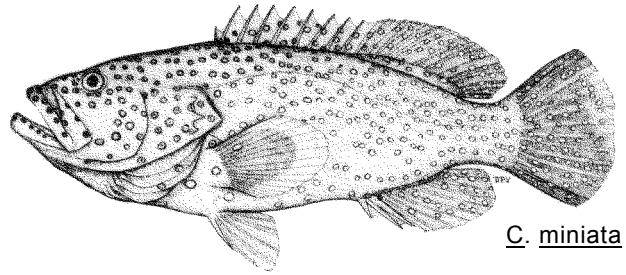
Colour: orange-red, with widely scattered, small pale blue spots on head, body and fins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Cephalopholis miniata: blue spots more numerous; lower edge of preopercle fleshy; lateral line scales 47 to 56.

C. argus: colour dark brown; lower edge of preopercle fleshy.

Other Cephalopholis species: lower edge of preopercle fleshy; colour pattern not as above.



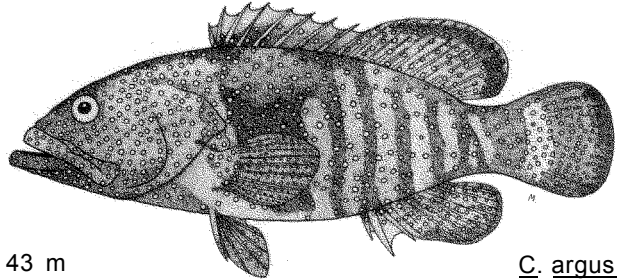
C. miniata

SIZE:

Maximum: 27 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known only from the Red Sea in depths of 24 to 43 m usually in dead reef areas with rather turbid water.



C. argus

PRESENT FISHING GROUNDS:

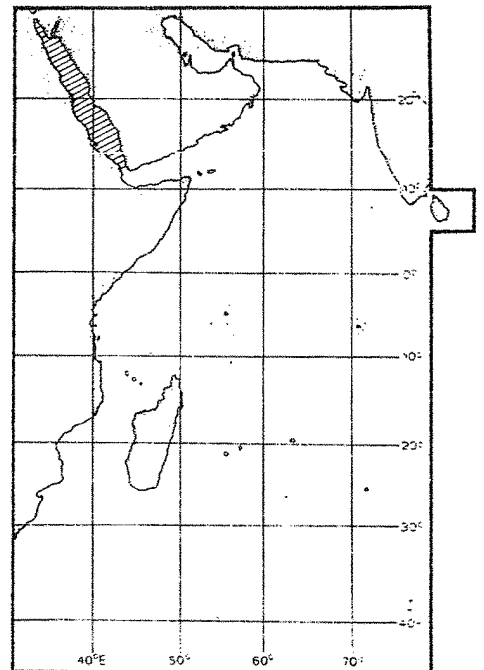
Apparently not common.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

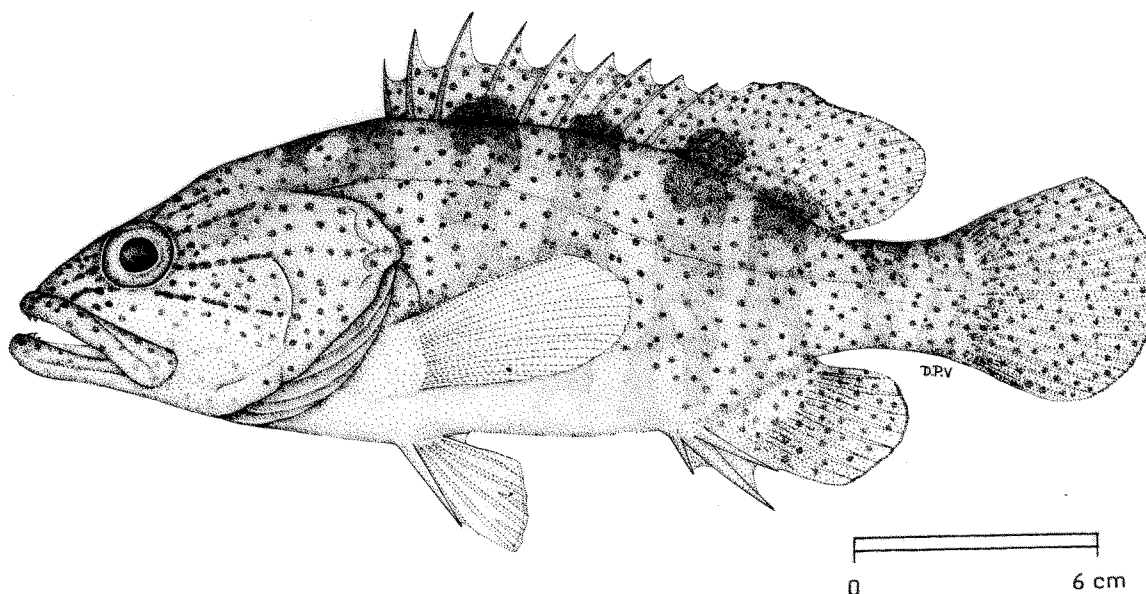
Caught with hook and line, traps and gillnets.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Cephalopholis sexmaculata (Rüppell, 1828)OTHER SCIENTIFIC NAMES STILL IN USE: Cephalopholis gibbus Fourmanoir, 1954
Cephalopholis coatesi Whitley, 1937

VERNACULAR NAMES:

FAO : En - Sixblotch hind
 Fr - Vielle six taches
 Sp - Cherna de sels

NATIONAL :

DISTINCTIVE CHARACTERS:

Body depth contained 2.6 to 3.0 times in standard length, less than head length. Maxilla reaches to or past vertical at rear edge of orbit; preopercle rounded, the lower edge fleshy; lower gillrakers 14 to 16. Dorsal fin with 9 spines and 14 to 16 soft rays; anal fin with 3 spines and 9 soft rays; pectoral fin rays 16 to 18; pectoral fins 1.4 to 1.6 times in head; pelvic fins not reaching anus; caudal and anal fins rounded. Pored lateral line scales 49 to 56; lateral scale series 99 to 110.

Colour: orange-red with numerous small blue spots on body, head and median fins; four squarish, black blotches on body at base of dorsal fin extending onto the fin and 2 more on the caudal peduncle; pectoral fins yellow-orange.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other *Cephalopholis* species: no black blotches at base of dorsal fin.

SIZE:

Maximum: 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the Western Indian Ocean, known from the east coast of Africa (to about 21° S), the Seychelles, Mauritius, Réunion, Red Sea, Gulf of Oman and coasts of Pakistan, India and Sri Lanka.

A coral reef species occurring in 20 to 72 m; often seen in large caves.

PRESENT FISHING GROUNDS:

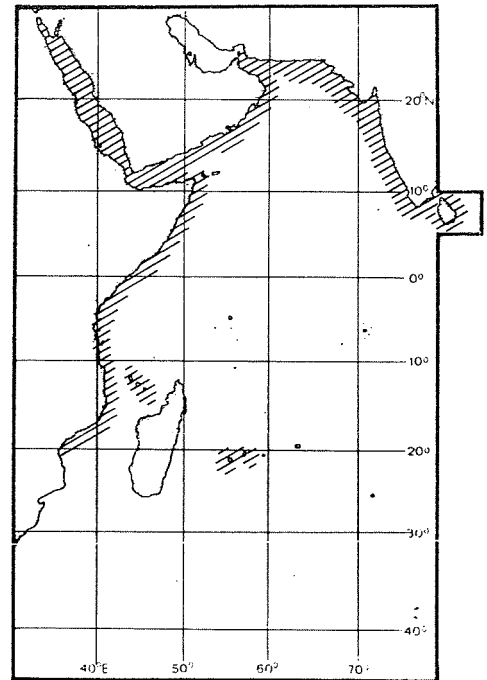
Coral reef areas. Of some importance as foodfish in the Comores.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line, traps and gill nets.

Marketed fresh and dried salted.

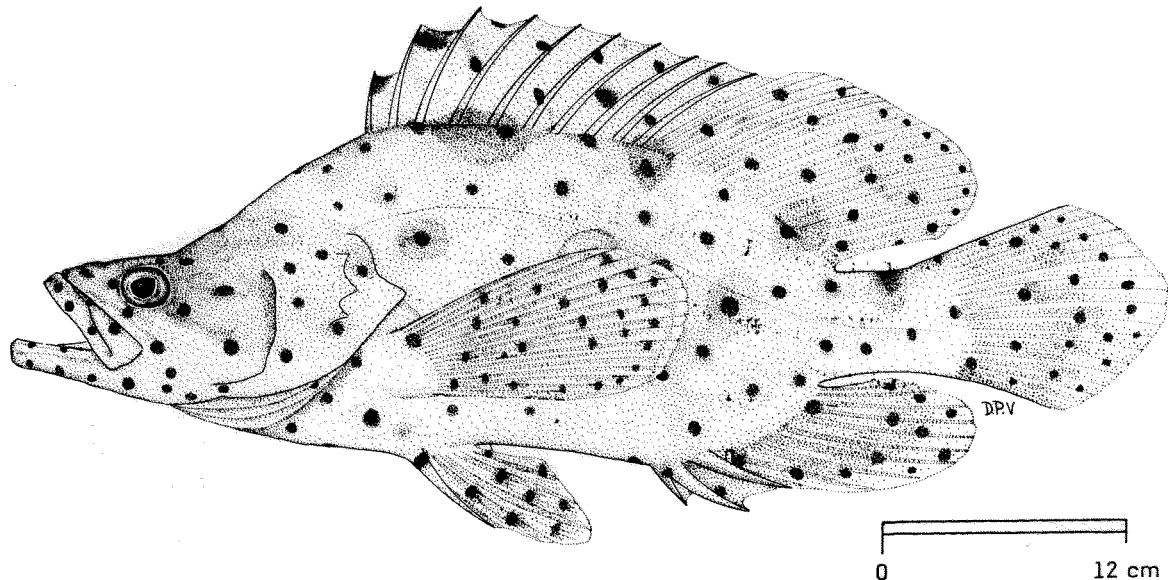


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Cromileptes altivelis* (Valenciennes, 1828)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Humpback grouper
 Fr - Mérou bossu
 Sp - Mero jorobado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body compressed; dorsal profile of head markedly concave, giving the fish a humpback appearance; body depth 2.6 to 3.0 times in standard length. Eye diameter 5 or 6 times in head length; preopercle broadly rounded, serrate; opercle with 2 apparent spines; rear nostril a large crescentic slit; gillrakers almost rudimentary, about 14 on lower limb. Dorsal fin with 10 spines and 17 to 19 soft rays; anal fin with 3 spines and 10 soft rays; pectoral fin rays 17 or 18; caudal fin rounded. Scales cycloid; lateral line scales about 70; lateral scale series 135 to 140.

Colour: pale greenish-brown, with dark spots all over head, body and fins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

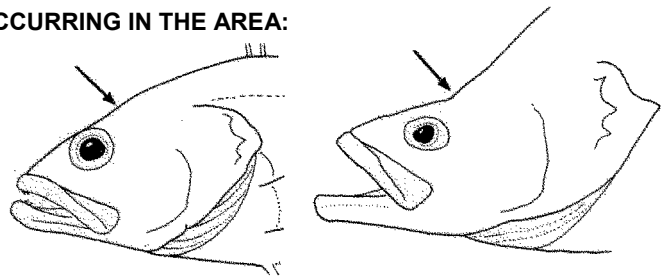
Cephalopholis species: dorsal fin spines 9 (10 in Cromileptes altivelis); dorsal profile of head convex.

Dermatolepis striolatus: dorsal fin spines 11; rear nostrils oval.

Aethaloperca rogae: dorsal fin spines 9; caudal fin truncate; dorsal profile of head convex.

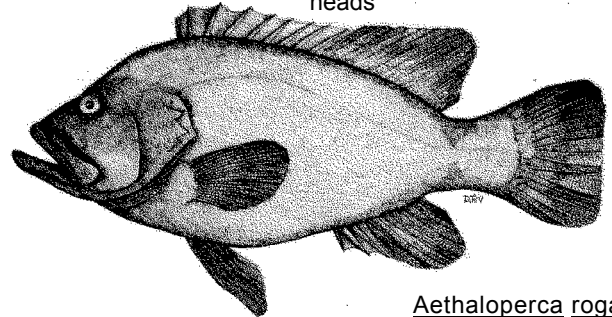
Gracila species: dorsal fin spines 9; caudal fin truncate; dorsal profile of head convex.

Epinephelus species: dorsal fin spines 11; dorsal profile of head straight or convex.

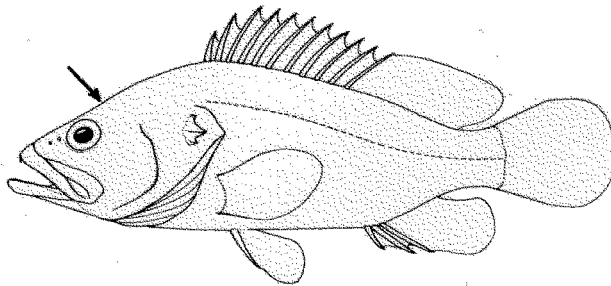


Cephalopholis

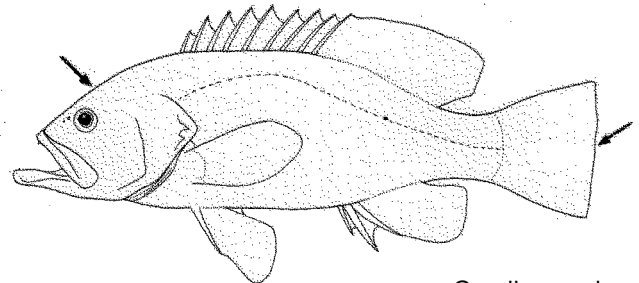
Cromileptes altivelis
heads



Aethaloperca rogae



Epinephelus



Gracila species

SIZE:

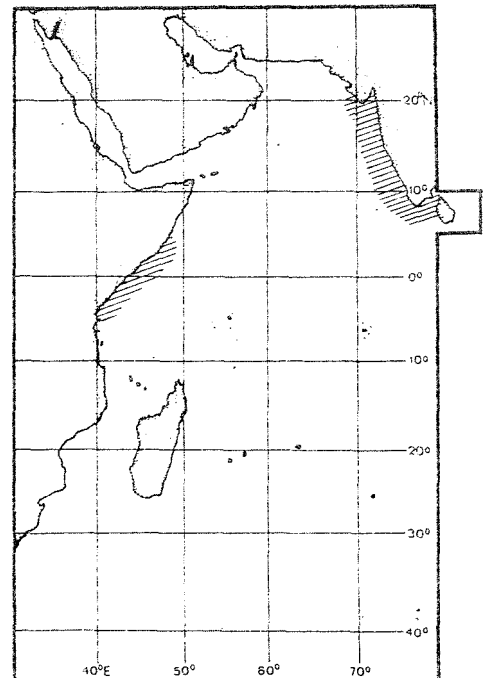
Maximum: 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the Western Indian ocean, known from India, Sri Lanka and the Coast of Kenya. Also found in the Eastern Indian Ocean and the Western Central Pacific, eastward to China, southern Japan and Australia.

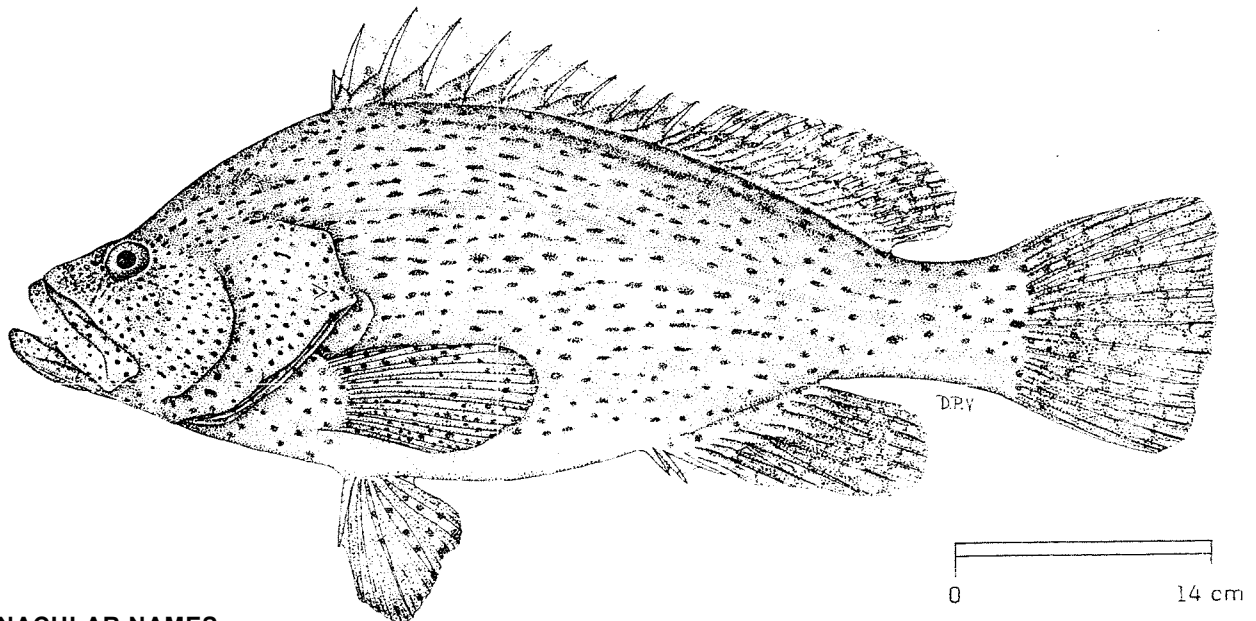
PRESENT FISHING GROUNDS:

Apparently rare in the Western Indian Ocean.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Dermatolepis striolatus* Playfair, 1866EITHER SCIENTIFIC NAMES STILL IN USE: *Dermatolepis aldabrensis* Smith, 1955

VERNACULAR NAMES:

FAO En - Smooth grouper
 Fr - Mérou lisse
 Sp - Mero liso

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth 2.4 to 2.8 times in standard length. Eye diameter 7 or 8 times in head length; preopercle finely serrated beneath skin, lower edge fleshy; preopercle more or less smooth in large adults; opercle with only 2 apparent spines, the third is covered by skin and scales; lower gillrakers 13 or 14; no canine teeth in jaws. Dorsal fin with 11 spines and 18 or 19 soft rays; anal fin with 3 spines and 9 or 10 soft rays; pectoral fin rays 18; caudal fin rounded. Body scales cycloid, except ctenoid behind pectoral fin), covered with auxiliary scales.

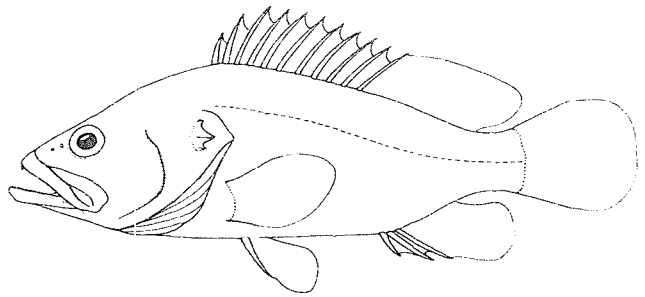
Colour: head and body orange brown, paler ventrally. Juveniles covered with brown to black spots, with some joined to form short horizontal or oblique streaks; background with more or less distinct irregular, pale blotches of various sizes all over head and body. Adults golden brown or reddish brown, paler ventrally, with small, round dark spots all over head, body and fins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus species: body less compressed; scales ctenoid (at least in juveniles); anal fin rays 8 in most species (9 or 10 in Dermatolepis striolatus); distinct canines present in most species.

Cromileptes altivelis: dorsal fin with 10 spines (11 in D. striolatus); rear nostril a large crescentic slit.

Aethaloperca roqaa, Cephalopholis species and Gracila species: dorsal fin spines 9; body scales ctenoid.



Epinephelus

SIZE:

Maximum: 85 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the Western Indian Ocean, known from Durban (South Africa), to Oman and around Aldabra, Comores, Seychelles.

Sometimes found in groups in coral reef areas.

PRESENT FISHING GROUNDS:

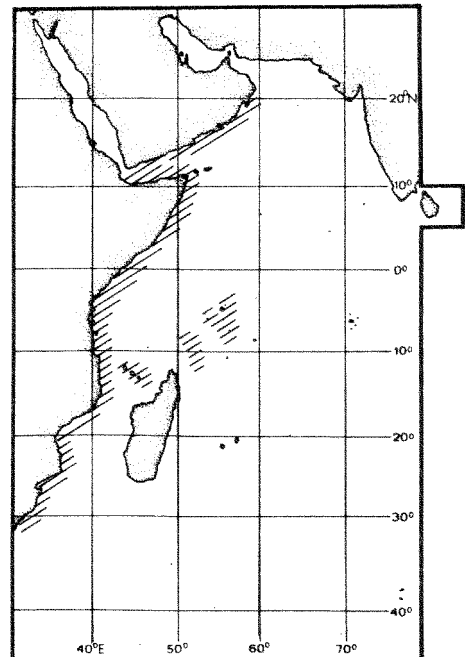
Coral reef areas; apparently rare.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Separate statistics are not reported for this species.

Caught with hook and line, traps and gillnets.

Marketed fresh.



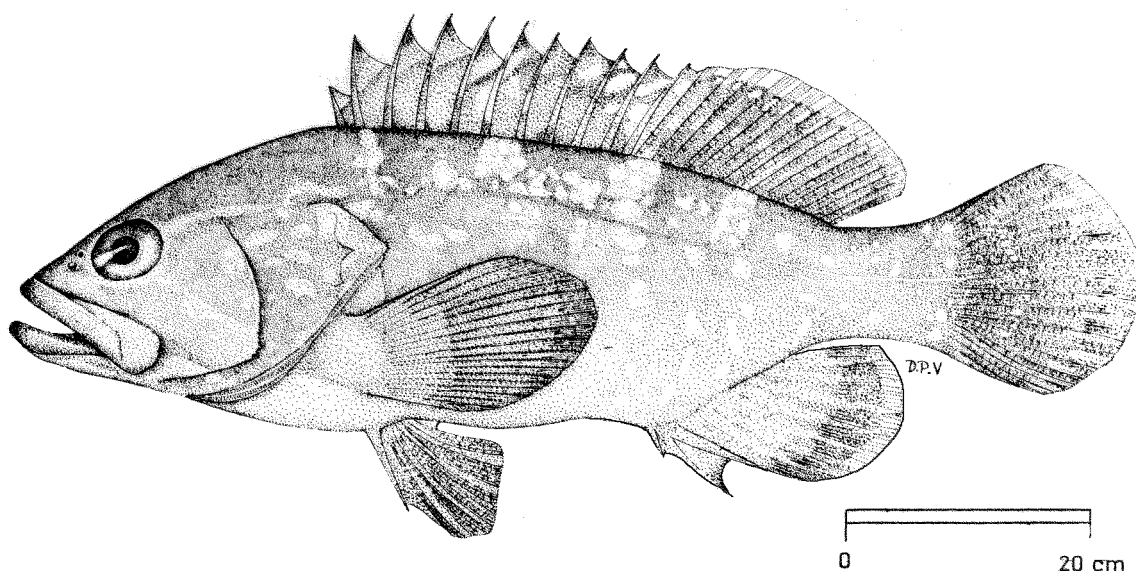
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Epinephelus guaza</i> (Linnaeus, 1758)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO:	En - Dusky grouper
	Fr - Mérou noir
	Sp - Mero

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.7 to 3.0 times in standard length. Interorbital area convex; preopercle finely serrate, subangular; maxilla not reaching past vertical at rear edge of eye; midlateral part of lower jaw with 2 rows of subequal teeth 2 or 3 rows in large adults); lower gillrakers 14 to 16. Dorsal fin with 11 spines and 15 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fin rays 17 to 19; caudal fin rounded or truncate with rounded corners. Pored lateral line scales 66 to 73; lateral scale series 106 to 123; body scales with numerous tiny auxiliary scales.

Colour: head and body dark brown or greenish dorsally, golden yellowish ventrally; irregular white blotches usually visible on body and head; a black "moustache" streak along maxillary groove more or less distinct; median fins dark brown; lower edge of anal fin narrowly white; ventral fins blackish distally; pectoral fins dark brownish-grey; margin of spinous dorsal fin and basal part of paired fins often golden yellow.

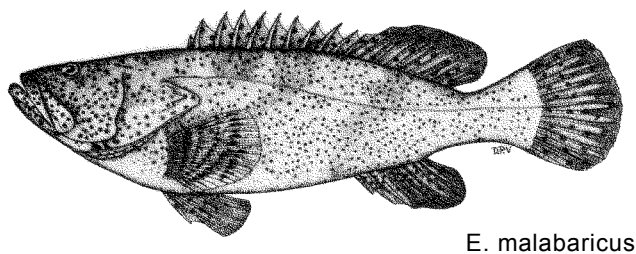
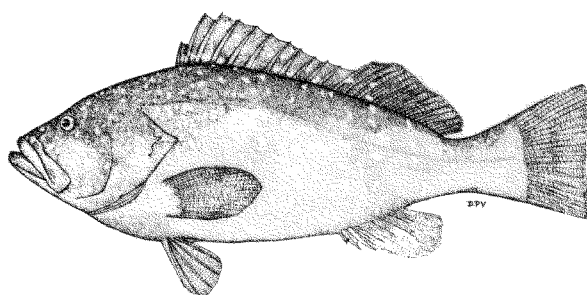
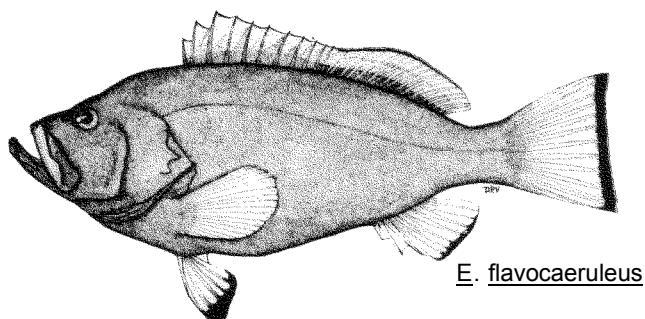
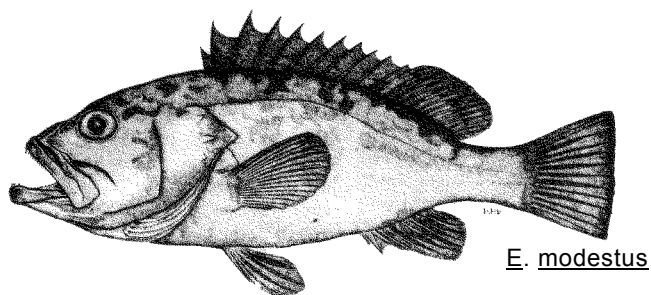
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus modestus: anal fin rays 4 (8 in E. guaza); no auxiliary scales on body scales; dorsal fin soft rays 14 (15 in E. guaza); no yellowish colour on body.

E. flavocaeruleus: body depth contained 2.4 to 2.7 times in standard length (2.7 to 3 times in E. guaza); lateral scale series 130 to 150 (106 to 123 in E. guaza); caudal fin truncate with acute corners; juveniles with bright yellow fins and peduncle.

E. malabaricus: body depth contained 3.0 to 3.6 times in standard length; dark spots on head and body; no yellow colour on body.

E. multinotatus: dorsal fin membranes not incised between the spines; caudal fin truncate.



SIZE:

Maximum: 150 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, found only off southern Africa, at least as far north as Quissico, Mozambique (25° S). Also present in the Mediterranean Sea, and along the entire west coast of Africa.

PRESENT FISHING GROUNDS:

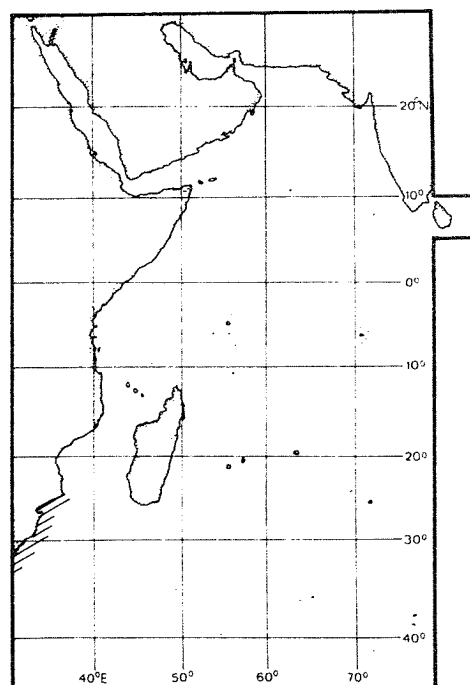
Common in South African waters from the shore to depths of 50 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species, but it is of considerable commercial importance in South Africa.

Caught with hook and line.

Marketed fresh.

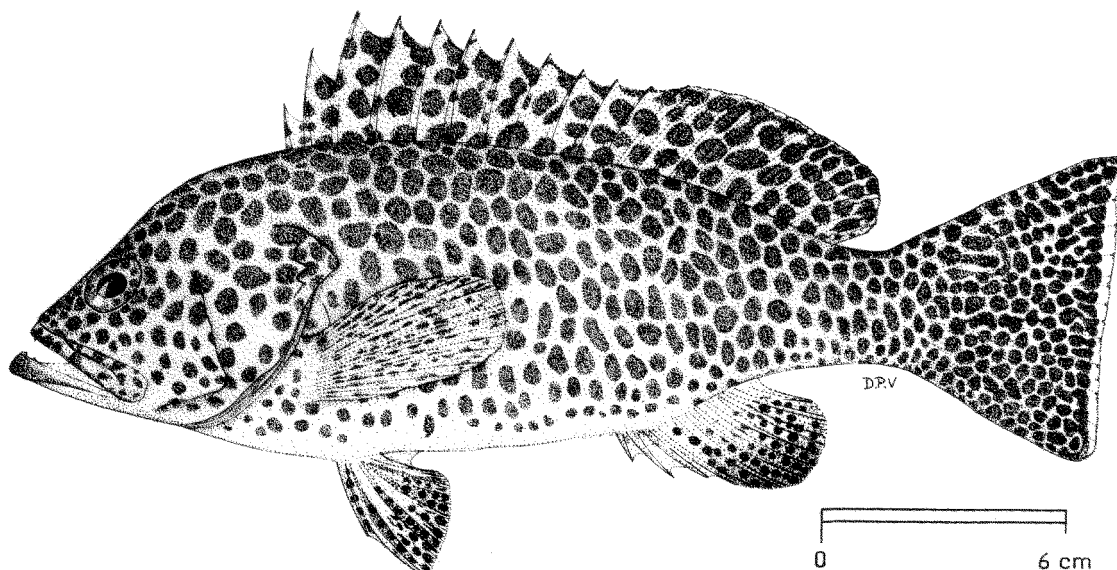


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus areolatus* (Forsskål, 1775)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Areolated grouper
Fr - Mérou aréolé
Sp - Mero areolado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth 3.0 to 3.3 times in standard length. Eye diameter 4.1 to 5.5 times in head length. Preopercle serrate, with 3 to 7 large serrae at the angle; lower gillrakers 14 to 16. Dorsal fin with 11 spines and 15 to 17 soft rays; anal fin with 3 spines and 8 soft rays; dorsal fin membrane distinctly incised between the spines; anal fin rounded to slightly angular; pectoral fin rays 17 or 18; caudal fin margin truncate to slightly concave. Pored lateral line scales 50 to 56; lateral scale series 97 to 115. Pyloric caeca 11 to 17.

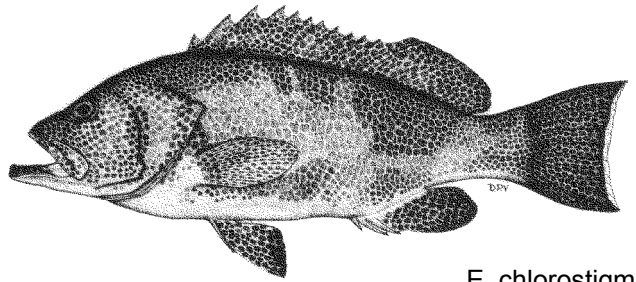
Colour: head, body and fins pale, covered with numerous dark brown spots; about 8 to 14 dark spots from last dorsal spine to anus; spots relatively smaller and more numerous with growth. Caudal fin with a narrow pale margin. Pectoral fins covered with dark spots or bands.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

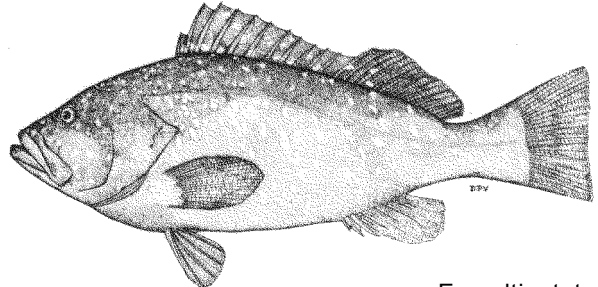
Epinephelus chlorostigma: dark spots on body smaller, about 25 to 30 from last dorsal spine to anus; anal fin angular to pointed in large specimens; pyloric caeca 26 to 30 (11 to 17 in E. areolatus).

E. multinotatus: rear edge of caudal fin slightly convex; dorsal fin membrane not incised between the spines; white spots usually present on body; dark spots usually not discernible on dorsal half of body; pored lateral line scales 67 to 77 (50 to 56 in E. areolatus).

Other Epinephelus species: caudal fin rounded, or colour pattern not like that of E. areolatus.



E. chlorostigma



E. multinotatus

SIZE:

Maximum: 35

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widely distributed in the Western Indian Ocean including the Red Sea and the "Gulf", but apparently not recorded from Madagascar or Mauritius. Also found in the Eastern Indian Ocean and the Western Central Pacific, eastward to Melanesia, southern Japan and Australia.

Usually found on small rocky outcrops or coral heads in silty sand areas or seagrass beds.

PRESENT FISHING GROUNDS:

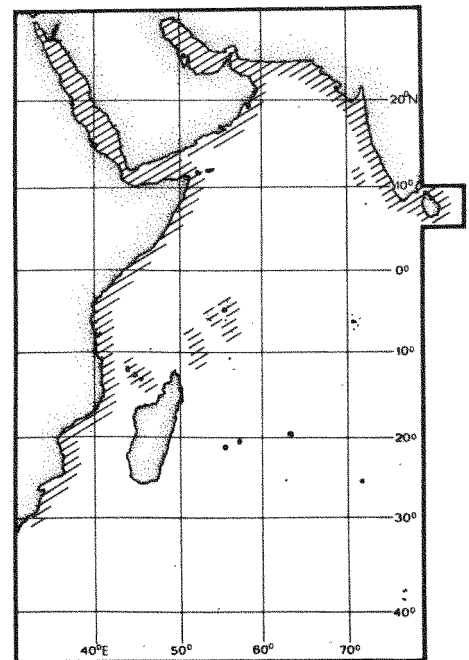
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

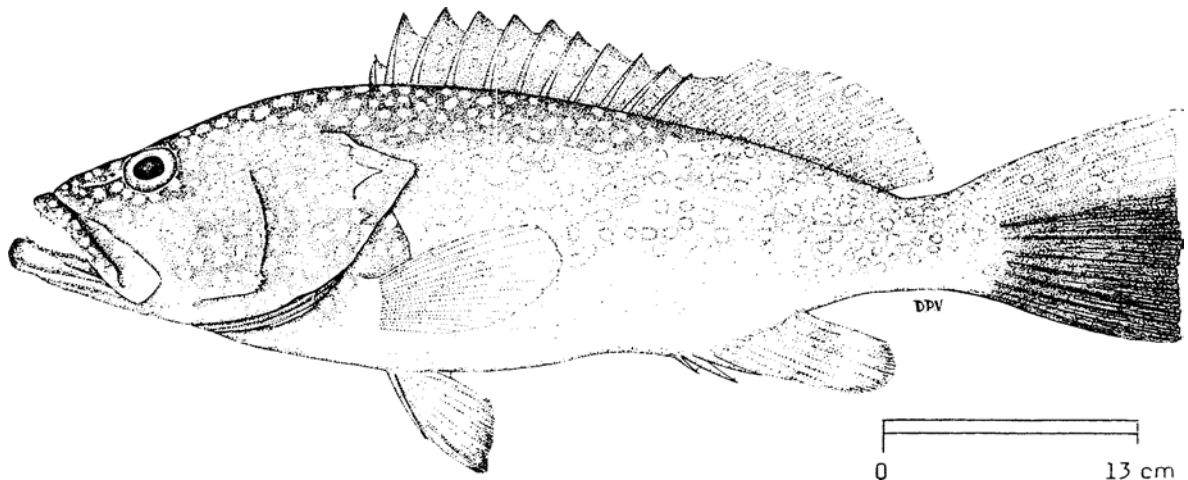
Caught with hook and line, gillnets and in traps.

Sold fresh in local markets; also dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus bleekeri (Vaillant, 1877)OTHER SCIENTIFIC NAMES STILL IN USE: Epinephelus coromandelicus Day, 1878

VERNACULAR NAMES:

FAO : En - Duskytail grouper (= Bleeker's grouper, Areas 57/71)
 Fr - M rou demideuil
 Sp - Mero medioluto

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 3.0 to 3.4 times in standard length; caudal peduncle depth greater than length of second anal spine. Preopercle finely serrate; serrae at angle enlarged; maxilla scaly; sides of lower jaw with 2 rows of subequal teeth; lower gillrakers 16 or 17. Dorsal fin with 11 spines and 16 or 17 soft rays; anal fin with 3 spines and 8 soft rays; pectoral rays 17 or 18; caudal fin truncate to slightly convex. Pored lateral line scales 49 to 54.

Colour: body, dorsal fin and upper third of caudal fin brownish grey, covered with gold spots; distal half of anal fin and lower 2/3 of caudal fin dark purplish grey; pectoral fins pale.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other Epinephelus species: caudal fin not dark ventrally and upper third pale with gold spots.

SIZE:

Maximum: 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Tropical waters of the Indo-West Pacific from the west coast of India and Sri Lanka, eastward to China and the Philippines.

PRESENT FISHING GROUNDS:

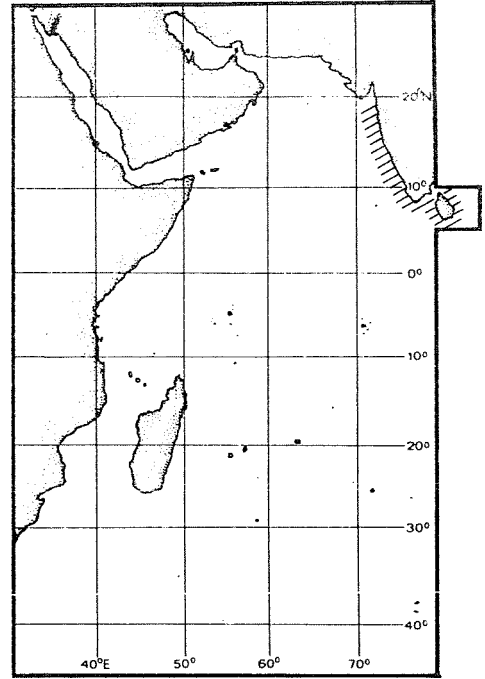
Not restricted to coral reefs.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

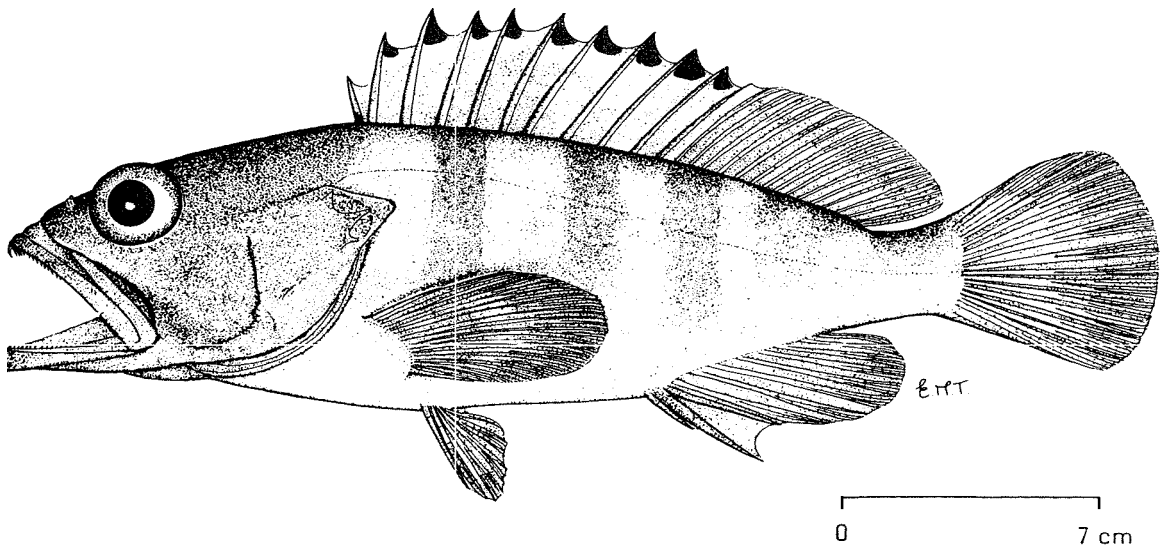
Caught with hook and line, gillnets and in traps.

Marketed fresh and dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus fasciatus* (Forsskål, 1775)OTHER SCIENTIFIC NAMES STILL IN USE: *Epinephelus emoryi* Schultz, 1953

VERNACULAR NAMES:

FAO: En - Redbanded grouper
Fr - Mérou oriflamime
Sp - Mero banderilla

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.9 to 3.3 times in standard length. Preopercle serrate, with serrae at the angle slightly enlarged; lower gillrakers 15 to 18. Dorsal fin with 11 spines and 15 to 17 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fin rays 18 to 20; caudal fin rounded. Pored lateral line scales 50 to 56; lateral scale series 102 to 123; auxiliary scales very numerous on body above opercle.

Colour: ground colour varying from pale pinkish grey to pale yellowish red, reddish brown or reddish orange; 5 dusky to dark reddish brown vertical bars usually visible on dorsal half of body; dorsal part of head often dark reddish brown; a conspicuous black triangle on membrane behind tip of each dorsal fin spine; orbit usually with a narrow blackish edge.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus retouti: lateral line scales 70 to 73 (50 to 56 in E. fasciatus); margin of soft dorsal and upper edge of caudal fin dusky; body depth 2.6 to 3.0 times in standard length (2.9 to 3.3 times in E. fasciatus).

E. rivulatus: head olive brown (often), with wavy dark violet lines; each body scale usually with a conspicuous bluish white spot; pectoral fin with dark reddish brown blotch at base of fin; irregular dark bars on body.

Cephalopholis species: dorsal fin spines 9 (11 in E. fasciatus).

SIZE:

Maximum: 40 cm:

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout the Western Indian Ocean and in the Red Sea, but not recorded from the "Gulf". Also found in the Eastern Indian Ocean and the Western Central Pacific, eastward to Pitcairn Islands; absent from Hawaii, but does occur from southern Japan to southern Queensland.

PRESENT FISHING GROUNDS:

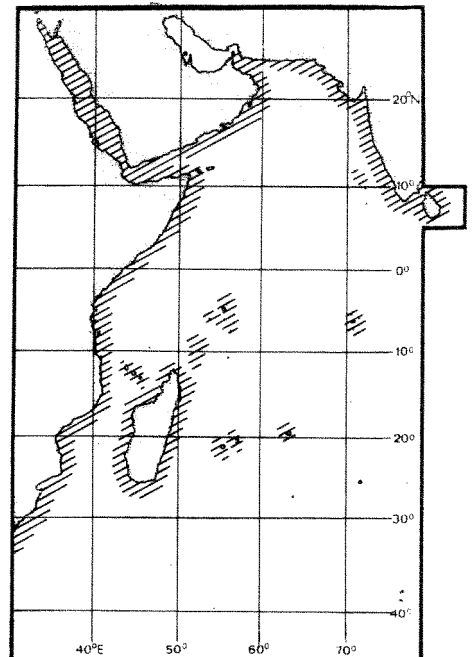
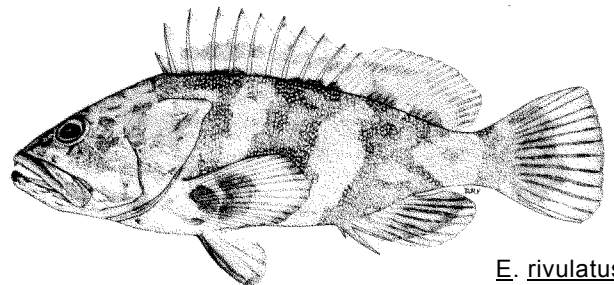
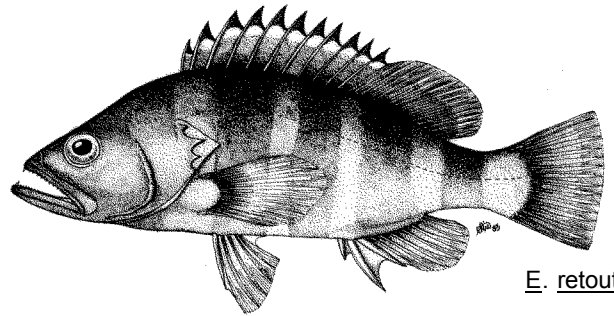
Occurs on coral reefs and rocky bottoms from the shore to 160 m depth.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

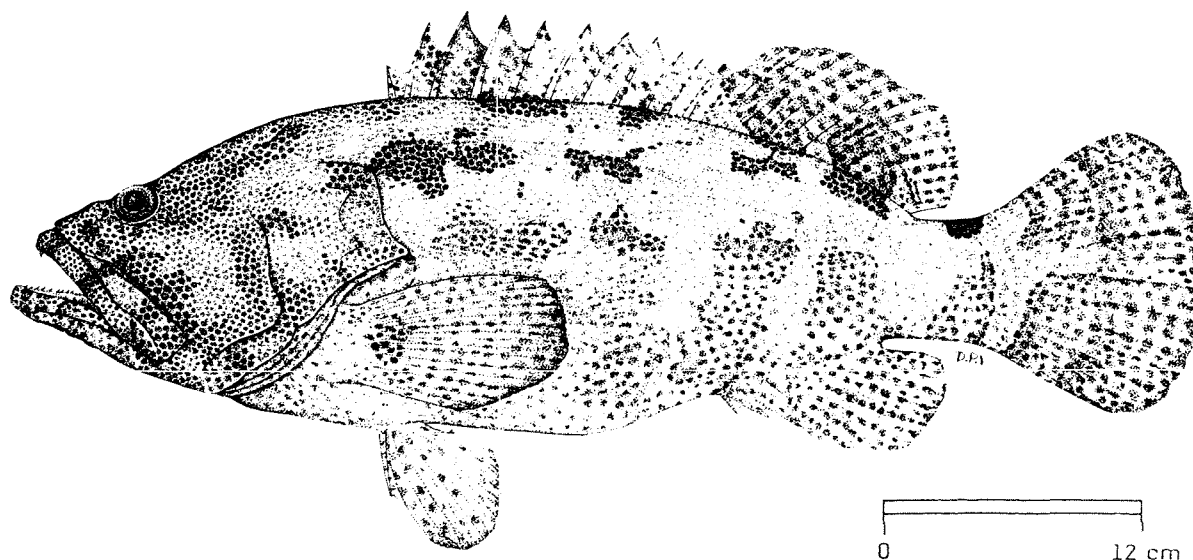
Caught with hook and line, in traps and gillnets.

Marketed fresh and dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus fuscoguttatus (Forsskål, 1775)OTHER SCIENTIFIC NAMES STILL IN USE: Epinephelus horridus (Valenciennes, 1828)

VERNACULAR NAMES:

FAO: En - Brown-marbled grouper
Fr - Mérou marbré
Sp - Mero manchado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.6 to 2.9 times in standard length. Dorsal head profile with an indentation above hind edge of eye; interorbital area flat; preopercle finely serrate, the serrae not enlarged at the angle; front nostril tiny, rear one oval or triangular with its greatest diameter (in fishes larger than 30 cm standard length) more than 4 times that of front nostril; lower gillrakers 18 to 21. Dorsal fin with 11 spines and 14 or 15 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fin rays 18 to 20; caudal fin rounded. Pored lateral line scales 49 to 58; lateral scale series 102 to 116; scales on body cycloid on fishes larger than 10 cm standard length, mostly covered by skin on large adults.

Colour: generally brownish with many small dark spots on body and fins and large irregular dark blotches on head and body overlying the smaller dark spots; a brownish-black saddle-blotch on top of caudal peduncle; jaws and chin with transverse pale bands.

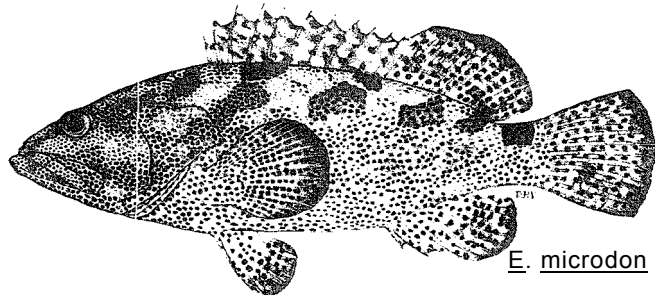
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus microdon: pectoral rays 16 or 17 18 to 20 in E. fuscoguttatus); lower gillrakers 15 to 18 (18 to 21 in E. fuscoguttatus); dorsal head profile evenly convex (no indentation above rear edge of eye).

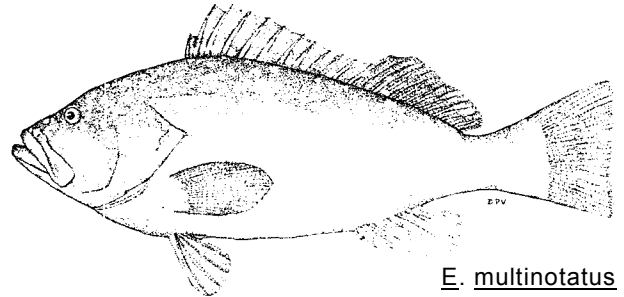
E. multinotatus: dorsal fin membranes only slightly indented between the spines; caudal fin truncate; pored lateral line scales 67 to 77 (49 to 58 in E. fuscoguttatus); body with white blotches.

E. tauvina: body depth 3.1 to 3.5 times in standard length (2.6 to 2.9 times in E. fuscoguttatus); pored lateral line scales 67 to 74'

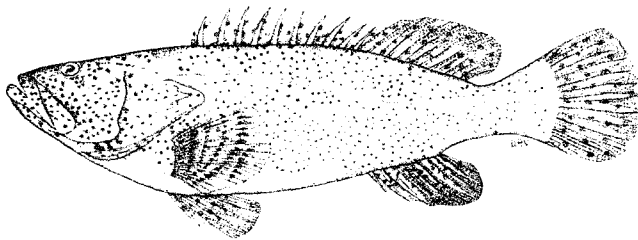
E. malabaricus: body depth 3.0 to 3.5 times in standard length; lower gillrakers 13 to 16; dorsal profile of head smoothly convex (no indentation above rear edge of eye).



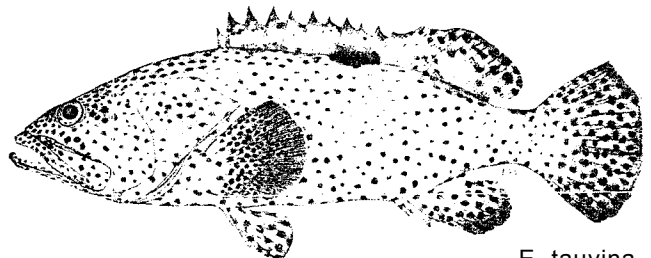
E. microdon



E. multinotatus



E. malabaricus



E. tauvina

SIZE:

Maximum: 90 cm; 11 kg.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Red Sea and tropical Western Indian ocean (southward to Mozambique) but not recorded from the "Gulf". Also present in the Eastern Indian Ocean and the Western Central Pacific. Not known from Hawaii or French Polynesia, but does occur from southern Japan to Queensland (Australia).

PRESENT FISHING GROUNDS:

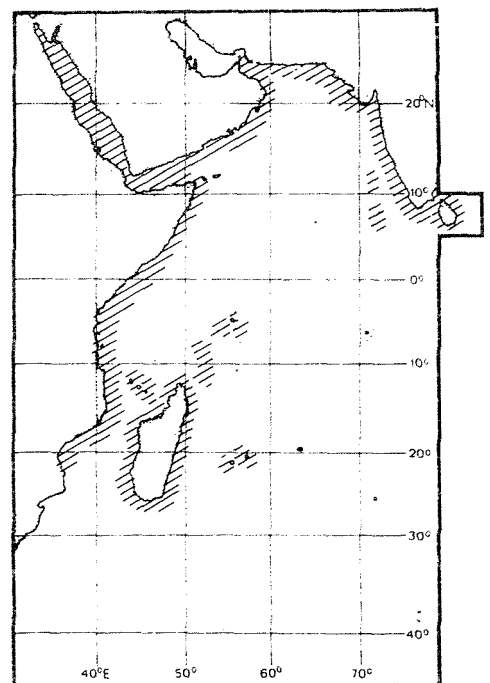
Coral reefs from the shore to at least 30 m depth.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line, in traps and gillnets.

Marketed fresh.

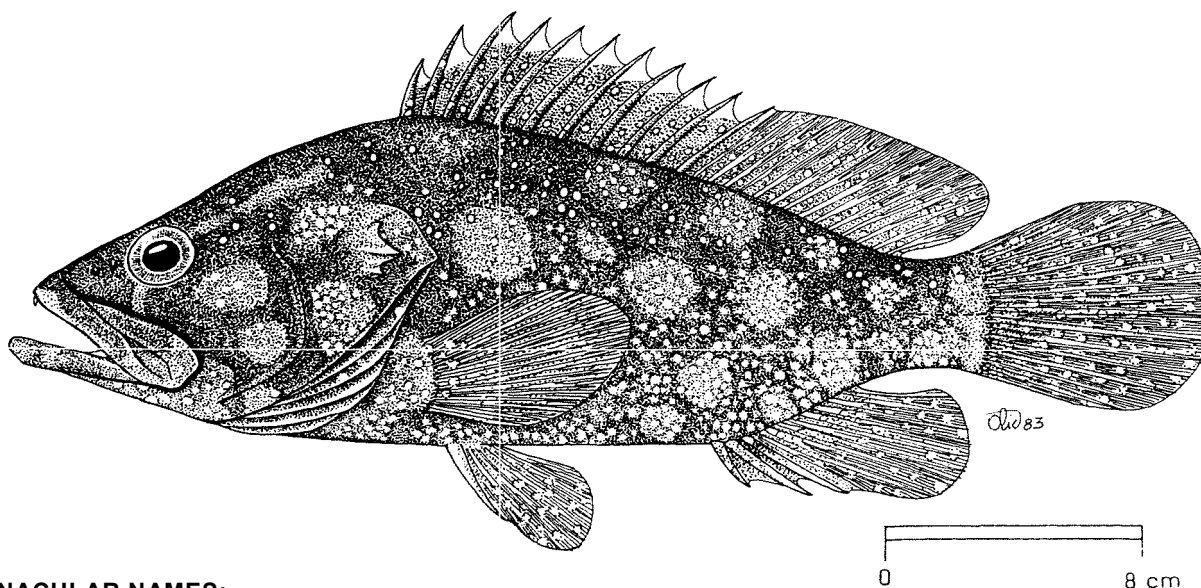


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus summana* (Forsskål, 1775)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Summan grouper
Fr - M rou summan
Sp - Mero suman

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.7 to 3.1 times in standard length. Opercular flap obtuse, the upper edge very convex; sides of lower jaw with 2 to 4 rows of subequal teeth; lower gillrakers 8 plus several rudiments. Dorsal fin with 11 spines and 14 to 16 soft rays; anal fin with 3 spines and 8 or 9 soft rays; pectoral rays 15 to 18; pectoral fin length 1.65 to 2.1 times in head length, 23 to 26% of standard length; caudal fin rounded. Pored lateral line scales 49 to 54; lateral scale series 95 to 109; body scales ctenoid, with auxiliary scales.

Colour: generally dark brown or brownish-grey with pale brown blotches and numerous small white spots; a prominent black streak along maxillary groove; fins dark brown with small white spots (may only be basally on pectorals). Juveniles dark brownish grey covered with large, dark-edged white spots; pectorals black with small white spots forming irregular transverse bands.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus ongus: pectoral fin length contained 1.4 to 1.7 times in head length; 28 to 30% of standard length (1.65 to 2.1 times in head length and 2.3 to 2.6% of standard length in E. summana); white spots on body of adults tending to form irregular longitudinal streaks.

E. caeruleopunctatus: opercular flap acute, the upper edge straight or slightly convex; pectoral rays 17 to 19 (15 to 18 in E. summana); pelvic fins uniformly dark.

SIZE:

Maximum: 53 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known only from the Red Sea.

Generally found on reefs in lagoons or other protected waters in depths of 1 to 20 m.

PRESENT FISHING GROUNDS:

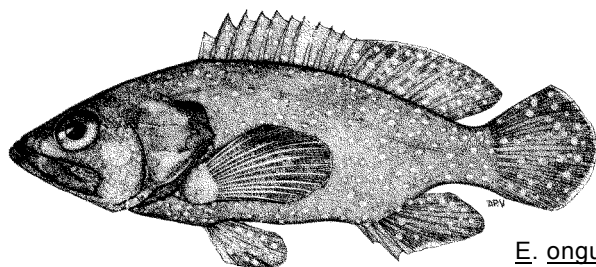
Shallow coral-reef lagoons and bays.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

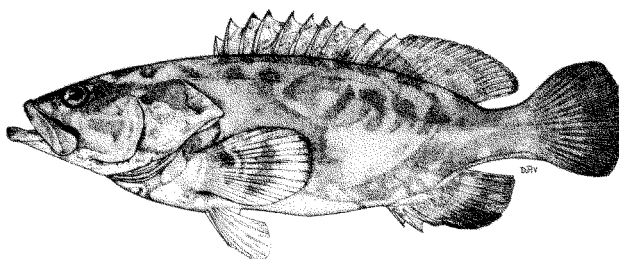
Separate statistics are not reported for this species.

Caught with hook and line, in traps and gillnets.

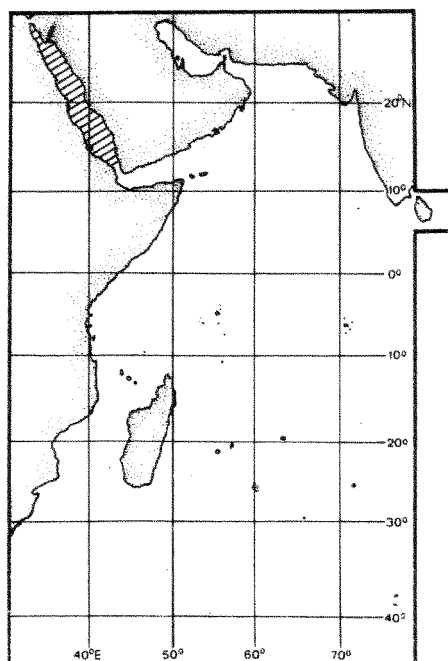
Sold fresh in local markets.



E. ongus

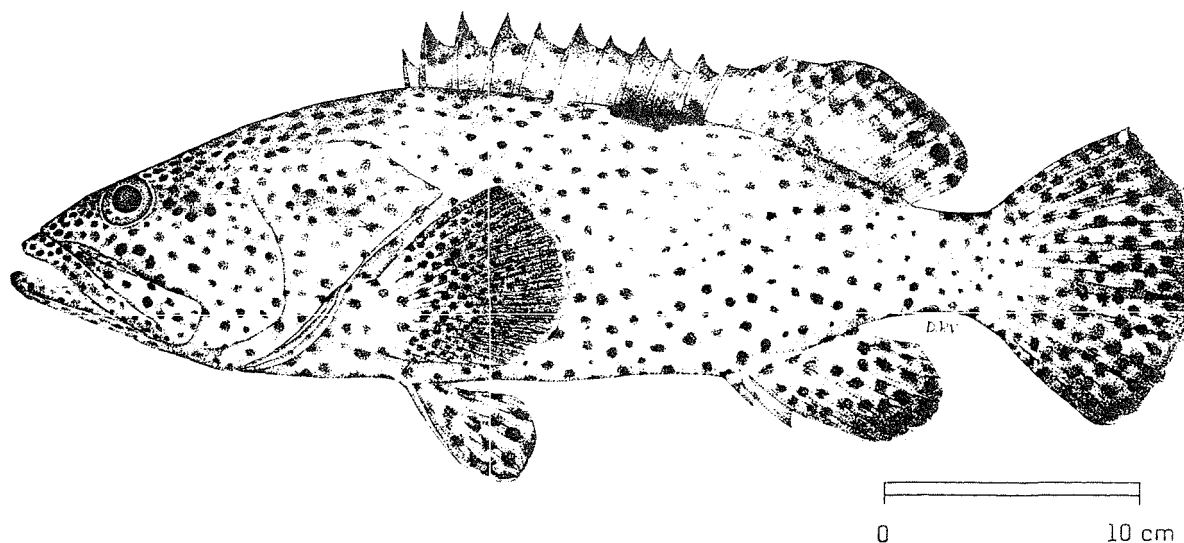


E. caeruleopunctatus



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus tauvina* (Forsskål, 1775)OTHER SCIENTIFIC NAMES STILL IN USE: *Epinephelus elongatus* Schultz, 1953
Epinephelus chewa Morgans, 1965

VERNACULAR NAMES:

FAO : En - Greasy grouper
 Fr - Mérou loutre
 Sp - mero lutra

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 3.1 to 3.5 times in standard length; width of body 1.6 to 2.2 times in its depth. Preopercle finely serrate, the angle covered by skin; maxilla reaches well past eye; 3 or 4 rows of teeth on midlateral part of lower jaw; lower gillrakers 17 to 20. Dorsal fin with 11 spines and 14 to 16 soft rays; anal fin with 3 spines and 8 soft rays; pectoral rays 18 to 20; caudal fin rounded. Pored lateral line scales 67 to 74; lateral scale series 98 to 113; body scales cycloid, except for a small patch at end of pectoral fin; pyloric caeca 16 to 18.

Colour: head and body greyish, covered with small, dull orange-red to dark brown spots, the spots not sharply outlined (centres darker than the edges), smaller and more numerous on larger fish, not forming a pale network; 5 faint, slightly oblique dusky bars or rows of blotches may be visible on body; a large blackish blotch often present on body at base of last 4 dorsal spines and extending onto lower part of fin, this blotch or group of dark spots darker than surrounding spots and more evident in small fish; 4 other dark dorsal blotches may be visible (one at base of 4th and 5th dorsal spines, 2 at base of soft dorsal fin rays, and one dorsally on caudal peduncle); fins with dark spots as on body, except on pectorals where: they become smaller distally and obscured by dark pigment.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCURRING IN THE AREA:

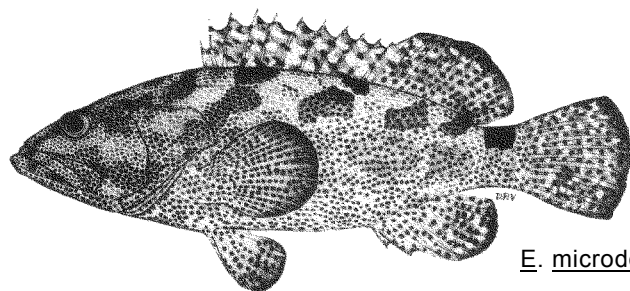
E. malabaricus: midlateral part of lower few with 2 rows of teeth (3 or 4, rows in E. tauvina); pored lateral line scales 56 to 67 (67 to 74 in E. tauvina); body scales ctenoid, except for those on bellv.

E. microdon: body depth contained 2.7 to 3.2 times in standard length (3.1 to 3.5 times in E. tauvina); pectoral fin rays 16 or 17 (18 to 20 in E. tauvina); pored lateral line scales 49 to 53.

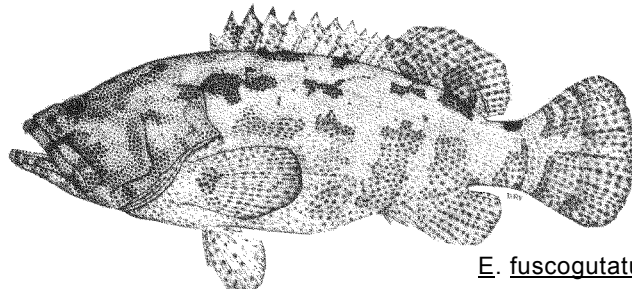
E. fuscoguttatus: dorsal head profile with indentation above eye; pored lateral line scales 49 to 58.

E. spilotoceps: dark spots on head and body closely set, forming a pale network; maxilla not reaching much (if at all) past eye; lower gillrakers 15 to 17 (17 to 20 in E. tauvina); pored lateral line scales 60 to 67; body scales ctenoid.

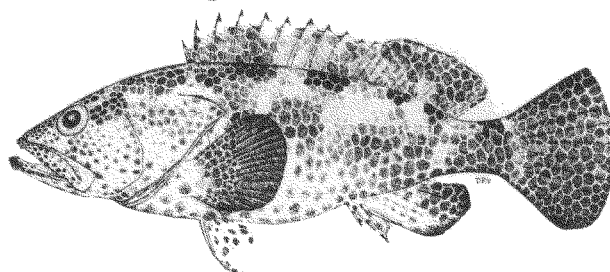
E. melanostigma: dark spots on head, body fins closely set, forming a pale network; pored lateral line scales 58 to 61.



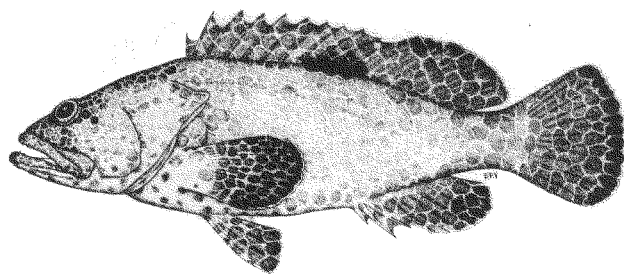
E. microdon



E. fuscoguttatus



E. spilotoceps



E. melanostigma

SIZE :

Maximum: 65 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread in the area north of Transkei (32° S), including the Red Sea and the "Gulf". Also throughout the tropical Eastern Indian Ocean and the Western Central Pacific to the Pitcairn Islands in the east.

Primarily a coral-reef species found in depths of 1 to at least 50 m.

PRESENT FISHING GROUNDS:

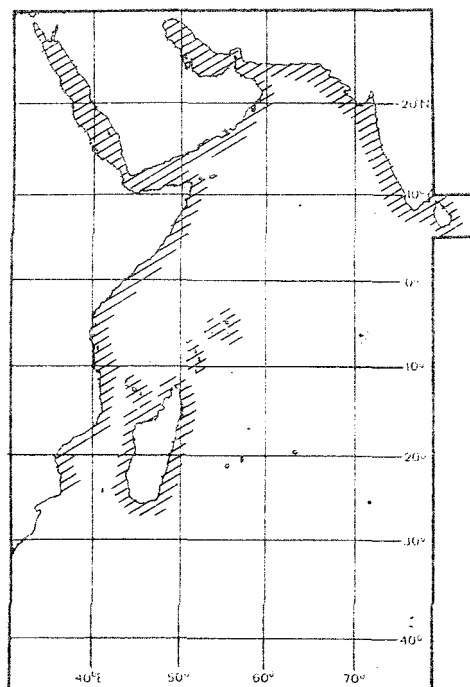
Coral-reef areas; common at certain places.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Separate statistics are not reported for this species.

Caught with hook and line, in traps and gillnets.

Sold fresh in local markets.

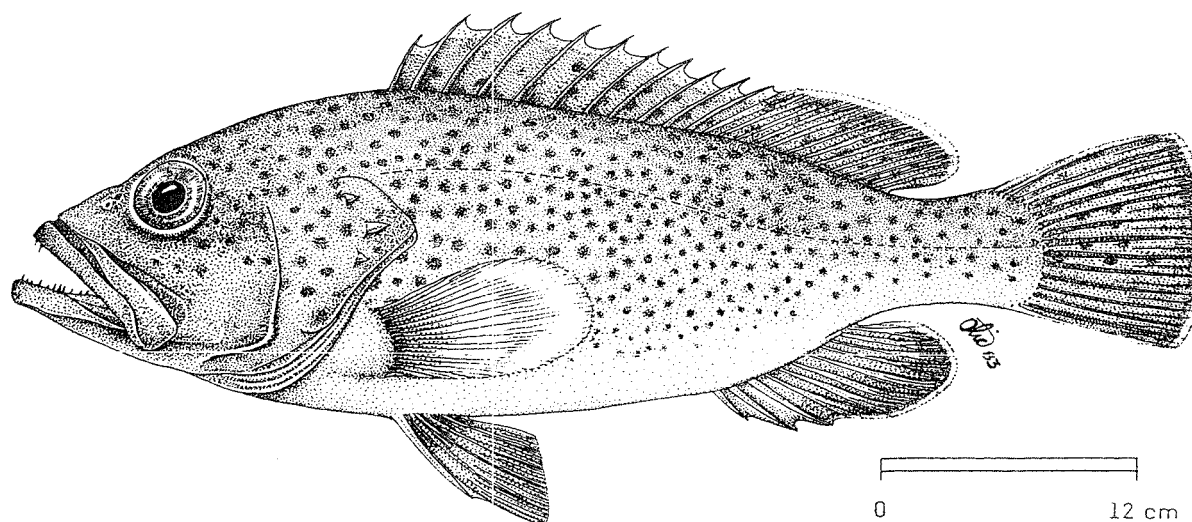


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus albomarginatus Boulenger, 1903

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES:

FAO: En - White-edged grouper
Fr - M rou bord blanc
Sp - Mero bordibianco

NATIONAL :

DISTINCTIVE CHARACTERS :

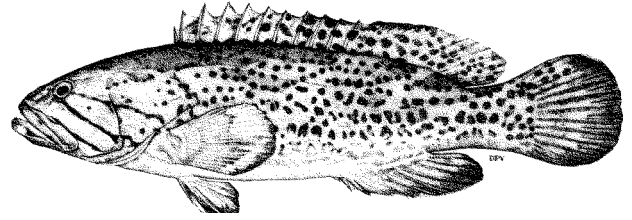
Body depth 2.7 to 2.9 times in standard length. Preopercle angular, serrate, with 2 or 3 enlarged serrae at the angle; maxilla naked; lower gillrakers 14 to 16. Dorsal fin with 11 spines and 14 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fin rays 17 or 18; caudal fin rounded to truncate, with rounded corners. Body scales ctenoid, with auxiliary scales; lateral line scales 58 to 64; lateral scale series 102 to 116.

Colour: head and body grey; dorsal 2/3 of head and body with numerous evenly-spaced dark brown spots. Pectoral fins yellow. Anal, soft dorsal and caudal fins with prominent white edge. Black "moustache" streak along cheek at upper edge of maxilla. Distal third of spinous dorsal fin yellow.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCURRING IN THE AREA:

Epinephelus andersoni: body depth 3.2 to 3.7 times in standard length (2.7 to 2.9 times in E. albomarginatus); 2 dark streaks running backward from lower half of eye; no white edge on median fins.

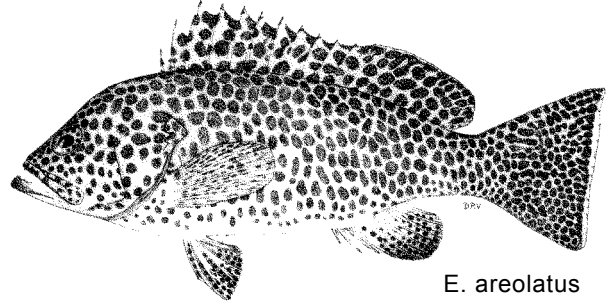
E. areolatus: body depth 3.0 to 3.3 times in standard length. caudal fin corners acute; dorsal fin soft rays 15 to 17 (14 in E. albomarginatus); lateral line scales 50 to 56 (58 to 64 in E. albomarginatus); no white edge on soft dorsal and anal fins.



E. andersoni

SIZE :

Maximum: 90 cm.



E. areolatus

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known only from southern Mozambique to East London (South Africa), in 10 to 70 m of water.

PRESENT FISHING GROUNDS:

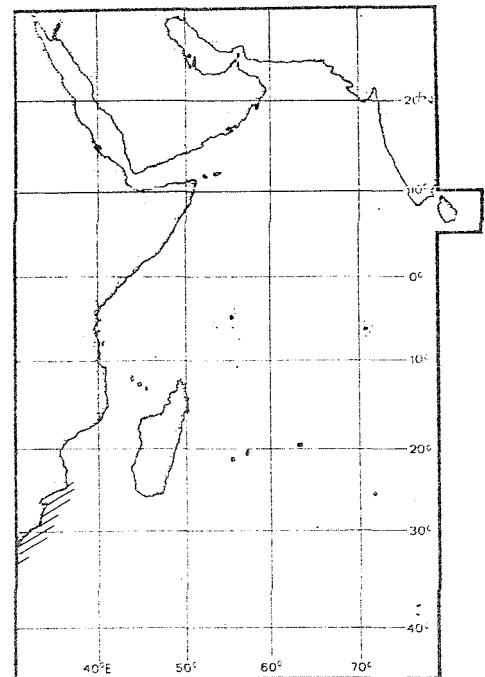
Rocky bottoms and coral reefs.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line and in traps.

Marketed fresh.

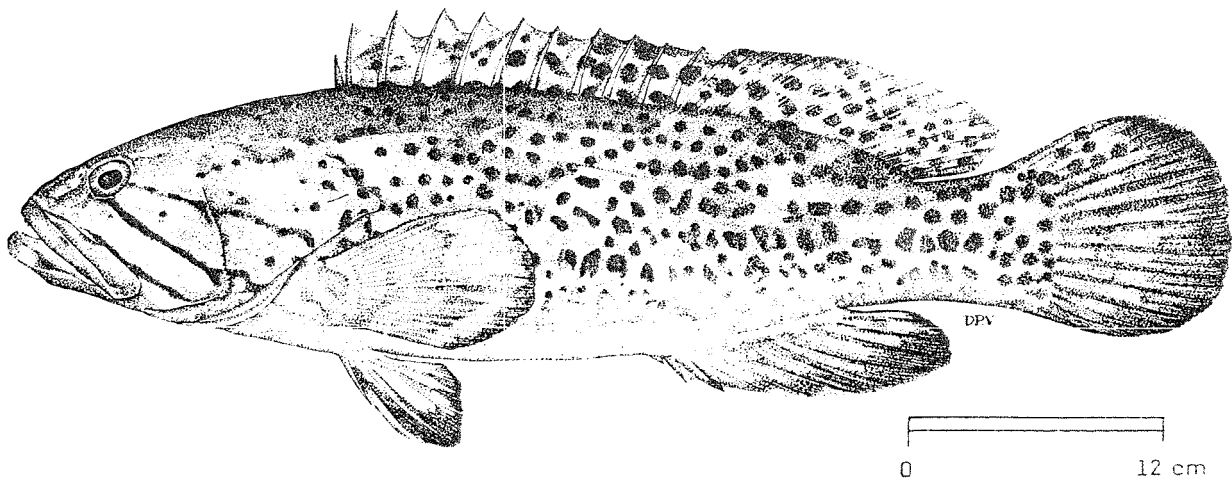


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus andersoni* Boulenger, 1903

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES:

FAO : En - Catface grouper
 Fr - Miérou chat
 Sp - Mero gato

NATIONAL:

DISTINCTIVE CHARACTERS:

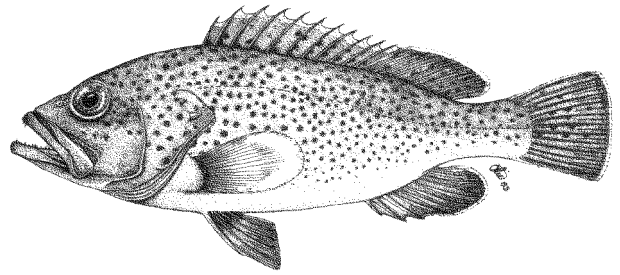
Body depth 3.2 to 3.7 times in standard length; body width more than half body depth. Preopercle angular, serrate, with 3 or 4 enlarged serrae at the angle; lower gillrakers 14 to 16. Dorsal fin with 11 spines and 14 or 15 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fin rays 17 to 19; caudal fins rounded. Body scales ctenoid; lateral line scales 68 to 72; lateral scale series 100 to 105.

Colour: head, body and fins greyish-brow; body, caudal and dorsal fins with numerous blackish spots. Two dark streaks running backward from lower half of eye, and a third dark streak running backwards from maxillary groove. A few dark spots on opercle. No distinct spots on anal or paired fins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus albomarginatus: body depth 2.7 to 2.9 times in standard length (3.2 to 3.7 times in E. andersoni); lateral line scales 58 to 64 (68 to 72 in E. andersoni); median fins with prominent white edge; no dark streaks behind eye.

E. areolatus: caudal fin truncate to slightly concave; lateral line scales 50 to 56; no dark streaks behind eye.



E. albomarginatus

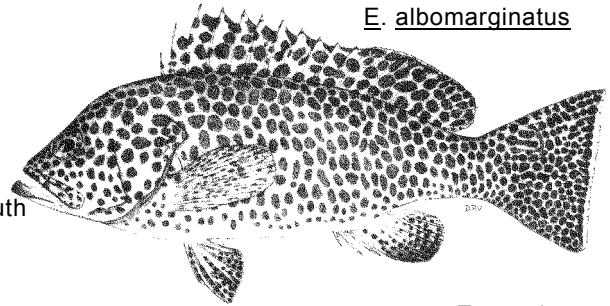
SIZE:

Maximum: 80 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known only from southern Mozambique to Knysna (South Africa).

Occurs from the shoreline to at least 50 m depth.



E. areolatus

PRESENT FISHING GROUNDS:

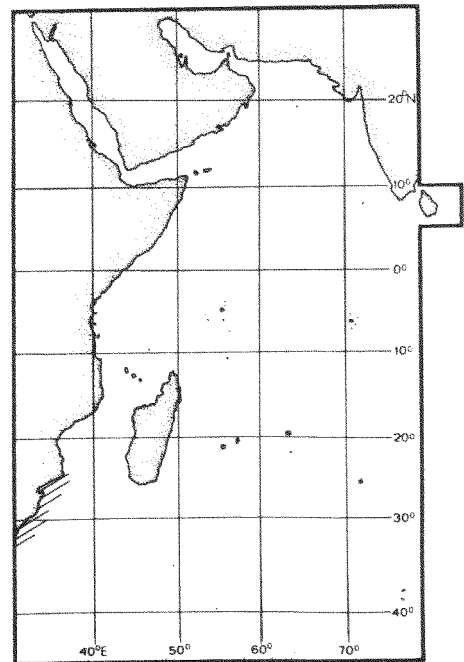
Rocky bottoms and coral reefs.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line and in traps.

Marketed fresh.

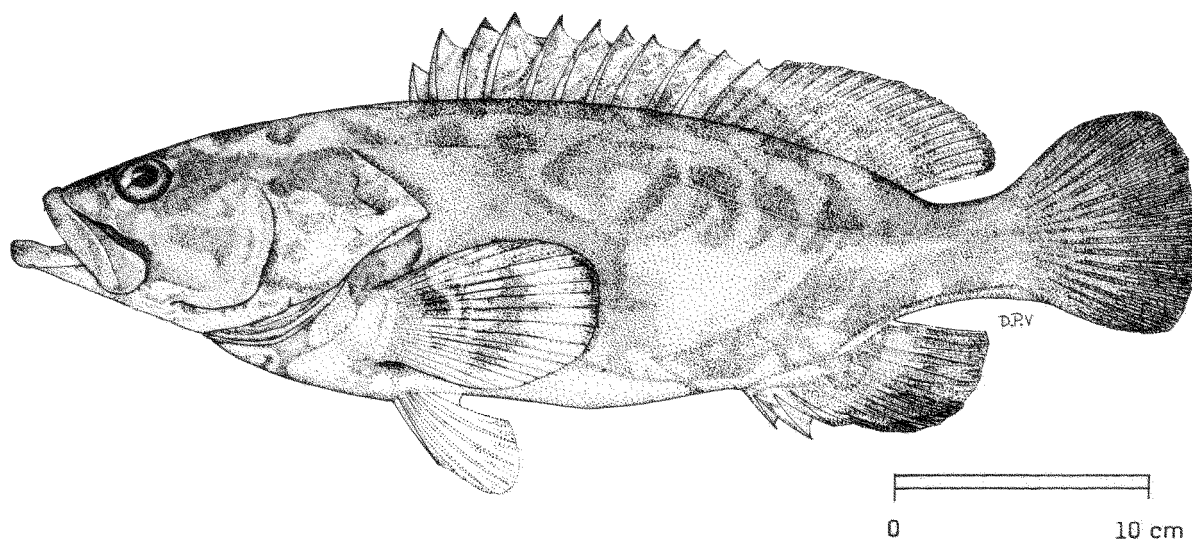


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus caeruleopunctatus* (Bloch, 1790)

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES:

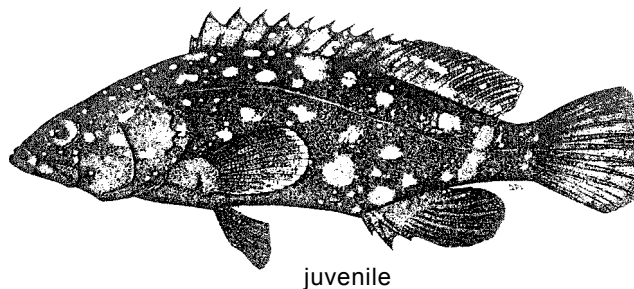
FAO : En - White-spotted grouper
 Fr - Vielle taches blanches
 Sp - Mero nevero

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth distinctly less than head length, 3.0 to 3.4 times in standard length. Interorbital area flat; opercular flap acute, the upper edge nearly straight; uppermost opercular spine more anterior than lowest spine. Dorsal fin with 11 spines and 15 or 16 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fin rays 17 to 19; caudal fin rounded. Lateral line scales 52 to 62.

Colour: head, body and fins dark brown or black; head and body with many small and medium-sized, white or pale yellow spots; dorsal, anal and pectoral fins spotted like body, also proximal part of caudal fin. Pelvics uniformly dark. A dark "moustache" streak along maxillary groove. In adults (larger than 30 cm standard length) the white spots have merged on the body to form wavy pale lines and mottlings.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus summana: opercular flap obtuse, the upper edge strongly convex; body depth 2.75 to 3.1 times in standard length (3 to 3.4 times in E. caeruleopunctatus); pelvic fins with white spots as on body; body also with large pale blotches.

E. onus: opercular flap obtuse, the upper edge strongly convex; pectoral rays 15 to 17 (17 to 19 in E. caeruleopunctatus); uppermost opercular spine more posterior than lowest one; body with overlying pattern of large pale blotches.

SIZE:

Maximum: 55 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread in the Western Indian Ocean, but not recorded from the Red Sea or the "Gulf". Also found in the Eastern Indian Ocean and the Western Central Pacific, eastward to Japan and Australia.

PRESENT FISHING GROUNDS:

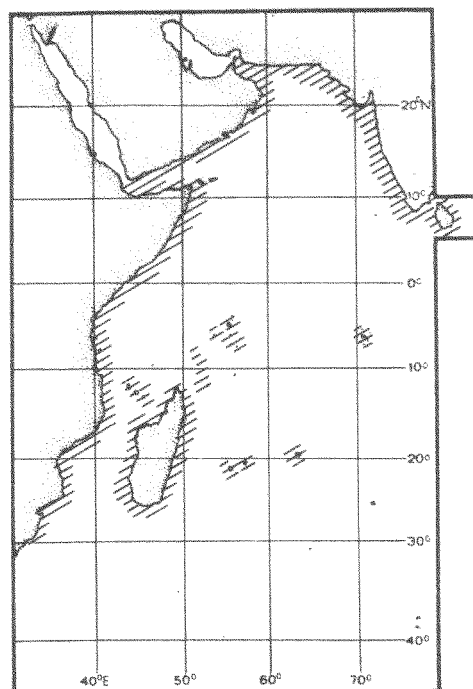
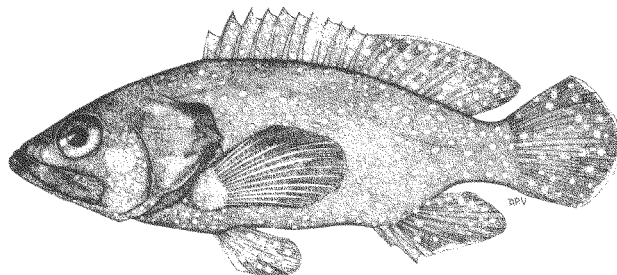
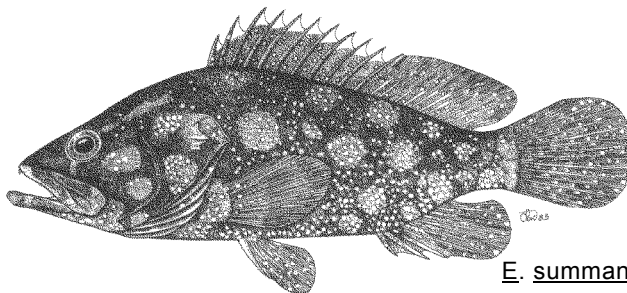
Coral reefs from 20 to 65 m depths.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line, in traps and gillnets.

Marketed fresh and dried salted.

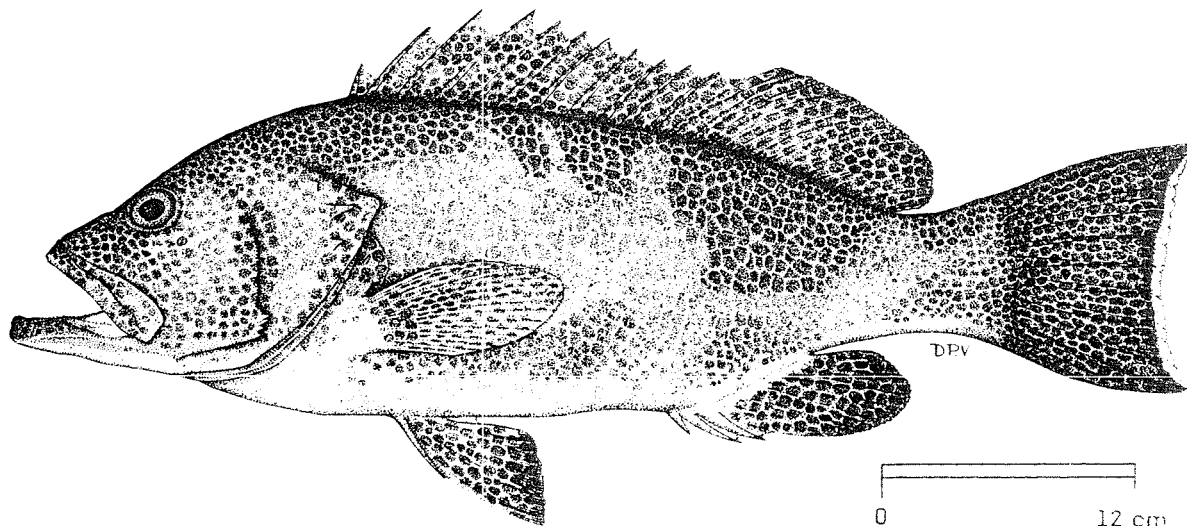


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus chlorostigma* (Valenciennes, 1828)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Brownspotted grouper
 Fr - Mérou pintade
 Sp - Mero pintado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.6 to 3.3 times in standard length. Eye diameter 5.0 to 7.3 times in head length; preopercle serrate, with enlarged serrae at the angle; lower gillrakers 14 to 18. Dorsal fin with 11 spines and 16 to 18 soft rays; dorsal fin membrane not much incised between the spines; anal fin with 3 spines and 8 soft rays; pectoral fin rays 17 to 19; anal fin of adults angular (especially in Red Sea specimens); caudal fin truncate or rear margin slightly concave. Pored lateral line scales 49 to 53; lateral scale series 99 to 119. Pyloric caeca 26 to 30.

Colour: head, body and fins covered with small, closely-set, brown spots, the largest about half greatest pupil diameter; a narrow white edge usually visible along rear margin of caudal fin; spots on pectoral fins confined to the rays; ventral margin of anal fin dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus areolatus: dark spots larger, the largest on body about size of pupil; eye 4.1 to 5.5 times in head (5 to 7.3 times in E. chlorostigma); pyloric caeca 11 to 17 (26 to 30 in E. chlorostigma); posterior membranes of spinous dorsal fin distinctly incised.

E. microdon: dorsal fin rays 14 or 15 (16 to 18 in E. chlorostigma); caudal fin rounded.

E. multinotatus: rear edge of caudal fin slightly convex; dorsal fin membrane not incised between the spines; irregular white blotches usually present on body; small dark spots not discernible on fins or dorsal half of body.

Other Epinephelus species: caudal fin rounded or colour pattern not like E. chlorostigma.

SIZE:

Maximum: 75 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread in the Western Indian Ocean including the Red Sea and the "Gulf". Also found in the Eastern Indian Ocean and the Western Central Pacific, eastward to Japan, New Caledonia and the Caroline Islands.

Occurs over a wide range of depths and habitats (4 to 280 m); generally associated with coral reefs.

PRESENT FISHING GROUNDS:

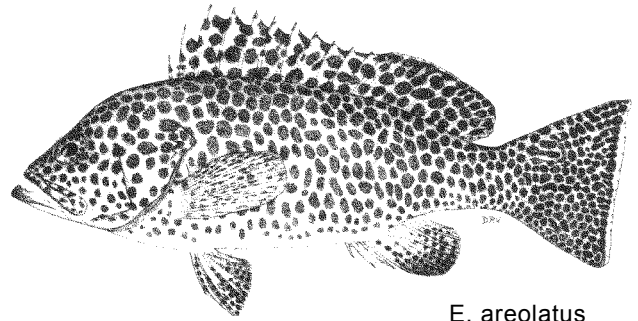
Rocky bottoms in 4 to 280 m depths.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

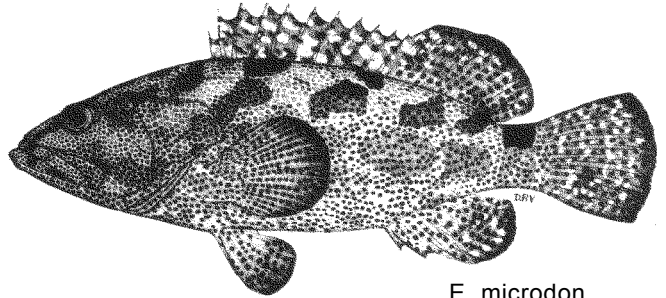
Separate statistics are not reported for this species, often confused with other species of Epinephelus.

Caught with hook and line, in traps and gillnets.

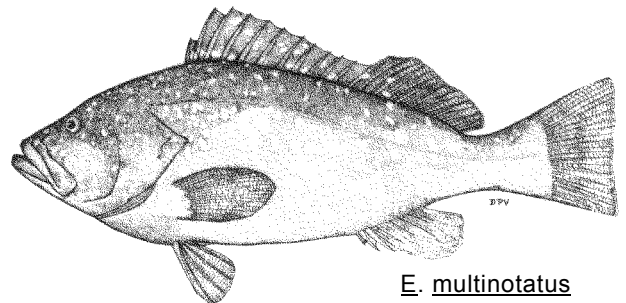
Sold fresh in local markets; also dried salted.



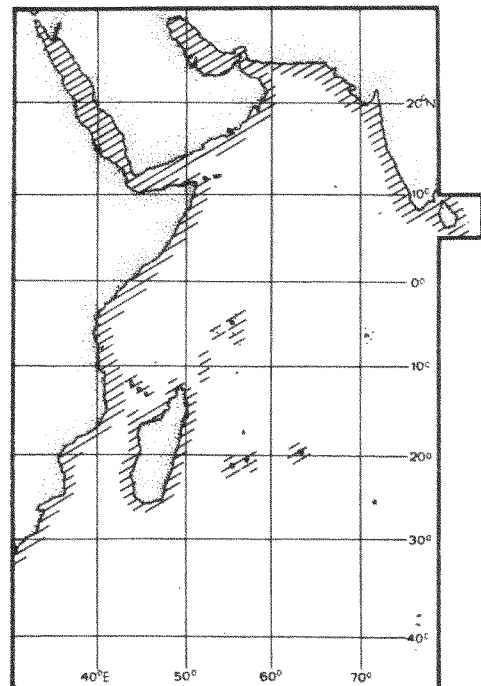
E. areolatus



E. microdon



E. multinotatus

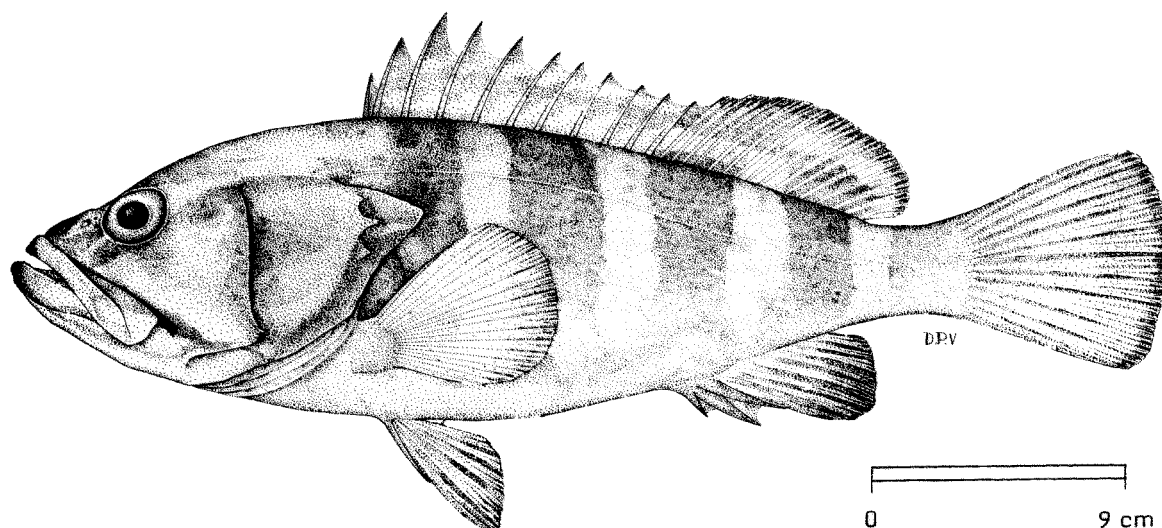


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus diacanthus* (Valenciennes, 1828)

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES:

FAO : En - Thornycheek grouper
 Fr - Mérou épineux
 Sp - Mero espinudo

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.8 to 3.2 times in standard length. Preopercle border forming nearly a right angle, with 1 to 3 enlarged serrae at the angle; sides of lower jaw with 2 rows of small subequal teeth; anterior nostrils tubular, with a large flap posteriorly extending over rear nostril; lower gillrakers 14 to 16. Dorsal fin with 11 spines and 15 to 17 soft rays; anal fin with 3 spines and 8 or 9 soft rays; pectoral fin rays 18 to 20; caudal fin rounded to almost truncate. Pored lateral line scales 53 to 60; lateral line scales series 105 to 120.

Colour: body generally buff, with 5 more or less distinct, vertical dark bars; 4 bars below dorsal fin and 5th on caudal peduncle. Ventral part of head and body reddish. Some specimens with a black streak across cheek at upper edge of maxilla. Dark bars on body sometimes absent.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus stoliczkae: head and body with dark orange-red spots; base of pectoral fin white, with a black crescentic band; maxilla reaching past eye; pored lateral line scales 48 to 51 (53 to 60 in E. diacanthus).

E. epistictus: no dark bars on body; no large flap on anterior nostrils.

E. rivulatus: a small white spot on each body scale; lateral line scales 47 to 53.

Other Epinephelus species: colour pattern not as above.

SIZE

Maximum: 52 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Gulf of Oman, and coasts of Pakistan, India and Sri Lanka. Occurs in depths of 2 to 50 m.

PRESENT FISHING GROUNDS:

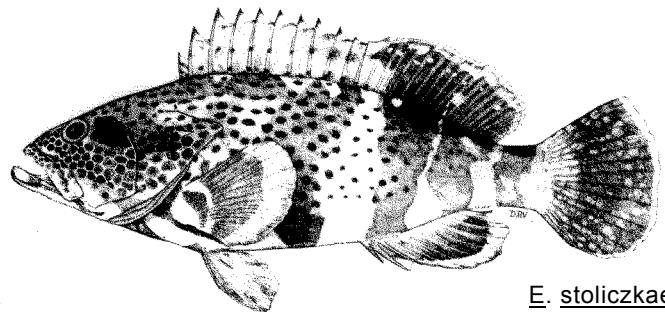
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

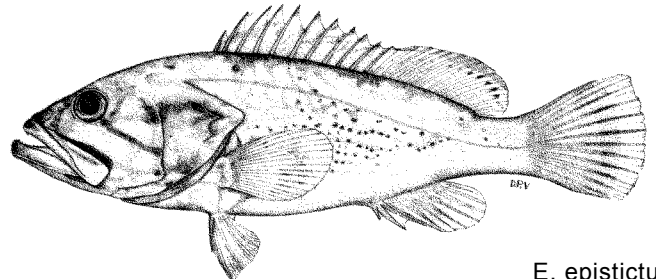
Separate statistics are not reported for this species.

Caught with hook and line, in traps, gillnets, liftnets and trawls.

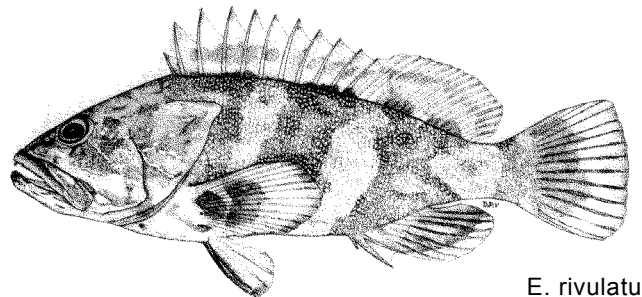
Marketed fresh and dried salted.



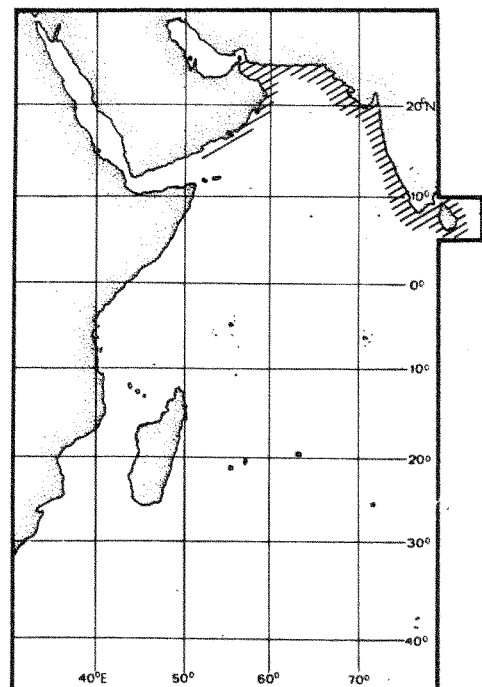
E. stoliczkae



E. epistictus

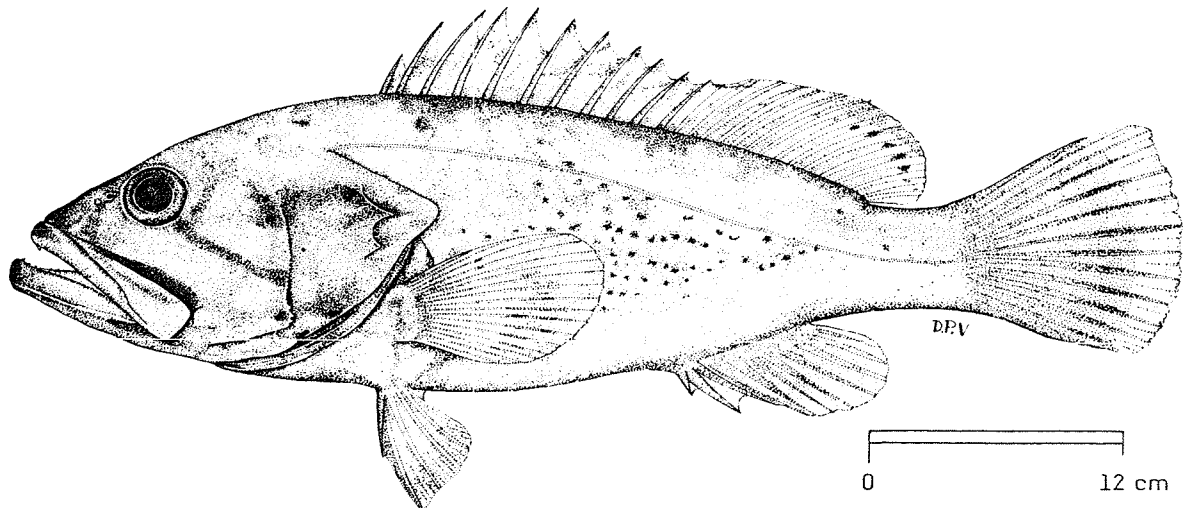


E. rivulatus



FAO SPECIES IDENTIFICATION SHEETS

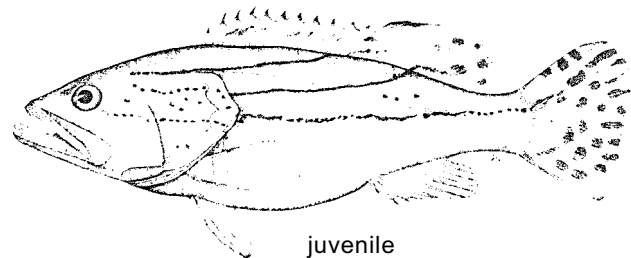
FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus epistictus (Temminck & Schlegel, 1842)OTHER SCIENTIFIC NAMES STILL IN USE : Epinephelus praeopercularis Boulenger, 1887

VERNACULAR NAMES:

FAO : En - Broken-line grouper
 Fr - Mérou pâle
 Sp - Mero palido

NATIONAL:



DISTINCTIVE CHARACTERS:

Body depth contained 2.9 to 3.5 times in standard length. Eye diameter 4.5 to 5.8 times in head length; preopercle serrate, with 4 or 5 enlarged serrae at the angle; maxilla reaches to or almost to vertical at rear edge of orbit; lower gillrakers 14 to 17. Dorsal fin with 11 spines and 14 or 15 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fin rays 17 to 19; dorsal fin membrane distinctly indented between the spines; caudal fin truncate in adults, rounded in juveniles. Lateral scale series 108 to 116; pored lateral line scales 57 to 72.

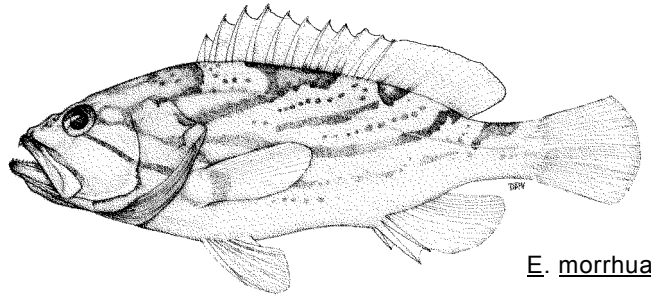
Colour: head and body tan or pale grey; juveniles with 3 slightly curving dark brown lines running backward from eye across opercle and continued on body as series of small dark spots. Adults with numerous small dark spots on body dorsally and laterally; dark lines on head indistinct. Pectoral fins pale yellow; margin of spinous dorsal fin gold.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

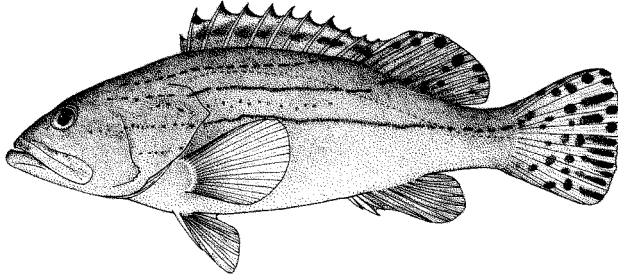
Epinephelus morrhua: dark bands extending backward from eye persisting on body of adults.

E. albomarginatus: body depth 2.7 to 2.9 times in standard length (2.9 to 3.5 times in E. epistictus); no dark lines on head.

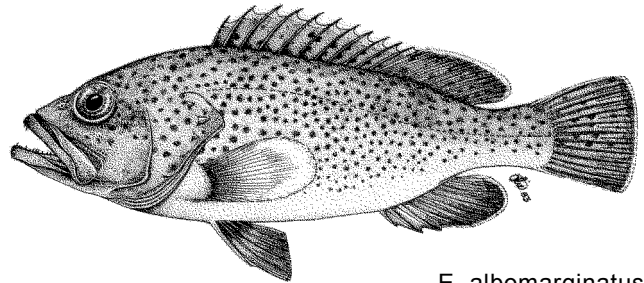
E. latifasciatus: dorsal fin soft rays 12 or 13 (14 or 15 in E. epistictus); maxilla reaches past vertical at rear edge of eye; juveniles brown, with 2 horizontal, white bands.



E. morrhua



E. latifasciatus



E. albomarginatus

SIZE:

Maximum: 80 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread along the continental shelves of the Western Indian Ocean and in the Red Sea, but absent from the "Gulf". Also found in the Eastern Indian Ocean and the Western Central Pacific, eastward to Viet Nam, China and Japan.

PRESENT FISHING GROUNDS:

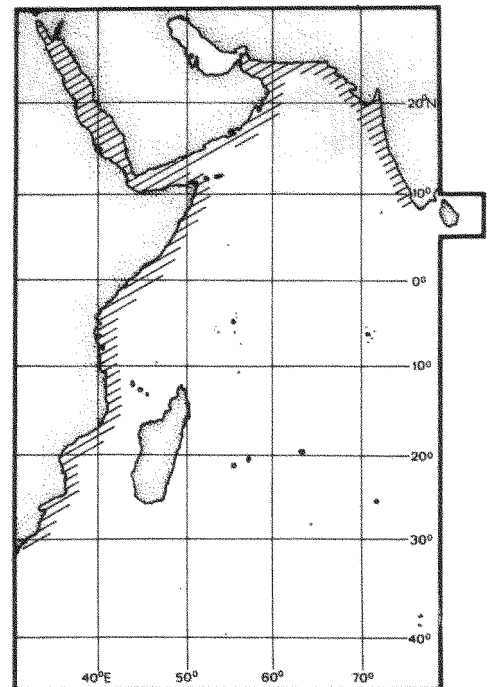
A fairly deepwater species, known from 90 to 290 m depth.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

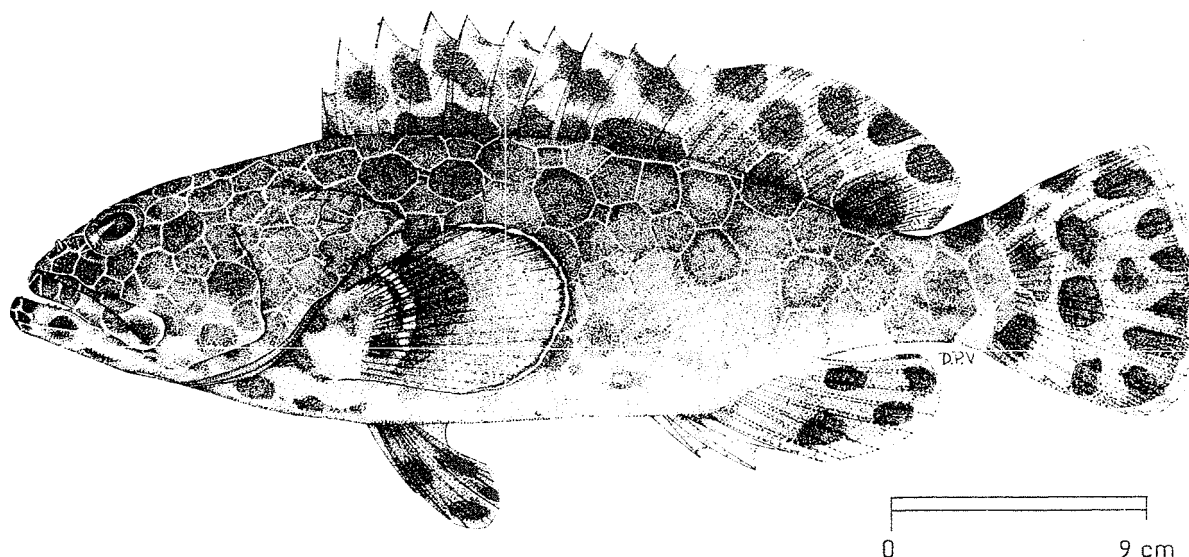
Caught with hook and line, in traps and gillnets.

Sold fresh and dried salted in local markets.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus faveatus* (Valenciennes, 1828)OTHER SCIENTIFIC NAMES STILL IN USE: *Epinephelus macrospilos* (Bleeker, 1855)

VERNACULAR NAMES:

FAO : En - Bigspot grouper
 Fr - Mérou tapis
 Sp - Mero alfombrado

NATIONAL:

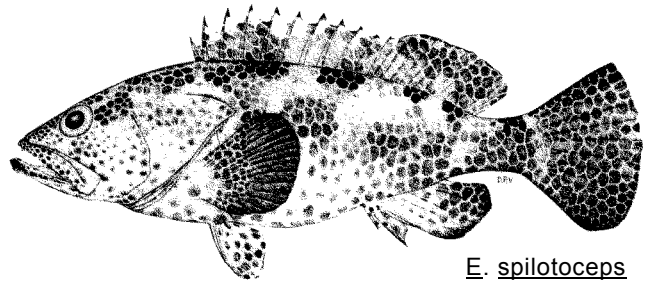
DISTINCTIVE CHARACTERS:

Body depth contained 3.1 to 3.5 times in standard length. Preopercle finely serrate, the serrae at the angle covered by skin; maxilla reaches to or slightly past vertical at rear edge of eye; midlateral part of lower jaw with 2 rows of teeth; lower gillrakers 14 to 16. Dorsal fin with 11 spines and 15 to 17 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fin rays 18 or 19; pectoral fins 1.65 to 1.95 times in head length; caudal fin rounded. Pored lateral line scales 46 to 52; lateral scale series 92 to 102; body scales mostly cycloid (smooth).

Colour: head and body with closely-set brown and black spots of various sizes, the pale interspaces forming a network pattern; the largest spots equal in size to the eye; chest with irregular dark blotches; median fins pale, with large, blackish spots that are not sharply defined; pectoral fins dusky, with a conspicuous, narrow, white border; bases of pectorals ale, with 1 or 2 vaguely defined dark blotches (some specimens may have as many as 12 poorly defined dark spots in these fins); pelvic fins dusky, with a few black blotches; anal and caudal fins also with a white border. Spots on small juveniles larger than on adults; those on distal part of caudal and anal fins fused, emphasizing the prominent white border of these fins.

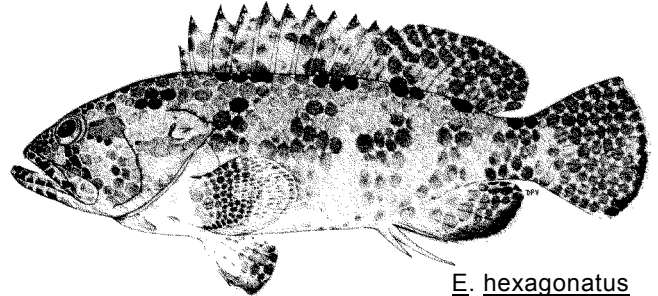
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus spilotoceps: pored lateral line scales 60 to 67 (46 to 52 in E. faveatus); body scales ctenoid; pectoral fins covered with small, dark spots; midlateral part of lower jaw with 3 or 4 rows of teeth.



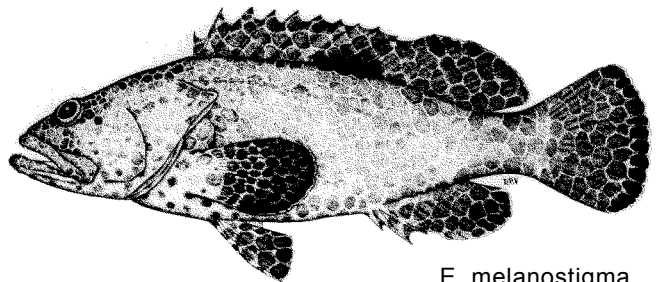
E. spilotoceps

E. hexagonatus: pored lateral line scales 61 to 66; mid lateral body scales ctenoid; lower gillrakers 17 to 19 (14 to 16 in E. faveatus); prominent silvery-white specks at the "knot" positions of the pale network pattern.



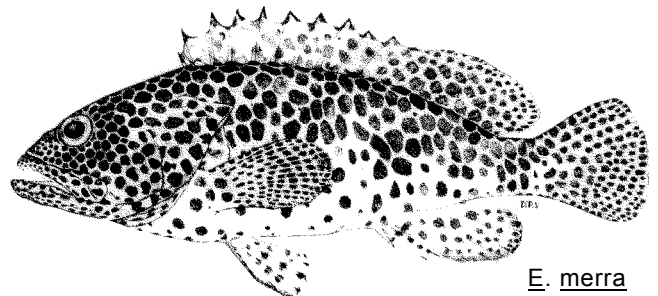
E. hexagonatus

E. melanostigma: a large black blotch on body at base of last 4 dorsal spines; pored lateral line scales 57 to 61; body scales ctenoid; midlateral part of lower jaw with 3 to 5 rows of teeth (2 rows in E. faveatus).



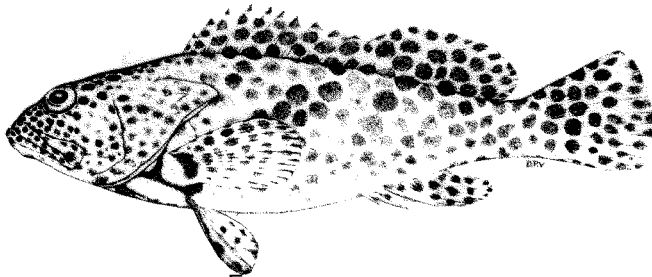
E. melanostigma

E. merra: fins with prominent, small, dark spots (much smaller than dark spots on body); body scales ctenoid.



E. merra

E. quoyanus: pectoral fin pale, with a dark brown bar across dorsal 3/4 of base and small dark spots all over fin; 2 diagonal dark bands on chest; dark spots on median fins smaller and more distinct than those on body; pectoral fins 1.2 to 1.5 times in head (1.65 to 1.8 times in E. faveatus).



E. quoyanus

SIZE:

Maximum: 51 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread in the Western Indian Ocean, but not in the Red Sea or in the "Gulf". Also present in the Eastern Indian Ocean and the Western Central Pacific eastward to the Marshall Islands.

PRESENT FISHING GROUNDS:

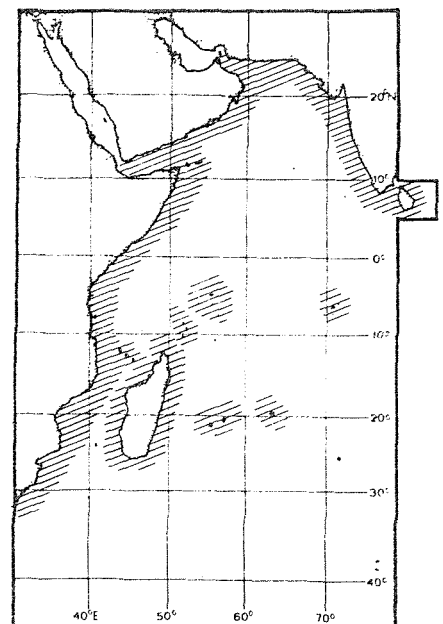
Coral reef areas in depths of 1 to 30 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line, in traps and gillnets.

Sold mostly fresh in local markets.

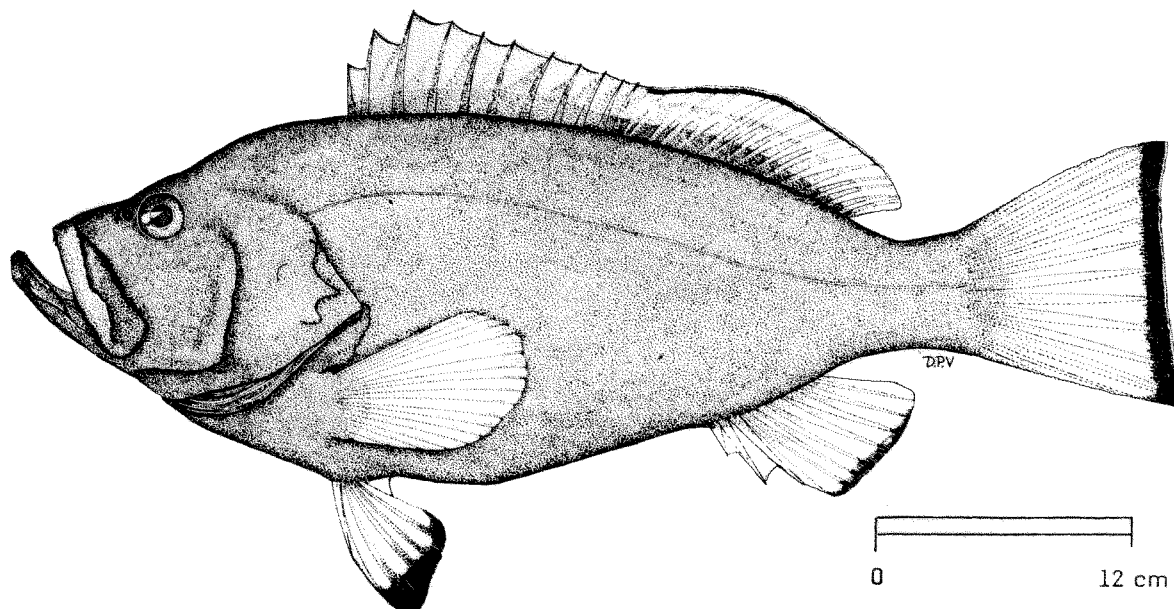


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W, Indian Ocean)*Epinephelus flavocaeruleus* (Lacepède, 1802)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Blue and yellow grouper
 Fr - Mérou faraud
 Sp -- Mero azul y amarillo

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth subequal to or greater than head length, contained 2.4 to 2.7 times in standard length. Preopercle finely serrate, the serrae at the angle not enlarged; adults (larger than 40 cm standard length) with rear nostrils much larger than anterior ones; lower gillrakers 14 to 17. Dorsal fin with 11 spines and 15 to 17 soft rays; the fin membrane slightly incised between the spines; anal fin with 3 spines and 8 soft rays; pectoral fin, rays 18 or 19; pectoral fins subequal to pelvics; caudal fin truncate. Pored lateral line scales 65 to 75; lateral scale series 130 to 150.

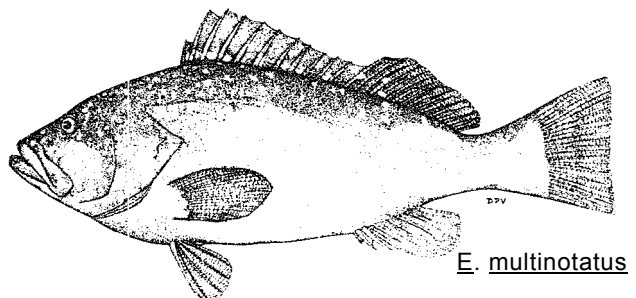
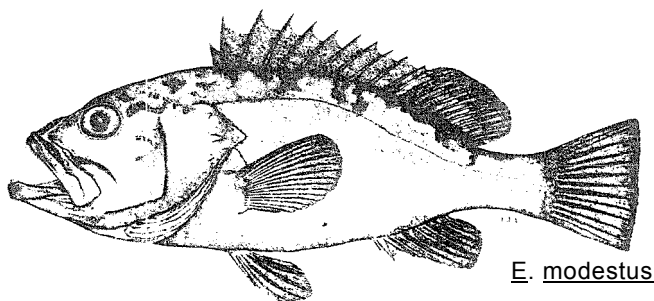
Colour: juveniles (smaller than 30 cm standard length) with head and body dark blue, violet or bluish grey; fins bright yellow; distal third of pelvics black; median fins (except spinous dorsal) narrowly margined with black; body sometimes with pale spots. Large adults (larger than 50 cm standard length) dark grey or purplish brown with yellow reduced to small areas of head and margin of spinous dorsal fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus modestus: dorsal fin rays 14; anal fin rays 9 (15 to 17 and 8, respectively, in E. flavocaeruleus); no yellow on fins.

E. multinotatus: dorsal fin membrane not incised between the spines; in life pale spots usually present on dorsal fin and dorsal part of body; no yellow on fins; rear nostrils not more than twice the size of front nostrils.

Other Epinephelus species: colour pattern different; body depth usually less (2.7 to 3.3 times in standard length, versus 2.4 to 2.7 times in E. flavocaeruleus).



SIZE :

Maximum: 90 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widely distributed in the Western Indian Ocean, but not recorded from the Red Sea or the "Gulf". Also present in the Eastern Indian Ocean and the Western Central Pacific, extending eastward to China, Japan, Australia, Marshall and Gilbert Islands. Juveniles occur on shallow reefs, adults usually in deeper water.

PRESENT FISHING GROUNDS:

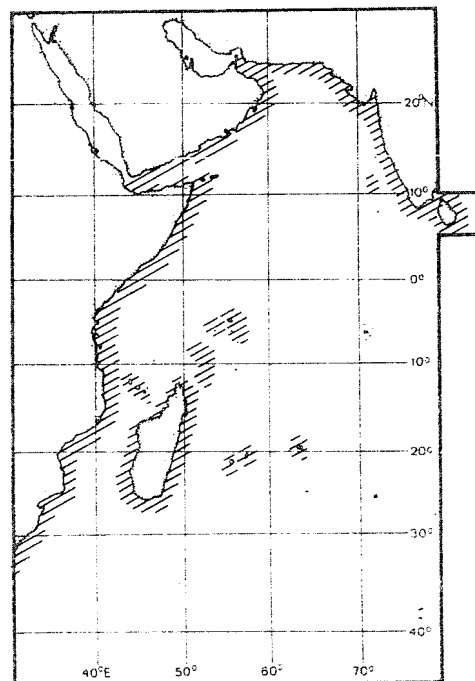
Coral reefs and rocky bottoms to 22 m depth; fairly common on North Kenya banks.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line and in traps.

Sold fresh in local markets. An important foodfish.

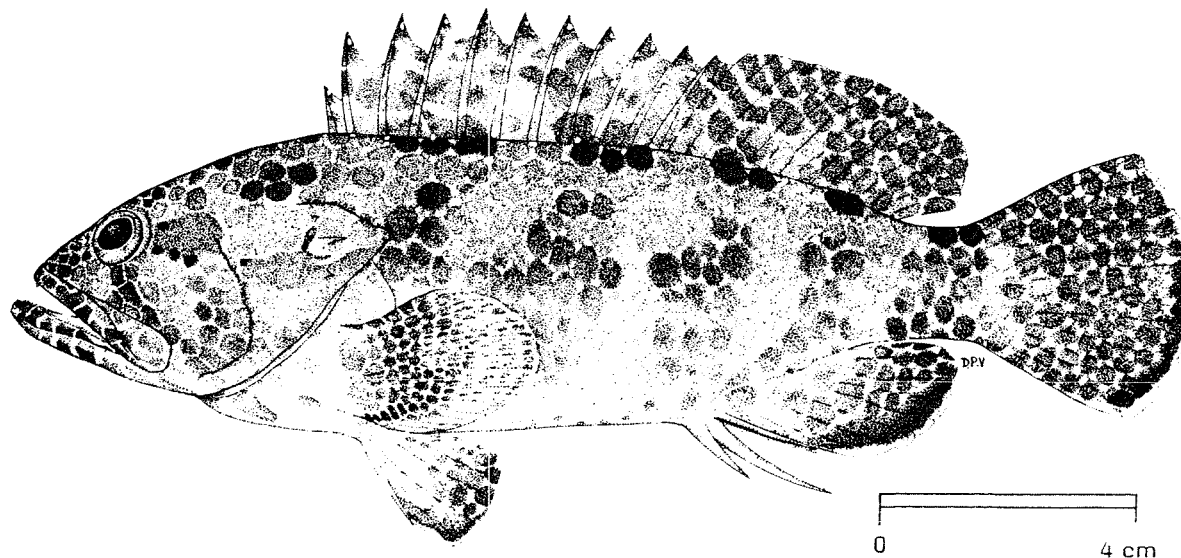


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus hexagonatus* (Schneider, 1801)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - White-specked grouper
 Fr - M rou m lif re
 Sp - Mero mielero

NATIONAL :

DISTINCTIVE CHARACTERS:

Body depth contained 3.2 to 3.5 times in standard length; caudal peduncle depth less than length of second anal spine. Preopercle serrae enlarged at the angle; maxilla reaches slightly past eye; midlateral part of lower jaw with 3 to 5 rows of teeth; lower gillrakers 17 to 19. Dorsal fin with 11 spines and 15 or 16 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fin rays 18 to 20; caudal peduncle depth less than length of second anal spine, caudal fin rounded. Pored lateral line scales 61 to 66; lateral scale series 93 to 104; midlateral body scales etenoid.

Colour: head, body and median fins with closely-set, small, dark polygonal spots forming a pale network pattern; prominent silvery-white specks at the "knot" positions of the reticulation; 4 black blotches usually present on body at base of dorsal fin extending into fin, and 1 dorsally on caudal peduncle; pectoral fins pale or dusky. With indistinct dark spots.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

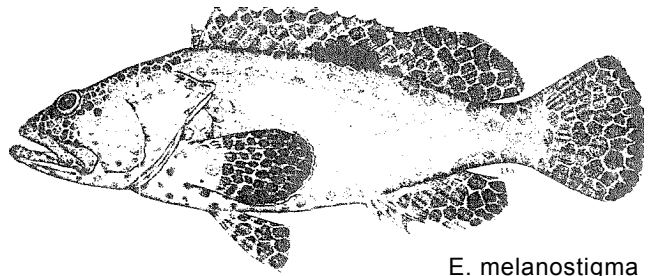
Epinephelus melanostigma: no white specks on pale reticulation lines; caudal peduncle depth not less than length of second anal spine; only 1 black blotch dorsally on body (at base of last 4 dorsal spines).

E. faveatus: pored lateral line scales 49 to 52 (61 to 66 in E. hexagonatus); body scales mostly cycloid (smooth); lower gillrakers 14 to 16 (17 to 19 in E. hexagonatus).

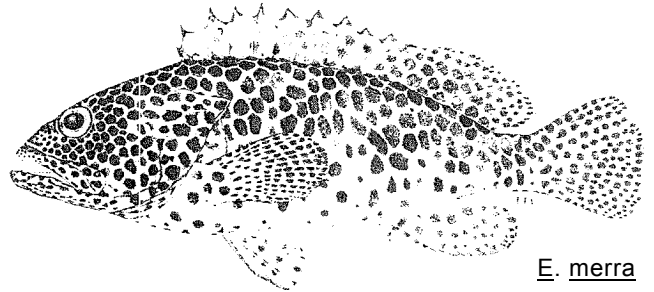
E. merra: pectoral fins pale, with distinct small dark spots; pored lateral line scales 48 to 54; lower gillrakers 15 to 17.

E. spilotoceps: lower gillrakers 14 to 17; front part of head with small black or dark brown spots; pectoral fins with small dark spots.

E. areolatus: caudal fin truncate; pored lateral line scales 50 to 56.



E. melanostigma



E. merra



E. areolatus



E. spilotoceps

SIZE:

Maximum: 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Tropical Western Indian Ocean from Mozambique to Sri Lanka but absent from the Red Sea and the "Gulf". Also present in the Eastern Indian Ocean and the Western Central Pacific, eastward to the Marshall islands and southern Japan.

PRESENT FISHING GROUNDS:

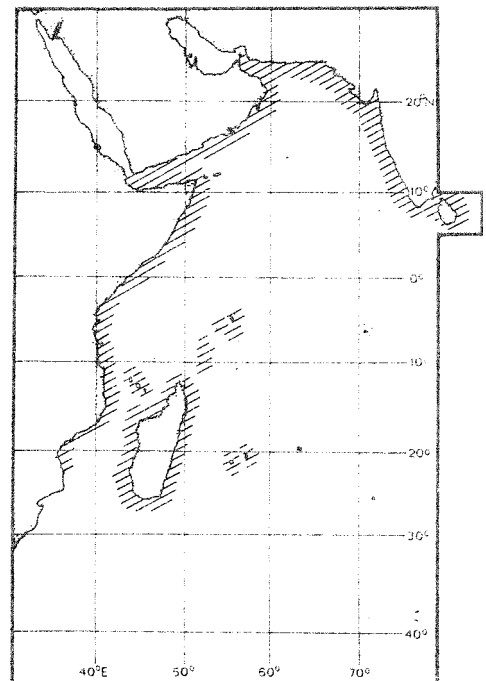
Coral reef areas in depths to 30 m; it seems to be rare in the area.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species, too small to be of commercial importance.

Caught with hook and line and in traps.

Sold fresh and dried salted in local markets.

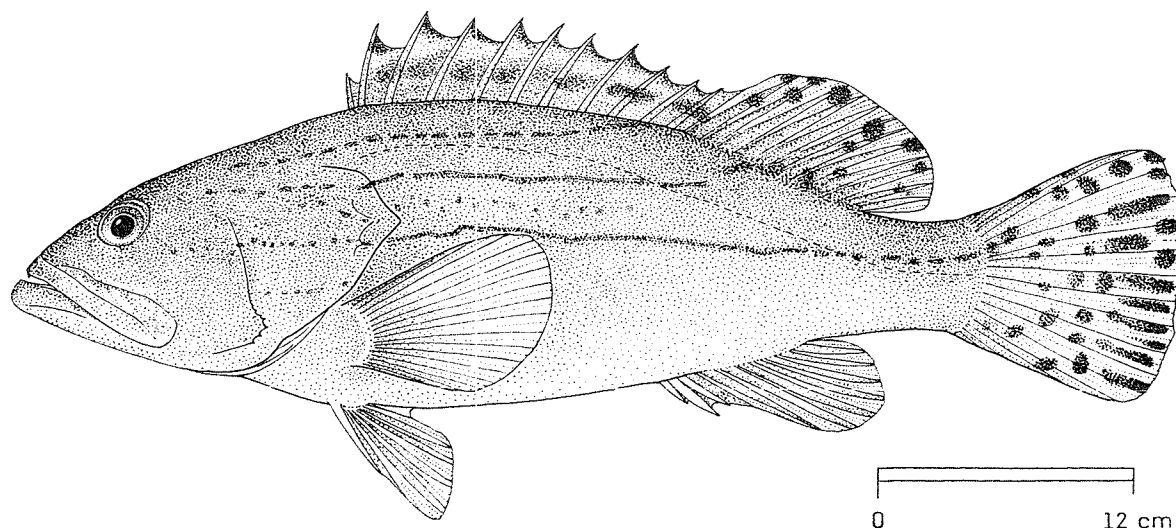


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus latifasciatus* (Temminck & Schlegel, 1842)

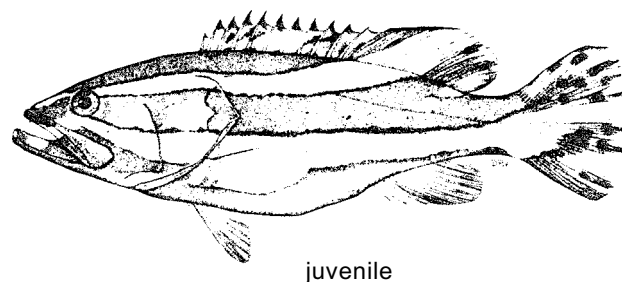
OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Banded grouper
 Fr - Mérou à bandes
 Sp - Mero abanderado

NATIONAL:



DISTINCTIVE CHARACTERS:

Body depth contained 2.9 to 3.3 times in standard length; caudal peduncle depth greater than length of second anal fin spine. Preopercle angular, with 2 to 4 enlarged serrae at the angle; maxilla reaches past eye; 2 or 3 rows of teeth on midlateral part of dentary; lower gillrakers 14 to 16. Dorsal fin with 11 spines and 12 to 14 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fin rays 18 or 19; caudal fin rounded to truncate. Pored lateral line scales 58 to 66; lateral scale series 91 to 106.

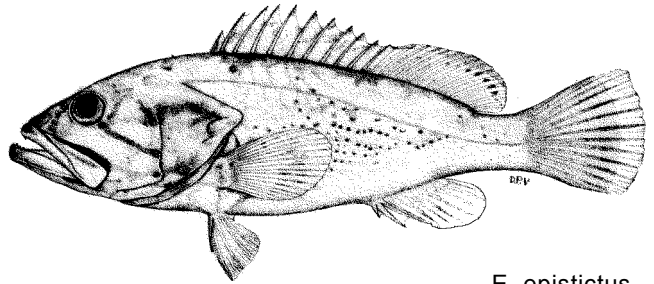
Colour: juveniles less than 15 cm standard length: head and body brown, with 2 broad, horizontal, black-edged, pale bands as shown in figure. Adults over 20 cm standard length: head and body greyish-brown, with 3 or 4 longitudinal dark lines from front of head to dorsal and caudal fins, these lines broken into rows of spots in some places; caudal and soft dorsal fins pale, with prominent black spots and blotches.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus epistictus: dorsal fin soft-rays 14 or 15 (12 to 14 in E. latifasciatus); maxilla not reaching past orbit; no horizontal, broad, white bands in juveniles.

E. morrhua: dorsal fin soft rays 14 or 15; lateral scale series 108 to 136 (91 to 106 in E. latifasciatus); no horizontal, broad, white bands in juveniles.

E. poecilonotus: dorsal fin soft rays 14 or 15; no horizontal broad, white bands in juveniles.



E. epistictus

SIZE:

Maximum: 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, known from the Red Sea and northern Indian Ocean including the "Gulf", Gulf of Oman and the coasts of India and Sri Lanka. Also present in the Eastern Indian Ocean and the Western Central Pacific, eastward to China and Japan.

PRESENT FISHING GROUNDS:

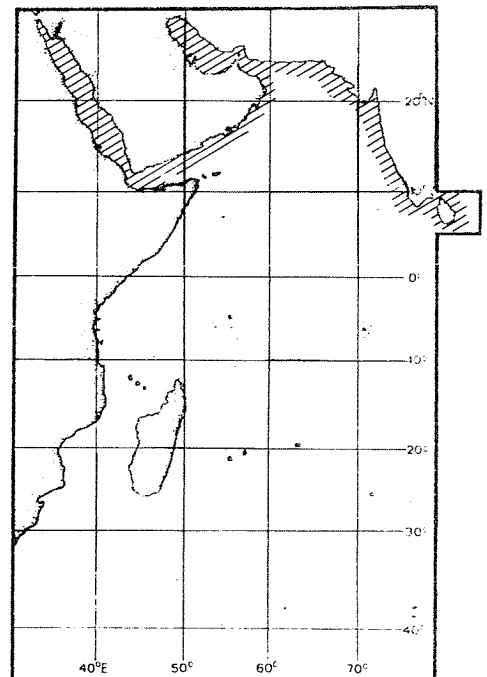
Young fish are found on mud bottoms, adults on sandy or rocky areas in depths of 20 to 200 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line, in traps, gillnets and trawls.

Sold mostly fresh in local markets.



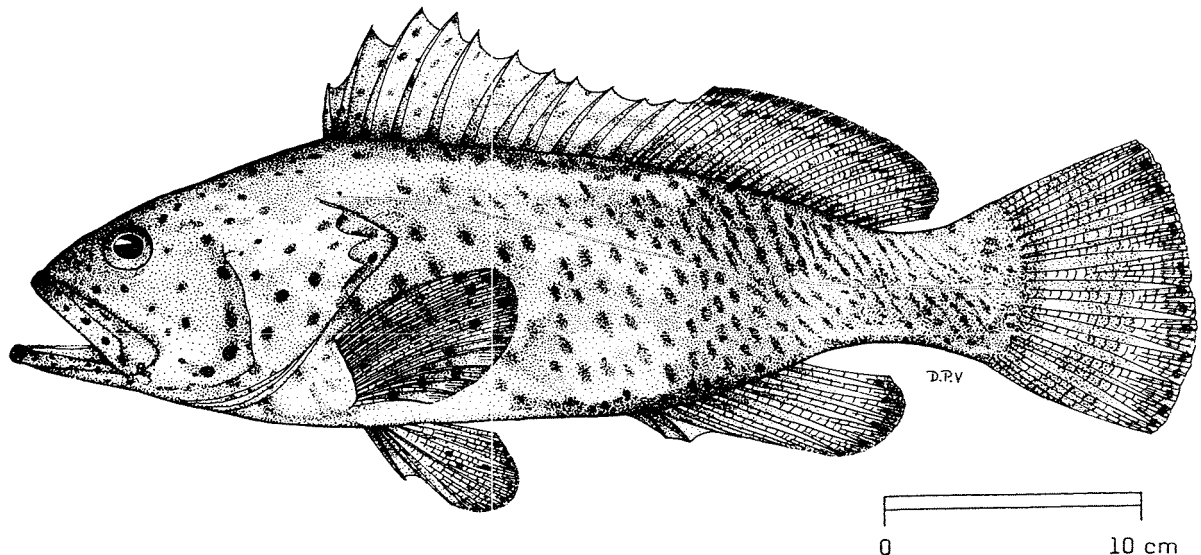
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus longispinis (Kner, 1865)

OTHER SCIENTIFIC NAMES STILL IN USE:

Often misidentified as E. gaimardi (Valenciennes, 1830), which is a synonym of E. miliaris (Valenciennes), or as E. fario (Thunber, 1792), which is a different (valid) species



VERNACULAR NAMES:

FAO: En - Streakyspot grouper
Fr - Mérou longues épines
Sp - Mero espigón

NATIONAL:

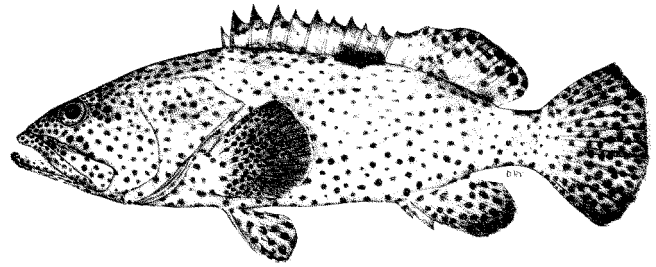
DISTINCTIVE CHARACTERS:

Body depth contained 2.5 to 3.1 times in standard length. Preopercle rounded with a slight notch, below which the serrae are enlarged; maxilla reaches vertical at rear edge of eye; midlateral part of lower jaw with 2 or 3 rows of teeth; lower gillrakers 15 or 16. Dorsal fin with 11 spines and 16 or 17 soft rays; longest dorsal spine (3rd or 4th) 15 to 18% of standard length, longer than longest dorsal soft ray; anal fin with 3 spines and 8 soft rays; pectoral fin rays 17 to 19; caudal fin rounded. Pored lateral line scales 50 to 53; lateral scale series 106 to 116; body scales distinctly ctenoid.

Colour: head and body brownish, covered with dark, small, reddish-brown spots that are rounded and well separated on head and front part of body, but becoming crowded and elongated posteriorly to form oblique streaks. Pectoral and pelvic fins dusky, with a few small dark spots.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus tauvina and E. malabaricus: dark spots on body not crowded and elongated posteriorly; dorsal fin membrane distinctly incised between the spines; maxilla reaches well past eye.



E. tauvina

SIZE:

Maximum; 60 cm,

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread in the Western Indian Ocean southward to Durban (South Africa), not in the Red Sea or the "Gulf".

PRESENT FISHING GROUNDS:

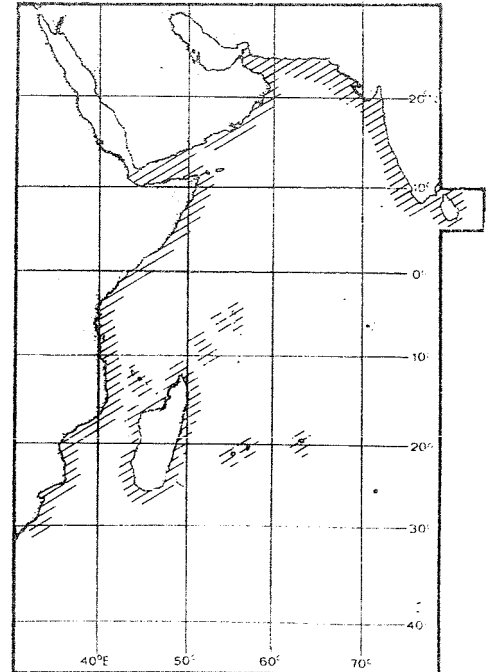
Depths of 10 to 70 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

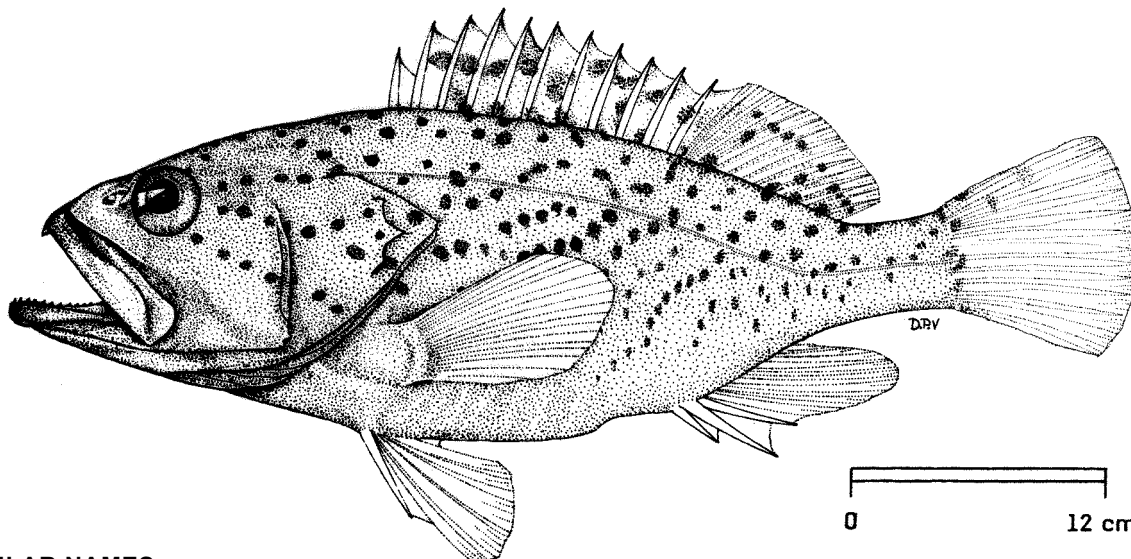
Caught with hook and line, in traps, qillnets and trawls.

Sold fresh in local markets.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus magniscuttis Postel, Fourmanoir & Guezé, 1964OTHER SCIENTIFIC NAMES STILL IN USE : Epinephelus pseudomorrhua Postel, Fourmanoir & Guezé, 1964

VERNACULAR NAMES:

FAO : En - Speckled grouper
Fr - Mérou grandes écailles
Sp - Mero bacalao

NATIONAL

DISTINCTIVE CHARACTERS:

Body depth contained 2.7 to 3.1 times in standard length. Preopercle serrate, with 2 to 4 enlarged serrae at the angle; maxilla not reaching past eye; 2 rows of teeth along sides of lower jaw; lower-limb gillrakers 16 or 17. Dorsal fin with 11 spines and 14 or 15 soft rays; dorsal fin membrane distinctly indented between the spines; anal fin with 3 spines and 8 soft rays; pectoral fin rays 17 to 19; caudal fin slightly to moderately rounded. Pored lateral line scales 55 to 62; lateral scale series 103 to 122; body scales ctenoid (except on belly) without auxiliary scales.

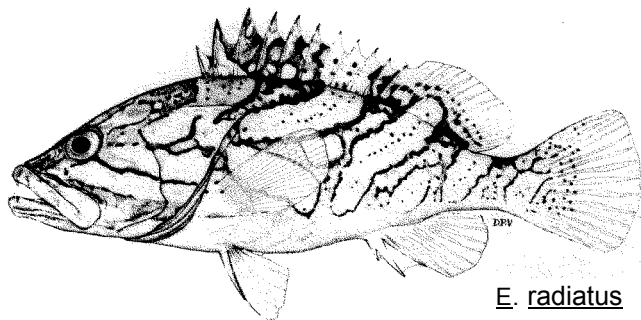
Colour: head, body and fins tan; dorsolateral parts of head and body covered with small, irregularly spaced and shaped, blackish-brown spots; dark spots extend onto dorsal fin and basal half of upper caudal rays; a dark brown band on cheek from front of snout along upper edge of maxilla to lower rear edge of Preopercle; pectoral fins yellowish tan. Juveniles with fewer spots, and the spots on the body tend to be aligned in oblique series.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

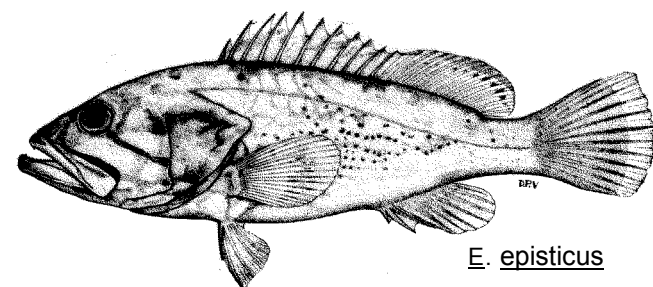
Epinephelus morrhua, E. poecilonotus, E. radiatus and E. epistictus: all very similar morphologically; these species are easiest to identify by reference to their illustrations.

E. latifasciatus: dorsal fin soft rays 12 or 13 (14 or 15 in E. magniscuttis); narrow dark bands or rows of Spots on body horizontal.

E. albomarginatus: body scales with auxiliary scales; lower gillrakers 14 to 16 (16 or 17 in E. magniscuttis); dark spots on body evenly spaced; soft dorsal, anal and caudal fins with prominent white edge.



E. radiatus



E. epistictus

SIZE:

Maximum: 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the Western Indian Ocean, known only from Sodwana Bay (South Africa), Mozambique, Mauritius and Réunion. Usually found in deep water, between 100 and 300 m depth

PRESENT FISHING GROUNDS:

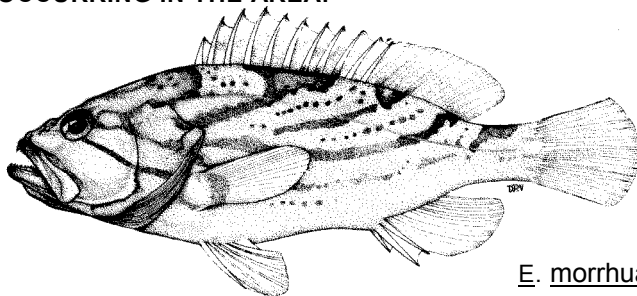
Depths of 50 to 300 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

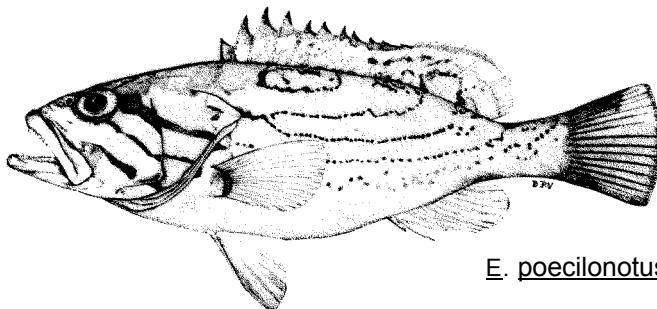
Separate statistics are not reported for this species.

Caught with hook and line and in traps.

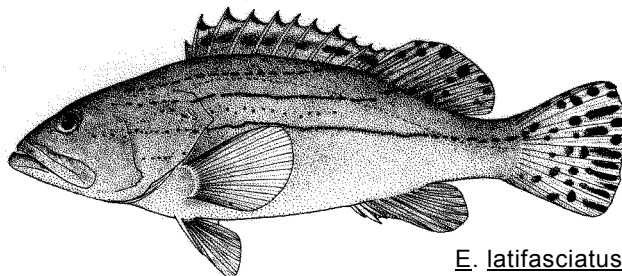
Marketed fresh.



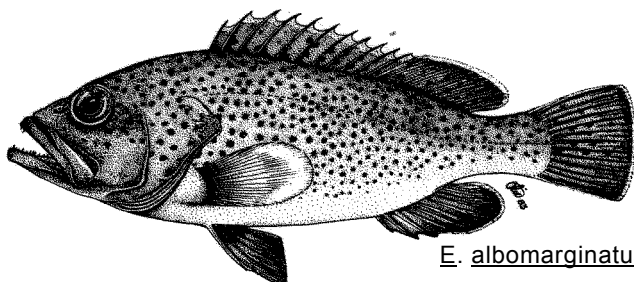
E. morrhua



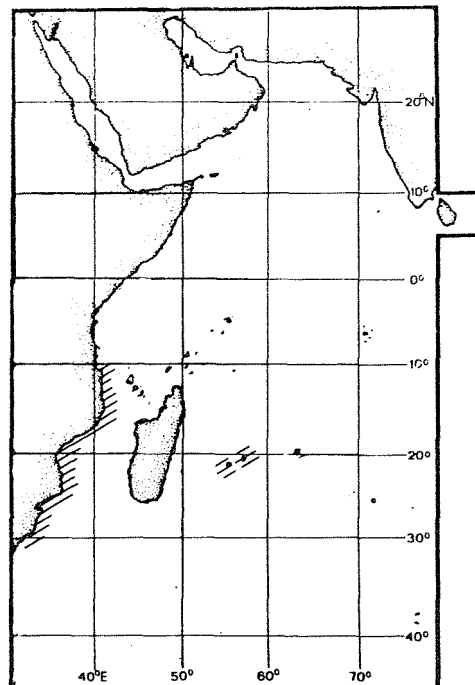
E. poecilonotus



E. latifasciatus

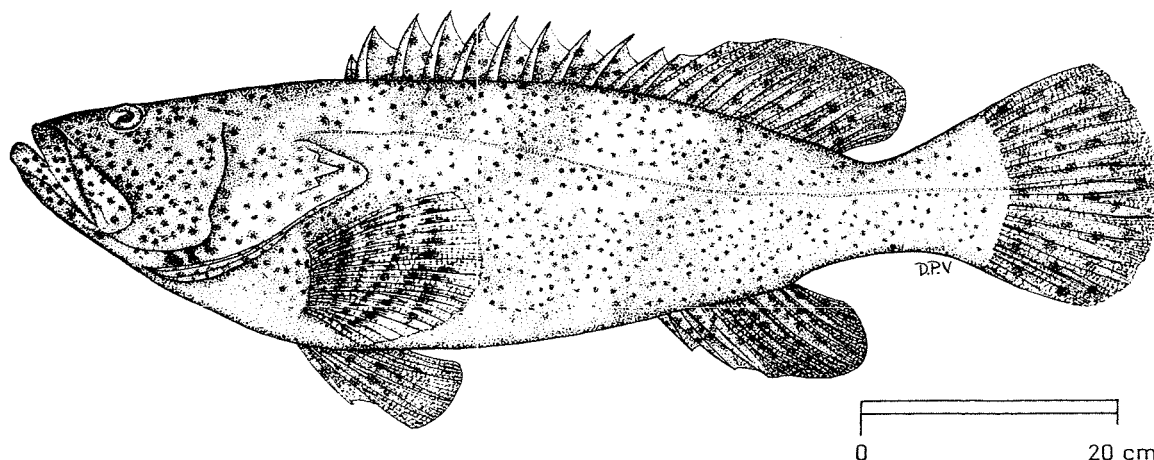


E. albomarginatus



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus malabaricus (Schneider, 1801)OTHER SCIENTIFIC NAMES STILL IN USE: Often misidentified as "Epinephelus tauvina (Forsskål, 1775)", which is a different species

VERNACULAR NAMES:

FAO: En - Malabar grouper
Fr - Mérou malabare
Sp - Mero malabérico

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 3.0 to 3.6 times in standard length. Preopercle finely serrate, with a shallow notch, the serrae enlarged at the angle; rear nostrils not more than twice the size of anterior nostrils; lower gillrakers 13 to 16; midlateral part of lower jaw with 2 rows of teeth. Dorsal fin with 11 spines and 14 to 16 soft rays; anal fin with 3 spines and 8 soft rays; pectoral rays 1B to 20. Pored lateral line scales 56 to 67; lateral scale series 98 to 114; midlateral body scales distinctly ctenoid with minute auxiliary scales.

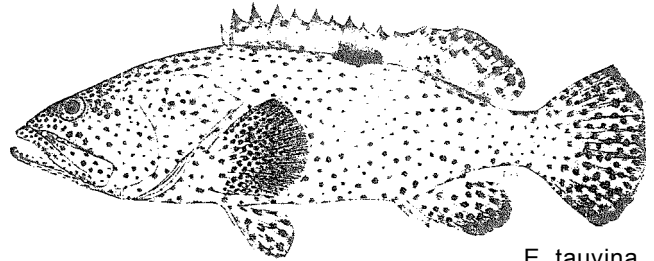
Colour: head and body generally pale greyish brown covered with small orange, golden-brown, or dark brown spots. Five more or less distinct, slightly oblique, irregular, broad, dark bars on body; these bars are darker dorsally and the last 3 are usually bifurcate ventrally; the first 4 bars usually continued onto the dorsal fin, the last bar covers most of the caudal peduncle; usually 3 dark blotches on interopercle, the first 2 sometimes merging to one blotch; small, irregularly shaped and spaced, white spots visible on head and body of some fish; soft dorsal, caudal, anal and pectoral fins brownish-black with small dark spots on basal half of fins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

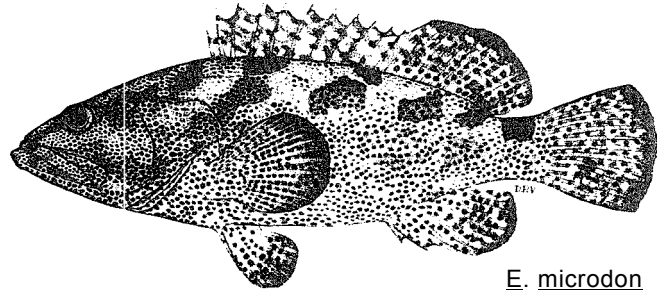
Epinephelus tauvina: pored lateral line scales 67 to 74 (56 to 67 in *E. malabaricus*); lower gillrakers 18 to 20 (13 to 16 in *E. malabaricus*); midlateral body scales cycloid (smooth on fish larger than 30 cm standard length); midlateral part of lower jaw with 3 or 4 rows of teeth (2 rows in *E. malabaricus*); maxilla extends well past eye.

E. microdon: body depth contained 2.7 to 3.2 times in standard length (3 to 3.6 times in *E. malabaricus*); pectoral fin rays 16 or 17 (18 to 20 in *E. malabaricus*); pored lateral line scales 49 to 53.

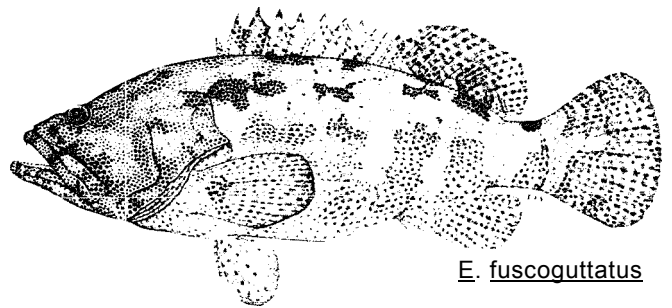
E. fuscoguttatus: lower gillrakers 18 to 21; dorsal-head profile with indentation above rear edge of eye.



E. tauvina



E. microdon



E. fuscoguttatus

SIZE:

Maximum: 100 cm (perhaps 200 cm).

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread in the Western Indian Ocean, including the Red Sea and the "Gulf". Also present in the Eastern Indian Ocean, extending eastward to the Western, Pacific where it ranges from southern Japan to Queensland. It seems not to extend into Oceania.

Often found in turbid water and estuaries, but also occurs on coral reefs.

PRESENT FISHING GROUNDS:

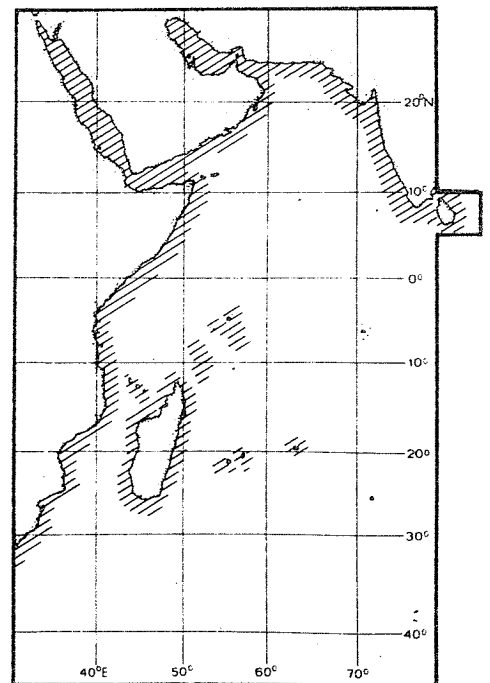
Harbours, estuaries and open ocean to depths of at least 30 m. This is undoubtedly of major economic importance - being the most common inshore species of grouper in the Western Indian Ocean. Very important commercially in the "Gulf" and along the west coast of India.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line, in traps, gillnets and trawls.

Sold fresh in local markets.

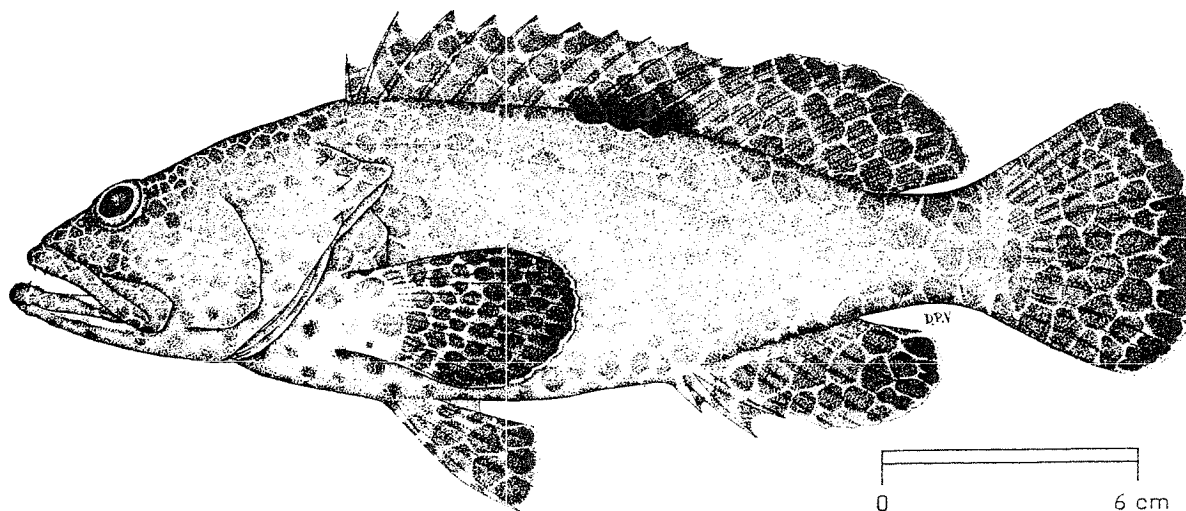


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus melanostigma Schultz, 1953

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - One-blotch grouper
 Fr - Mérou dossard
 Sp - Mero espaldarón

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 3.0 to 3.4 times in standard length; caudal peduncle depth greater than or equal to length of second anal fin spine. Preopercle finely serrate, rounded, with a slight notch; maxilla reaches well past eye; midlateral part of lower jaw with 3 to 5 rows of teeth; lower gillrakers 17 to 19. Dorsal fin with 11 spines and 15 or 16 soft rays; anal fin with 3 spines and 8 soft rays; pectoral rays 17 to 19; caudal fin rounded. Pored lateral line scales 57 to 61; lateral scale series 96 to 110; scales on body ctenoid, except on belly.

Colour: head, body and fins covered with closely-set, pupil-sized, brown spots forming a pale network pattern; a large black blotch at base of last 4 dorsal spines extending onto fin at least half way to margin; no other black blotches at base of dorsal fin or on peduncle; outer surface of distal half of pectoral fin dusky, the entire inner surface of fin with a distinct pale network: pattern as on body; soft dorsal, caudal, anal and pectoral fins with narrow white edge.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

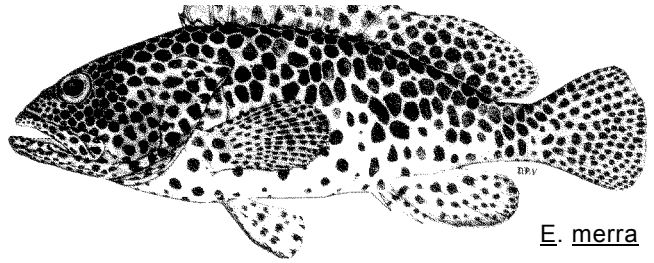
Epinephelus merra: pored lateral line scales 48 to 54 (57 to 61 in E. melanostigma); fins with dark spots much smaller than those on body; pectoral pale, with distinct, small dark spots all over the fin.

E. spilotoceps: 2 to 4 dark brown saddle-blotches on dorsal part of body; maxilla not reaching much past eye; lower gillrakers 14 to 17 (17 to 19 in E. melanostigma); caudal peduncle depth distinctly less than length of second anal spine.

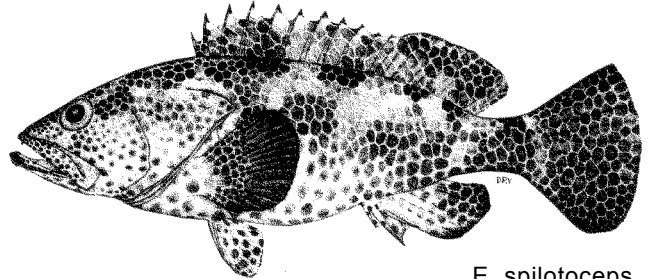
E. hexagonatus: 5 dark saddle-blotches on body, the first at origin of dorsal fin; fresh specimens with tiny white or silvery dots between the large dark brown spots; pectoral fins pale or dusky, without distinct markings.

E. areolatus: caudal fin truncate; pored lateral line scales 50 to 56.

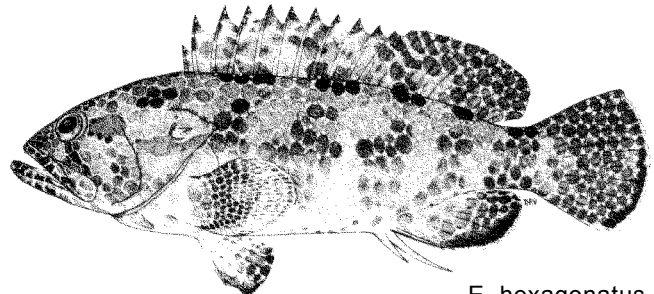
E. tauvina: pored lateral line scales 67 to 74; body scales cycloid, except for a small patch at end of pectoral fin; dark spots on head and body not forming a pale network pattern.



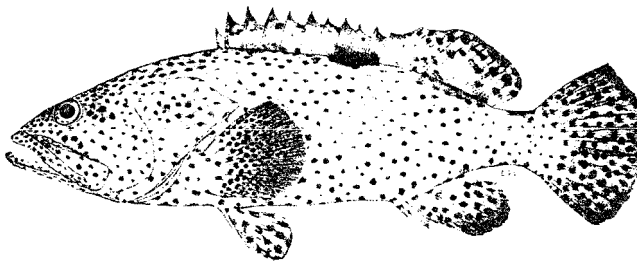
E. merra



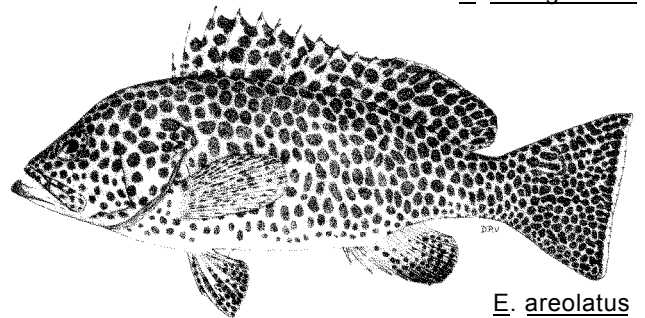
E. spilotoceps



E. hexagonatus



E. tauvina



E. areolatus

SIZE:

Maximum: 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the Western Indian Ocean, recorded from South Africa, Mozambique and the Seychelles; not in the Red Sea. Also present in the Eastern Indian Ocean and the Western Central Pacific.

PRESENT FISHING GROUNDS:

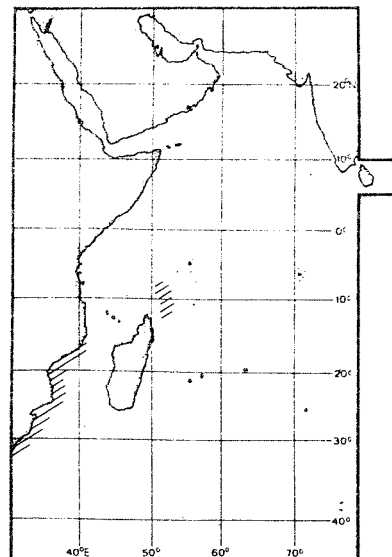
Coral reef areas in depths to 30 m. This species is probably too small to be of significant commercial importance, and it seems to be rare in the area.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line and in traps.

Sold fresh and dried salted in local markets.



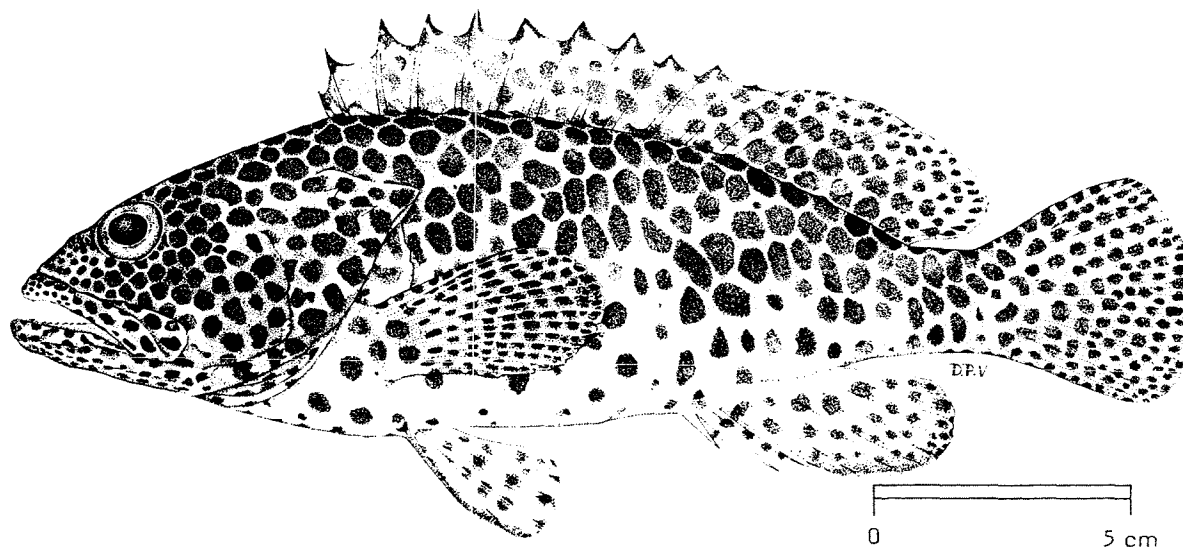
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Epinephelus merra</i> Bloch, 1793

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Honeycomb grouper
 Fr - Mérou gâteau de cire
 Sp - Mero panal

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.9 to 3.2 times in standard length; caudal peduncle depth less than second anal fin spine. Preopercle finely serrate; maxilla reaches past eye; midlateral part of lower jaw with 2 to 4 rows of teeth; lower gillrakers 15 to 17. Dorsal fin with 11 spines and 15 or 16 soft rays; anal fin with 3 spines and 8 soft rays; pectoral rays 16 to 18; caudal fin rounded. Pored lateral line scales 48 to 54; lateral scale series 100 to 114; scales on body ctenoid except for those on belly.

Colour: head and body with large closely-set, brown and dark brown spots, pale interspaces forming a network pattern; fins pale, with distinct, small, dark brown spots becoming smaller toward the margins; membrane behind tip of each dorsal spine with a small, white-edged, black spot; no dark blotches along base of dorsal fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

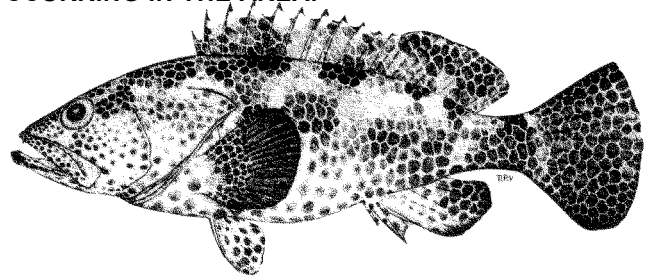
Epinephelus spilotoceps: pored lateral line scales 40 to 67 (48 to 54 in E. merra); 4 dark brown or black saddle-blotches on dorsal part of body; spots on median fins not much smaller or more distinct than those on body.

E. faveatus: pectoral fin dusky, with 1 or 2 blackish blotches at base; body scales mostly cycloid (smooth); dark spots on median fins as large as those on body.

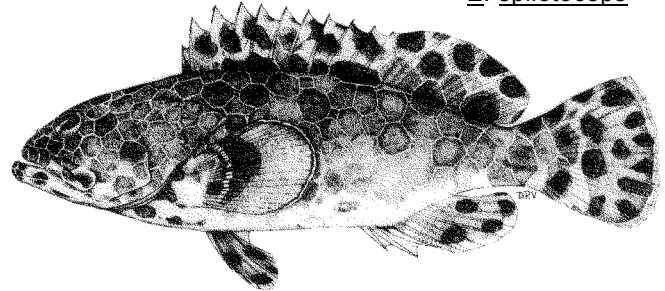
E. melanostigma: pored lateral line scales 58 to 61; caudal peduncle depth greater than or subequal to length of second anal fin spine; black blotch on body at base of last 4 dorsal spines.

E. areolatus: caudal fin truncate; preopercle with 3 to 7 enlarged serrae at the angle.

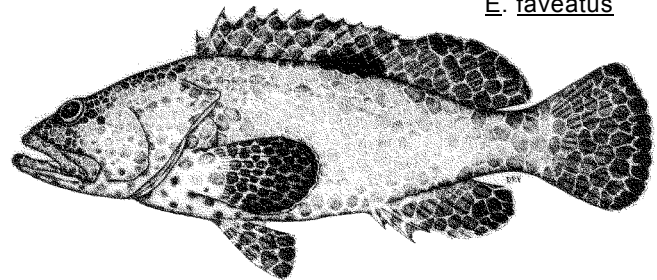
E. tauvina: dark spots on head and body poorly defined, not forming a pale network, darker at centre than at their edges: pored lateral line scales 67 to 74; lower gillrakers 18 to 20 (15 to 17 in E. merra).



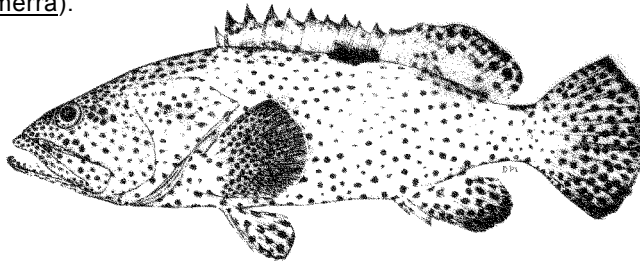
E. spilotoceps



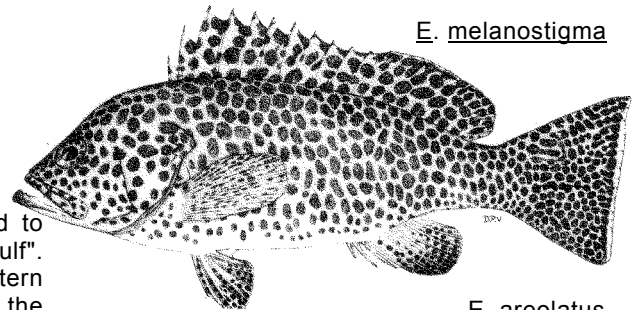
E. faveatus



E. melanostigma



E. tauvina



E. areolatus

SIZE:

Maximum: 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread in the Western Indian Ocean, southward to Transkei (32°S) but absent from the Red Sea and the "Gulf". Also present in the Eastern Indian Ocean and the Western Central Pacific extending eastward to French Polynesia; in the Western Pacific it ranges from southern Japan to Queensland.

Common on small patch reefs in shallow lagoons or other protected waters.

PRESENT FISHING GROUNDS:

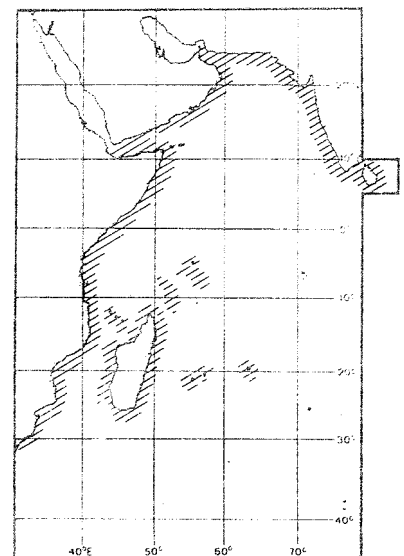
Coral reef areas in depths less than 20 m. Although common in markets in areas where it is abundant, E. merra is probably too small to be of major commercial importance.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

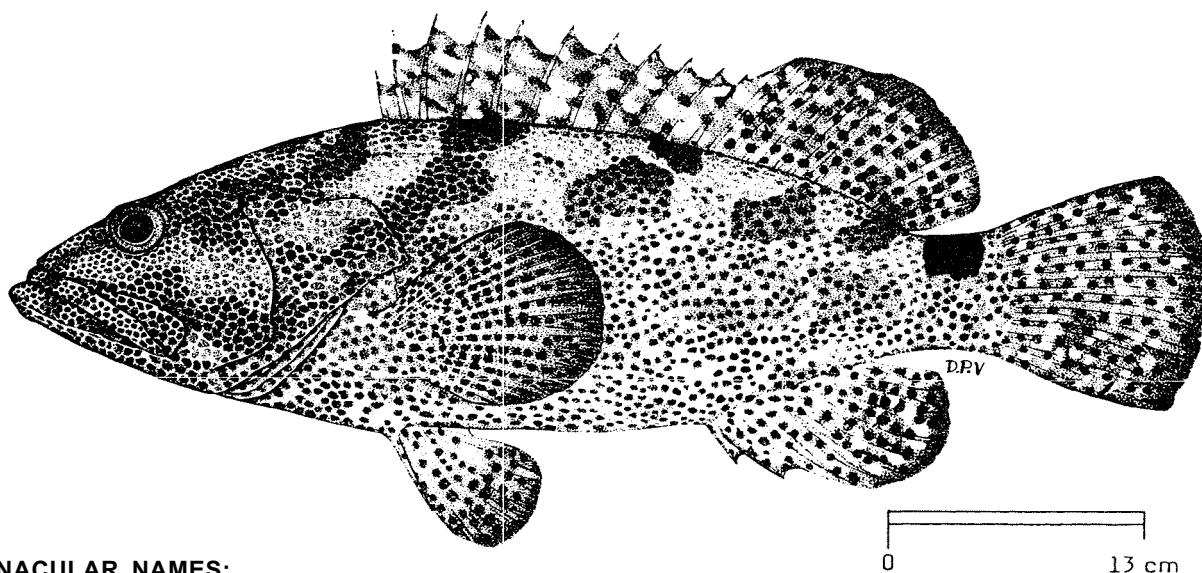
Caught with hook and line and in traps.

Sold fresh and dried salted in local markets.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus microdon (Bleeker, 1856)OTHER SCIENTIFIC NAMES STILL IN USE: Epinephelus dispar (Playfair, 1866), often misidentified as E. fuscoguttatus (Forsskål, 1775), which is a different species

VERNACULAR NAMES:

FAO : En - Camouflage grouper
Fr - Mérou camouflage
Sp - Mero disfrazado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.7 to 3.2 times in standard length. Dorsal head profile smoothly convex; interorbital area flat; preopercle finely serrate, the serrae at the angle slightly enlarged; rear nostrils circular, not much bigger than front nostrils; lower gillrakers 14 to 18. Dorsal fin with 11 spines and 14 or 15 soft rays; anal fin with 3 spines and 7 to 9 (usually 8) soft rays; pectoral rays 16 or 17. Pored lateral line scales 49 to 53; lateral scale series 107 to 113; midlateral body scales mostly ctenoid, not covered by skin.

Colour: head, body and fins generally brownish, covered with small (larger than pupil size) dark spots; head and body with more or less distinct dark blotches, the blotch on top of caudal peduncle usually brownish-black and most conspicuous.

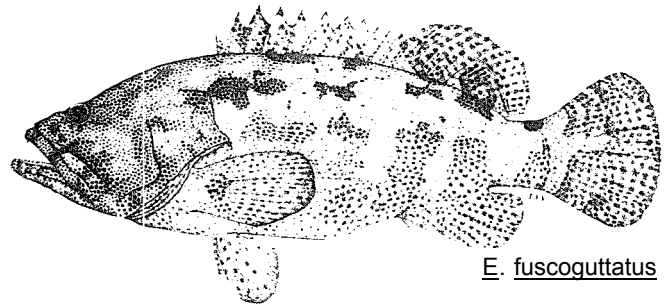
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus fuscoguttatus: pectoral rays 18 to 20 (16 or 17 in E. microdon); lower gillrakers 18 to 21 (14 to 18 in E. microdon); dorsal head profile with an indentation above rear edge of eye.

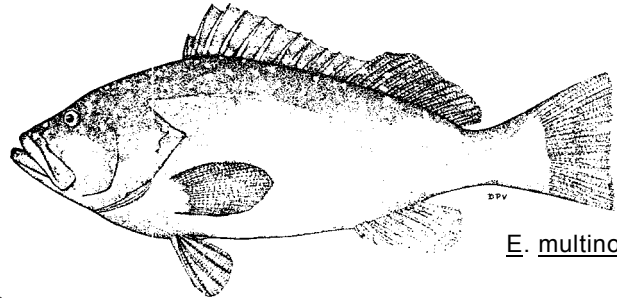
E. multinotatus: dorsal fin membranes only slightly indented between the spines; caudal fin truncate; pored lateral line scales 67 to 77 (49 to 53 in E. microdon).

E. tauvina: body depth 3.1 to 3.5 times in standard length (2.7 to 3.2 in E. microdon); pored lateral line scales 67 to 74; lower gillrakers 16 to 20.

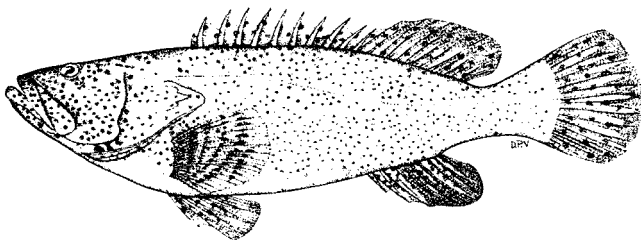
E. malabaricus: body depth 3.0 to 3.5 times in standard length; pectoral rays 18 to 20.



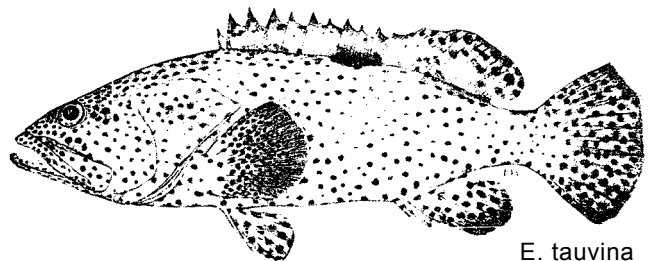
E. fuscoguttatus



E. multinotatus



E. malabaricus



E. tauvina

SIZE:

Maximum: 90 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the Western Indian Ocean, known from the Red Sea, east African coast southward to Mozambique, Seychelles, Chagos Archipelago and the Laccadives. Also present in the Eastern Indian Ocean and the Western Central Pacific eastward from southern Japan to Queensland.

PRESENT FISHING GROUNDS:

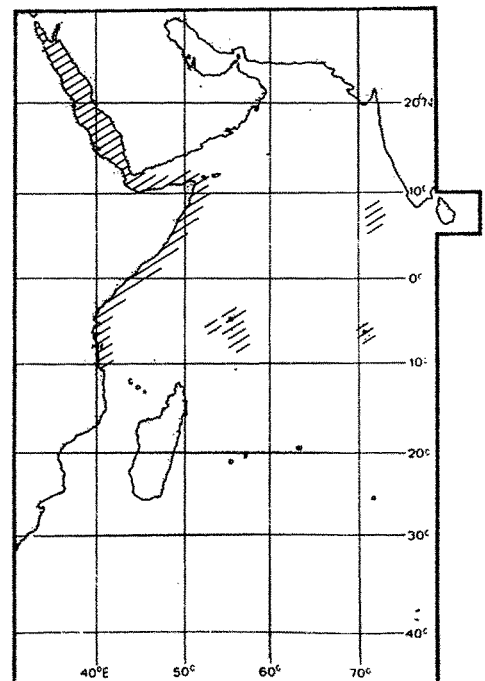
Coral reef areas. Common off the coast of Tanzania and Kenya.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

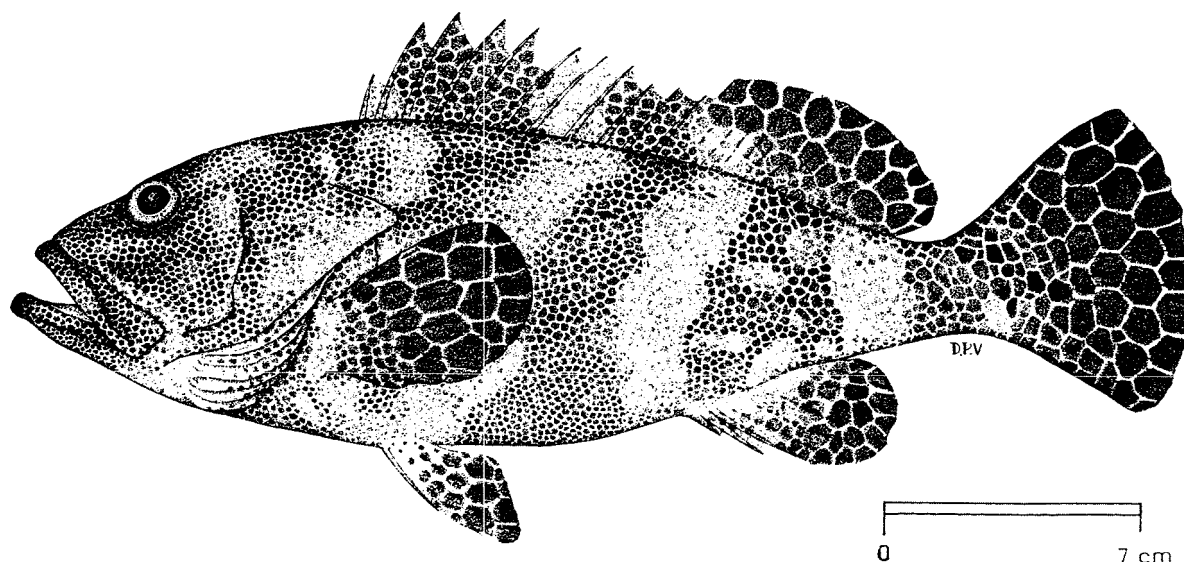
Caught with hook and line, in traps and gillnets.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus miliaris* (Valenciennes, 1830)OTHER SCIENTIFIC NAMES STILL IN USE: *Epinephelus dictiophorus* (Bleeker, 1856)
Epinephelus fuscus Fourmanoir, 1961

VERNACULAR NAMES:

FAO : En - Honeyfin grouper
 Fr - Vielle abeille
 Sp - Mero colmenar

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.9 to 3.1 times in standard length. Preopercle finely serrate; maxilla not reaching past eye; sides of lower jaw with 2 rows of teeth; lower gillrakers 14 to 16. Dorsal fin with 11 spines and 16 to 18 soft rays; third or fourth dorsal spine longest, longer than longest dorsal soft ray; anal fin with 3 spines and 8 soft rays; pectoral rays 17 or 18; caudal fin rounded. Pored lateral line scales 48 to 51; lateral scale series 96 to 101; body scales ctenoid, except on belly.

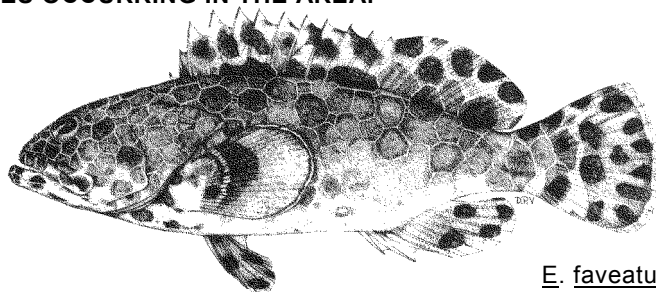
Colour: head, body and spinous dorsal fin covered with small, closely-set, brown spots separated by pale lines; spots often indistinct or running together and not forming a pale reticulation everywhere. Fins with large blackish spots.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

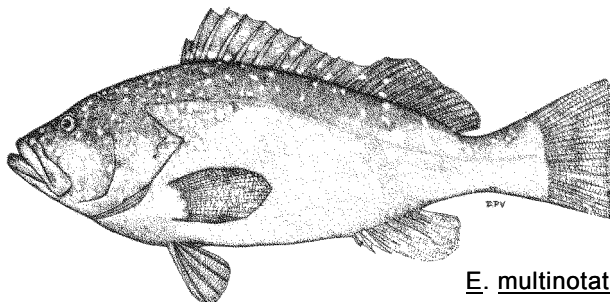
Epinephelus faveatus: body scales mostly cycloid; dark spots on body larger, some as large as eye; pectoral fins dusky, without dark spots; chest with large dark blotches.

E. multinotatus: dark spots on fins not larger than those on body; pored lateral line scales 67 to 77 (48 to 51 in E. miliaris).

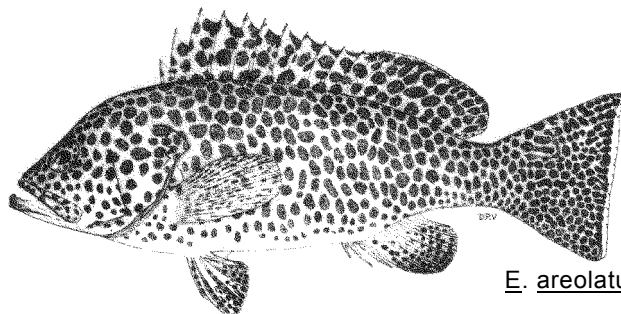
E. areolatus and E. chlorostigma: caudal fin truncate; spots on fins not bigger than those on body.



E. faveatus



E. multinotatus



E. areolatus

SIZE:

Maximum: 45 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the Western Indian Ocean only known from Mozambique, Madagascar, Comores and Seychelles. Also present in the Eastern Indian Ocean and Western Central Pacific extending eastward to southern Japan.

PRESENT FISHING GROUNDS:

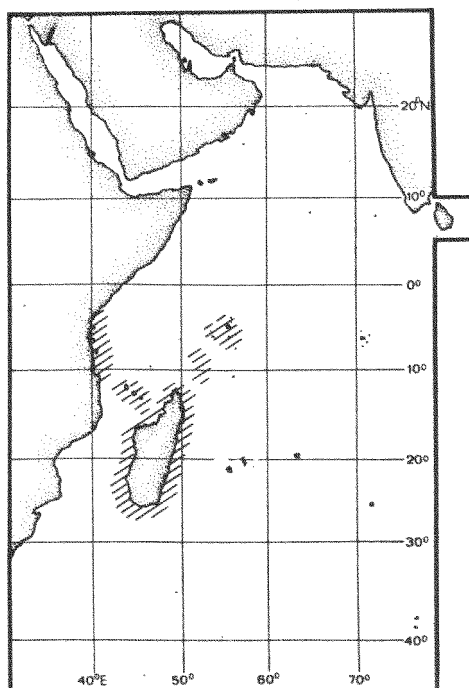
Coastal waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

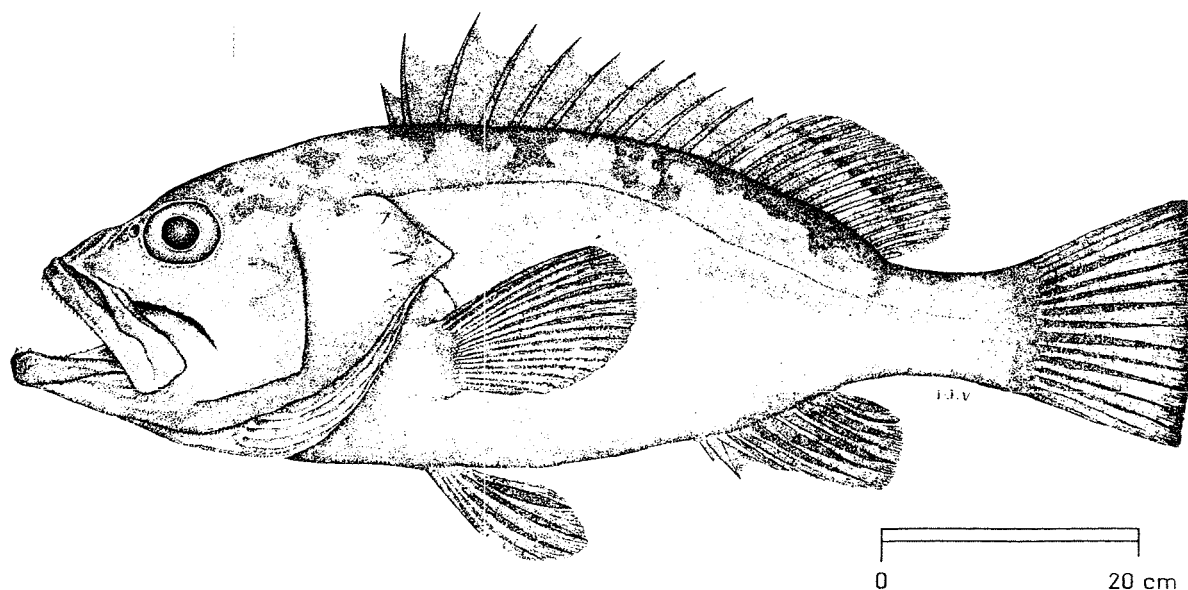
Caught with hook and line and traps.

Sold fresh in local markets.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus modestus* Gilchrist & Thompson, 1909OTHER SCIENTIFIC NAMES STILL IN USE: *Epinephelus clarkei* Smith, 1958

VERNACULAR NAMES:

FAO: En - Moustached grouper
Fr - Mérou moustache
Sp - Mero bigotudo

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.6 to 2.8 times in standard length. Preopercle finely serrate; maxilla reaches vertical to rear edge of eye; sides of lower jaw with 2 rows of teeth; lower gillrakers 15 to 17; rear nostril 3 or 4 times larger than front nostril. Dorsal fin with 11 spines and 14 or 15 soft rays; anal fin with 3 spines and 9 soft rays; pectoral rays 17 or 18; caudal fin truncate. Pored lateral line scales 62 to 69; lateral scale series 104 to 114; scales on body ctenoid, without auxiliary scales except a few above lateral line.

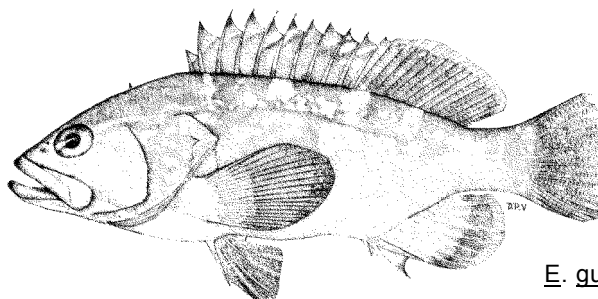
Colour: mostly greyish or brown, with vague darker blotches along back above lateral line; dorsal surface of peduncle blackish brown; a prominent black "moustache" streak on maxillary groove. Large adults nondescript grey-brown.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

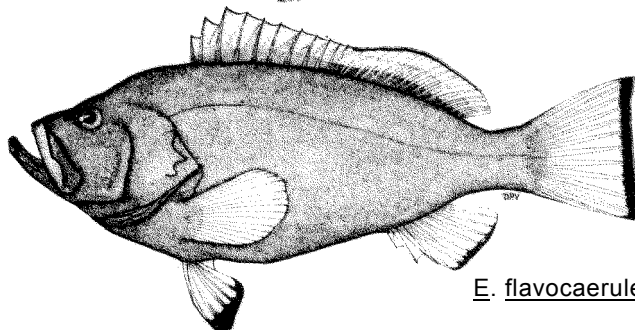
E. guaza: anal fin rays 8 (9 in E. modestus); body scales with numerous tiny auxiliary scales; head, body and fins often with yellowish pigment.

E. flavocaeruleus: body depth contained 2.4 to 2.7 times in standard length (2.6 to 2.8 times in E. modestus); lateral scale series 130 to 150 (104 to 114 in E. modestus); anal fin rays 8; juveniles with bright yellow fins and peduncle.

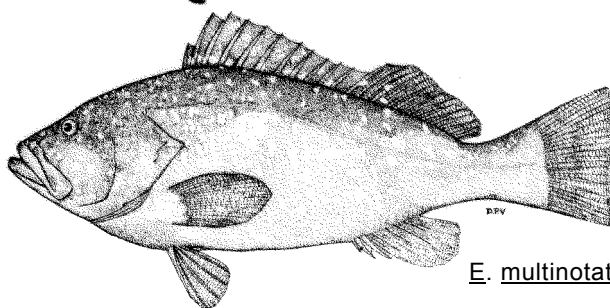
E. multinotatus: anal fin rays 8; body with pale spots or blotches in life; dorsal fin membrane not incised between the spines.



E. guaza



E. flavocaeruleus



E. multinotatus

SIZE:

Maximum: 137 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known only from Algoa Bay (South Africa) to Kenya.

PRESENT FISHING GROUNDS:

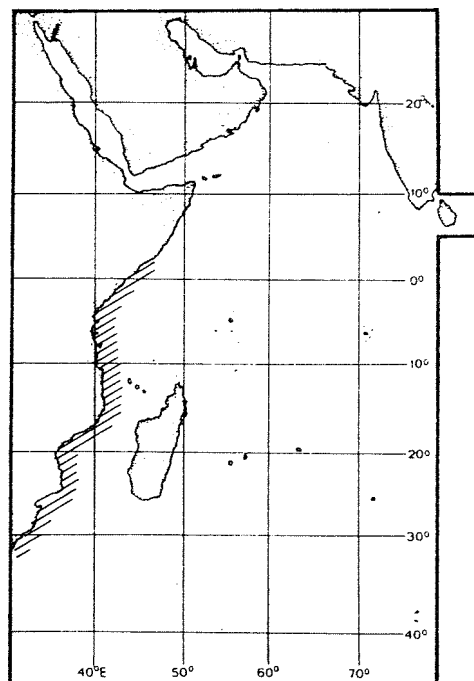
Depths of 30 to 180 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

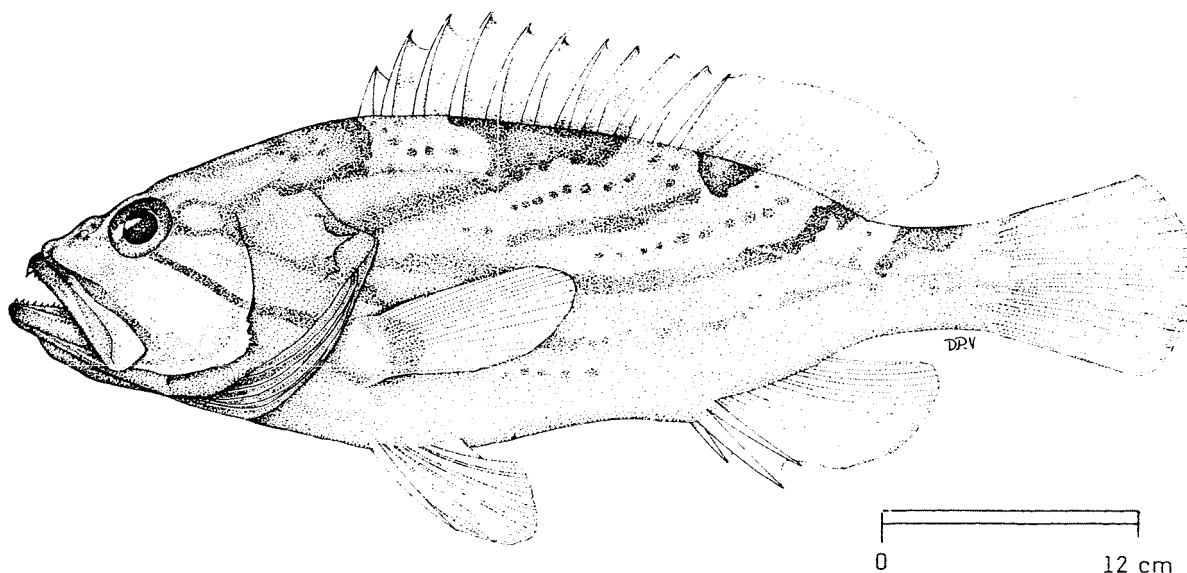
Caught with hook and line and in traps.

Sold fresh in local markets.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus morrhua (Valenciennes, 1833)OTHER SCIENTIFIC NAMES STILL IN USE: Epinephelus cometae Tanaka, 1927

VERNACULAR NAMES:

FAO : En - Comet grouper
 Fr - Mérou comète
 Sp - Mero cometa

NATIONAL:

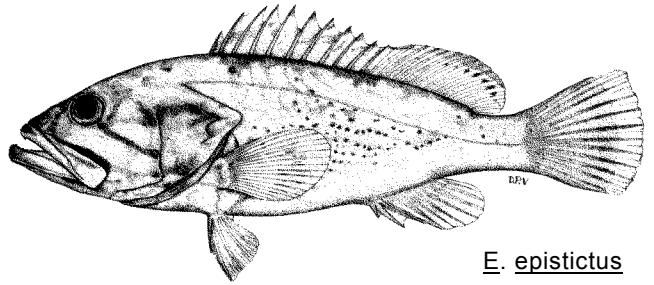
DISTINCTIVE CHARACTERS:

Body depth contained 2.8 to 3.1 times in standard length. Preopercle serrate, with 2 to 5 enlarged serrae at the angle; maxilla not reaching past eye; 2 rows of teeth along sides of lower jaw; lower gillrakers 14 to 17. Dorsal fin with 11 spines and 14 or 15 soft rays; dorsal fin membrane distinctly indented between the spines; anal fin with 3 spines and 7 or 8 soft rays; pectoral rays 17 or 18; caudal fin slightly to moderately rounded. Pored lateral line scales 57 to 64; lateral scale series 108 to 123; body scales ctenoid (except on belly) without auxiliary scales.

Colour: head and body tan, with curving dark brown bands as follows: 1 from upper posterior part of eye passing above upper end of gill opening and ending broadly on nape; 1 from upper edge of opercular flap, broadening above lateral line, and ending at base of fifth to ninth dorsal spines; 1 from behind middle of eye across opercle onto midside of body, bifurcating above distal end of pectoral fin, the upper segment extending to base of anterior soft portion of dorsal fin and the lower to rear base of fin; a broken band from beneath pectoral fin along lower side, curving upward to end dorsally on caudal peduncle; 2 diagonal bands on cheek; there may be a row of dark spots between adjacent dark brown bands on body; fins not spotted.

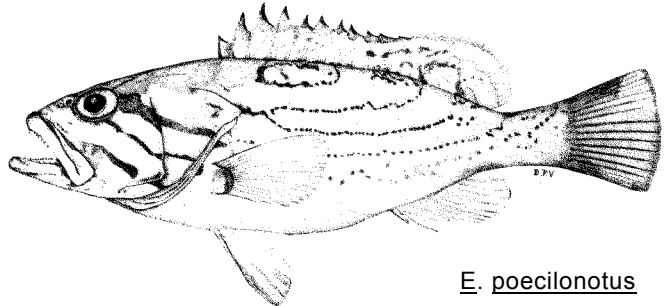
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus epistictus: juveniles with 3 slightly curving dark brown lines from eye across opercle and continued on body as rows of small dark spots; adults with numerous small dark spots on body dorsally.



E. epistictus

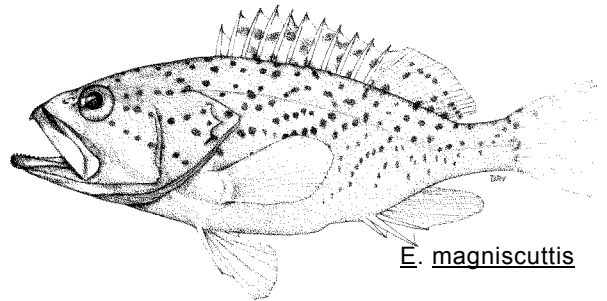
E. poecilonotus: an elongate dark brown spot or group of spots centred at base of spinous portion of dorsal fin; below this a series of slightly curved parallel rows of dark brown spots.



E. poecilonotus

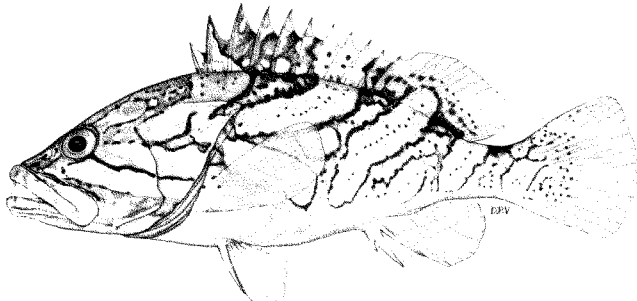
E. magniscuttis: small dark spots on dorso-lateral parts of head and body and extending onto dorsal fin; no dark spots on ventral parts of head and body or on anal and paired fins.

E. latifasciatus: dorsal soft rays 12 to 14 (14 or 15 in E. morrhua); 3 or 4 longitudinal dark lines on body (may break into dashes and spots on large adults); dorsal and caudal fins with black spots.

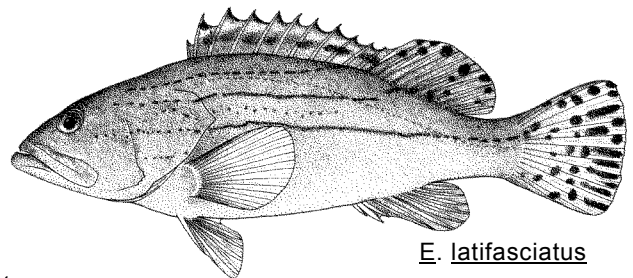


E. magniscuttis

E. radiatus: no band or series of dark spots from end of opercle to rear end of dorsal fin base; small dark spots on dorsal and caudal fins in adults.



E. radiatus



E. latifasciatus

SIZE:

Maximum: 90 cm

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Red Sea and western part of the area southward to Durban (South Africa); absent from the "Gulf". Also found in the Eastern Indian Ocean and the Western Central Pacific eastward to southern Japan and New Caledonia.

PRESENT FISHING GROUNDS:

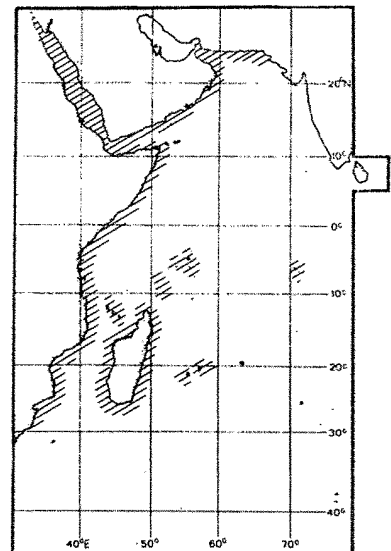
Depths of 120 to 370 m. Seems to be rare.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line and in traps.

Sold fresh in local markets.

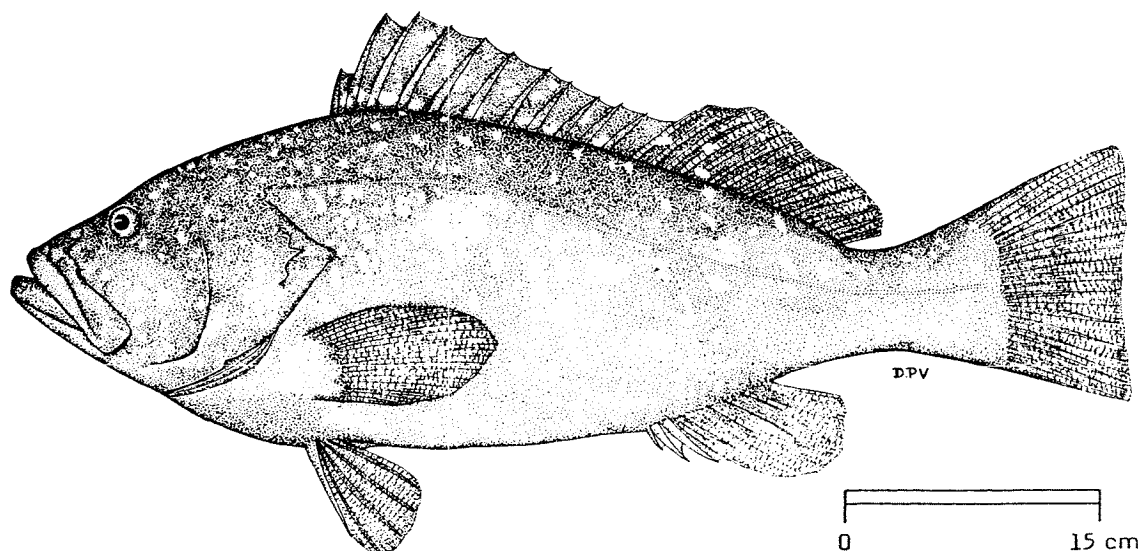


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus multinotatus (Peters, 1876)

OTHER SCIENTIFIC NAMES STILL IN USE:

Epinephelus jayakari (Boulenger, 1889)
Epinephelus leprosus Smith, 1955

VERNACULAR NAMES:

FAO : En - White-blotched grouper
 Fr - Vielle plate grise
 Sp - Mero de lunares

NATIONAL:

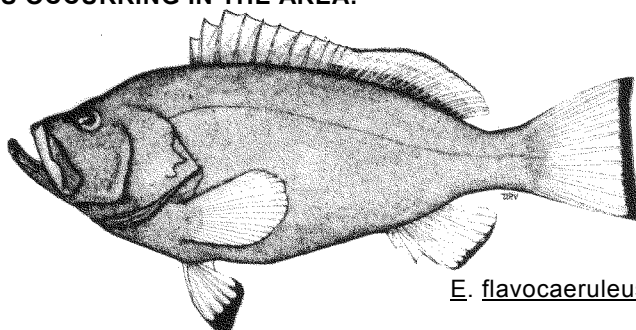
DISTINCTIVE CHARACTERS:

Body depth contained 2.6 to 2.9 times in standard length. Interorbital area convex; preopercle finely serrate; lower gillrakers 15 to 17. Dorsal fin with 11 spines and 15 to 17 soft rays, the fin membrane not incised between the spines; anal fin with 3 spines and 8 soft rays; pectoral rays 18 or 19; caudal fin truncate rounded in small juveniles). Pored lateral line scales 67 to 77; lateral scale series 134 to 150; scales on body ctenoid (except on belly).

Colour: body and head brown, the ventral part often covered with small, dark, reddish-brown sots; in life, with irregular pale grey or white spots or blotches on dorsal fin and dorsal part of head and body these pale spots usually fade after death).

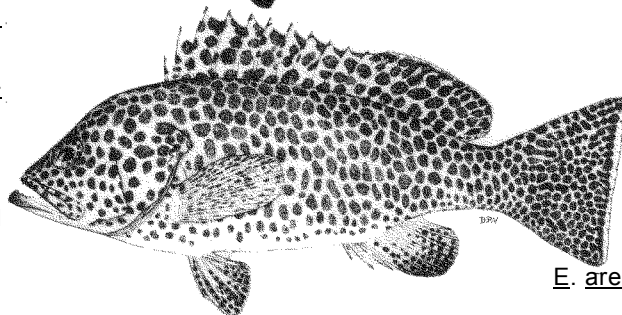
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus flavocaeruleus: juveniles with bright yellow, black-edged fins; adults dark grey or purplish brown with yellow reduced to small areas of head and margin of spinous dorsal fin: rear nostrils much larger than anterior ones; no small dark spots on lower part of head and body.



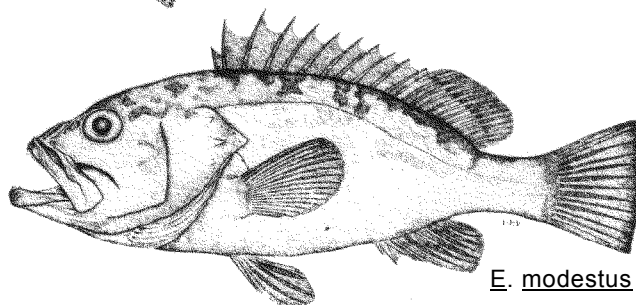
E. flavocaeruleus

E. areolatus: body depth contained 3.0 to 3.3 times in standard length (2.6 to 2.9 times in E. multinotatus); head and body with dark spots dorsally as well as ventrally; dark spots also on fins; lateral line scales 50 to 56 (67 to 77 in E. multinotatus).



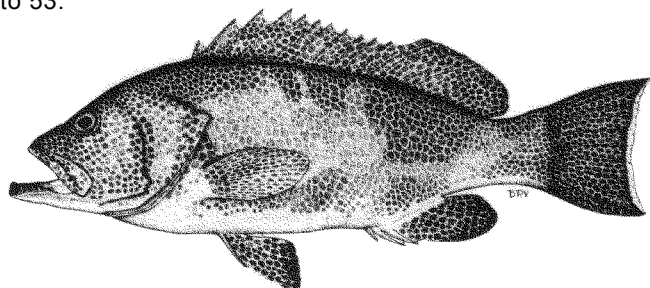
E. areolatus

E. modestus: anal fin rays 9 (8 in E. multinotatus); dorsal fin membrane distinctly incised between the spines; lateral scale series 104 to 114 (134 to 150 in E. multinotatus).



E. modestus

E. chlorostigma: head, body and fins covered all over with small dark spots; lateral line scales 49 to 53.



E. chlorostigma

Maximum: 100 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Western Indian Ocean from Mozambique to Pakistan, including the Seychelles, Comores, Aldabra, Madagascar, Mauritius and Réunion.

Adults found in shallow as well as deep water.

PRESENT FISHING GROUNDS:

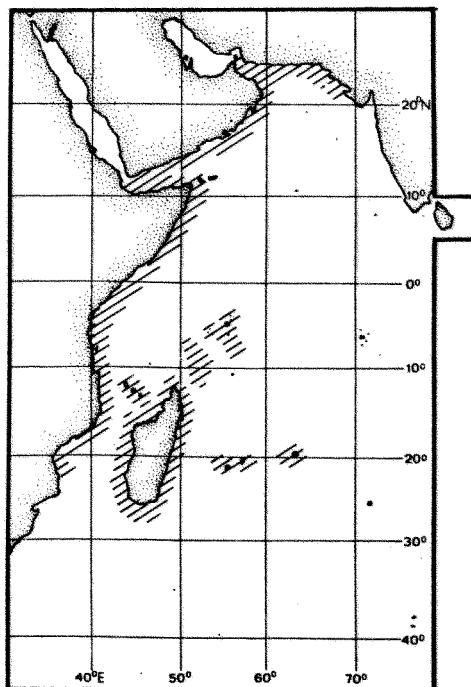
Depths of 2 to 90 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

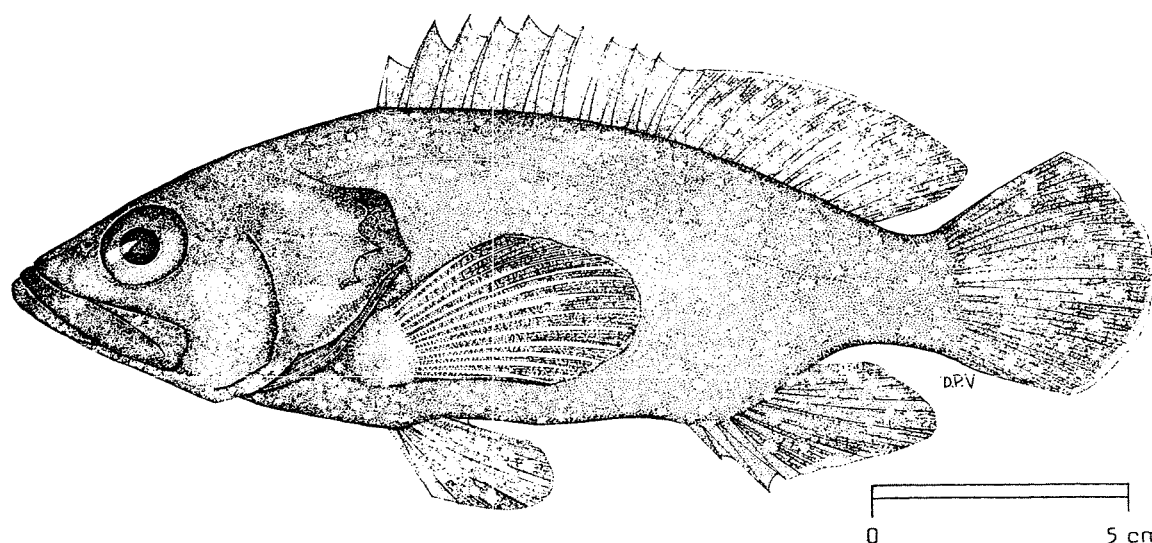
Caught with hook and line, in traps and gillnets.

Sold fresh in local markets.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus ongus (Bloch, 1790)OTHER SCIENTIFIC NAMES STILL IN USE: ? Epinephelus hoevenii (Bleeker, 1849)

VERNACULAR NAMES:

FAO : En - White-streaked grouper
 Fr - Mérou à flocons
 Sp - Mero nubífero

NATIONAL:

DISTINCTIVE CHARACTERS:

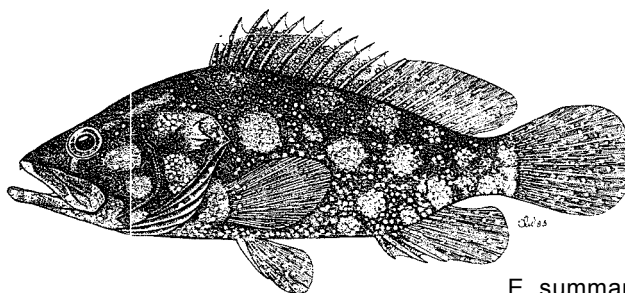
Body depth contained 2.7 to 3.2 times in standard length. Interorbital area flat; opercular flap obtuse, the upper edge very convex; uppermost opercular spine not more anterior than lower spine; lower gillrakers 13 to 17. Dorsal fin with 11 spines and 15 or 16 soft rays; anal fin with 3 spines and 8 soft rays; pectoral rays 15 to 17; pectoral fin length 1.4 to 1.7 times in head length; caudal fin rounded. Pored lateral line scales 47 to 53; lateral scale series 95 to 107; scales on body ctenoid, except on belly.

Colour: generally dark grey or greyish brown covered with small spots of pale grey or blue-grey; some fish with an overlying pattern of pale blotches; maxillary groove black; pale spots of large adults joined to form horizontal bands.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus summana: pectoral fin length contained 1.7 to 2.1 times in head length (1.4 to 1.7 times in E. ongus); pale spots not joining in large adults.

E. caeruleopunctatus: pectoral fin rays 17 to 19 (15 to 17 in E. ongus ; opercular flap acute, the upper edge nearly straight.



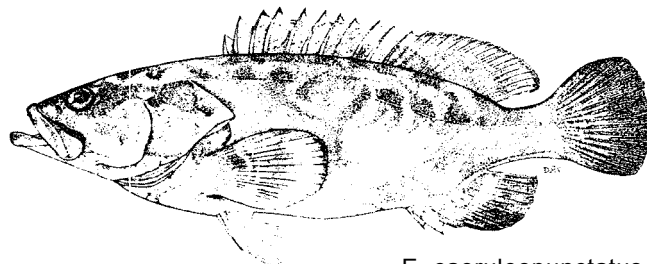
E. summana

SIZE:

Maximum: 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the Western Indian Ocean, along the East African coast from Mozambique northward to Somalia, around the Seychelles and along the coast of India and Sri Lanka. Also present in the Eastern Indian Ocean and the Western Central Pacific eastward to the Marshall Islands and Japan.



E. caeruleopunctatus

PRESENT FISHING GROUNDS:

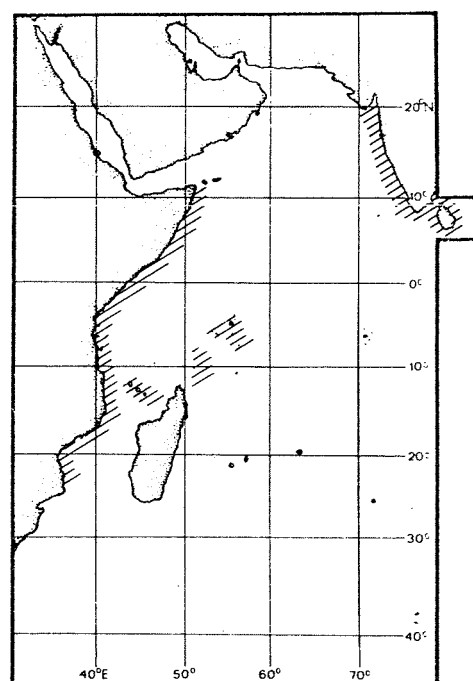
Coral reef areas in depths from 5 to 30 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

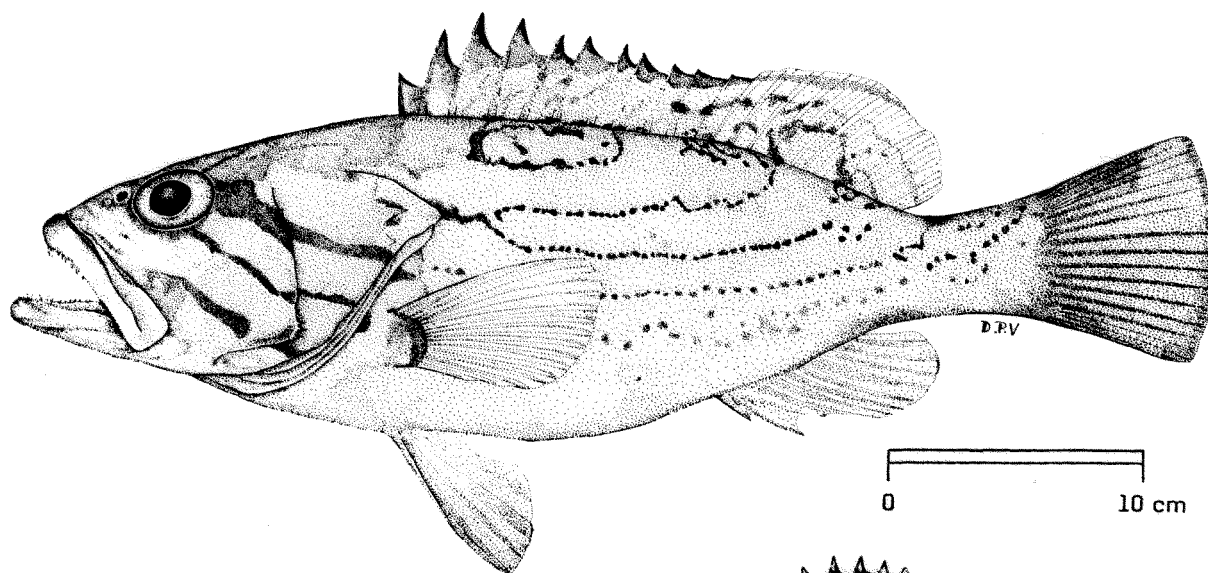
Caught with hook and line, in traps and gillnets.

Sold fresh and dried salted in local markets.



FAO SPECIES IDENTIFICATION SHEETS

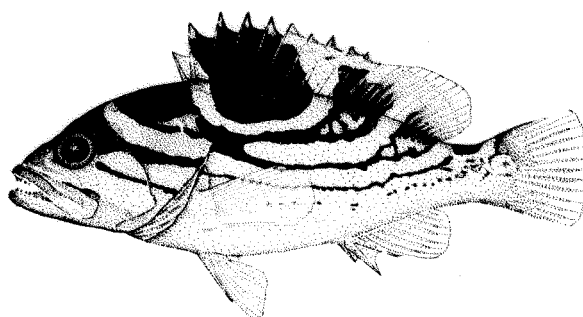
FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus poecilonotus (Temminck & Schlegel, 1842)OTHER SCIENTIFIC NAMES STILL IN USE: Often misidentified as "Epinephelus morrhua (Valenciennes)"

VERNACULAR NAMES:

FAO: En – Dot-dash grouper
Fr – Mérou morse
Sp – Mero punto y línea

NATIONAL:



juvenile

DISTINCTIVE CHARACTERS:

Body depth contained 2.6 to 3.1 times in standard length. Preopercle serrate, with 2 to 4 enlarged serrae at the angle; sides of lower jaw with 2 rows of teeth; lower gillrakers 15 to 17. Dorsal fin with 11 spines and 14 or 15 soft rays; interspinous membranes of dorsal fin deeply incised; anal fin with 3 spines and 8 soft rays; pectoral rays 17 or 18; caudal fin slightly to moderately rounded. Pored lateral line scales 58 to 65; lateral scale series 110 to 136.

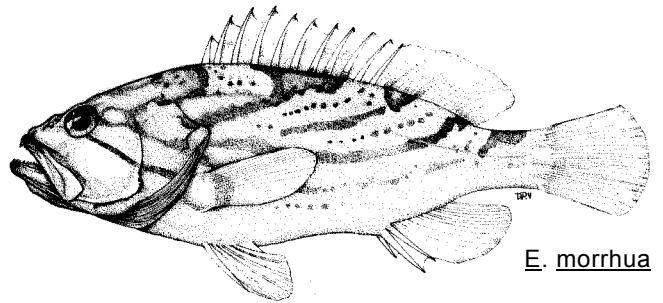
Colour: juveniles with a large dark brown to black spot on body below third to ninth dorsal spines and extending into fin to margin, this spot broadly edged in pale brown (except distally on dorsal fin between second and sixth spines); a broad dark brown band on nape, narrowing as it follows the contour of pale border of black dorsal spot, bifurcating below this spot, the upper part broadening as it curves dorsally to end in middle of dorsal fin between 10th dorsal spine and fifth soft ray, the lower part paralleling it, ending broadly in posterior part of fin; 2 narrow dark brown bands extending posteriorly from orbit, paralleling the bands above, the uppermost ending in a black saddle-like spot dorsally on caudal peduncle, the lower breaking up into a series of brown spots which end in basal part of caudal fin; anal fin, paired Fins and caudal fin (except for basal spots) uniformly pale yellowish. Adults have basically the same colour pattern but the large dark dorsal spot and the brown bands are replaced by a series of small spots. In large adults the spots on the body are faint or absent.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

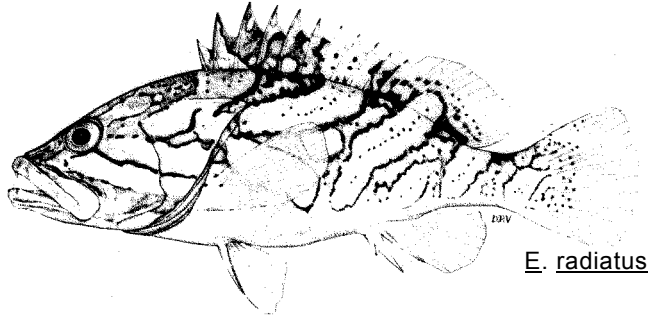
Epinephelus morrhua: a dark brown band from upper end of gill opening to rear base of dorsal fin, with 2 diagonal branches extending dorsally from it to dorsal fin (1 in middle of spinous portion and 1 anteriorly in soft portion).

E. radiatus: 4 dark-edged brown bands passing diagonally downward and forward on body (3 originating in dorsal fin and 1 on caudal peduncle, the 2 middle bands branching in central part of body); dorsal and caudal fins of adults with small dark spots.

E. latifasciatus: dorsal soft rays 12 or 13 (14 or 15 in E. poecilonotus); narrow dark bands or rows of spots on body horizontal.



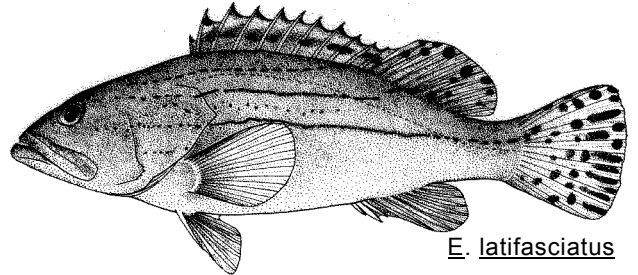
E. morrhua



E. radiatus

SIZE:

Maximum: 65 cm



E. latifasciatus

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the Western Indian Ocean, along the East African coast from about 28°S to about 8°N and at the Comores, Madagascar, Seychelles, Mauritius and Chagos Archipelago. Also present in the South China Sea, East Burma Sea and southern Japan.

A species of moderately deep water from about 60 to 200 m depth.

PRESENT FISHING GROUNDS:

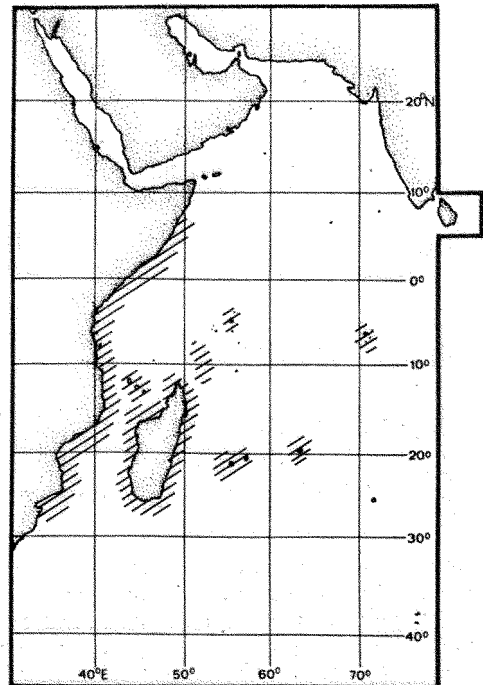
Deep banks throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with vertical longlines.

Marketed fresh.

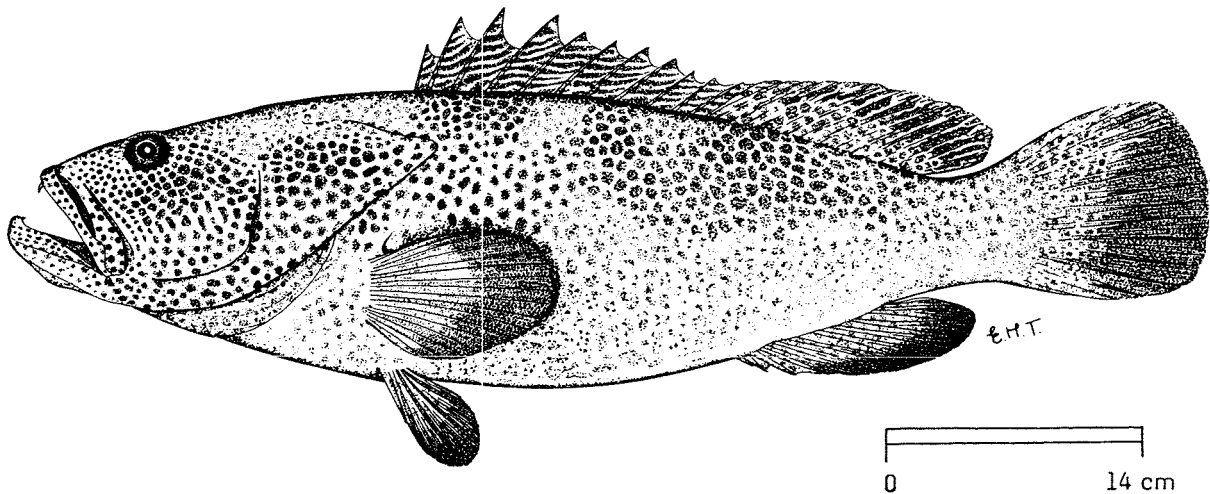


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus posteli* Fourmanoir & Crosnier, 1964

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Tiger grouper
 Fr - Mérou tigre
 Sp - Mero tigre

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 3.0 to 3.5 times in standard length; caudal peduncle depth about twice length of second anal fin spine. Preopercle finely serrate, with a slight notch; maxilla not reaching past eye; a pair of large canines at front of both jaws; an outer row of canines in upper jaw and 2 rows of canines at sides of lower jaw; lower gillrakers 9 or 10. Anterior and posterior nostrils of equal size. Dorsal fin with 11 spines and 16 soft rays, the membrane deeply incised between the first 7 or 8 spines; anal fin with 3 spines and 9 soft rays; pectoral rays 18; caudal fin rounded. Scales on body smooth, mostly embedded, not easily counted.

Colour: head, body, caudal, anal and soft dorsal fins covered with small, closely-set, dark, reddish-brown spots forming a pale network pattern; spinous dorsal fin with subhorizontal dark stripes; other fins dark brownish distally obscuring the small dark spots; inside of mouth reddish orange.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other Epinephelus species: no horizontal dark stripes on dorsal fin; anal fin rays 8 (except in E. modestus and E. septemfasciatus which have 9), teeth smaller.

Plectropomus species: dorsal fin with 8 spines and 11 soft rays (11 spines and 16 soft rays in E. posteli); preopercle with 3 ventrally directed spines.

SIZE:

Maximum: at least 100 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Natal, Mozambique and Madagascar; probably more widely distributed, but only recently recognized as a distinct species.

PRESENT FISHING GROUNDS:

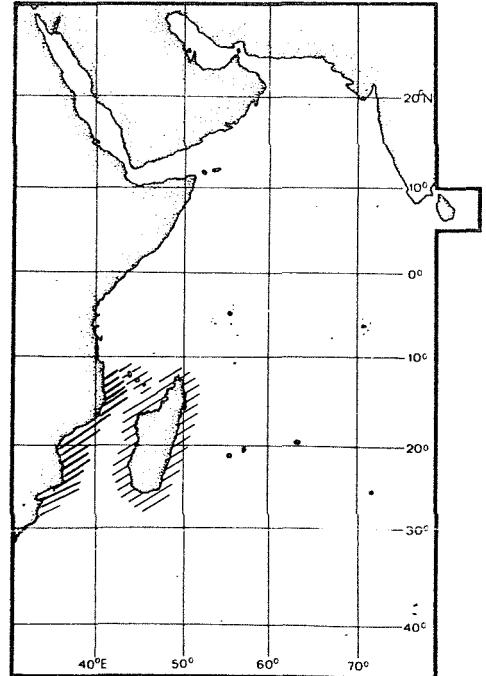
Coral reef areas in depths from 20 to 50 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

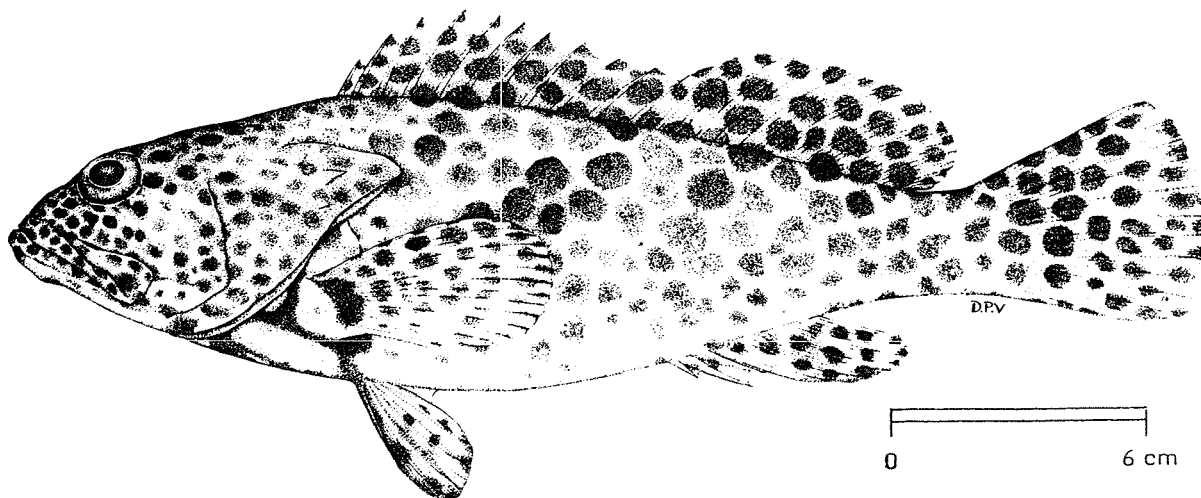
Caught with hook and line and in traps.

Sold fresh in local markets.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus quoyanus* (Valenciennes, 1830)OTHER SCIENTIFIC NAMES STILL IN USE : ? *Epinephelus gilberti* (Richardson, 1859)

VERNACULAR NAMES:

FAO : En - Barred-chest grouper
 Fr - Mérou écharpe
 Sp - Mero bandeado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 3.0 to 3.6 times in standard length. Interorbital area concave, its least width contained 1.4 to 1.7 times in eye diameter, and eye diameter contained 1.1 to 1.5 times in least depth of caudal peduncle of fish larger than 15 cm standard length; preopercle serrae mostly covered by skin; lower gillrakers 13 to 16. Dorsal fin with 11 spines and 16 to 18 soft rays; anal fin with 3 spines and 8 soft rays; pectoral rays 17 to 19; pectoral fins 1.2 to 1.5 times in head length; caudal fin rounded. Pored lateral line scales 47 to 50; body scales mostly cycloid (smooth).

Colour: head and body pale, with numerous, round, dark brown spots about pupil size; some spots at dorsal fin base larger and darker than others on body; chest pale with 2 vague diagonal dark brown bands; pectoral fin dusky, with a dark brown bar across dorsal 3/4 of base and obscure dark spots more distinct on inner surface of fin; spots on median fins darker than those on body.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

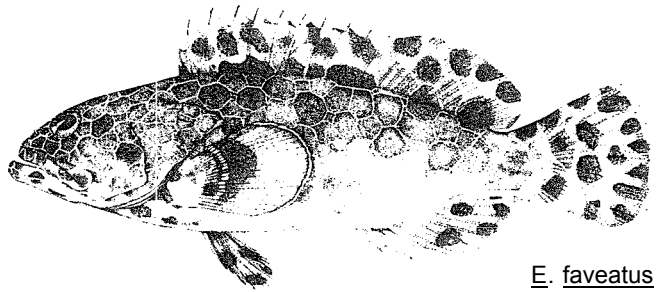
Epinephelus faveatus: pectoral fin not covered with small dark spots, outer surface dusky, with a narrow white edge distally; chest and pectoral fin base with dark spots or blotches (no dark bands); dark spots on body and head not sharply delimited by pale network pattern; interorbital width contained 0.9 to 1.4 times in eye diameter (1.4 to 1.7 times in *E. quoyanus*) and eye diameter contained 1.4 to 2.1 times in least depth of peduncle for specimens larger than 15 cm standard length (1.1 to 1.5 times in *E. quoyanus*); pectoral fins 1.65 to 1.95 times in head length (1.2 to 1.5 times in *E. quoyanus*).

E. spilotoceps: pored lateral line scales 60 to 67 (47 to 50 in *E. quoyanus*); body scales ctenoid; no dark bands on chest.

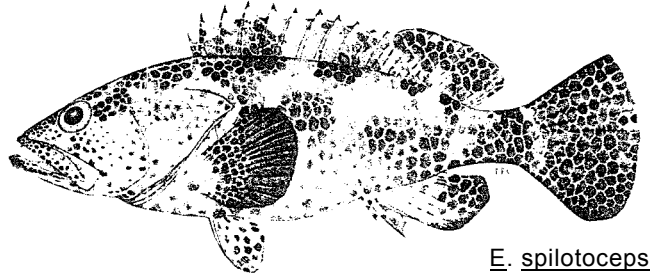
E. hexagonatus: pored lateral line scales 61 to 66; body scales ctenoid; lower gillrakers 17 to 19 (13 to 16 in *E. quoyanus*); prominent silvery-white specks on body; no dark bands on chest.

E. melanostigma: no dark bands on chest; pored lateral line scales 57 to 61; body scales ctenoid; midlateral part of lower jaw with 3 to 5 rows of teeth (2 rows in *E. quoyanus*).

E. merra: pectoral and median fins with prominent, small dark spots (much smaller than dark spots on body); body scales ctenoid.



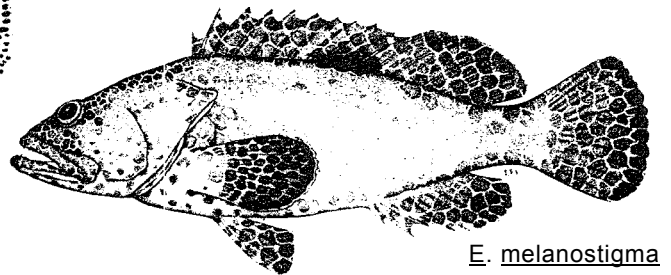
E. faveatus



E. spilotoceps



E. hexagonatus



E. melanostigma



E. merra

SIZE:

Maximum: 35 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

The distribution of this species is not clear because of confusion with other species. It is not uncommon on the west coast of India, and it also occurs outside the Western Indian Ocean at New Guinea.

PRESENT FISHING GROUNDS:

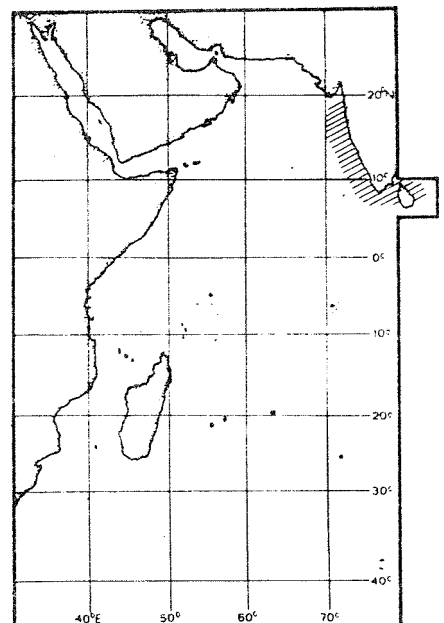
Coastal waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line, in traps and gillnets.

Sold fresh or dried salted in local markets.

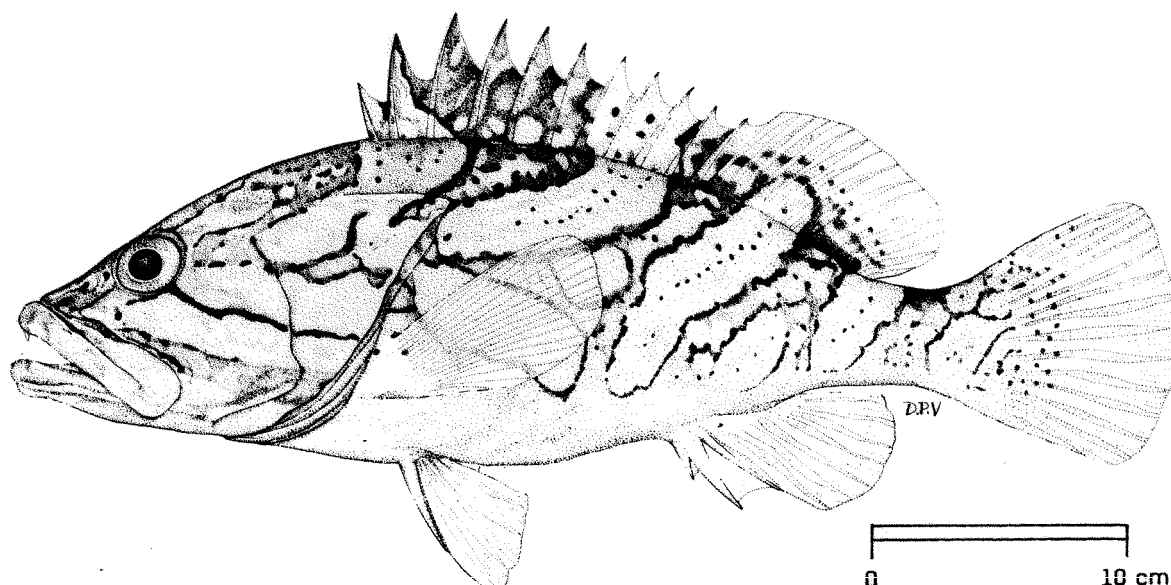


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus radiatus* (Day, 1867)

OTHER SCIENTIFIC NAMES STILL IN USE: Often misidentified as "*Epinephelus morrhua* (Valenciennes)", which is a different species

**VERNACULAR NAMES:**

FAO : En - Oblique-banded grouper
 Fr - Mérou zébré
 Sp - Mero acebrado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.5 to 3.0 times in standard length. Preopercle serrate, with 3 to 5 enlarged serrae at the angle; sides of lower jaw with 2 rows of teeth; lower gillrakers 16 to 18. Dorsal fin with 11 spines and 14 or 15 (usually 15) soft rays; interspinous membranes of dorsal fin deeply incised; anal fin with 3 spines and 8 soft rays; margin of anal fin rounded; pectoral rays 17 or 18; caudal fin slightly to moderately rounded. Pored lateral line scales 57 to 66; lateral scale series 110 to 120.

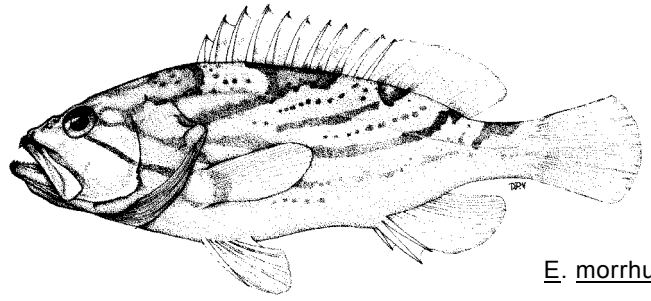
Colour: light brownish grey, the body with 4 irregular, dark-edged bands passing downward and forward, the 2 in the middle bifurcating in about centre of body (first 3 bands originating on dorsal fin and the last on caudal peduncle); an irregular dark-edged band extending posteriorly from eye, soon bifurcating, the lower part continuing to opercle and the upper extending onto nape; 2 narrow oblique dark brown bands on cheek; body, dorsal fin and base of anal fin with scattered dark brown dots; remaining fins unmarked. Adults with bands on dorsal part of head and body being replaced by small dark spots extending onto dorsal and caudal fins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

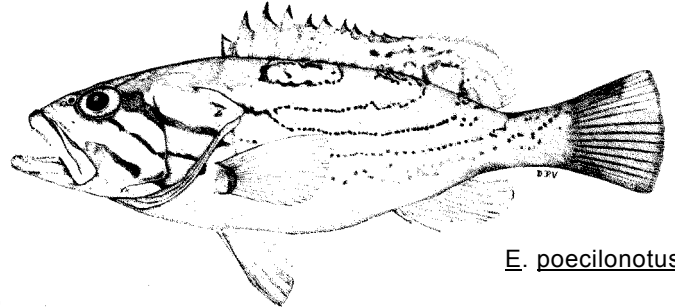
Epinephelus morrhua: a dark brown band from upper end of gill opening to rear base of dorsal fin, with 2 oblique branches extending dorsally from it, each ending broadly in dorsal fin (1 in middle of spinous portion and 1 anteriorly in soft portion).

E. poecilonotus: a large dark brown spot or group of spots at base of spinous portion of dorsal fin; below this a series of curved parallel rows of dark brown spots.

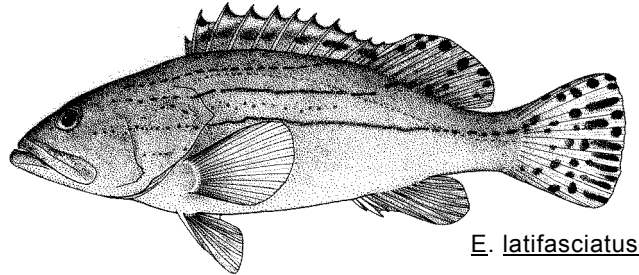
E. latifasciatus: dorsal soft rays 12 or 13 (14 or 15 in E. radiatus); narrow dark bands or rows of dark spots on body horizontal.



E. morrhua



E. poecilonotus



E. latifasciatus

SIZE:

Maximum: 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

because of confusion of this species with the closely related E. morrhua and E. poecilonotus, the records in the literature cannot be confirmed unless accompanied by good illustrations or colour descriptions. This grouper is positively known only from Natal, Mauritius, Reunion, south India, Chagos Archipelago and outside our area, from the East Burma Sea, Hong Kong and southern Japan.

Adults generally occur in 80 to 160 m depth; the young have been collected in as little as 18 m depth.

PRESENT FISHING GROUNDS:

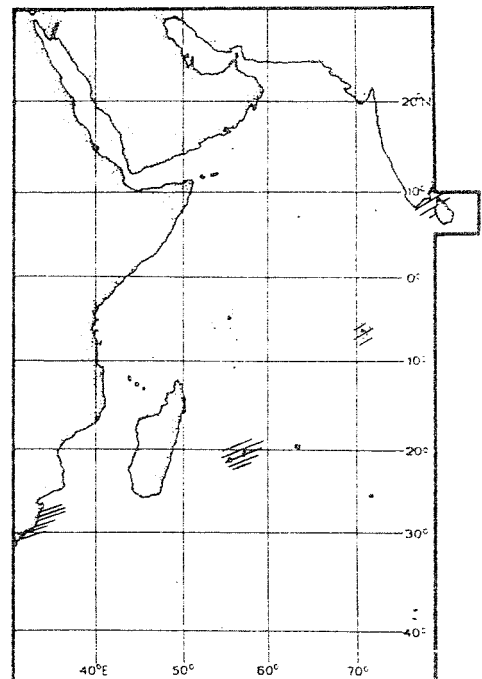
Deep banks throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

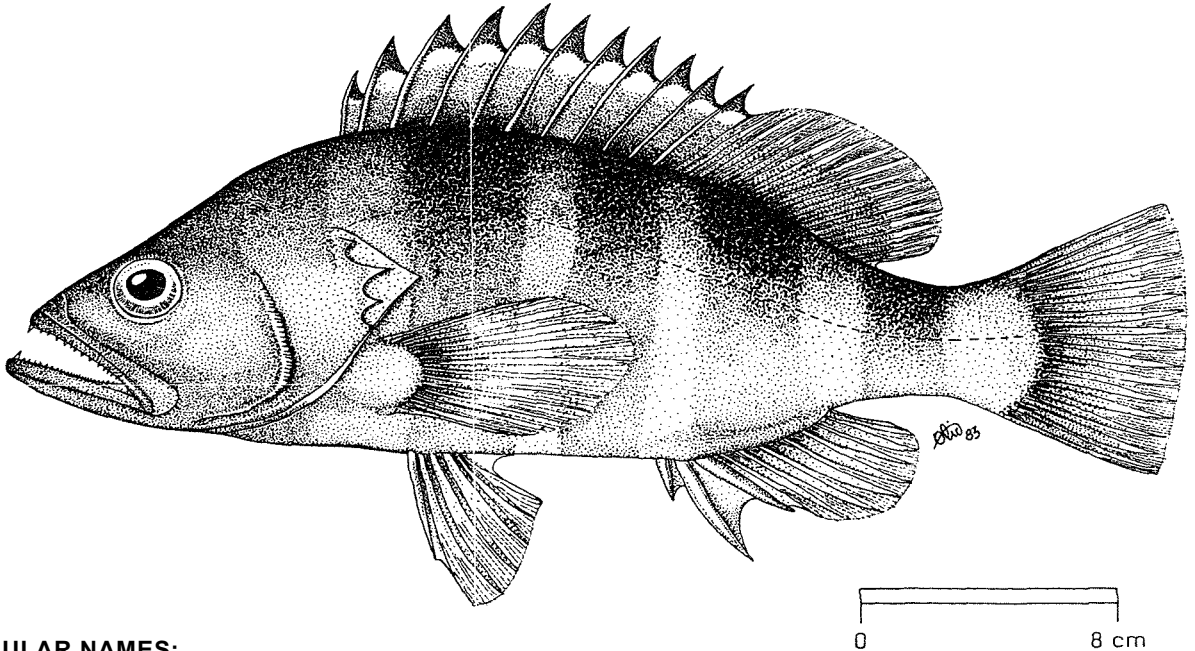
Caught by deep handlining or line-pullers.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus retouti Bleeker, 1874OTHER SCIENTIFIC NAMES STILL IN USE: ? Epinephelus mauritianus Baissac, 1962
? Epinephelus truncatus Katayama, 1957

VERNACULAR NAMES:

FAO : En - Brownback grouper
Fr - Mérou rouge
Sp - Mero punteado

NATIONAL:

DISTINCTIVE CHARACTERS:

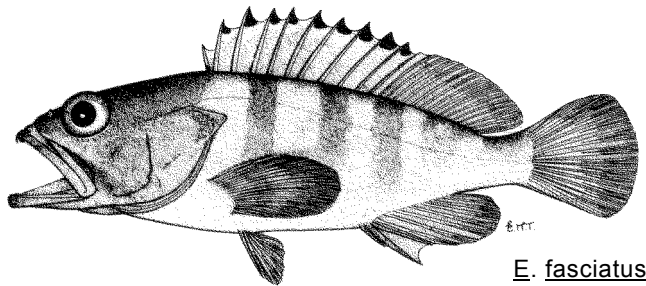
Body depth contained 2.6 to 3.0 times in standard length. Preopercle serrate, the serrae at the angle slightly enlarged; lower gillrakers 14 to 16. Dorsal fin with 11 spines and 16 soft rays; anal fin with 3 spines and 8 or 9 soft rays; pectoral rays 19 or 20; caudal fin truncate. Pored lateral line scales 70 to 73; lateral scale series 127 to 141.

Colour: reddish, each scale with a dark basal spot; margin of dorsal fin and upper edge of caudal fin with a dusky border. Juveniles with dorsal part of head dark brown; 3 broad dark brown bars or, body below spinous dorsal fin and extending well onto fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus fasciatus: body depth 2.9 to 3.3 times in standard length (2.6 to 3.0 times in E. retouti); lateral line scales 50 to 56 (70 to 73 in E. retouti); dark bars on body not broader than pale interspaces.

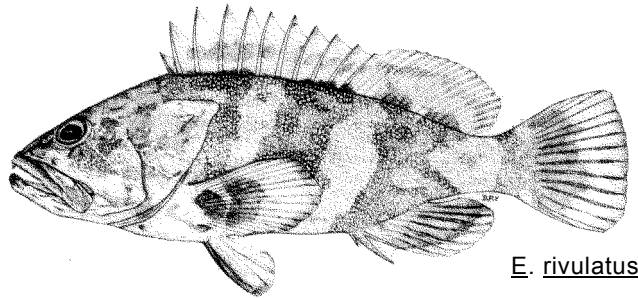
E. rivulatus: dark wavy violet lines on cheek and preorbital; each body scale usually with a conspicuous white spot; pectoral fin usually with a dark reddish brown blotch at base of fin; lateral line scales 50 to 53.



E. fasciatus

SIZE:

Maximum: 50 cm.



E. rivulatus

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known only from Mauritius, Réunion and Madagascar. Reported from Chagos Archipelago as Epinephelus truncatus.

PRESENT FISHING GROUNDS:

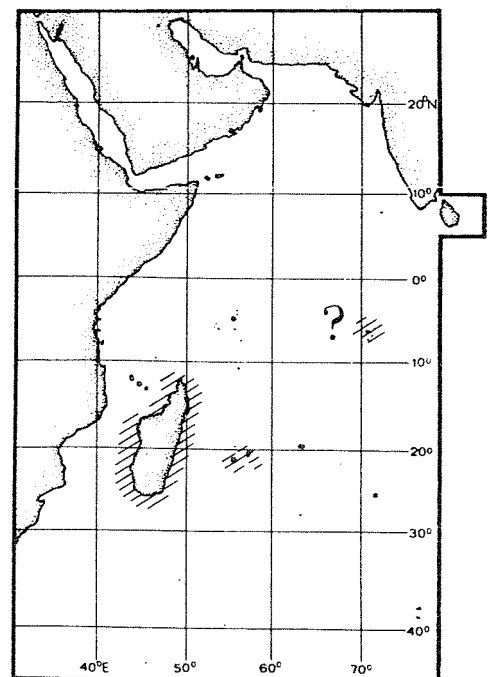
Occurs in depths of 30 to 150 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

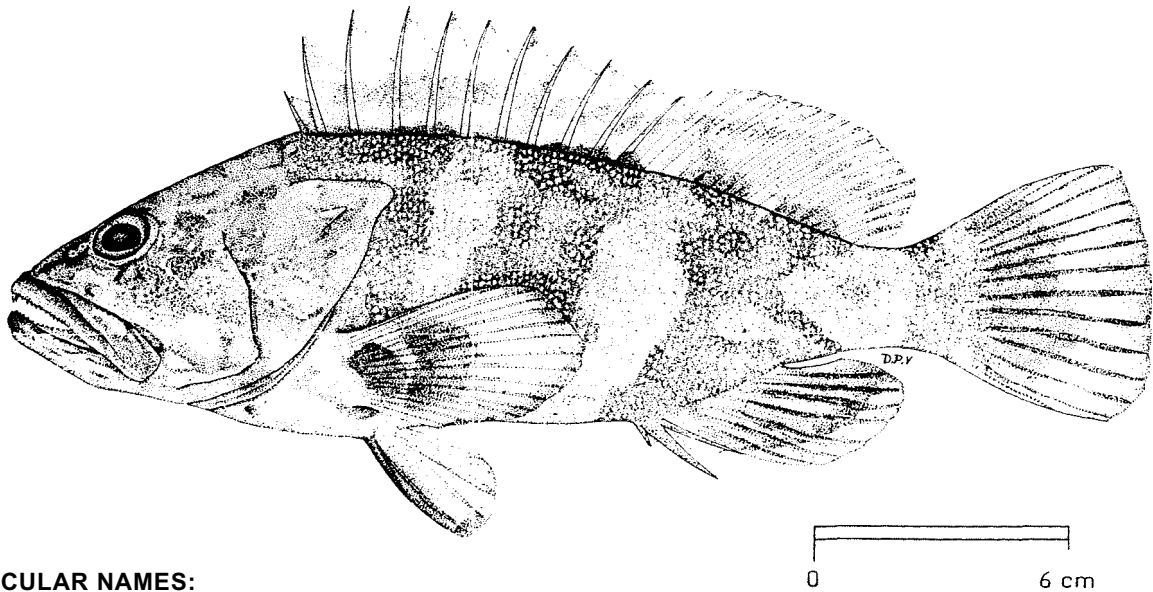
Caught with hook and line, in traps and gillnets.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus rivulatus (Valenciennes, 1830)OTHER SCIENTIFIC NAMES STILL IN USE : Epinephelus ryncholepis (Bleeker, 1859)
Epinephelus grammatophorus Boulenger, 1903

VERNACULAR NAMES:

FAO : En - Halfmoon grouper
Fr - Mérou demi-lune
Sp - Mero medialuna

NATIONAL:

DISTINCTIVE CHARACTERS

Body depth contained 2.6 to 3.2 times in standard length. Preopercle serrate, the serrae at the angle enlarged; lower gillrakers 13 to 16. Dorsal fin with 11 spines and 16 to 18 soft rays; anal fin with 3 spines and 8 soft rays; pectoral rays 17 to 19; caudal fin rounded. Pored lateral line scales 50 to 53; lateral scale series 86 to 102.

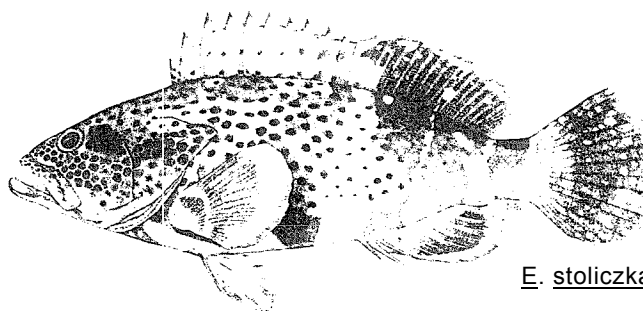
Colour: head and body generally brownish; each body scale usually with a bluish-white spot; 4 irregular dark bars from base of dorsal fin to ventral part of body, the first curving forward onto opercle, the second to midline of belly and the last 2 running to anal fin base; a fifth dark bar across peduncle; 2 dark saddle blotches on nape. Usually 3 or 4 wavy violet lines radiating from eye and a few short segments and spots of the same colour on cheek and opercle. Pectoral fin dark grey, with a dark red semicircular blotch covering most of the base. Chest and isthmus pale, with dark reddish-brown markings. Dark brown pigment in crease along base of spinous dorsal fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

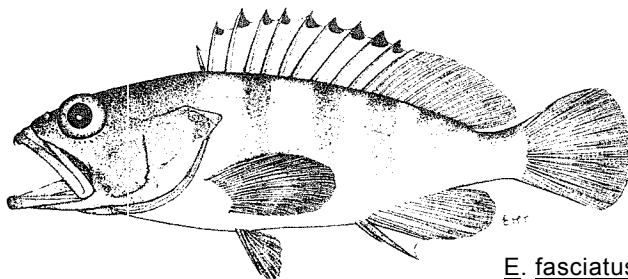
Epinephelus stoliczkae: prominent dark spots on head and body; median fins with a yellow submarginal band; no small white spot on each body scale; body scales mostly cycloid.

E. fasciatus: no wavy violet lines on head; no reddish blotch at base of pectoral fins; black triangle on membrane behind tip of each dorsal spine; lateral line scales 70 to 73 (50 to 53 in E. rivulatus).

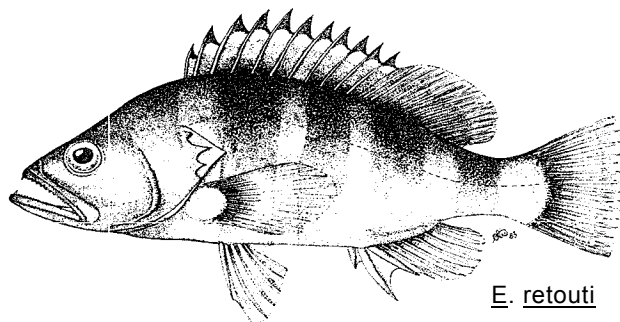
E. retouti: no wavy violet lines on head; pectoral fins uniformly pale; dark red or black triangle on membrane behind tip of each dorsal spine; lateral line scales 70 to 73 (50 to 53 in E. rivulatus).



E. stoliczkae



E. fasciatus



E. retouti

SIZE:

Maximum: 35 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widely distributed in the Western Indian Ocean, southward to Algoa Bay, South Africa, but not in the Red Sea or in the "Gulf". Also present in the Eastern Indian Ocean and the Western Central Pacific, extending eastward to China and Japan.

PRESENT FISHING GROUNDS:

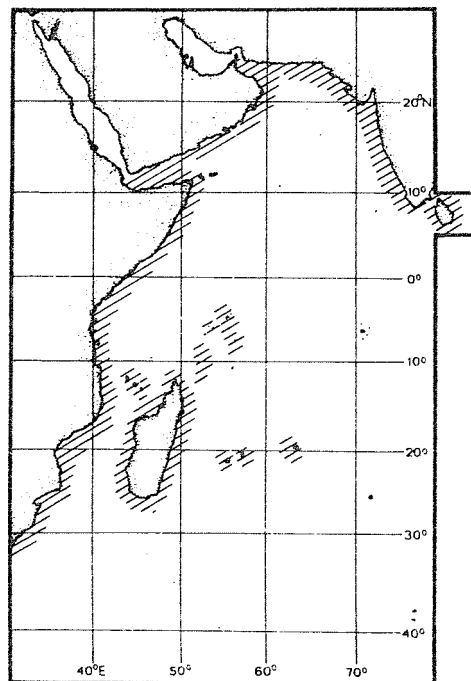
Rocky bottoms or coral reefs from 20 to 150 m. Common on the North Kenya Banks in 35 to 120 m depth.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

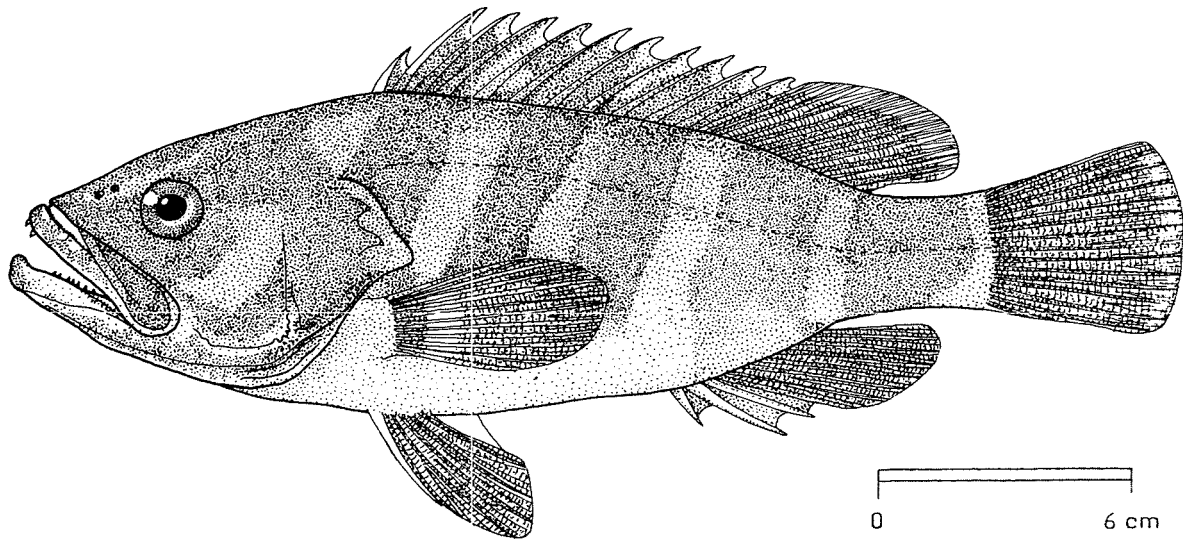
Caught with hook and line, in traps and gillnets.

An excellent food fish, but rather small to be prized by fishermen. Sold fresh and dried salted in local markets.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus septemfasciatus* (Thunberg, 1793)OTHER SCIENTIFIC NAMES STILL IN USE: ? *Epinephelus compressus* Postel, Fourmanoir & Guezé, 1964

VERNACULAR NAMES:

FAO : En - Convict grouper
 Fr - Mérou bagnard
 Sp - Mero carcelario

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.5 to 3.1 times in standard length. Preopercle with enlarged serrae at the angle and 1 to 4 strong serrae directed forward on lower edge near the angle; maxilla not reaching past eye; midlateral part of lower jaw with 2 rows of teeth; posterior nostrils very large in adults; lower gillrakers 13 to 15. Dorsal fin with 11 spines and 13 to 15 soft rays, the fin membrane deeply incised between the spines; anal fin with 3 spines and 9 or 10 soft rays; pectoral rays 17 or 18; caudal fin rounded. Pored lateral line scales 65 to 75; lateral scale series 110 to 130; body scales ctenoid, without auxiliary scales.

Colour: body blackish dorsally, with 7 or 8 brown vertical bars, the last bar covering caudal peduncle.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus rivulatus: dark bars on body less distinct; dorsal fin soft rays 16 to 18 (13 to 15 in E. septemfasciatus); anal fin soft rays 8 (9 or 10 in E. septemfasciatus); pored lateral line scales 50 to 53 (65 to 75 in E. septemfasciatus).

E. diacanthus: dorsal fin soft rays 15 to 17; pored lateralline scales 53 to 60; body with 5 dark bars, the fifth on caudal peduncle.

Cephalopholis sexmaculatus: dark bars not reaching ventral surface; dorsal fin spines 9 (11 in E. septemfasciatus).

SIZE:

Maximum: 40 cm (?).

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known in the Western Indian Ocean only from Mauritius, Réunion and the Chagos Archipelago. Also occurs in Japan.

PRESENT FISHING GROUNDS:

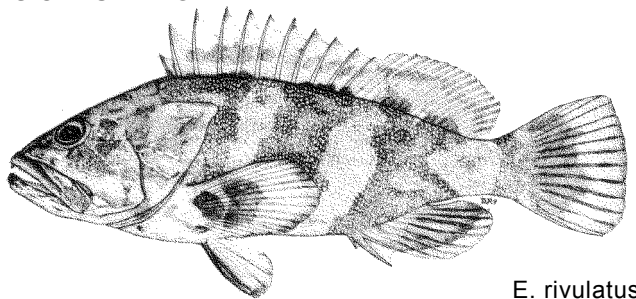
Depths of 150 to 300 m. Apparently rare.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

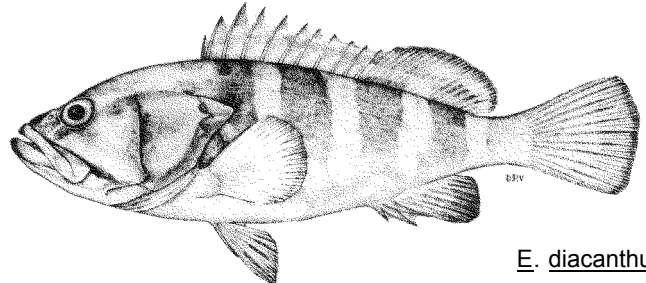
Separate statistics are not reported for this species.

Caught with hook and line.

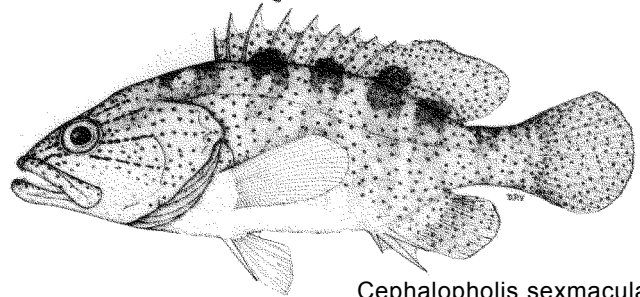
Sold fresh in local markets.



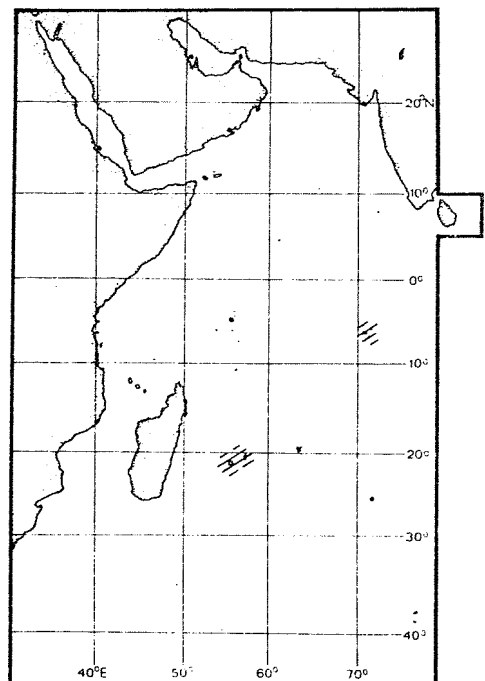
E. rivulatus



E. diacanthus

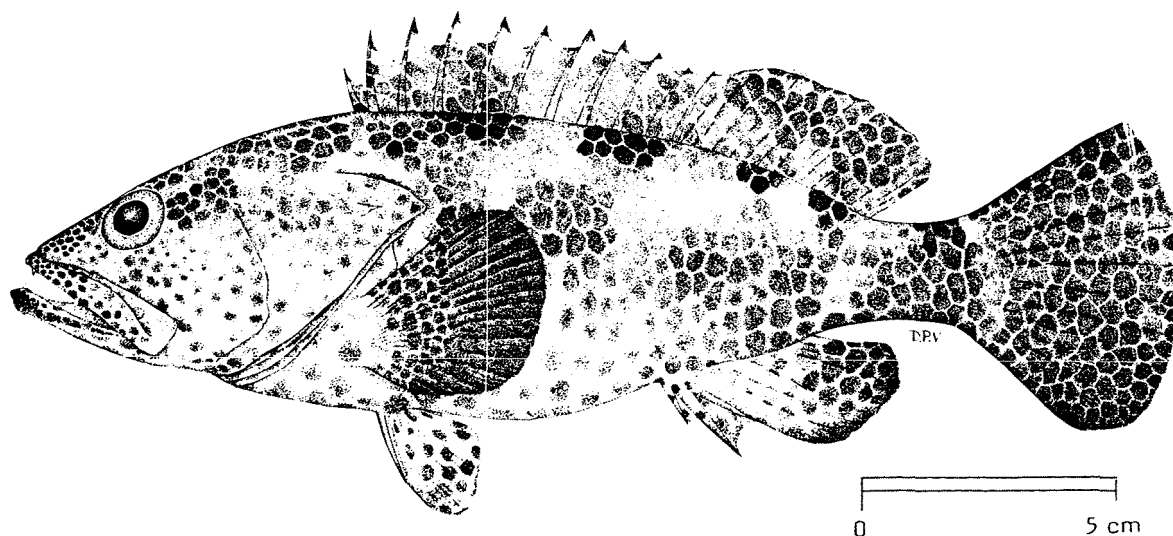


Cephalopholis sexmaculatus



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus spilotoceps* Schultz, 1953OTHER SCIENTIFIC NAMES STILL IN USE: *Epinephelus salonotus* Smith & Smith, 1963

VERNACULAR NAMES:

FAO : En - Foursaddle grouper
 Fr - Mérou quatre selles
 Sp - Mero cuatro monturas

NATIONAL

DISTINCTIVE CHARACTERS:

Body depth contained 3.1 to 3.5 times in standard length, much less than head length; caudal peduncle depth distinctly less than length of second anal spine. Preopercle finely serrate, the serrae at angle covered with skin; rear nostrils subequal to front nostrils; maxilla not reaching much past vertical at rear edge of orbit; midlateral part of lower jaw with 3 or 4 rows of teeth; lower gillrakers 14 to 17. Dorsal fin with 11 spines and 15 soft rays; anal fin with 3 spines and 8 soft rays; pectoral rays 18 or 19; caudal fin rounded. Pored lateral line scales 60 to 67; lateral scale series 91 to 94; body scales ctenoid, except for those on belly.

Colour: head and body covered with dark spots forming a pale mesh; front part of head with small black or dark brown sots; 4 dark saddle-blotches on dorsal part of body (first at base of last 4 dorsal spines, last on caudal peduncle), the 2 middle blotches usually less distinct than the first and last blotches; median fins with dark spots as on body; pectoral and pelvic fins with small, faint, dark spots.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

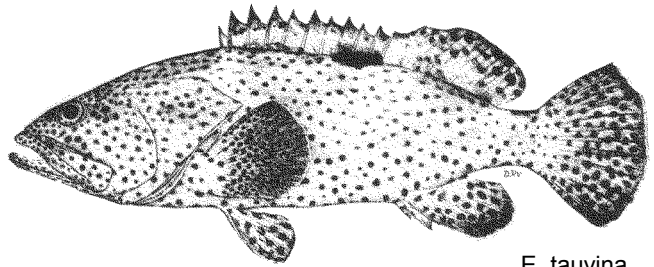
E. *tauvina*: pored lateral line scales 67 to 74 (60 to 67 in E. *spilotoceps*); lateral scale series 98 to 110 (91 to 94 in E. *spilotoceps*); body scales cycloid except for small patch at end of pectoral fin; maxilla reaches well past vertical at rear edge of eye; lower gillrakers 18 to 20 (14 to 17 in E. *spilotoceps*).

E. *areolatus*: caudal fin truncate; pored lateral line scales 50 to 56.

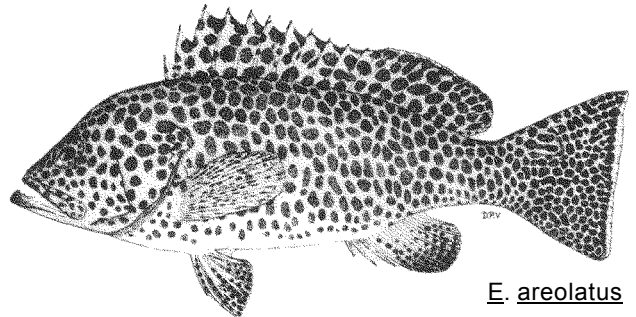
E. *melanostigma*: a single dark saddle-blotch (at base of last 4 dorsal spines); lower gillrakers 17 to 19; caudal peduncle depth subequal to length of second anal spine; maxilla reaches past eye.

E. *merra*: pored lateral line scales 48 to 54; midlateral part of lower jaw with 2 rows of teeth (3 or 4 rows in E. *spilotoceps*).

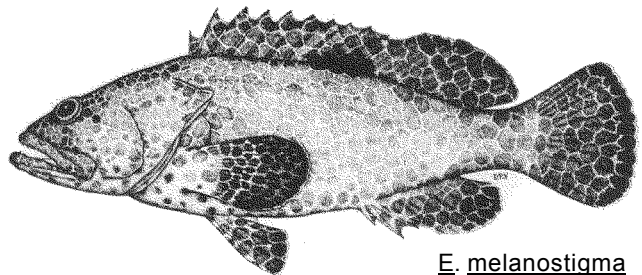
E. *hexagonatus*: body with tiny white to silvery dots between the polygonal dark spots; 5 dark saddle-blotches on body, the first at origin of dorsal fin; pectoral fin dusky, without distinct spots.



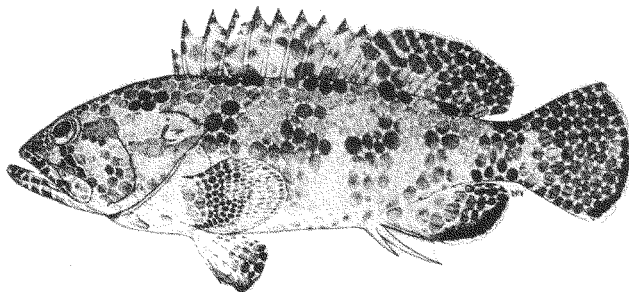
E. *tauvina*



E. *areolatus*



E. *melanostigma*



E. *hexagonatus*

SIZE:

Maximum: 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the Western Indian Ocean, along the east coast of Africa from about 30° S to at least 3° N and perhaps into the Red Sea; off Madagascar, Comores, Seychelles, Mauritius and Reunion. Also in the Eastern Indian Ocean and the Western Central Pacific, extending eastward to the Marshall Islands.

PRESENT FISHING GROUNDS:

Coral reef areas. Probably too small to be of major commercial importance.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line and in traps.

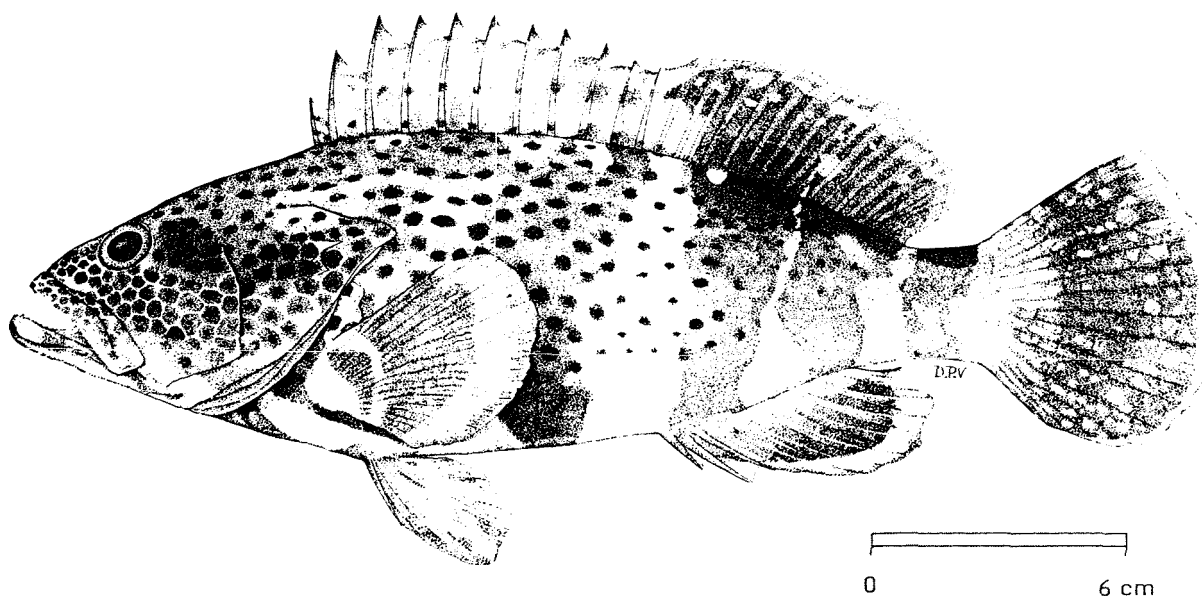
Marketed fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus stoliczkae (Day, 1875)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Epaulet grouper
 Fr - Mérou épaulette
 Sp - Mero hombrero

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.9 to 3.2 times in standard length. Preopercle serrae enlarged at angle; maxilla reaches to below rear edge of eye or slightly beyond; sides of lower jaw with 2 rows of teeth; lower gillrakers 13 to 15. Dorsal fin with 11 spines and 16 to 18 soft rays; anal fin with 3 spines and 8 soft rays; pectoral rays 17 or 18; caudal fin rounded. Pored lateral line scales 48 to 51; lateral scale series 97 to 115; body scales cycloid, except for a few weakly ctenoid ones at middle of sides.

Colour: head and body yellowish grey, with dark orange-red sots except ventrally and posteriorly; a dark grey bar below posterior dorsal spines, 2 more below soft dorsal fin and 1 on caudal peduncle dorsal part of peduncle bar nearly black; pectoral fin base pale, with a dark oval or semicircular blotch across base; chest pale, with dark bands; spinous dorsal fin yellowish, with a row of dark red spots along the base and 2 faint dark longitudinal bands; other fins dark, yellowish grey-brown; median fins with a broad yellowish margin posteriorly.

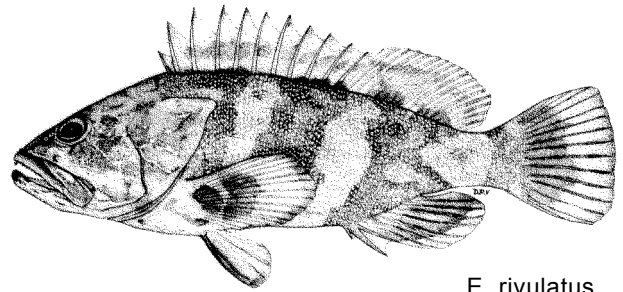
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus rivulatus: no dark orange-red spots on head and body; fins not yellowish; each body scale usually with a white dot.

Other Epinephelus species: colour pattern not like E. stoliczkae.

SIZE:

Maximum: 40 cm.



E. rivulatus

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known from the Red Sea to Pakistan, but apparently absent from the "Gulf". Lives around small coral heads on shallow sandy bottoms.

PRESENT FISHING GROUNDS:

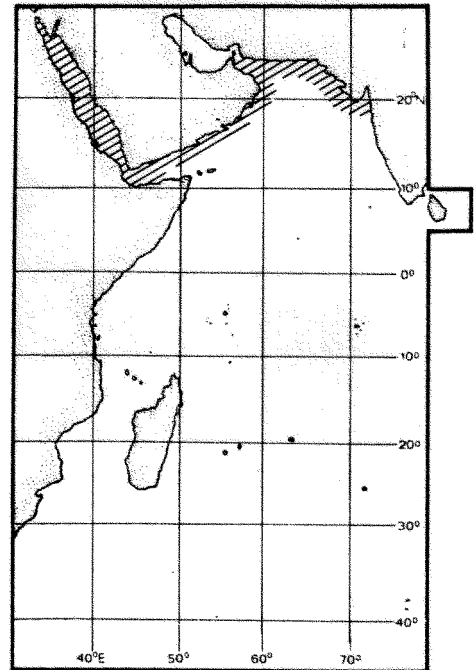
Coastal waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line and in traps.

Sold fresh in local markets.

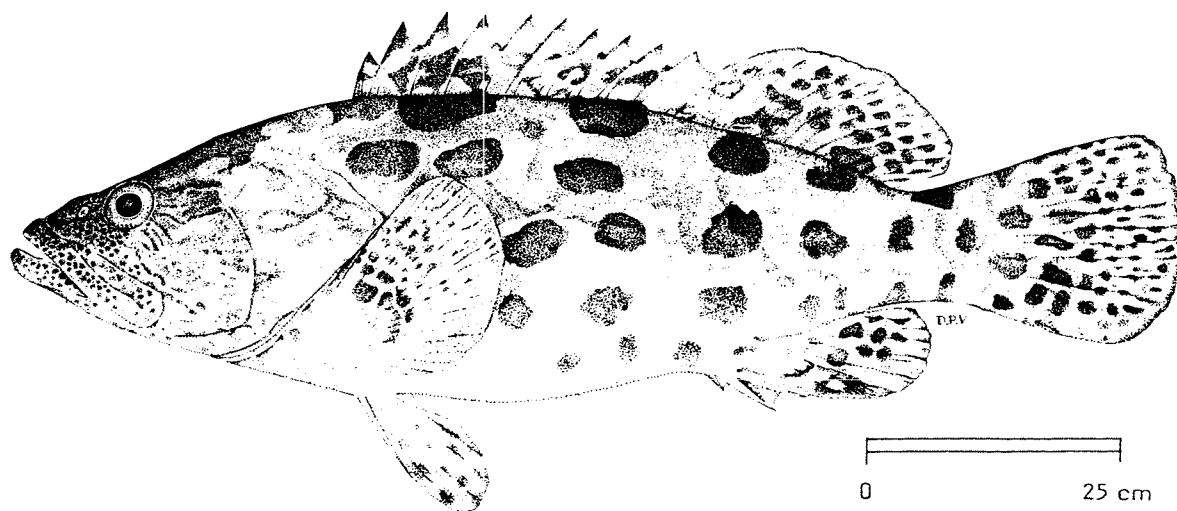


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Epinephelus tukula Morgans, 1959

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Potato grouper
 Fr - Mérou patate
 Sp - Mero patata

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.9 to 3.3 times in standard length; caudal peduncle depth greater than length of second anal fin spine; maxilla reaches vertical at rear edge of eye; 3 to 6 rows of teeth at sides of lower jaw; lower gillrakers 16 to 18; rear nostril diameter not more than twice that of front nostril. Dorsal fin with 11 spines and 15 soft rays; anal fin with 3 spines and 8 or 9 soft rays; pectoral rays 19 or 20; caudal fin rounded. Pored lateral line scales 66 to 70; lateral scale series 117 to 135; midlateral body scales ctenoid.

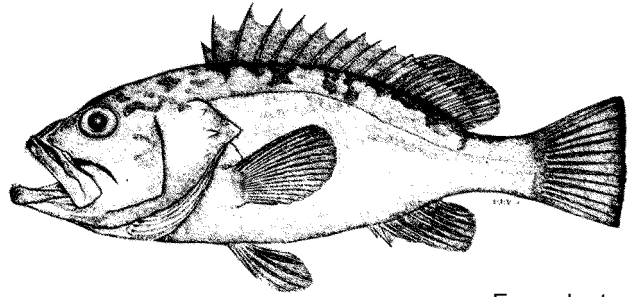
Colour: body dark grey, with large, round or oval, widely-spaced, black blotches; small, round, black spots on soft dorsal, caudal and anal fins with a few large spots at the bases of these fins; pectoral and pelvic fins with small, obscure dark spots. Very large fish are uniformly dark grey or black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

The distinctive colour pattern of large oval or round dark blotches on the body of E. tukula is easily recognized, but may not be distinct on specimens larger than 150 cm. The species that these giant fish might be confused with are:

Epinephelus malabaricus: pored lateral line scales 56 to 67 (66 to 70 in E. tukula); lateral scale series 98 to 114 (117 to 135 in E. tukula); only 2 rows of teeth at sides of lower jaw.

E. modestus: body depth contained 2.6 to 2.8 times in standard length (2.9 to 3.3 times in E. tukula); caudal fin truncate; pectoral rays 17 or 18 (19 or 20 in E. tukula); rear nostril 3 or 4 times larger than front nostril (not more than twice larger in E. tukula).



E. modestus

SIZE:

Maximum: 200 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread in the Western Indian Ocean north of Natal, but not recorded from Madagascar, the Red Sea or the "Gulf". Also present in the Eastern Indian Ocean and the Western Central Pacific, extending eastward to southern Japan.

PRESENT FISHING GROUNDS:

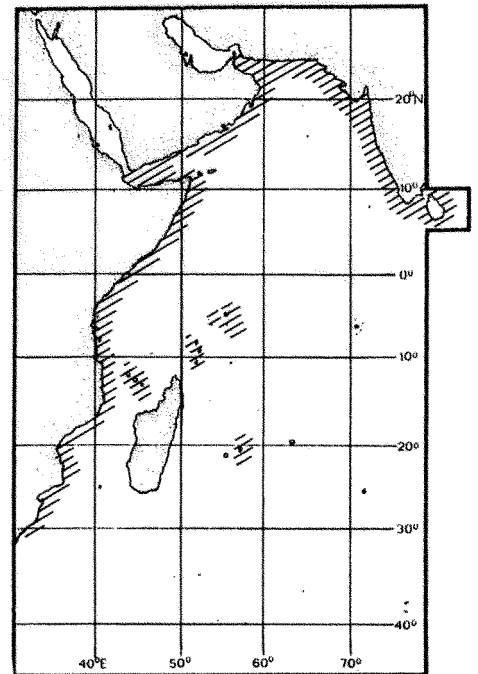
Rocky bottoms in depths of 10 to 150 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line.

Sold fresh in local markets.

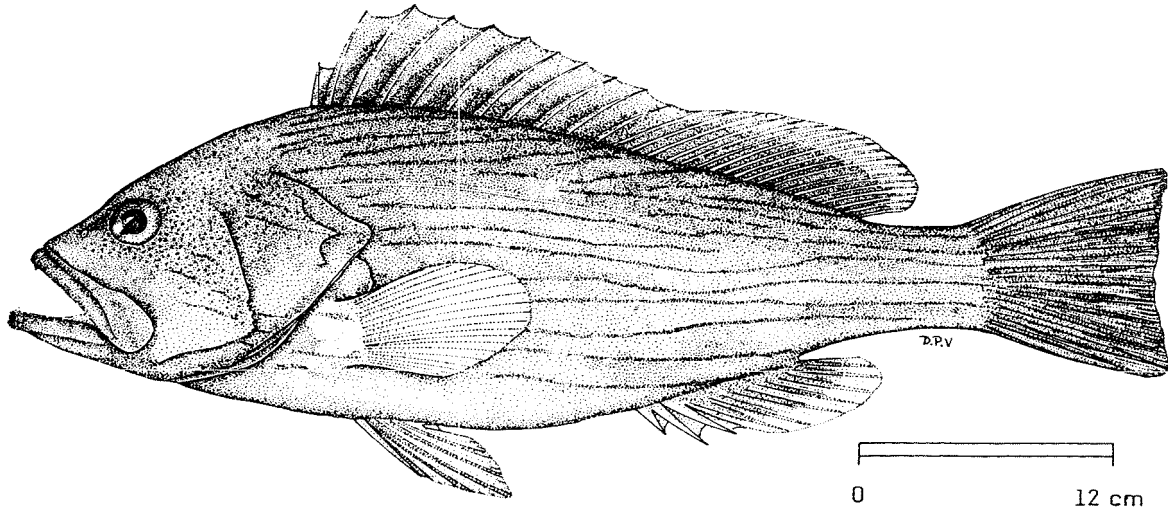


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Epinephelus undulosus* (Quoy & Gaimard, 1824)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Midwater grouper
 Fr - Mérou ondulé
 Sp - Mero ondulado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.8 to 3.2 times in standard length. Preopercle with large serrae at the angle; rear end of maxilla with distinct protuberance covered by upper lip; sides of lower jaw with 2 rows of teeth; gillrakers long and numerous, 20 to 22 on lower limb; no rudimentary rakers. Dorsal fin with 11 spines and 18 or 19 soft rays; dorsal fin membrane not incised between the spines; anal fin with 3 spines and 8 soft rays; pectoral rays 18 or 19; caudal fin truncate to slightly concave. Pored lateral line scales 70 to 75, difficult to count, lateral scale series 144 to 155; body scales ctenoid, except on belly.

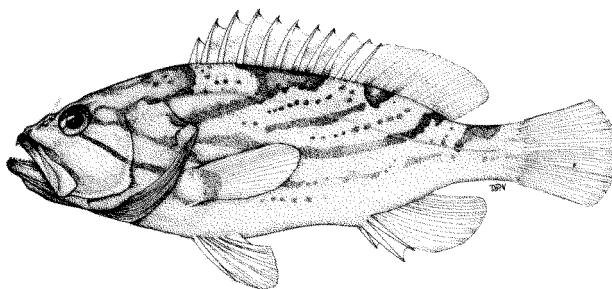
Colour: generally purplish grey or brownish, usually with golden brown speckles on top and sides of head and on anterodorsal part of body; juveniles (larger than 50 cm total length) with parallel subhorizontal broken lines on head and body. Some specimens without dots or lines.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus morrhua: dorsal fin with 14 or 15 soft rays (10 or 19 in E. undulosus); caudal fin rounder; lower gillrakers T to 11, not counting rudiments (20 to 22 in E. undulosus).

E. modestus: dorsal fin with 14 or 15 soft rays; lower gillrakers 11 to 13, not counting rudiments.

E. flavocaeruleus: dorsal fin with 16 or 17 soft rays; lower gillrakers 13 or 14, not counting rudiments.



E. morrhua

SIZE:

Maximum: 75 cm (total length), 7 kg.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Occurs in the northern part of the area (north of about 5°N) but not in the Red Sea or the "Gulf". Also present in the Eastern Indian Ocean and the Western Central Pacific, to China, the Philippines and New Guinea.

A fish of the banks, not of reefs.

Feeds on pelagic as well as benthic fishes, small crustaceans and pelagic tunicates (thaliaceans).

PRESENT FISHING GROUNDS:

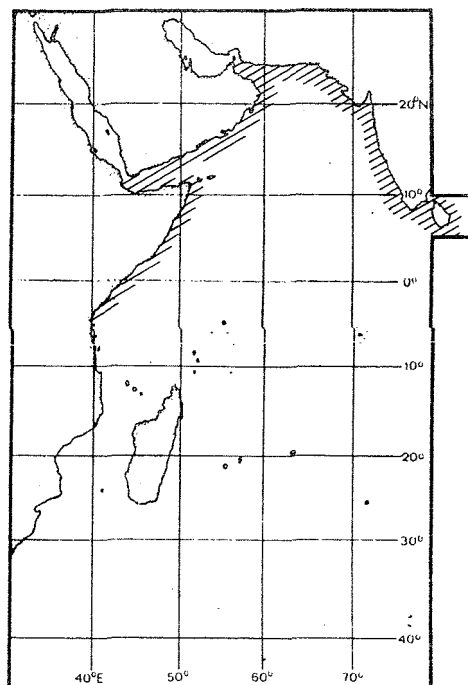
Depths of 20 to 90 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with trawls and hook and line.

Sold fresh in local markets.

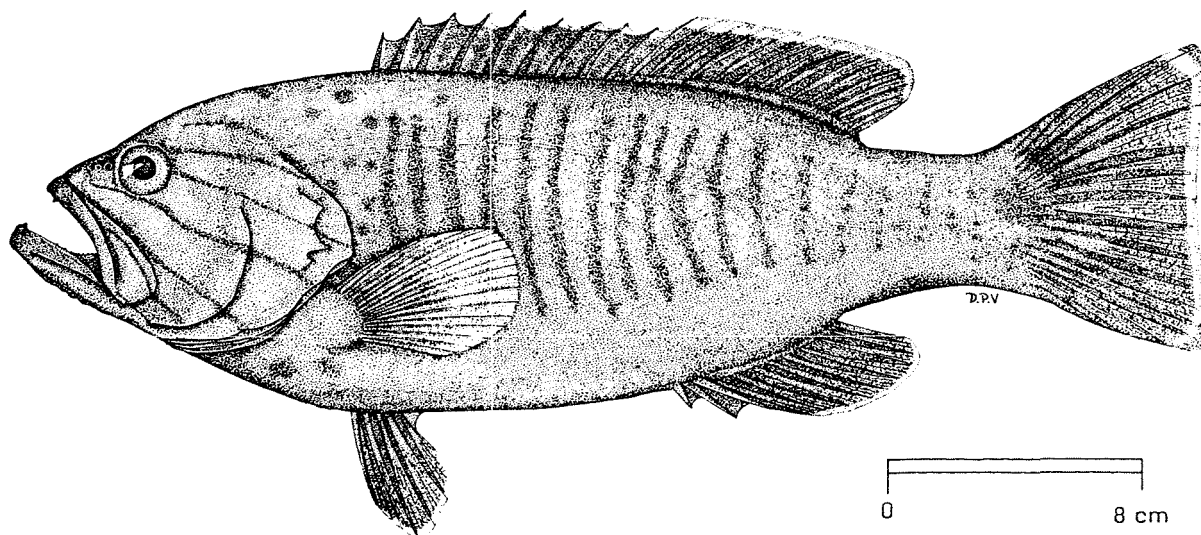


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Gracila albomarginata* (Fowler & Bean, 1930)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Red-edged grouper
 Fr - Mérou bord rouge
 Sp - Mero paraniero

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.6 to 3.0 times in standard length. Head small, its length contained 3.0 to 3.1 times in standard length; preopercle rounded, upper margin finely serrate; maxilla reaches slightly past eye; sides of lower jaw with 2 rows of teeth; lower gillrakers 15 to 17. Dorsal fin with 9 spines and 14 or 15 soft rays, the membrane only slightly incised between the spines; anal fin with 3 spines and 9 soft rays; pectoral rays 17 to 19; caudal fin truncate to slightly concave. Pored lateral line scales 67 to 73; lateral scale series 108 to 115; body scales ctenoid, except on belly.

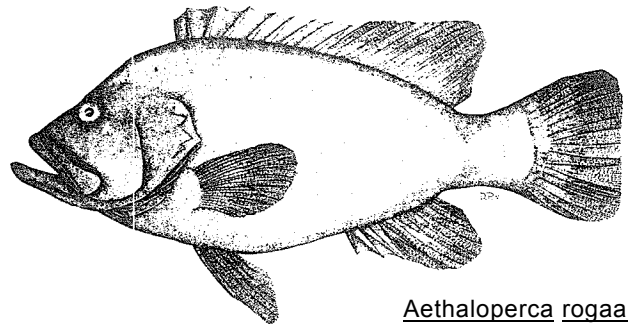
Colour: head and body dark reddish brown; 4 or 5 oblique, dark blue lines on head and 12 to 14 anteriorly convex narrow blue bars on sides below lateral line. Margin of soft dorsal and anal fins reddish orange with a submarginal mauve band; corners and/or rear margin of caudal fin reddish or mauve.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Aethaloperca rogae: body depth contained 2.1 to 2.4 times in standard length (2.6 to 3.0 in G. albomarginata); dorsal fin rays 11 or 18 (14 or 15 in G. albomarginata); no blue lines on head or body.

Cephalopholis boenack: caudal fin rounded; anal fin rays 8 (9 in G. albomarginata); head length contained 2.6 to 2.8 times in standard length (3.0 to 3.1 times in G. albomarginata); pored lateral line scales 49 to 52 (67 to 73 in G. albomarginata); blue lines on body longitudinal.

Gracila polleni: body yellow, with pale blue-violet, longitudinal bands.



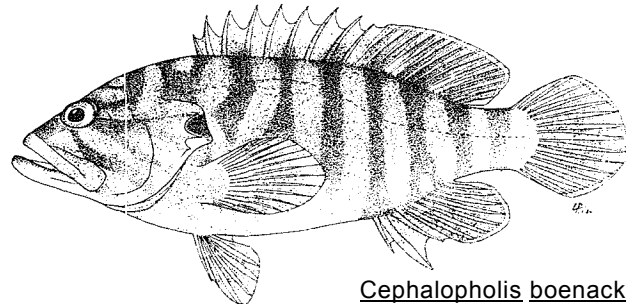
Aethaloperca rogae

SIZE:

Maximum: 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

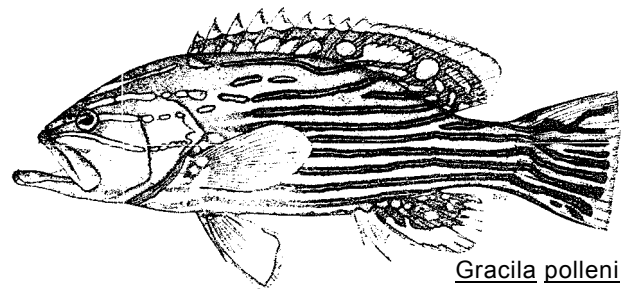
Northern Mozambique to Zanzibar, Cosmoledo Island, the Seychelles, Mauritius, Réunion and Chagos Archipelago. Also known from the East Indies and southern Japan.



Cephalopholis boenack

PRESENT FISHING GROUNDS:

Coral reefs in depths of 4 to 20 m. Rare.



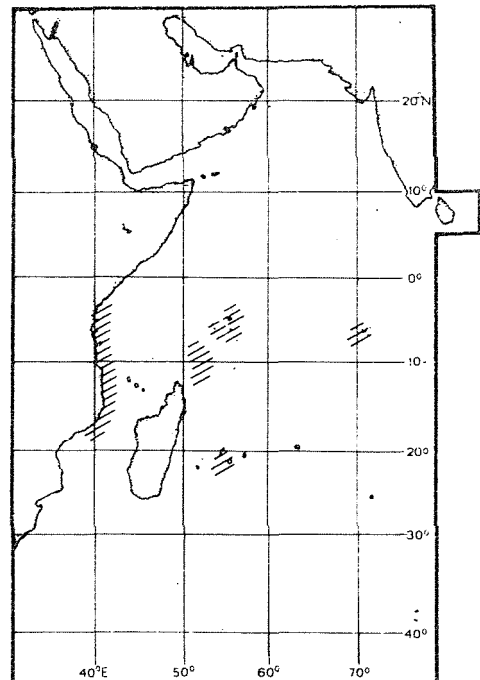
Gracila polleni

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

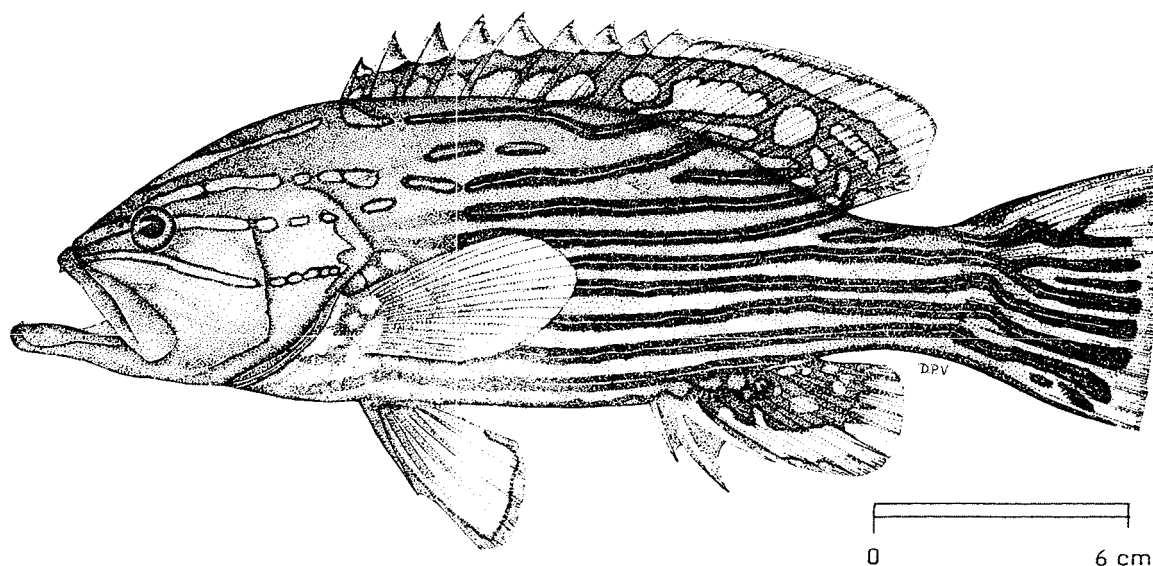
Caught with hook and line, in traps and gillnets.

Sold fresh in local markets.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Gracila polleni (Bleeker, 1868)OTHER SCIENTIFIC NAMES STILL IN USE: Cephalopholis virgatus Fourmanoir, 1954
Gracila okinawae Katayama, 1974

VERNACULAR NAMES:

FAO : En - Harlequin hind
 Fr - Vielle arlequin
 Sp - Cherna arlequin

NATIONAL:

DISTINCTIVE CHARACTERS:

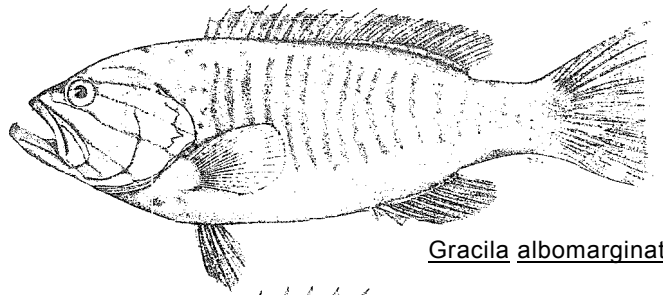
Body depth subequal to head length, contained 3.0 to 3.3 times in standard length. Preopercle rounded, finely serrate; maxilla extends to below rear edge of eye; sides of lower jaw with 2 rows of teeth; lower gillrakers 14 to 16. Dorsal fin with 9 spines and 15 soft rays, the membrane only slightly incised between the spines; anal fin with 3 spines and 9 soft rays; pectoral rays 17 to 19; caudal fin truncate. Pored lateral line scales 65 to 71; lateral scale series 111 to 120; body scales ctenoid, except on belly.

Colour: yellow with pale bluish purple longitudinal stripes or oblong blotches on head, body and median fins; pelvic fins orange yellow, the leading edge bluish purple; pectoral fins yellow.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Gracila albomarginata: body dark reddish brown with dark blue lines on head and subvertical blue lines on body.

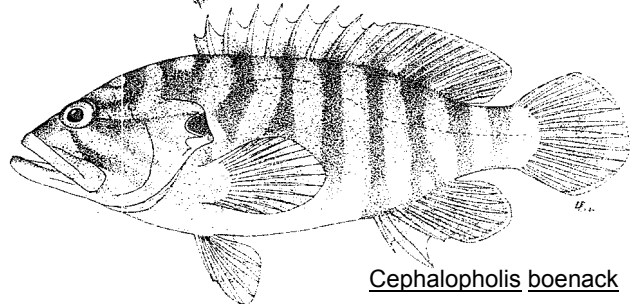
Cephalopholis boenack: caudal fin rounded; anal fin rays 8 (9 in G. polleni); head length contained 2.6 to 2.8 times in standard length (3.0 to 3.3 times in G. polleni); pored lateral line scales 49 to 52 (65 to 11 in G. polleni).



Gracila albomarginata

SIZE :

Maximum: 35 cm.



Cephalopholis boenack

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known in the Western Indian Ocean only from Madagascar, Comores, Mauritius, Réunion, Rodriguez and Chagos Archipelago. Also present in the Eastern Indian Ocean and the Western Central Pacific, extending eastward to southern Japan.

PRESENT FISHING GROUNDS:

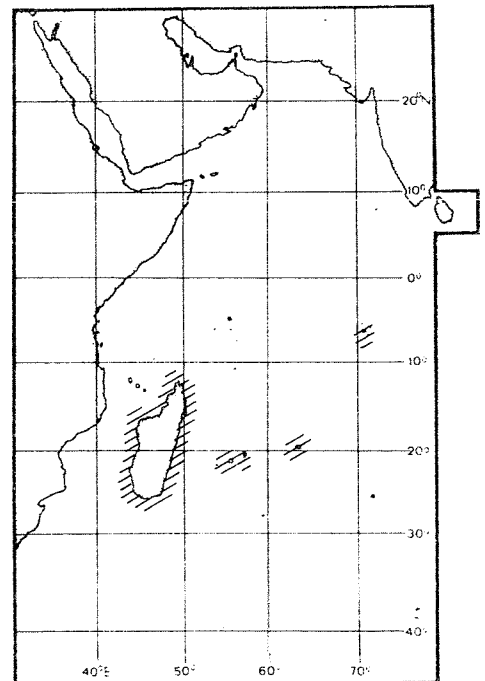
Depths of 30 to 80 m. Rare.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line.

Sold fresh in local markets.



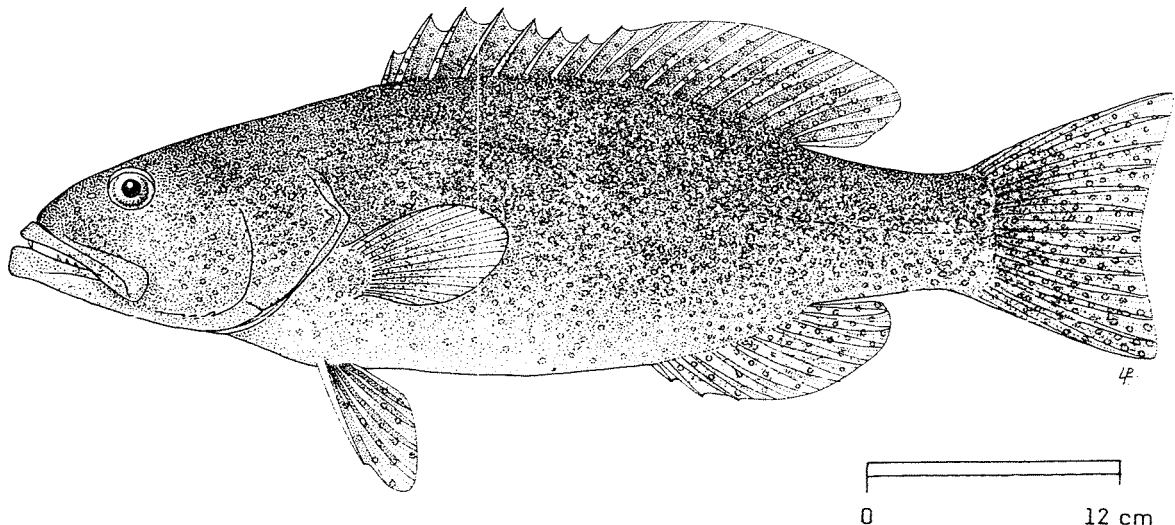
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Plectropomus leopardus</i> (Lapecède, 1802)
--

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO :	En - Bluedotted coral-trout
	Fr - Mérou étoiles bleues
	Sp - Mero celestial

NATIONAL:

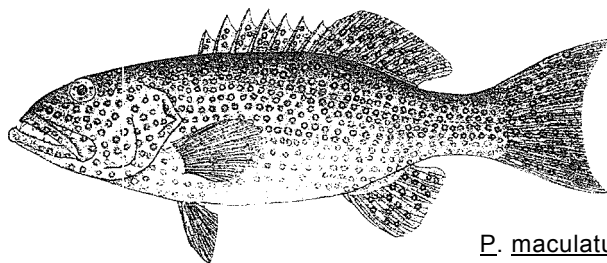
DISTINCTIVE CHARACTERS:

Body depth contained 3.0 to 3.6 times in standard length. Preopercle rounded, the lower edge with 3 or 4 large spines directed downward and forward; opercular spines poorly developed; lower jaw with 1 or 2 large fixed teeth posteriorly on each side; posterior nostrils distinctly larger than anteriors in fish more than 45 cm; gillrakers at angle of first arch usually longer than gill filaments; 8 to 10 developed rakers on lower limb; no scales between eyes or on snout. Dorsal fin with 8 spines and 10 or 11 soft rays; anal fin with 3 spines and 8 soft rays, the distal margin convex, the fin broadly rounded; pectoral rays 15 to 17; caudal fin emarginate, the middle rays shortest.

Colour: generally reddish; head, body and median fins covered with blue dots; 8 or more blue spots on cheek, 4 or more on pectoral fin base.

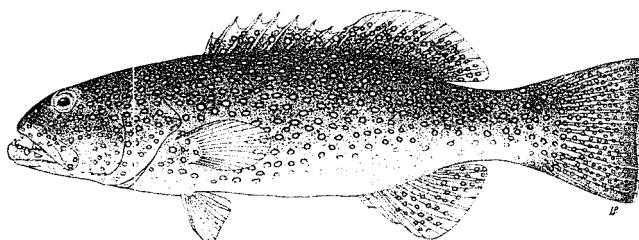
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Plectropomus maculatus: distal margin of anal fin straight to concave, forming a right angle with front margin when fin is erected; blue spots on head and front part of body larger and more elongate than spots on rear part of body.



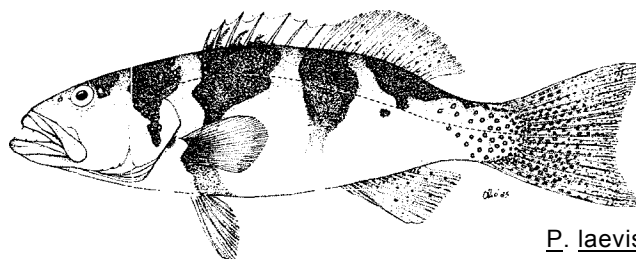
P. maculatus

P. truncatus: embedded scales present between eyes and on snout; head and body covered with round spots much larger than nostrils; caudal fin truncate, the upper lower rays subequal to middle rays.



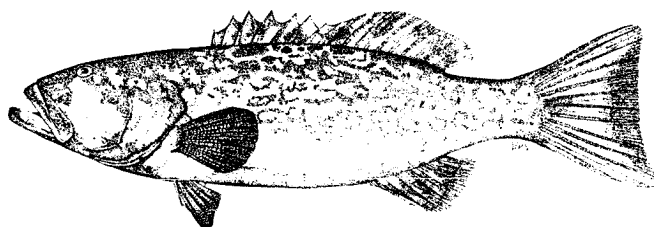
P. truncatus

P. laevis: body yellowish with 4 dark saddle blotches; pectoral fin rays 17 (15 to 17 in P. leopardus); small blue spots not uniformly distributed over head and body.



P. laevis

P. punctatus: adults (?) generally purplish brown, with pale mottling; pectoral fin rays 16 to 18; middle caudal rays distinctly shorter than upper and lower rays.



P. punctatus

SIZE:

Maximum: 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Distribution unclear because of confusion with other species. Within the area, known definitely from Zanzibar, Mauritius, Seychelles and Sri Lanka. Also found in southern Japan and Australia.

PRESENT FISHING GROUNDS:

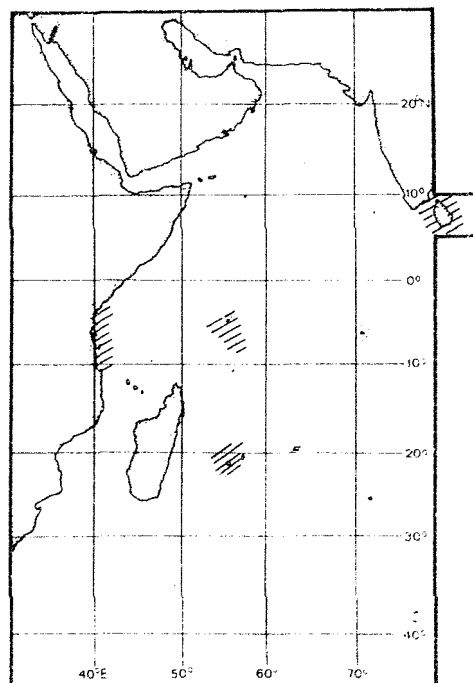
Coral reefs in depths of 10 to 30 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION

Separate statistics are not reported for this species.

Caught with hook and line.

Sold fresh in local markets.



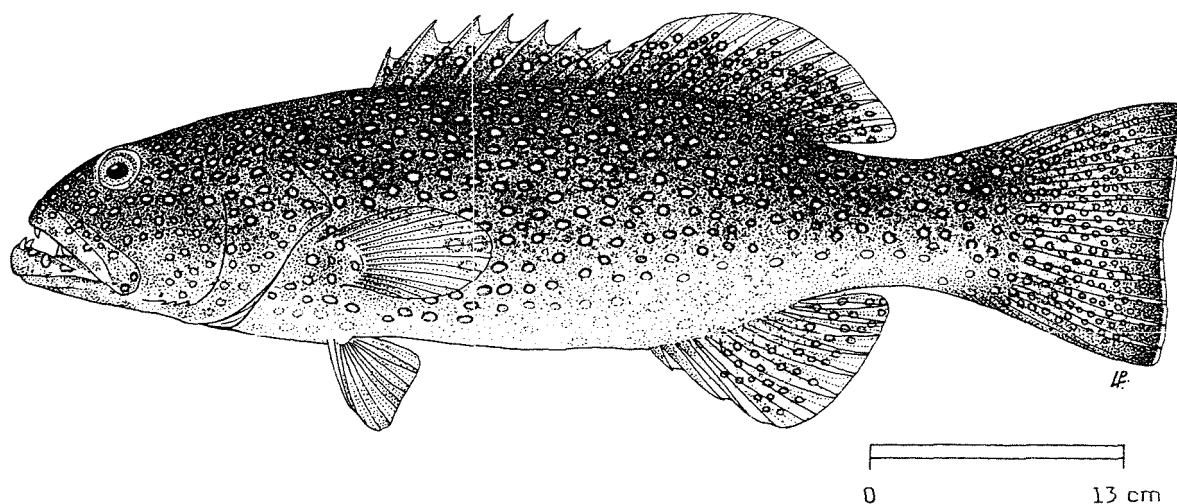
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Plectropomus truncatus</i> Howler & Bean, 1930

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Squaretail coral-trout
 Fr - Mérou queue carrée
 Sp - Mero troncón

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 3.1 to 3.7 times in standard length. Preopercle rounded, the lower edge with 3 spines directed downward and forward; opercular spines poorly developed; lower jaw with 1 to 3 fixed teeth posteriorly on each side; nostrils subequal. Interorbital and snout scaly (scales embedded in adults); gillrakers at angle of first arch about ½ length of gill filaments, 2 to 9 developed rakers on lower limb. Dorsal fin with 8 spines and 11 soft rays; anal fin with 3 spines and 8 soft rays; pectoral rays 15 or 16; caudal fin truncate, the middle rays not much shorter than upper and lower rays.

Colour: body, head and median fins orange-brown, with numerous, black-edged, blue spots; spots closely set and extending onto ventral part of belly; rear margin of caudal fin with a white edge and a blackish submarginal band; pectoral fin rays dusky, the membranes pale; pelvic fins dark brown, becoming orange at base.

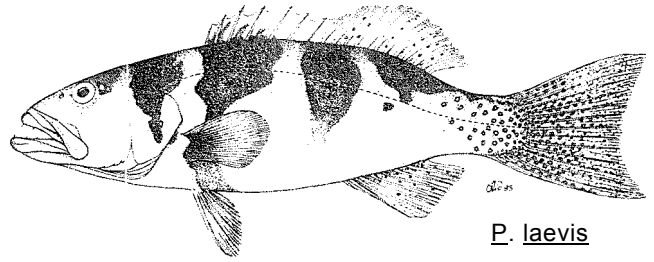
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Plectropornus laevis: head and body tan or yellowish, with 5 black saddle-blotches; rear nostrils much longer than front ones; no scales between eyes.

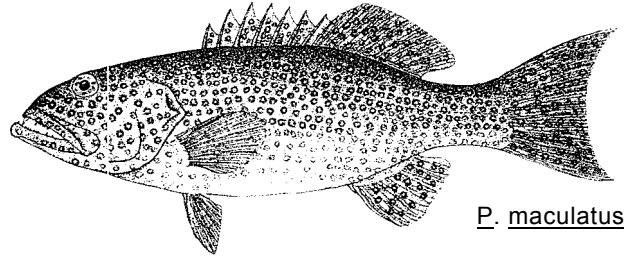
P. maculatus: no scales between eyes; middle caudal rays distinctly shorter than upper and lower rays; longest gillraker on first arch longer than gill filaments.

P. punctatus: no scales between eyes; adults (?) generally purplish brown with irregular pale mottling; middle caudal rays distinctly shorter than upper and lower rays.

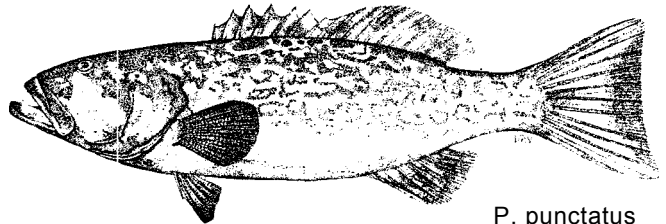
P. leopardus: no scales between eyes; blue spots on body very small, about the size of the nostrils; middle caudal rays distinctly shorter than upper and lower rays.



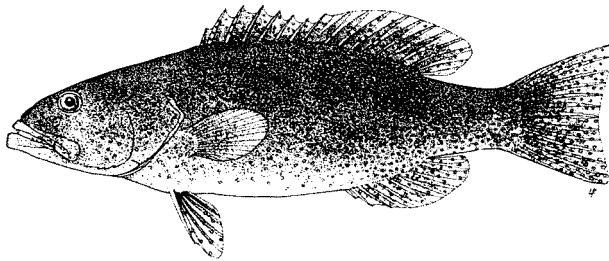
P. laevis



P. maculatus



P. punctatus



P. leopardus

SIZE:

Maximum: 100 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Red Sea; known in the Western Indian Ocean only from the Maldive Islands, but probably more widely distributed. Well known in the Pacific from southern Japan, the Philippines and northern Great Barrier Reef to Samoa and the Marshall Islands.

PRESENT FISHING GROUNDS:

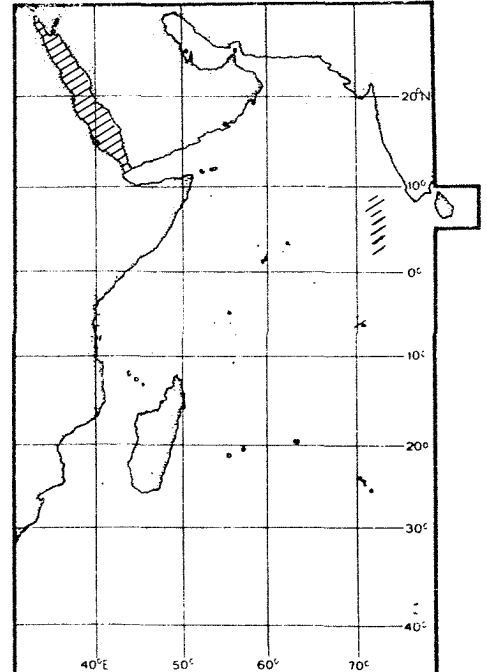
Coral reefs in depths of 10 to 30 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

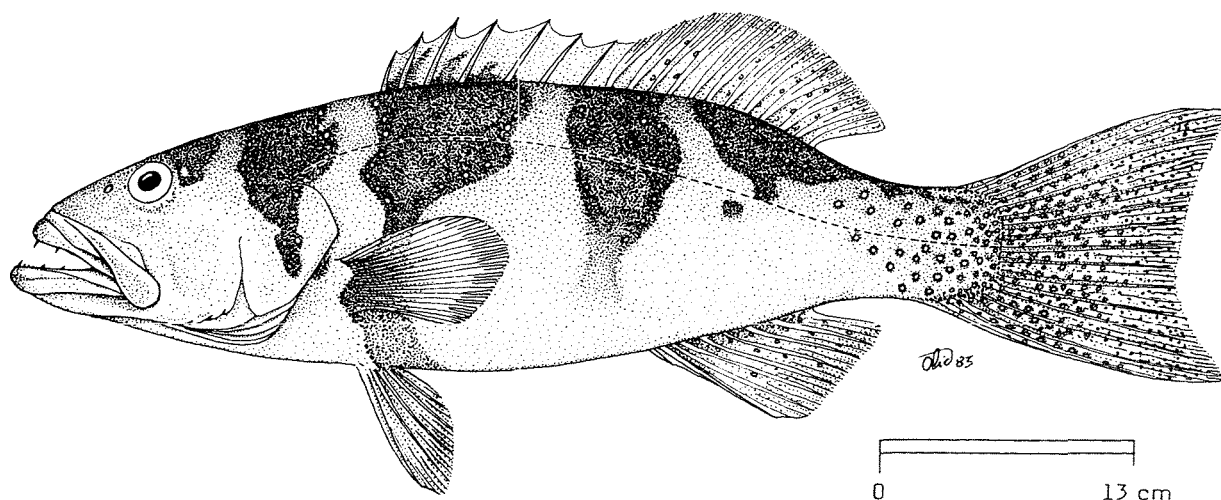
Caught with hook and line.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Plectropomus laevis (Lacepède, 1802)OTHER SCIENTIFIC NAMES STILL IN USE: Plectropomus melanoleucus (Lacepède, 1802)

VERNACULAR NAMES:

FAO : En - Black-saddled coral-trout
 Fr - Mérou sellé
 Sp - Mero ensillado

NATIONAL

DISTINCTIVE CHARACTERS

Body depth contained 3.2 to 3.6 times in standard length. Preopercle rounded, the lower edge with 3 or 4 large spines directed downward and forward; opercular spines poorly developed; posterior nostrils elongate, much longer than anterior nostrils; lower jaw with 2 or 3 large fixed teeth posteriorly on each side; gillrakers at angle of first arch usually shorter than gill filaments; 6 to 9 developed rakers on lower limb; no scales between eyes. Dorsal fin with 8 spines and 11 soft rays; anal fin with 3 spines and 8 soft rays, the distal margin straight; pectoral rays 17; caudal fin emarginate, the middle rays shortest.

Colour: head and body tan, shading to white ventrally, the top of head yellow; 5 black saddle blotches: the first between eyes, the second joining opercle across top of head, the third at base of first 5 dorsal spines, the fourth at middle of dorsal fin, and the last at base of last 6 dorsal rays; a few widely scattered, small, dark-edged blue spots on body, soft dorsal and anal fins, and (more numerous) on caudal fin and peduncle; all fins bright yellow; paired fins with a black blotch at their base.

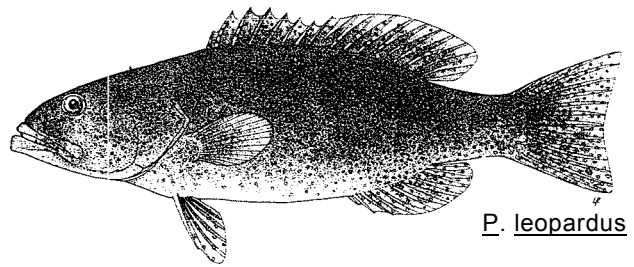
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Plectropomus leopardus: body without black saddle blotches; small blue spots uniformly distributed over head and body; pectoral rays 16 (17 in P. laevis).

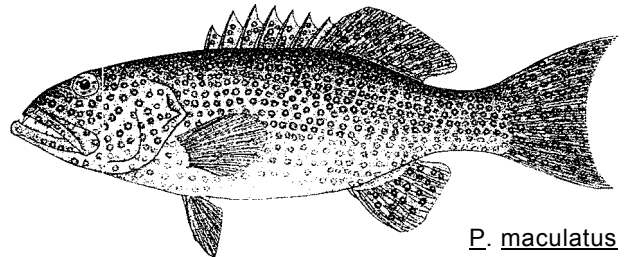
P. maculatus: body without black saddle blotches; posterior nostrils subequal to anterior nostrils; gillraker at angle of first arch usually longer than fin filaments.

P. punctatus: body without black saddle blotches; posterior nostrils subequal to anterior nostrils.

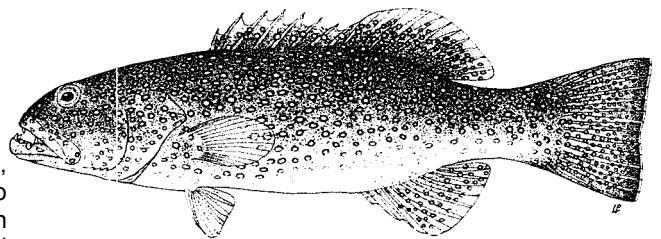
P. truncatus: body without black saddle blotches; middle caudal rays subequal to upper and lower rays; posterior and anterior nostrils subequal.



P. leopardus



P. maculatus



P. truncatus

SIZE:

Maximum: 100 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, known from Zanzibar, Kenya, Comoros, Seychelles and Chagos Archipelago. Also present in the Eastern Indian Ocean and the Western Central Pacific extending eastward to southern Japan and Australia.

PRESENT FISHING GROUNDS:

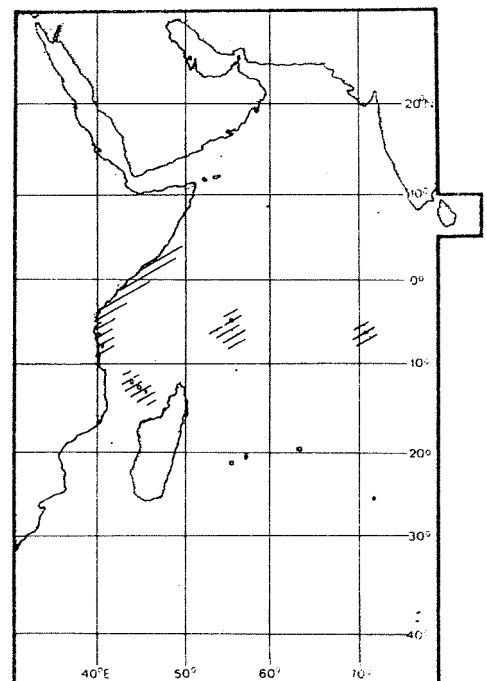
Coral reefs in depths of 10 to 30 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line and gillnets.

Sold fresh in local markets.

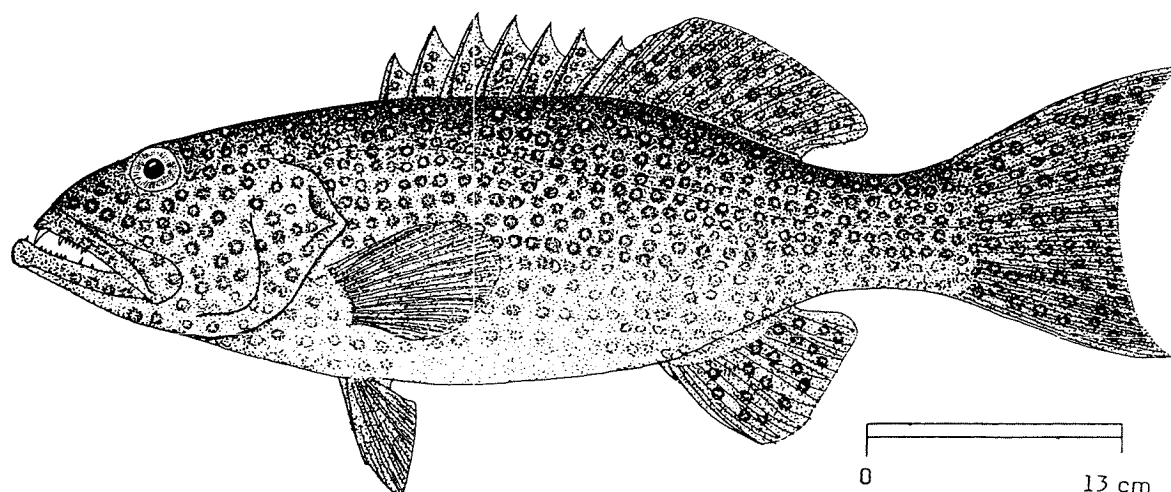


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)Plectropomus maculatus (Bloch, 1790)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Spotted coral-trout
 Fr - Vielle Saint-Silac
 Sp - Mero de coral

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 3.2 to 3.7 times in standard length. Preopercle rounded, the lower edge with 3 large spines directed downward and forward; opercular spines poorly developed; lower jaw with 1 to 3 large fixed teeth posteriorly on each side; posterior nostrils subequal to anterior nostrils; gillrakers at angle of first arch longer than gill filaments; 7 to 10 developed rakers on lower limb; no scales between eyes or on snout. Dorsal fin with 8 spines and 11 soft rays; anal fin with 3 spines and 8 soft rays; distal margin of fin straight to concave, forming a right angle with front margin when fin is erected; pectoral rays 15 to 17; caudal fin emarginate, the middle rays shortest.

Colour: brownish orange-red, with dark-edged blue spots, those on head and front part of body larger and more elongate than the small round spots on rear part of body and median fins; pectoral fin rays dark brown, the membrane pale, with a few blue spots basally and a pale margin; pelvic fins orange with blue spots.

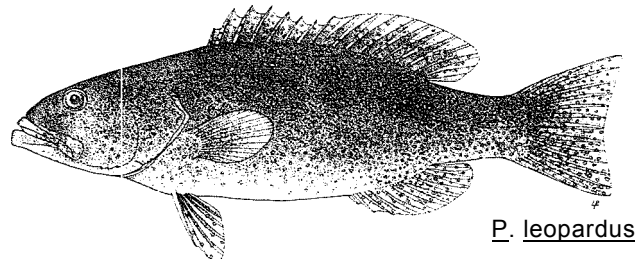
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Plectropomus truncatus: interorbital area scaly; developed gillrakers on lower limb of first arch 2 to 4 (7 to 10 in P. maculatus); raker at angle shorter than gill filaments.

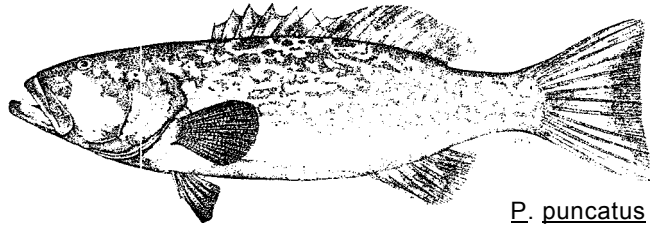
P. leopardus: distal margin of anal fin convex, the fin broadly rounded; head, body and median fins covered with blue dots; 8 or more spots on cheek; pectoral base with 4 or more spots.

P. punctatus: developed gillrakers on lower limb of first arch 2 to 7. Adults (?) generally purplish brown, body with pale mottling.

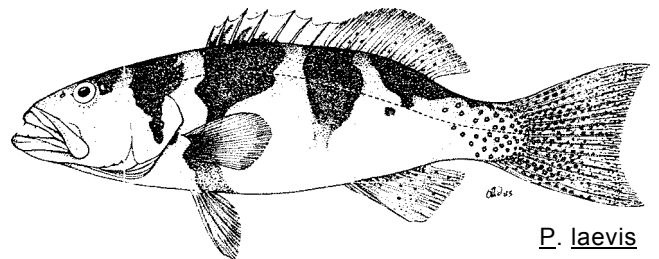
P. laevis: posterior nostrils elongate, much longer than front nostrils; gillrakers at angle usually shorter than gill filaments; colour generally tan or yellowish with 4 dark, wedge-shaped saddle-like blotches on body.



P. leopardus



P. punctatus



P. laevis

SIZE:

Maximum: 100 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread in the Western Indian Ocean north of about 27° S, including the Red Sea but not the "Gulf". Also present in the Eastern Indian Ocean and the Western Central Pacific, extending eastward to southern Japan and Australia.

PRESENT FISHING GROUNDS:

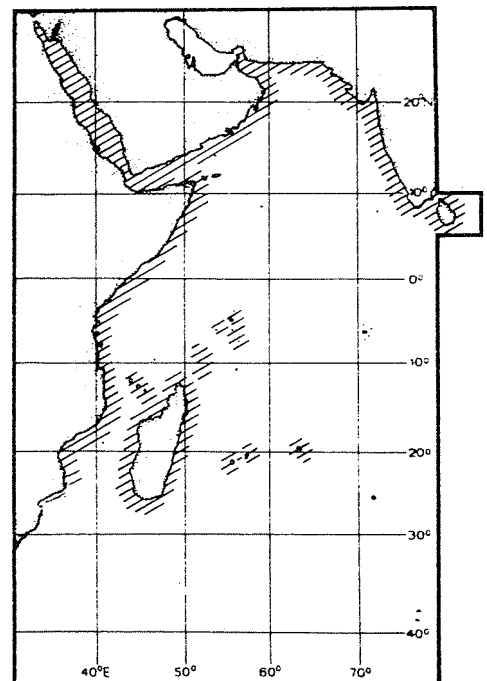
Coral reefs in depths of 13 to 160 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

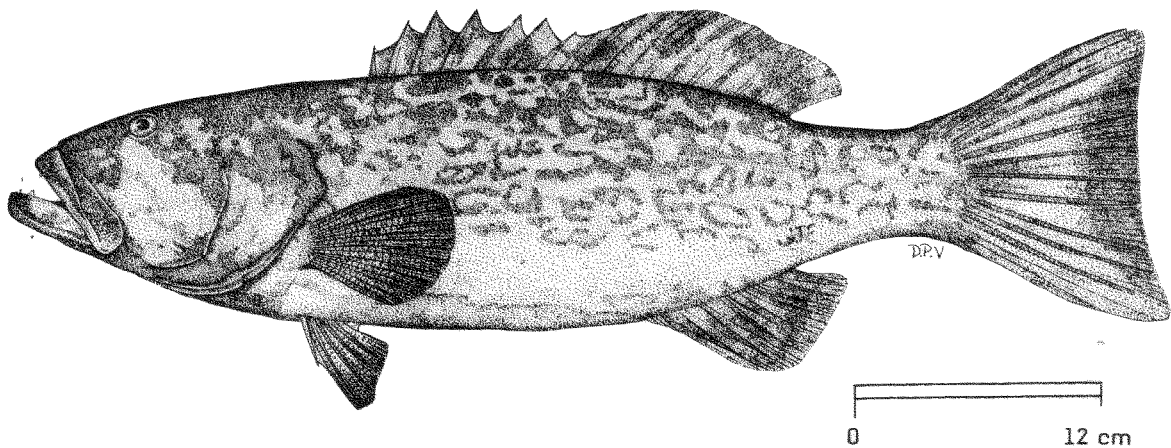
Caught with hook and line, spear, traps and gillnets.

Sold fresh in local markets.



FAO SPECIES IDENTIFICATION SHEETS

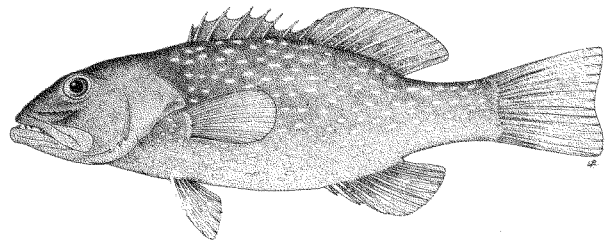
FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Plectropomus punctatus* Quoy & Gaimard, 1824OTHER SCIENTIFIC NAMES STILL IN USE: ? *Plectropomus marmoratus* Talbot, 1958

VERNACULAR NAMES:

FAO : En - Mottled coral-trout
 Fr - Mérou pointillé
 Sp - Mero pecoso

NATIONAL:



juvenile

DISTINCTIVE CHARACTERS:

Body depth contained 3.2 to 3.7 times in standard length. Preopercle rounded, the lower edge with 3 large spines directed downward and forward; opercular spines poorly developed; lower jaw with 1 to 3 fixed teeth posteriorly on each side; posterior and anterior nostrils subequal; gillrakers at angle of first arch subequal to gill filaments, 2 to 7 developed rakers on lower limb of first arch; no scales between eyes. Dorsal fin with 8 spines and 10 or 11 soft rays; anal fin with 3 spines and 8 soft rays; distal margin convex; pectoral rays 16 to 18; caudal fin emarginate, the middle rays shortest.

Colour: juveniles with horizontally elongate pale blue spots all over body; adults (?) generally purplish brown; the body and dorsal fin with irregular pale mottling.

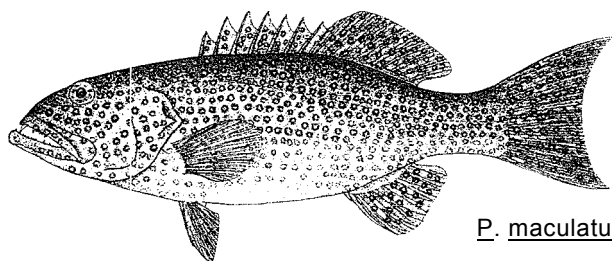
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Plectropomus maculatus: developed gillrakers on lower limb of first arch 7 to 10 (2 to 7 in P. punctatus); colour generally orange-red, with dark-edged blue spots on head and body.

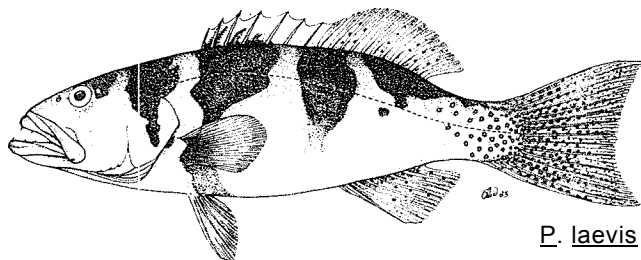
P. laevis: posterior nostrils much longer than anterior nostrils; colour tan or yellowish, with 4 dark, wedge-shaped saddle-like blotches dorsally on body.

P. leopardus: head, body and median fins reddish orange, covered with blue dots.

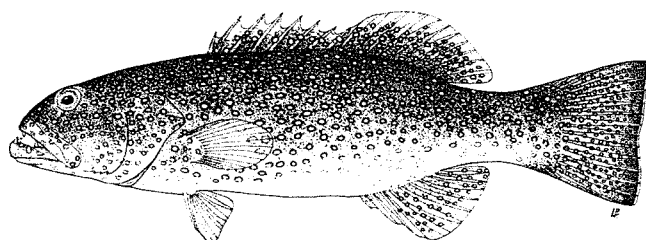
P. truncatus: middle caudal fin rays subequal to upper and lower rays; interorbital area and snout scaly; head, body and median fins covered with black-edged blue spots.



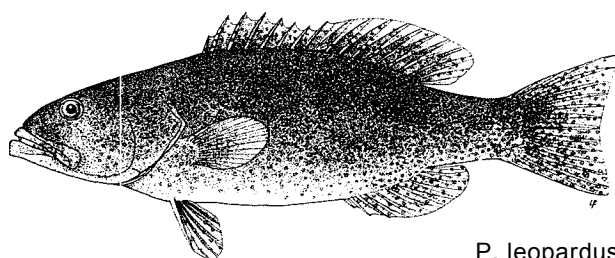
P. maculatus



P. laevis



P. truncatus



P. leopardus

SIZE:

Maximum: 90 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known only in the Western Indian Ocean from Zanzibar, Kenya, Comoros, Aldabra, Seychelles, Mauritius and Chagos.

A common shallow-water species.

PRESENT FISHING GROUNDS:

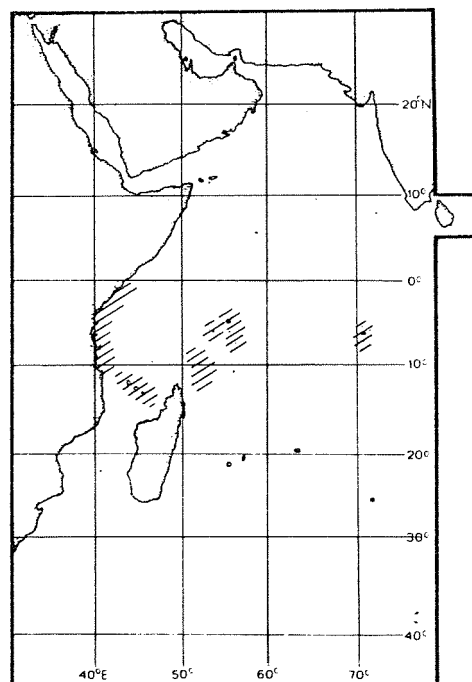
Coral reefs in depths of 5 to 15 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line and spears.

Sold fresh in local markets.

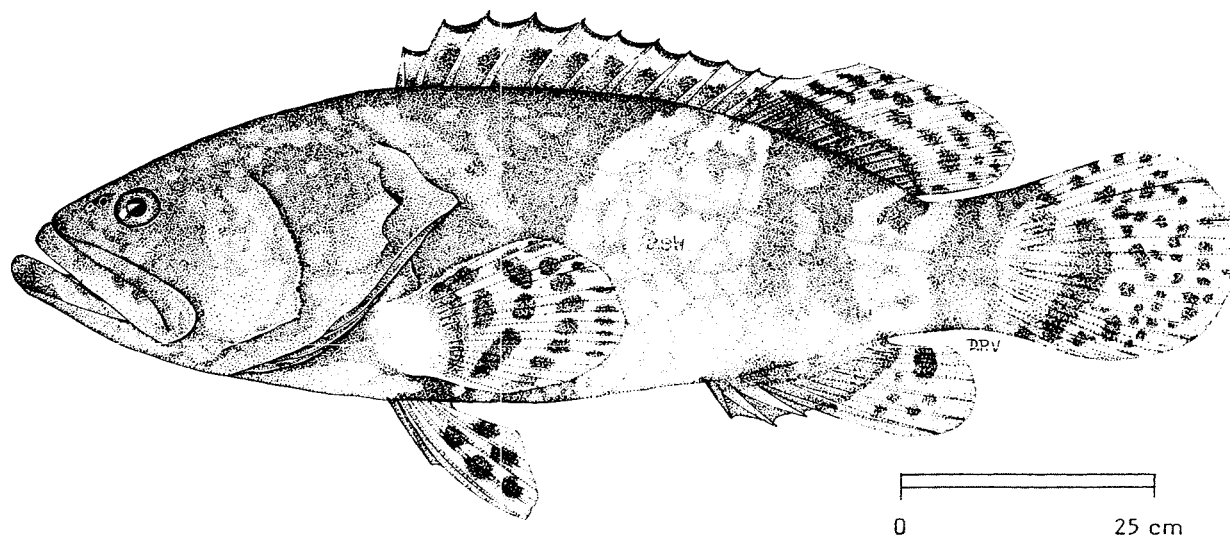


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Promicrops lanceolatus* (Bloch, 1790)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

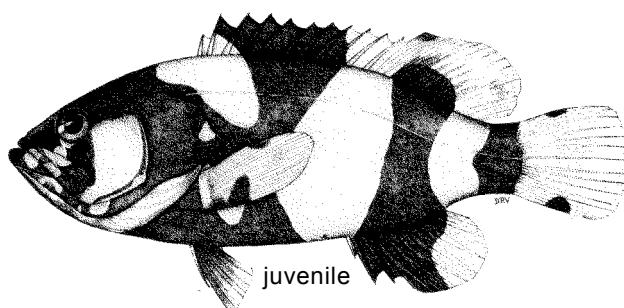
FAO : En - Brindle grouper
 Fr - Mérou lancéolé
 Sp - Mero lanceolado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 3.0 to 3.4 times in standard length. Eye small, its horizontal diameter contained 6 to 12 times in head length and 1 to 3 times in interorbital width; preopercle rounded, finely serrate; maxilla reaches well past eye; 2 or 3 rows of teeth (more in adults?) at sides of lower jaw; developed lower gillrakers 7 to 9; gill arches covered with numerous shagreen-like platelets. Dorsal fin with 11 spines and 14 to 16 soft rays; dorsal fin spines increasing in length to the last (except in juveniles which have the 3rd or 4th spines longest), which is considerably shorter than the soft-rays; anal fin with 3 spines and 8 soft rays; pectoral rays 19; caudal fin rounded. Pored lateral line scales 53 to 67; lateral scale series 89 to 110; lateral line tubes with several branches; body scales cycloid.

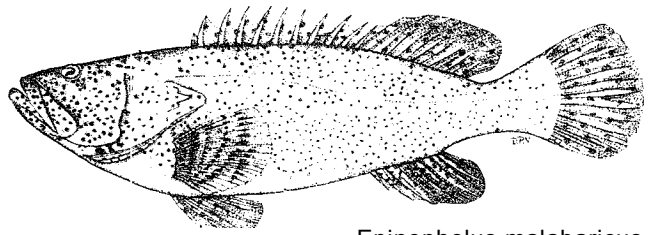
Colour: juveniles variegated brown and yellow, the fins yellow with dark brown or black spots and blotches; adults dark greyish or brown with pale mottlings.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus malabaricus: last dorsal fin spine not the longest; lateral line tubes not branched; midlateral body scales ctenoid (rough).

E. tauvina: lateral line tubes not branched; last dorsal fin spine not the longest; head and body covered with small dark orange-red to brown spots.



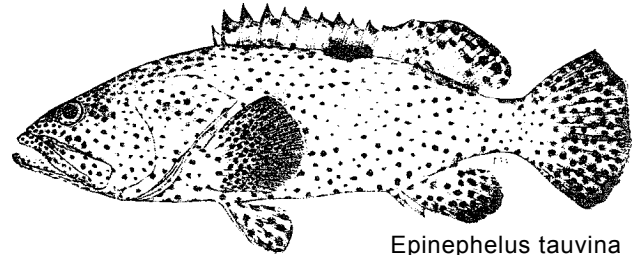
Epinephelus malabaricus

SIZE:

Maximum: 270 cm, and over 400 kg.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found along the entire coastline of the Western Indian Ocean from Algoa Bay (South Africa) to Sri Lanka, but not in the Red Sea or the "Gulf"; also off Mauritius and the Seychelles. Outside the area, reported from Indonesia, the Philippines, Taiwan Island and Australia.



Epinephelus tauvina

Common in harbours, estuaries and around wrecks.

PRESENT FISHING GROUNDS:

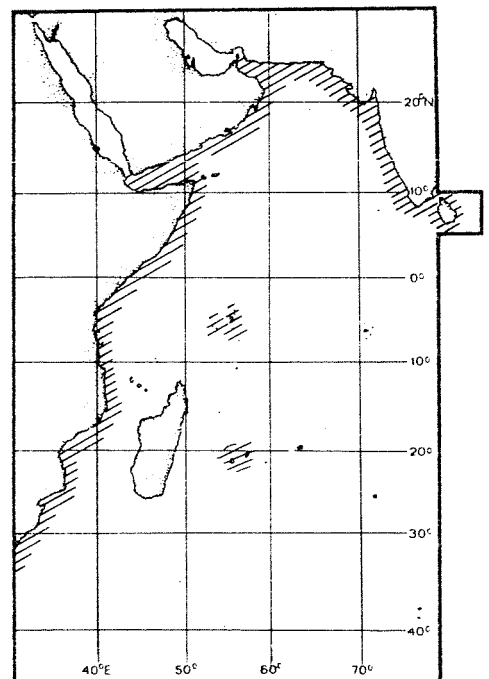
Depths of 5 to 100 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

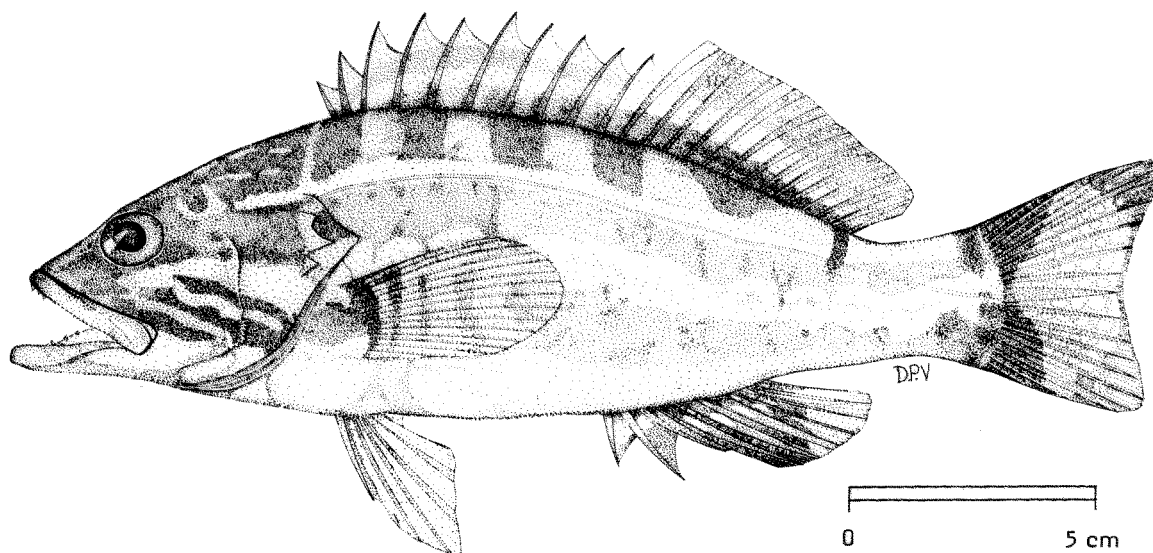
Caught with hook and line and spears.

Sold fresh in local markets.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Serranus cabrilla* (Linnaeus, 1758)OTHER SCIENTIFIC NAMES STILL IN USE: *Serranus knysnaensis* Gilchrist, 1904

VERNACULAR NAMES:

FAO: En - Comber
 Fr - Serran chèvre
 Sp - Cabrilla

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 3.0 to 3.4 times in standard length. Preopercle finely serrate; lower gillrakers 13 to 15. Dorsal fin with 10 spines and 13 to 15 soft rays; anal fin with 3 spines and 7 or 8 soft rays; pectoral rays 15 to 17; caudal fin truncate to slightly concave. Pored lateral line scales 70 to 77; 36 to 38 scales around caudal peduncle.

Colour: head and body generally brownish dorsally, ventral half pale pinkish; usually 2 irregular, brownish, longitudinal bands from head to caudal fin and several short dark brown bars on body at base of dorsal fin; small pale blue spots on caudal and soft dorsal fins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Serranus novemcinctus: lower gillrakers 21 to 23 (13 to 15 in S. cabrilla).

SIZE:

Maximum: 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, restricted to the coast of South Africa to about 25°S. Also present in the Mediterranean and the eastern Atlantic, from the English Channel to South Africa.

PRESENT FISHING GROUNDS:

From the shore out to 200 m.

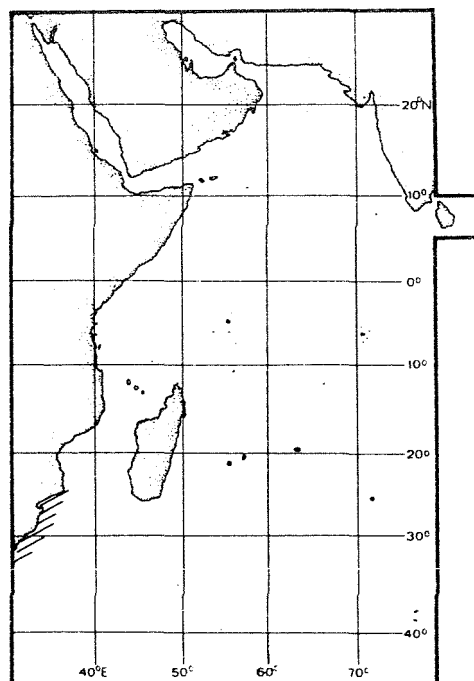
CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Probably too small to be of major commercial importance.

Caught with hook and line and in trawls.

Marketed fresh.

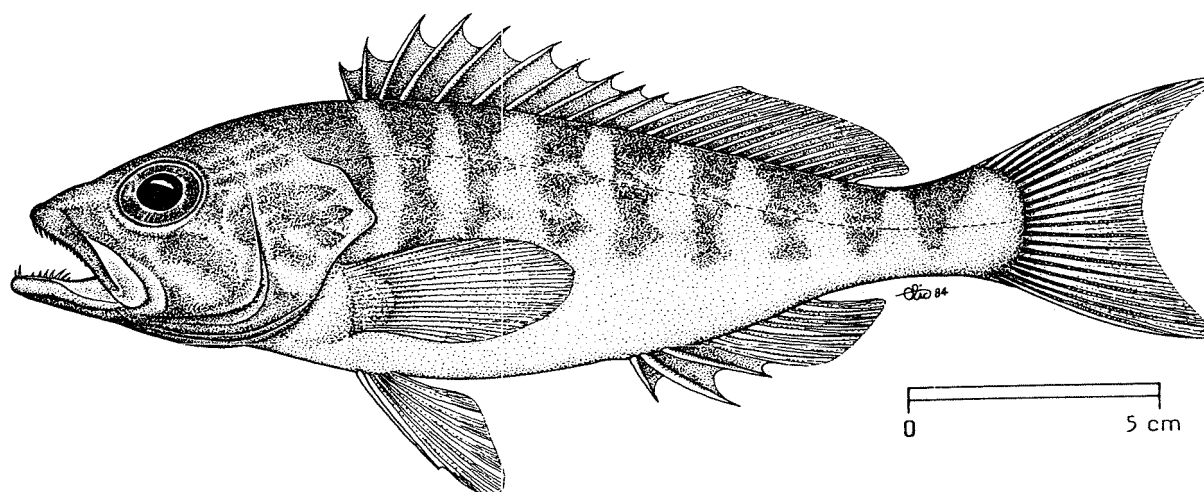


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)*Serranus novemcinctus* Kner, 1865

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Barred basslet
Fr - Serran australe
Sp - Serrano austral

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 3.0 to 3.5 times in standard length. Preopercle serrate; lower gillrakers 21 to 23. Dorsal fin with 10 spines and 14 or 15 soft rays; anal fin with 3 spines and 7 soft rays; pectoral rays 16 to 18; caudal fin truncate to slightly concave. Pored lateral line scales 67 to 74; 34 to 37 scales around caudal peduncle.

Colour: generally brownish with 9 dark bars dorsally on body, the first on nape, the last at base of caudal fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Serranus cabrilla: lower gillrakers 13 to 15 (21 to 23 in S. novemcinctus).

SIZE:

Maximum: 32 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known with certainty only from Amsterdam and St. Paul Islands. Reported from the Cape of Good Hope, but this record appears to be erroneous.

PRESENT FISHING GROUNDS:

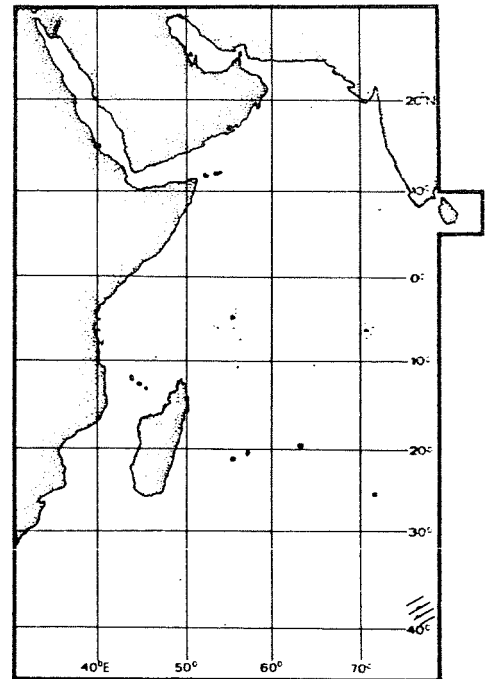
St. Paul and Amsterdam Islands.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line and in traps.

Sold fresh in local markets.



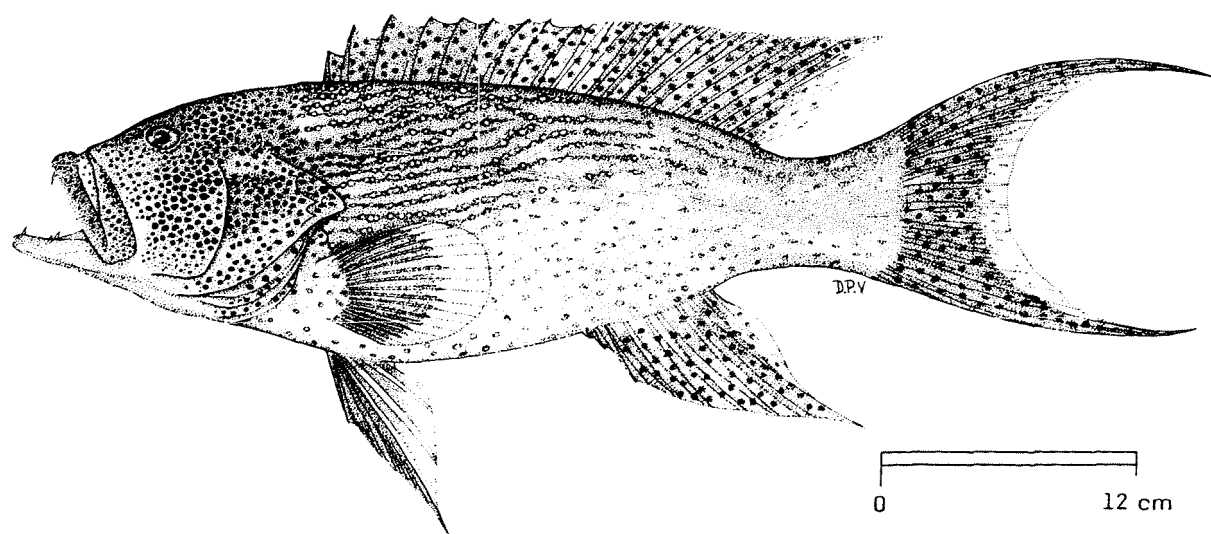
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)

Variola louti (Forsskål, 1775)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

- FAO: En - Moontail seabass
- Fr - Croissant queue jaune
- Sp - Mero luna creciente

NATIONAL:

DISTINCTIVE CHARACTERS:

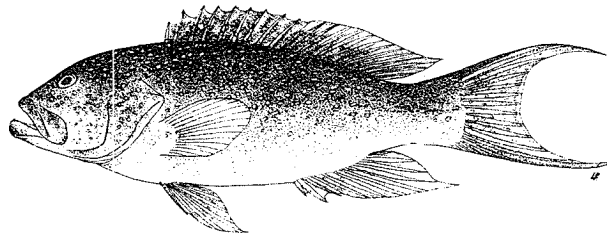
Body depth contained 2.8 to 3.2 times in standard length. Preopercle finely serrate; sides of lower jaw with 1 or 2 large, fixed, curved, canine teeth; lower gillrakers 13 to 18. Dorsal fin with 9 spines and 13 to 15 soft rays; anal fin with 3 spines and 8 soft rays; pectoral rays 16 to 18; caudal fin crescentic the upper and lower rays elongate. Pored lateral line scales 64 to 78; lateral scale series 113 to 135; body scales ctenoid (except ventrally) without auxiliary scales.

Colour: yellowish brown to orange-red; head, body and median fins with numerous small irregular spots or streaks of pale blue, lavender or pink; rear margins of median fins broadly yellow.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Variola albimarginata: rear margin of caudal fin with a narrow white border, fins otherwise coloured like body.

Plectropomus species: caudal fin not crescentic; dorsal fin spines 8 (9 in V. louti).



SIZE:

Maximum: 80 cm (fork length).

V. albimarginata

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread in the Western Indian Ocean north of Durban (South Africa), including the Red Sea, but absent from the "Gulf". Extends to the western Pacific (southern Japan to the Great Barrier Reef).

A common coral-reef species.

PRESENT FISHING GROUNDS:

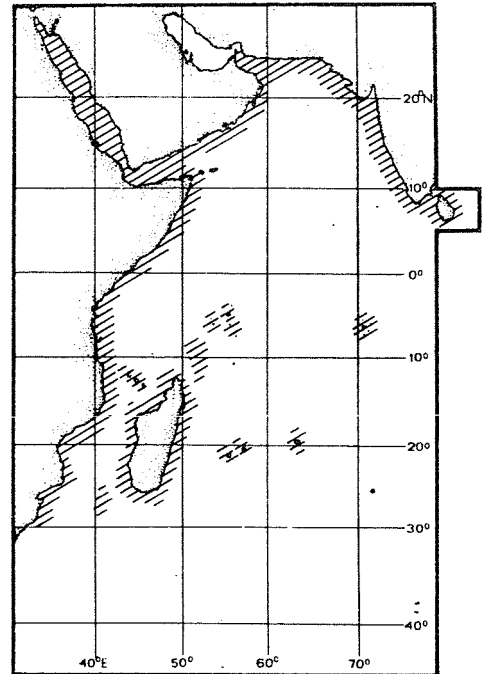
Coral reefs in depths of 5 to at least 100 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line, in traps and gillnets.

Sold fresh in local markets, but banned in Mauritius where it is reported to cause ciguatera poisoning.



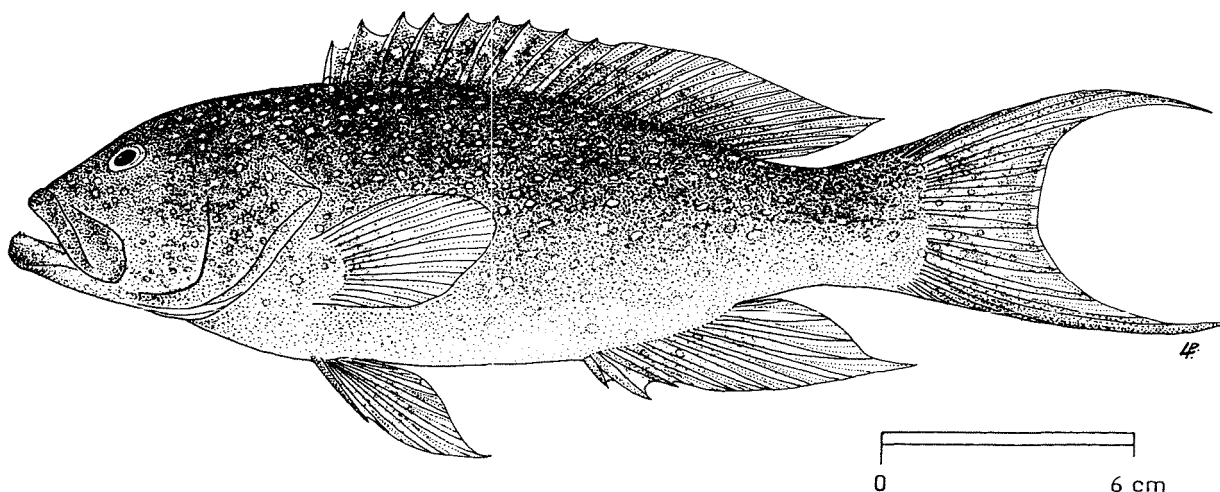
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREA 51
(W. Indian Ocean)

Variola albimarginata Baissac, 1953

OTHER SCIENTIFIC NAMES STILL IN USE: Variola punctulata (Lacepède, 1801)



VERNACULAR NAMES:

- FAO : En - White-edged lyretail
- Fr - Croissant queue blanche
- Sp - Mero rabiblanco

NATIONAL:

DISTINCTIVE CHARACTERS:

Body depth contained 2.8 to 3.2 times in standard length. Preopercle finely serrate; sides of lower jaw with 1 or 2 large, fixed, curved, canine teeth; lower gillrakers 12 to 14. Dorsal fin with 9 spines and 14 soft rays; anal fin with 3 spines and 8 soft rays; pectoral rays 18 or 19; caudal fin crescentic, the upper and lower rays elongate. Lateral scale series 120 to 130.

Colour: brownish orange with numerous, small, irregular spots or streaks of pale blue, lavender or pink; rear margin of caudal fin dusky with a narrow white edge, fins otherwise coloured like body, except pectorals which are yellowish.

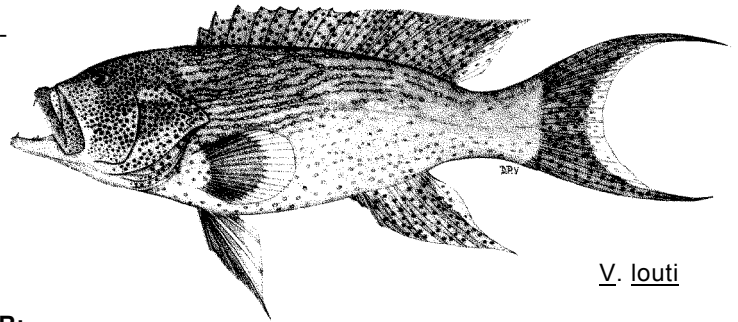
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Variola louti: rear margin of median fins broadly yellow.

Plectropomus species: caudal fin not crescentic; dorsal fin spines 8 (9 in V. albimarginata).

SIZE:

Maximum: 40 cm (fork length).



V. louti

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known in the Western Indian Ocean only from Mauritius, Madagascar, Réunion and Zanzibar. Known also from Taiwan Island and the New Hebrides.

A coral-reef species much less common than Variola louti; rare at Zanzibar.

PRESENT FISHING GROUNDS:

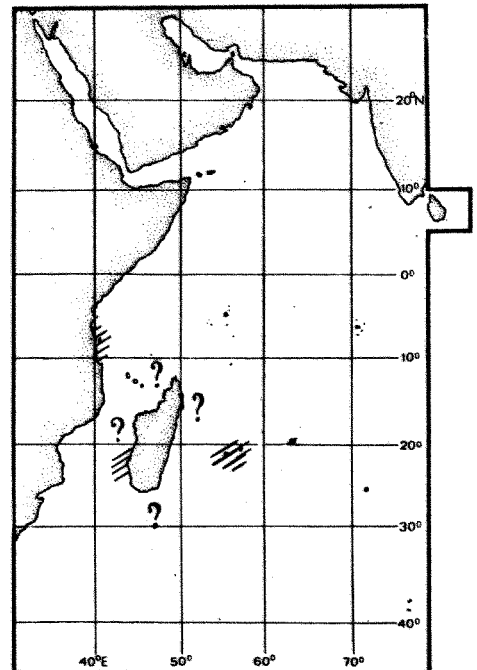
Coral reefs in depths of 40 to 100 m.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line.

Sold fresh in local markets. Unlike Variola louti, this species is reported never to cause ciguatera poisoning.



FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

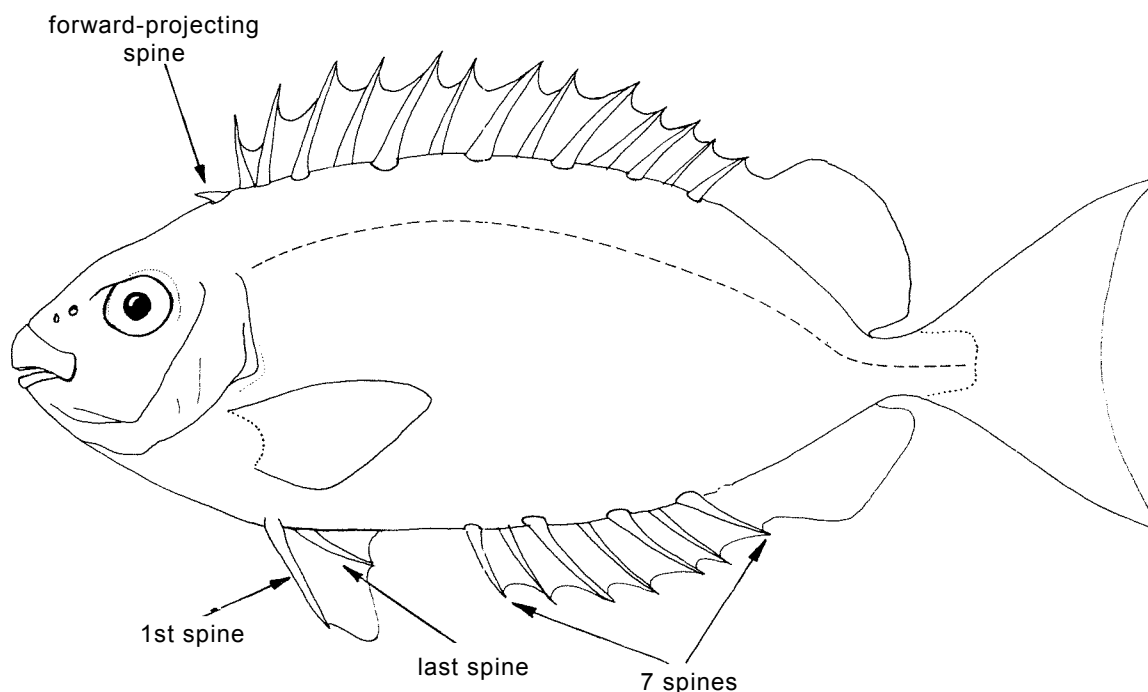
SIGANIDAE

Spinefoots, rabbitfishes

Body laterally compressed, oval, deep or slender, covered with small scales. Mouth small with a single row of fine, close-set teeth in each jaw. Dorsal fin with 13 strong spines and 10 soft rays, preceded by a forward projecting spine, embedded to varying degrees in the nape; pelvic fins with 2 strong spines separate by 3 soft rays, character unique to the family; anal fin with 7 strong spines and 9 soft rays (variations in the number of dorsal and anal spines and rays are extremely rare); the spines are venomous.

Colour: coral associating species usually brightly coloured and ornately patterned; others often drab and becoming variously mottled with brown at death.

Moderate sized, herbivorous fishes of shallow coastal waters; some species live in pairs around coral, others in schools around rock and coral reefs, mangroves, estuaries and brackish lagoons. The reported catch of rabbitfishes in Fishing Area 51 totalled 480 metric tons in 1981.



SIMILAR FAMILIES, OCCURRING IN THE AREA:

All other families have at most i pelvic fin spine (2 in siganid species). The Acanthuridae superficially resemble the deeper bodied siganids, but have bony plates or lancet-like spines on each side of caudal peduncle and only 2 or 3 caudal fin spines (7 in species of Siganidae).

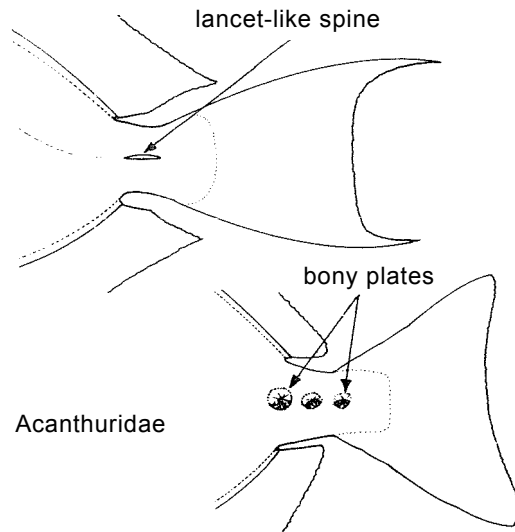
KEY TO GENERA OCCURRING IN THE AREA:

Siganus only.

LIST OF SPECIES OCCURRING IN THE AREA:

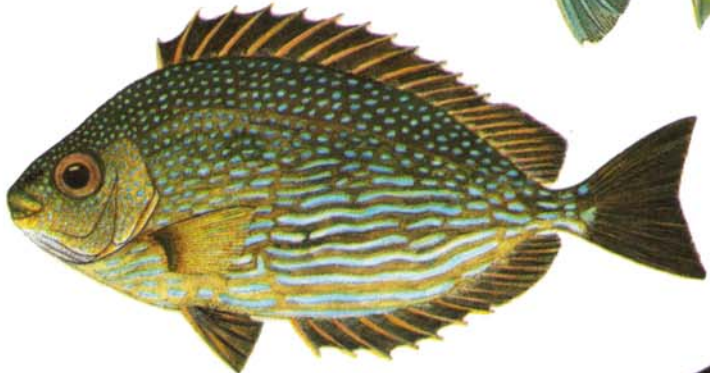
Code numbers are given for those species for which Identification Sheets are included

<u>Siganus argenteus</u> (Quoy & Gaimard, 1825)	SIGAN Sigan 5
<u>Siganus canaliculatus</u> (Park, 1797)	SIGAN Sigan 4
<u>Siganus corallinus</u> (Valenciennes, 1835)	SIGAN Sigan 6
<u>Siganus javus</u> (Linnaeus, 1766)	SIGAN Sigan 3
<u>Siganus lineatus</u> (Valenciennes, 1835)	SIGAN Sigan 7
<u>Siganus luridus</u> (Rüppell, 1828)	SIGAN Sigan 2
<u>Siganus puelloides</u> Woodland & Randall, 1979	SIGAN Sigan 8
<u>Siganus rivulatus</u> Forsskål, 1775	SIGAN Sigan 1
<u>Siganus spines</u> (Linnaeus 1758)	SIGAN Sigan 9
<u>Siganus stellatus</u> Forsskål, 1775	SIGAN Sigan 10
<u>Siganus sutor</u> (Valenciennes, 1835)	SIGAN Sigan 11
<u>Siganus vermiculatus</u> (Valenciennes, 1835)	SIGAN Sigan 12
<u>Siganus virgatus</u> (Valenciennes, 1835)	SIGAN Sigan 13

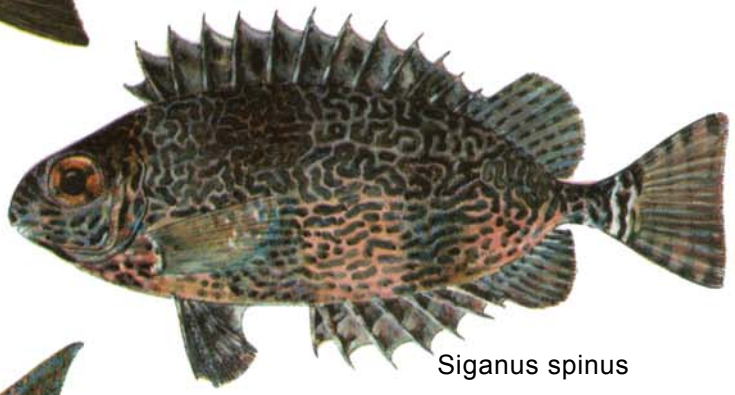




Siganus virgatus



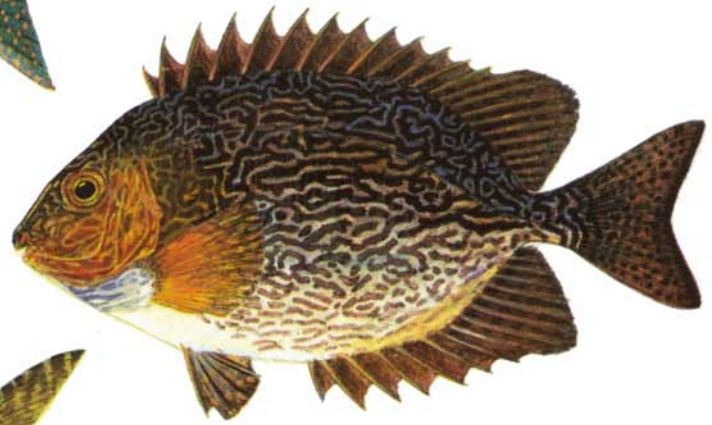
Siganus javus



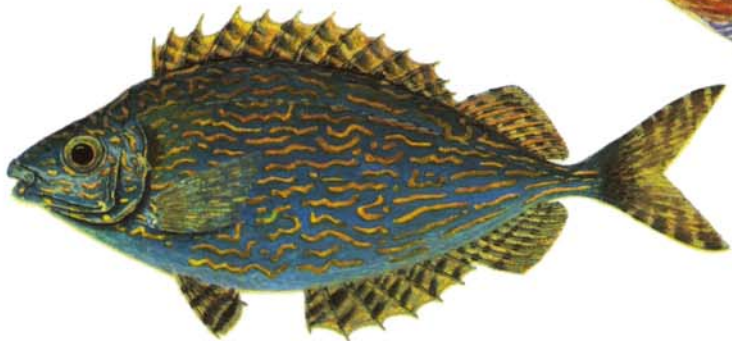
Siganus spinus



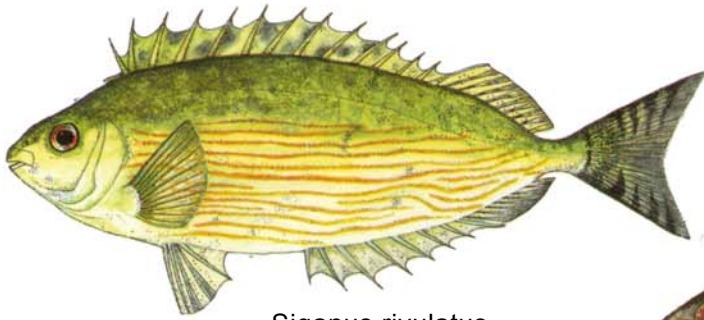
Siganus lineatus



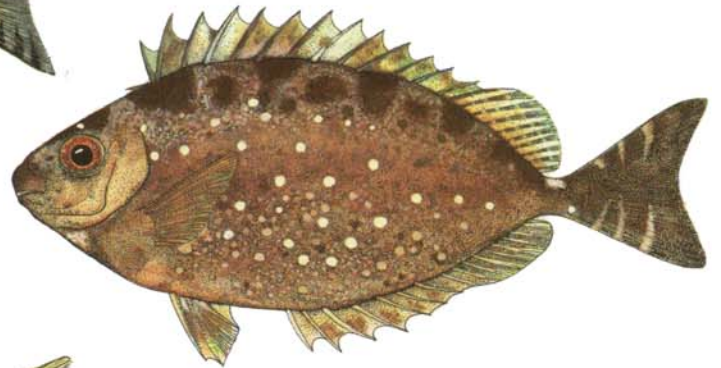
Siganus vermiculatus



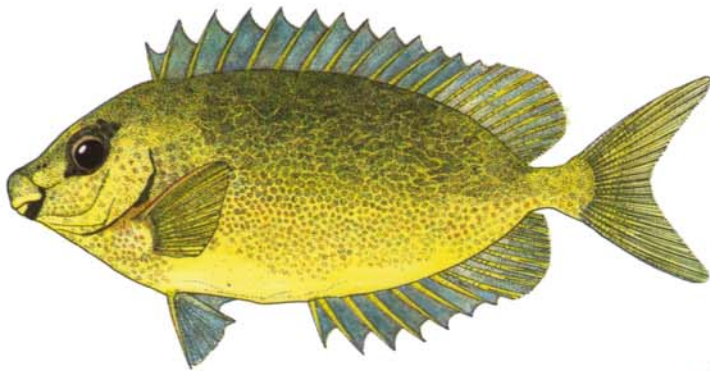
Siganus argenteus



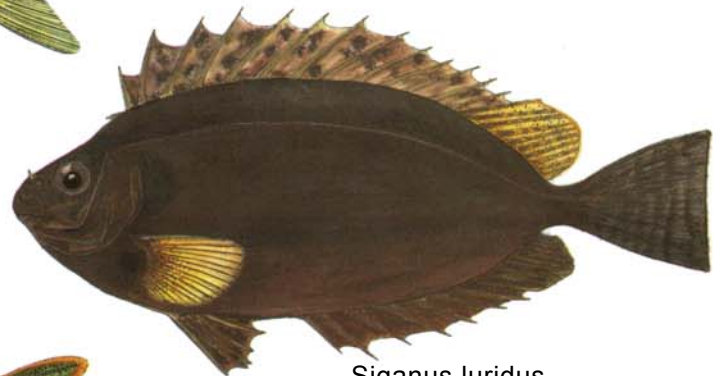
Siganus rivulatus



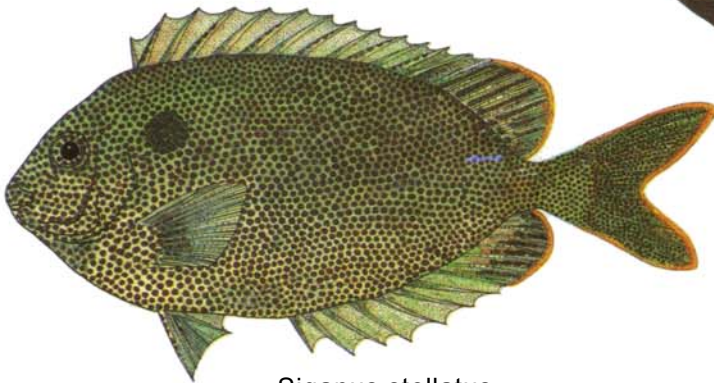
Siganus sutor



Siganus puelloides



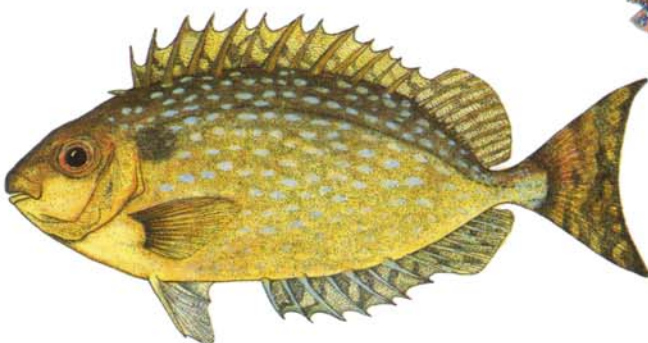
Siganus luridus



Siganus stellatus



Siganus corallinus



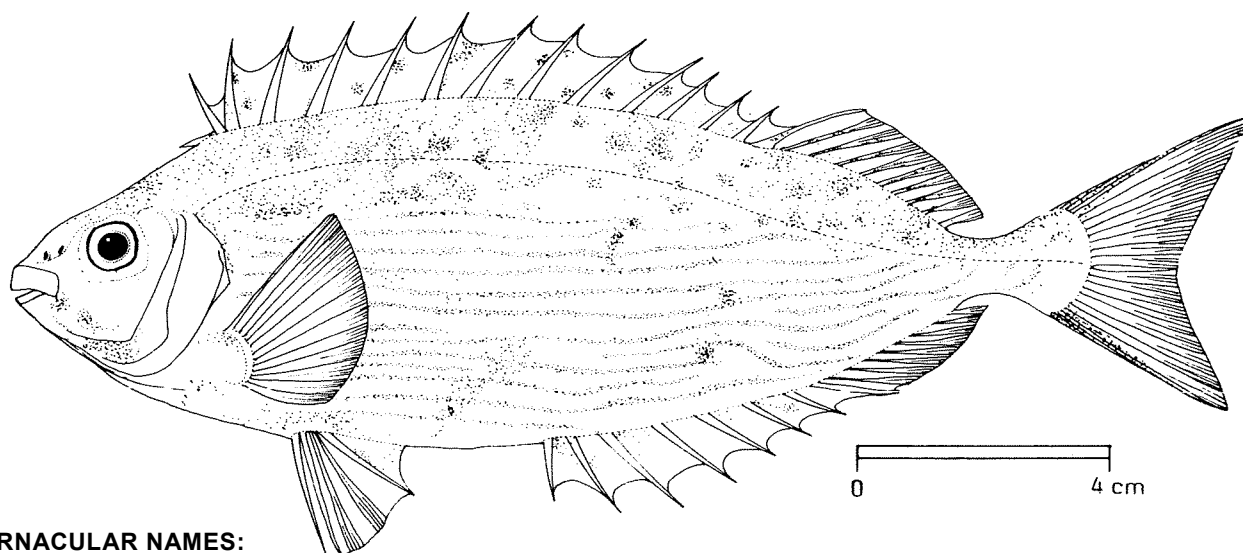
Siganus canaliculatus

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Siganis rivulatus</i> Forsskål, 1775

OTHER SCIENTIFIC NAMES STILL IN USE : *Teuthis rivulata* (Forsskål, 1775)

VERNACULAR NAMES:

FAO : En - Marbled spinefoot
 Fr - Sigan marbré
 Sp - Sigano jaspeado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body slender and compressed, its depth contained 2.7 to 3.4 times in standard length. Dorsal profile of head slightly concave above orbit, snout blunt; anterior nostril with a flap shaped like a tall triangle that reaches halfway to posterior nostril. A forward-directed spine present in front of dorsal fin; longest dorsal spine 4th to 7th; last dorsal spine short, subequal to the first, contained about 2.3 times in longest dorsal spine; last anal spine the shortest but only slightly shorter than (0.9 times) first anal spine and contained 1.6 times in longest anal spine; caudal fin only moderately forked, length of median rays two-thirds the length of longest rays. Scales minute; cheeks usually covered with very fine scales; 18 to 21 scale rows between lateral line and bases of leading dorsal spines.

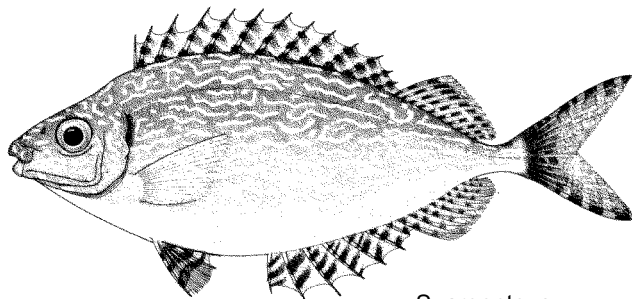
Colour: in general, head and body are brown or olive-green, grading to paler below, with horizontal golden lines running the length of the lower two-thirds of sides; lines becoming indistinct after death.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Siganus argenteus: caudal fin much more deeply forked; last anal spine relatively shorter, contained 2 to 3.2 times in the longest anal spine (contained 1.6 times in S. rivulatus); head and sides either covered with yellow spots, or wavy horizontal yellow lines substituting for the spots, particularly on lower sides.

S. luridus: caudal fin truncate; body deeper, 2.2 to 2.8 times in standard length (2.7 to 3.4 in S. rivulatus).

Other Siganus species: either deeper bodied, or with cream or pearly-blue spots or lines on sides.



S. argenteus

SIZE:

Maximum: 40 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, confined to the Red Sea and Gulf of Aden. Elsewhere, only in the eastern Mediterranean to where this species has recently spread through the Suez Canal.

Lives about rock and coral reefs and over sandy bottoms down to 20 m depth.

Feeds on bottom algae.

PRESENT FISHING GROUNDS:

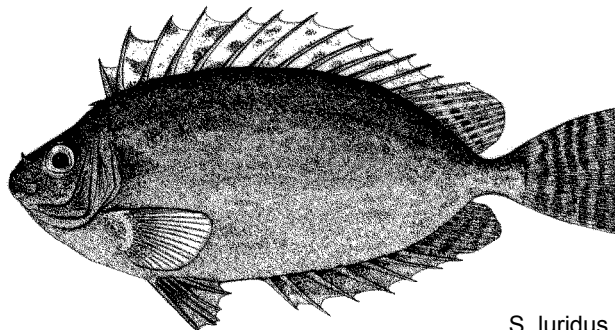
Shallow coastal waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

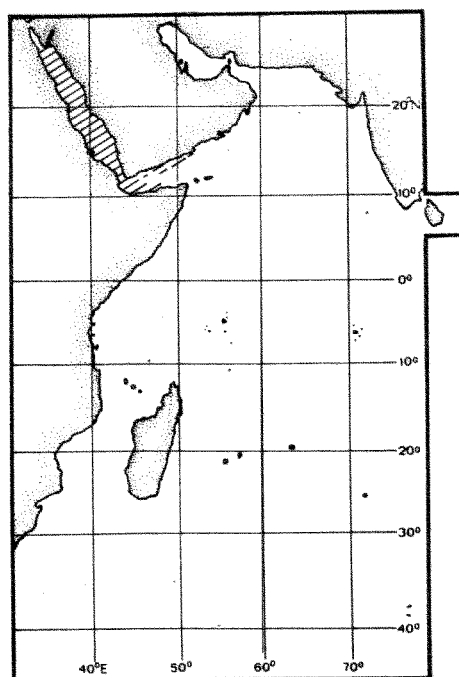
Separate statistics are not reported for this species.

Caught with beach seines and gillnets, occasionally trawled.

Marketed fresh or frozen.

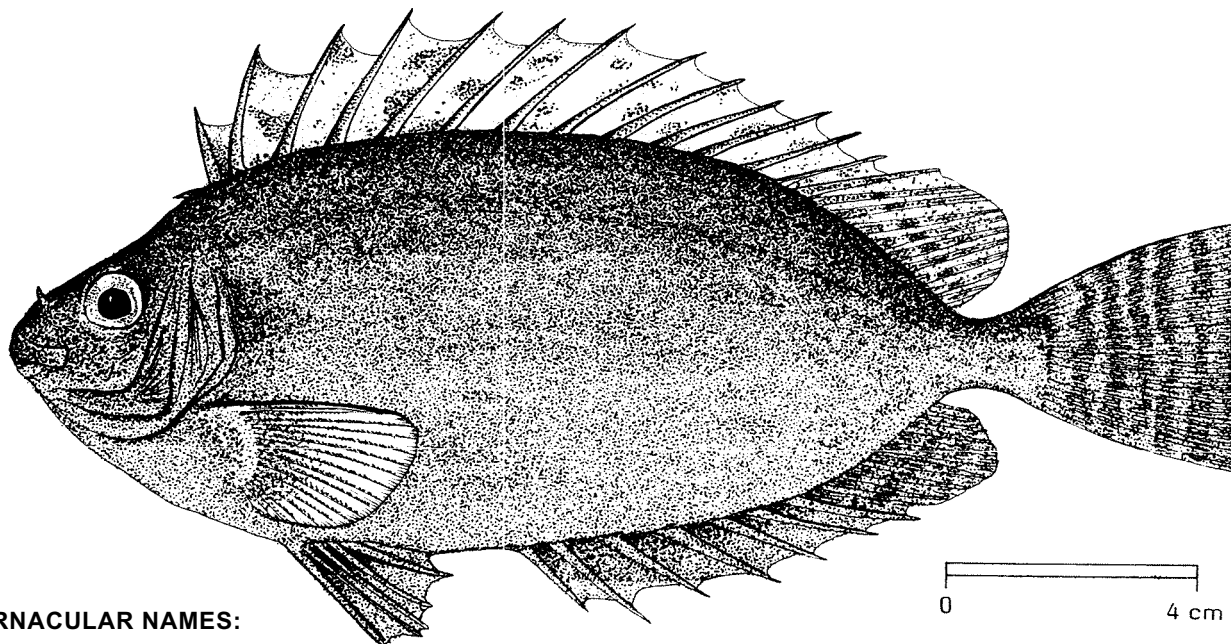


S. luridus



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREA 51
(W. Indian Ocean)*Siganus luridus* (Rüppell, 1828)OTHER SCIENTIFIC NAMES STILL IN USE: *Teuthis lurida* Rüppell, 1828

VERNACULAR NAMES:

FAO : En - Dusky spinefoot
 Fr - Sigan sombre
 Sp - Sigano nebuloso

NATIONAL:

DISTINCTIVE CHARACTERS:

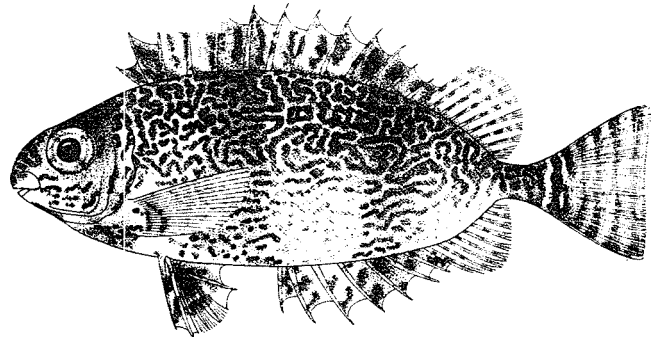
Body compressed, fairly slender, its depth contained 2.2 to 2.8 times in standard length. Dorsal profile of head strongly concave at nape, snout very blunt; anterior nostril with a long flap reaching to or past posterior nostril. A forward-directed spine present in front of dorsal fin; longest dorsal spine the 3rd to 7th, about 1.5 times the length of last dorsal spine; longest anal spine the 3rd or 4th, up to 1.3 times the length of the last anal spine; caudal fin truncate. Scales minute; cheeks with a few to many fine scales; 15 to 20 scale rows between lateral line and bases of leading dorsal fin spines.

Colour: head and sides olive green or a very dark brown; sides often conspicuously marked with pale vermiculating lines, but sometimes pattern very indistinct and disappearing at death; pectoral fins hyaline-yellow.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Siganus spinus: very similar in proportions to S. luridus but confined to the eastern part of the area, vermiculate pattern present on both head and sides; a prominent pale bar at base of caudal fin.

Other Siganus species: caudal fin forked to emarginate, never truncate.



S. spinus

SIZE:

Maximum: 30 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Mauritius, Seychelles, tropical east Africa and the Red Sea: recently spread into the eastern Mediterranean.

Lives in small schools around coral and rock reefs.

Browses on algae growing on rocks and corals.

PRESENT FISHING GROUNDS:

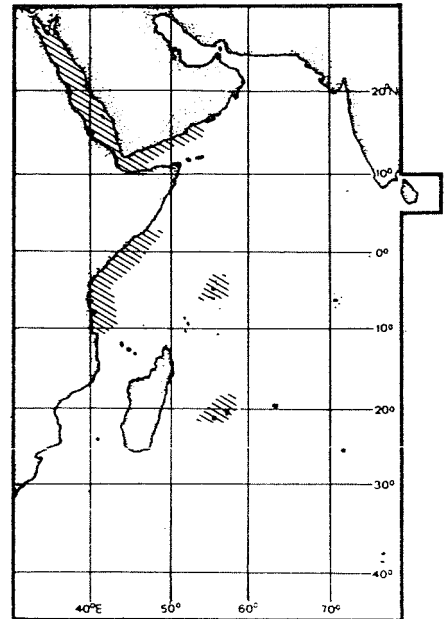
Shallow coastal waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

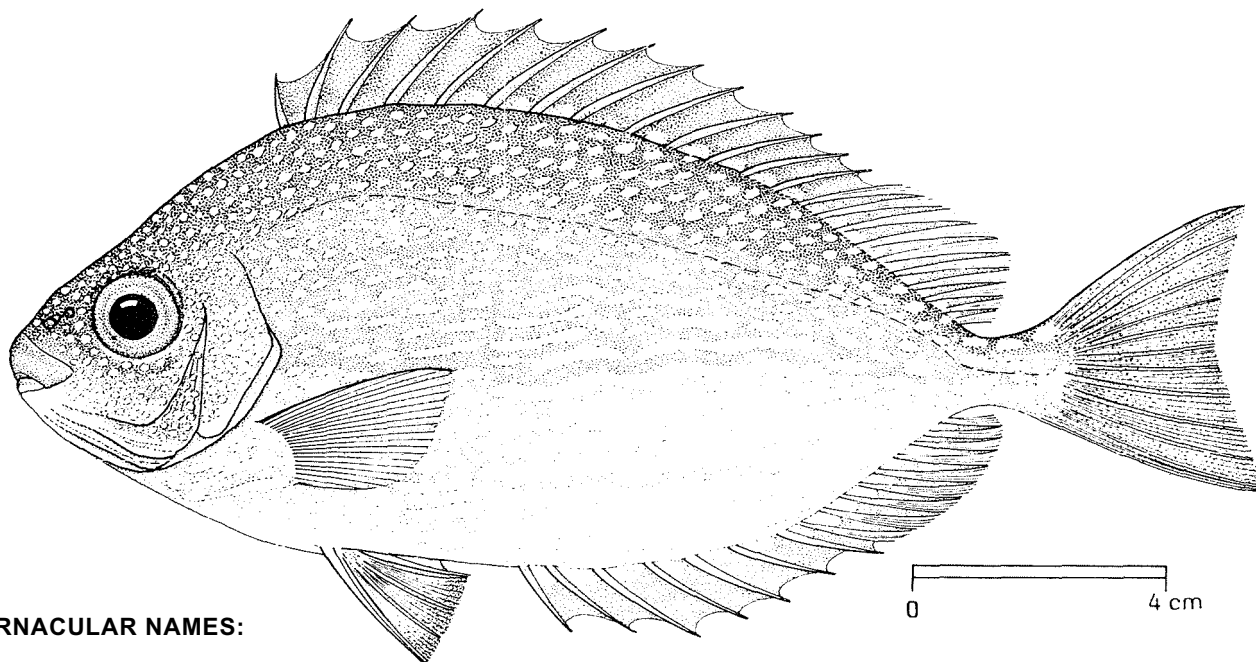
Caught with set traps, gillnets and beach seines.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREA 51
(W. Indian Ocean)*Siganus javus* (Linnaeus, 1766)OTHER SCIENTIFIC NAMES STILL IN USE : *Teuthis javus*: Herre and Montalban, 1928

VERNACULAR NAMES:

FAO : En - Streaked spinefoot.
 Fr - Sigan ondulé
 Sp - Sigano ondulado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body deep, oval and compressed, its depth contained 2 to 2.3 times in standard length. Dorsal profile of head slightly concave above orbit; snout short and blunt anterior nostril with a small triangular flap reaching halfway to posterior nostril. A forward-directed spine present in front of dorsal fin, imbedded in nape; longest dorsal fin spine the 5th or 6th, 1.25 to 1.5 times the length of last dorsal spine; apart from the short first spine, all anal spines of similar length and subequal to longest dorsal spine; soft part of dorsal and anal fins of moderate height, longest rays subequal to longest spines; caudal fin emarginate. Scales minute; cheeks covered with prominent scales; 30 to 35 scale rows between lateral line and bases of leading dorsal spines.

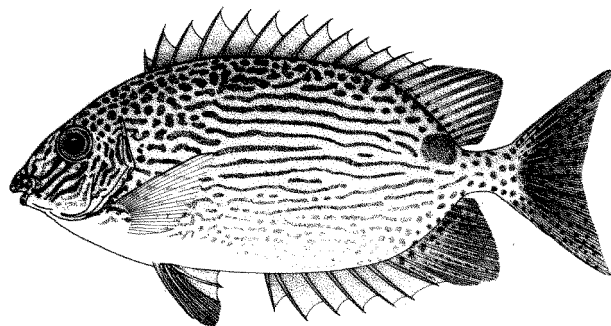
Colour: back dark bronze, to paler below; numerous gun-metal blue spots on head and upper sides, slightly smaller than pupil and coalescing into paler silvery blue undulating lines on mid- and lower sides. Spines and rays of dorsal, anal and pelvic fins golden, membranes dusky or golden; pectoral fins golden hyaline; caudal fin dusky, sometimes with faint vertical bars.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

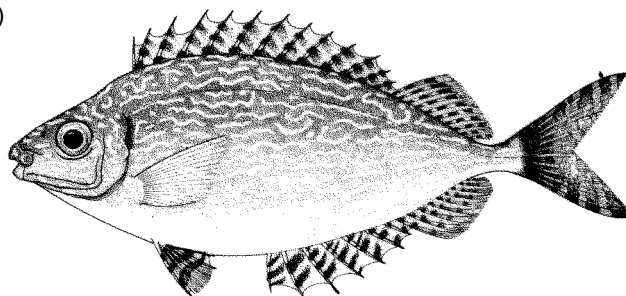
Siganus lineatus: golden bronze bands covering sides of trunk; bands breaking up into spots at bases of dorsal and anal fins and on caudal peduncle; spots extending onto caudal fin; a prominent blue line running diagonally across cheek from corner of mouth; a bright yellow spot, slightly larger than eye, on sides at base of last few rays of dorsal fin.

S. argenteus: some specimens with similar colour pattern but body slender, 2.4 to 3 times in standard length (2 to 2.3 in S. J'a vus) and caudal fin deeply forked.

Other Siganus species: have a different colour pattern and less than 30 scale rows (except some S. sutor) between lateral line and dorsal fin (30 to 35 in S. javus).



S. lineatus



S. argenteus

SIZE:

Maximum: 45 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, from the "Gulf", along the coasts of India and Sri Lanka. Elsewhere, from the Indo-Malayan Archipelago to the New Guinea arc and northward to the Ryukyu islands.

Occurs in small schools in shallow coastal waters; about rock and coral reefs and in brackish lagoons.

Feeds from bottom on encrusting algae.

PRESENT FISHING GROUNDS:

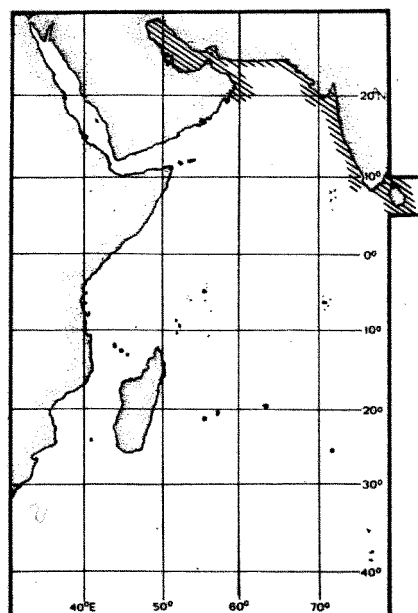
Coastal lagoons and other shallow waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

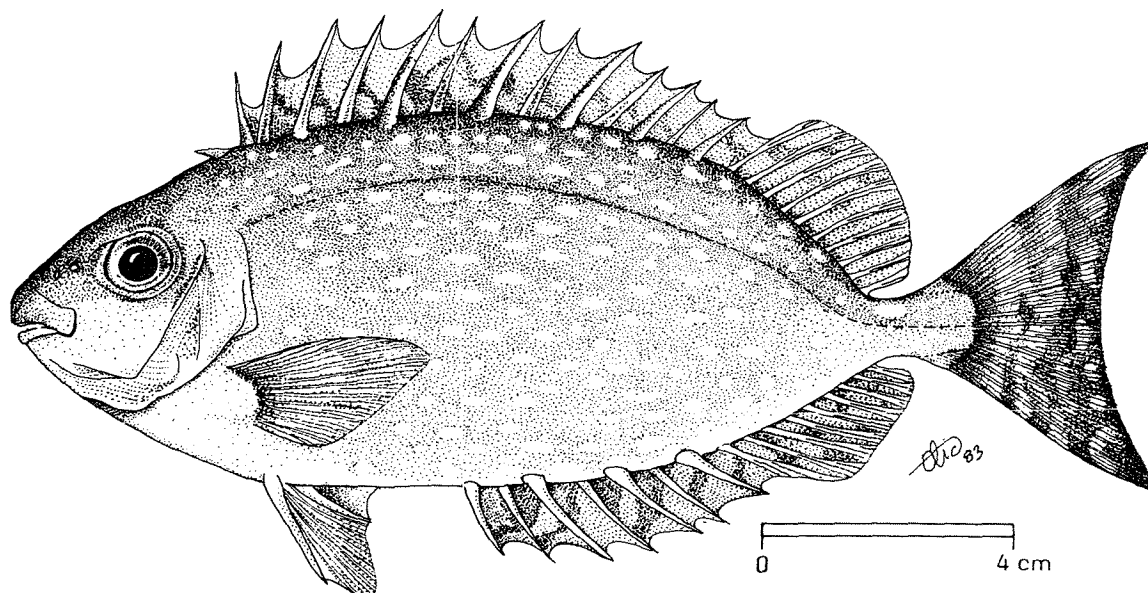
Caught with trawls, gillnets and traps.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREA 51
(W. Indian Ocean)Siganus canaliculatus (Park, 1797)OTHER SCIENTIFIC NAMES STILL IN USE : Siganus oramin (Bloch & Schneider, 1801)

VERNACULAR NAMES:

FAO : En - White-spotted spinefoot
 Fr - Sigan pintade
 Sp - Sigano pintado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body compressed, fairly slender, its depth contained 2.4 to 2.8 in standard length. Head profile slightly to markedly concave above eye; snout blunt; anterior nostril with a long flap in juveniles, shortening with age, absent in old fish; tip of flap reaching less than halfway to posterior nostril in specimens larger than 12 cm standard length. A forward-directed spine present in front of dorsal fin; longest dorsal spine 4th to 8th; last dorsal spine the shortest, contained 0.5 to 0.6 times in longest dorsal spine; last anal spine contained 1.2 to 1.5 times in longest anal spine (usually the third); caudal fin almost emarginate in specimens under 10 cm standard length, forked in larger fish (but median rays never less than half length of longest rays). Scales minute; cheeks scaleless, or with few to many very fine scales; 21 to 27 scale rows between lateral line and bases of leading dorsal spines.

Colour: in life highly variable, depending on mood of fish and colour of substrate; greenish grey above to silver on belly; numerous pearly blue match-head size spots covering nape and sides, arranged more or less in horizontal rows (about 3 rows above and 10 below lateral line); spots often ovoid or rod shaped. Frightened and injured fish mottled brown; mottling includes dappling with pale cream and dark brown spots which may obscure basic colour pattern. Caudal fin plain grey or irregularly barred with pale and dark grey; pectoral fins hyaline; dorsal, anal and pelvic spines and rays same colour as adjacent areas of sides; fin membranes grey; after death fins usually marbled with pale and dark grey, dorsal fin rays banded.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

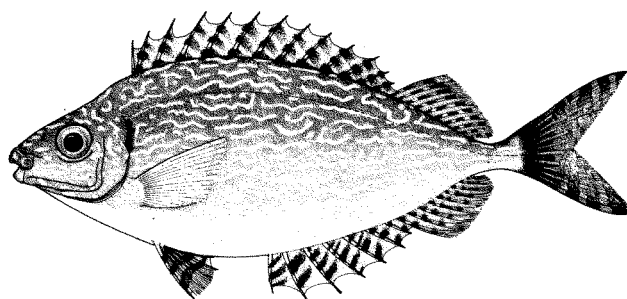
Siganus sutor: very similar in proportions but appears to be confined to the western portion of Fishing Area 51: spots round, larger and less numerous; 26 to 31 scale rows between lateral line and bases of leading dorsal spines (21 to 27 in S. canaliculatus).

S. rivulatus: body more slender, depth 2.7 to 3.4 in standard length (2.4 to 2.8 in S. canaliculatus); 18 to 21 scale rows between lateral line and bases of leading dorsal spines; colour pattern different, golden horizontal lines present on sides (in fresh specimens).

S. argenteus: caudal fin deeply forked; last anal spine contained 2 times or less in longest anal spine (1.2 to 1.5 times in S. canaliculatus).

S. luridus and S. spines: caudal fin truncate.

Other Siganus species: body deeper, depth contained 2.4 times or less in standard length.



S. argenteus

SIZE:

Maximum: 30 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

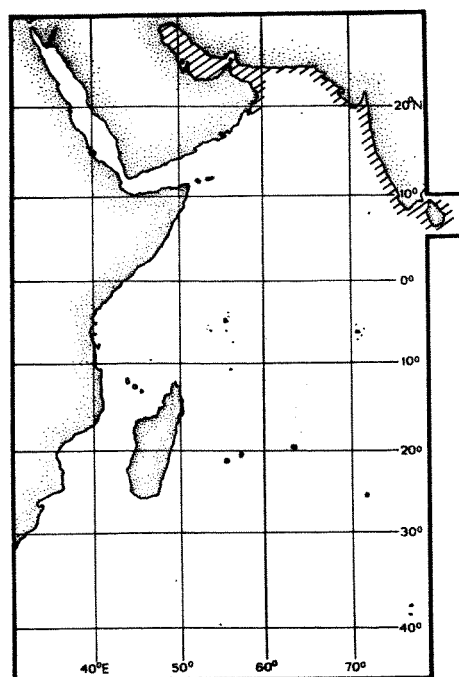
From the "Gulf" along the coasts of India to the Indo-Malayan Archipelago.

Occurs in schools, in coastal waters to depths of at least 40 m.

Feeds by scraping algae from rocks and corals, and by browsing on seaweeds and sea grasses; will take small invertebrates.

PRESENT FISHING GROUNDS:

Coastal waters, including estuaries.



CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

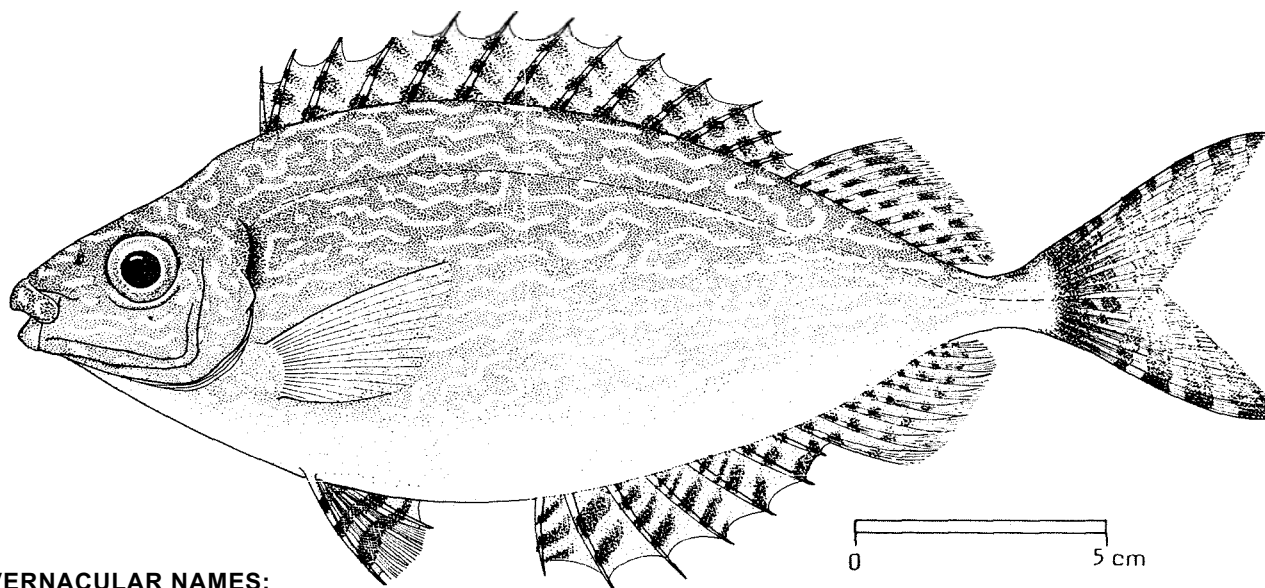
Separate statistics are not reported for this species.

Caught mainly with bottom trawls and traps.

Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREA 51
(W. Indian Ocean)Siganus argenteus (Quay & Gaimard, 1825)OTHER SCIENTIFIC NAMES STILL IN USE: Siganus rostratus (Valenciennes, 1835)

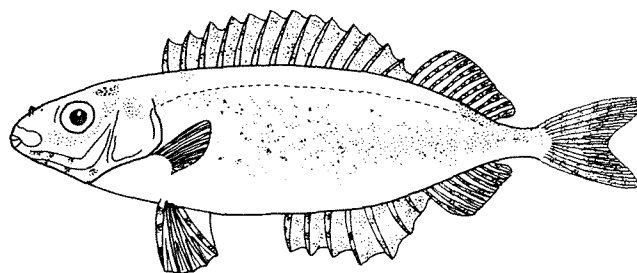
VERNACULAR NAMES:

FAO : En - Streamlined spinefoot
 Fr - Sigan vermiculé
 Sp - Sigano veteado

NATIONAL:

DISTINCTIVE CHARACTERS*:

Body oval and compressed, slender, fusiform, its depth contained 2.4 to 3 times in standard length. Dorsal profile of head not descending steeply, head small, profile pointed; anterior nostril with a long flap reaching to or past posterior nostril. A forward directed spine present in front of dorsal fin, imbedded in nape; longest dorsal spine 3rd to 8th; last dorsal spine very short, contained 2.4 to 3.4 times in the longest; last anal spine the shortest, 2 to 3.2 times in the longest (3rd) anal spine; caudal fin deeply forked, with pointed lobes, median rays one third to half the length of longest rays. Scales minute; anterior half of cheek scaled; 16 to 22 scale rows between lateral line and bases of leading dorsal spines. Prejuveniles (smaller than 7 cm standard length): greatest body depth nearly 4 times in standard length; anterior nostril flap reaches only halfway to posterior nostril; caudal fin less deeply forked; scales absent.



prejuvenile

*This species has a distinctive prejuvenile stage; juvenile/adult characters appear in specimens above about 7 cm standard length

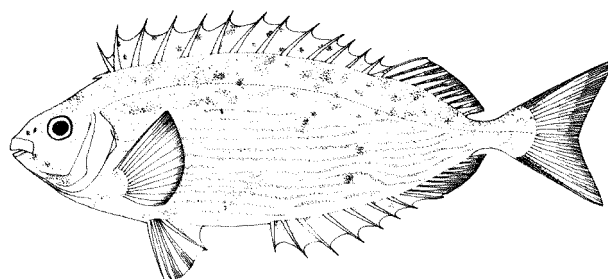
Colour: deep sea blue above to paler blue below; head and trunk usually covered with small yellow spots, bars and commas, much larger than interspaces and quarter to half size of pupil; frequently spots joining to form horizontal wavy lines, particularly on lower sides. Iris plain yellow. In life, dorsal spines and rays and midline of trunk at base of dorsal fin yellow, expanding into a yellow saddle on caudal peduncle. Caudal fin dusky blue (bars on outer rays in some specimens); spinous part of anal fin mottled with white, yellow and brown; membrane of soft part of anal fin silvery, rays mottled light and dark brown; pelvic fins with 5 whitish, alternating with 4 dusky, crossbars; pectoral fins hyaline yellow. Colours fade rapidly at death so that head and trunk may be solid brown. Prejuveniles are said to be yellow-brown to silver below; fins hyaline.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Siganus rivulatus: caudal fin not as deeply forked; last anal fin spine relatively longer, contained 1.5 to 1.8 times in longest anal fin spine (2 to 3.2 times in *S. argenteus*); no uniform pattern of spots or lines on upper sides.

S. corallinus, *S. javus*, *S. lineatus*, *S. puelloides*, *S. stellatus*, *S. vermiculatus* and *S. virgatus*: body deeper, its depth contained 2.4 times or less in standard length (contained 2.4 to 3 times in *S. argenteus*).

Other *Siganus* species: caudal fin deeply emarginate to truncate, never deeply forked; last dorsal fin spine longer, nostril flap usually shorter.



S. rivulatus

SIZE:

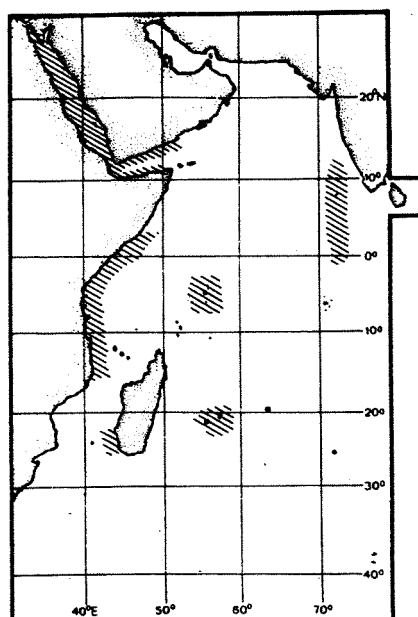
Maximum: 35 cm; common to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Very widely distributed, from the east coast of Africa and the Red Sea throughout the tropical Indo-Pacific to the Tuamotu Islands, including Madagascar, Mauritius, Seychelles, Laccadives and Maldives.

Found in clear tropical waters about coral reefs. Prejuveniles occur in very large schools; at the onset of the juvenile stage they migrate on to the reef flats. School size decreases with increasing maturity. Adults occur singly, in pairs, or small schools of about 10 to 20 individuals.

Before entering the reef flats the prejuveniles are presumably plankton feeders. From then on this species browses on bottom algae and floating fragments of algae; preferring deeper water, often resting in midwater.



PRESENT FISHING GROUNDS:

Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

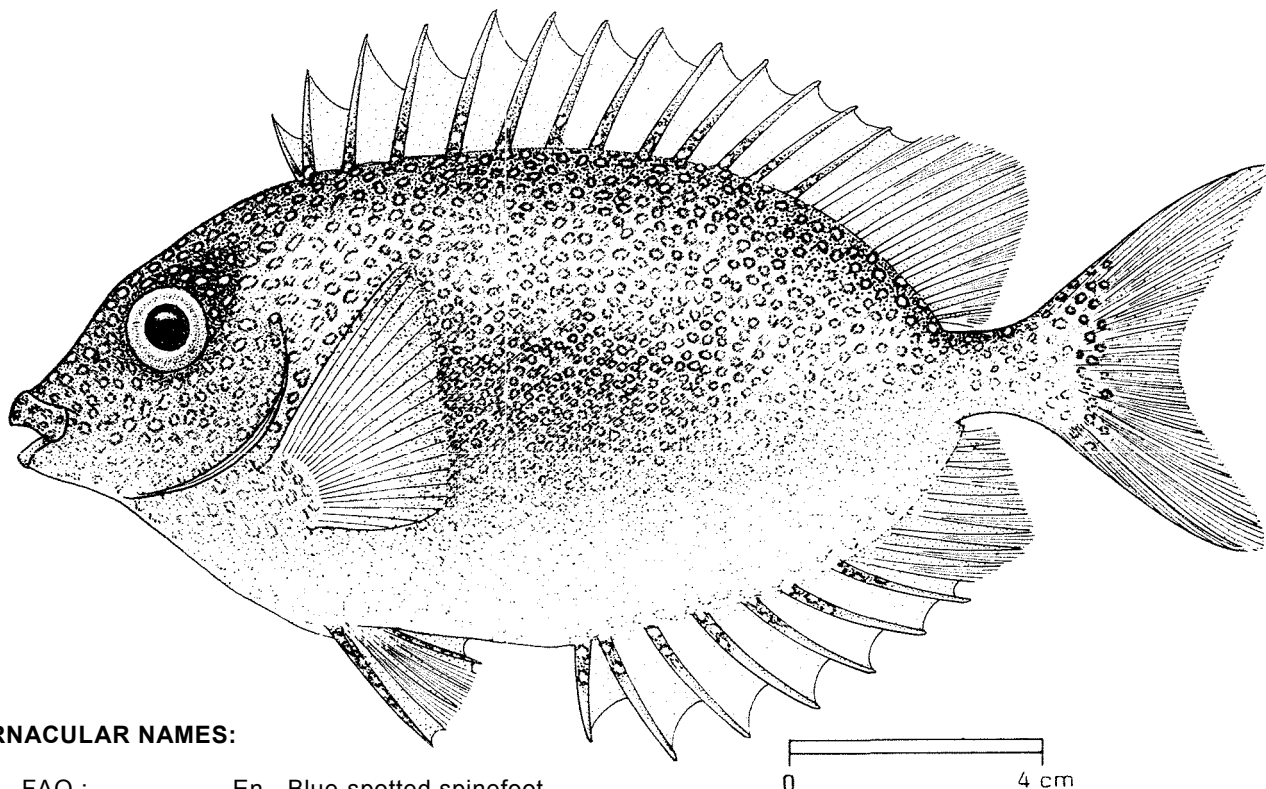
Separate statistics are not reported for this species.

Prejuveniles caught with lift nets, seines, and dip-nets; later stages with traps and setnets.

Marketed fresh; prejuveniles also made into fish paste or pickled in brine in other areas.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREA 51
(W. Indian Ocean)Siganus corallinus (Valenciennes, 1835)OTHER SCIENTIFIC NAMES STILL IN USE : Teuthis corallina (Valenciennes, 1835)

VERNACULAR NAMES:

FAO : En - Blue-spotted spinefoot
Fr - Sigan corail
Sp - Sigano coral

NATIONAL:

DISTINCTIVE CHARACTERS:

Body deep and compressed, its depth contained 1.7 to 2.4 times in standard length. Profile of head descending at an angle of about 45°, strongly concave before eyes and behind chin so that snout protrudes prominently; anterior nostril with a high flange, a little higher posteriorly. A forward-directed spine present in front of dorsal fin; longest dorsal fin spine the 5th to 8th; last dorsal spine contained 1.1 to 1.4 times in longest dorsal spine; 3rd to last anal spines of similar length, last anal spine tends to be the longest in older fish, the 3rd to 5th in younger individuals; soft part of dorsal and anal fins high, longest dorsal ray 1 to 1.3 times the length of longest dorsal spine (ratio increasing with size of fish); caudal fin deeply forked, more so in adults than juveniles, tips of caudal lobes acutely pointed. Scales minute; cheeks almost completely covered with strong scales; 16 to 23 scale rows between lateral line and bases of leading dorsal spines.

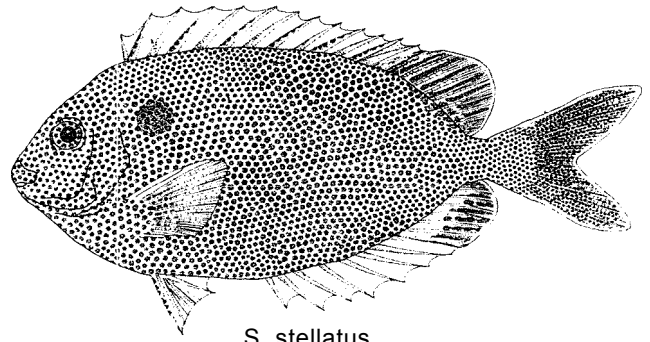
Colour: head, trunk and fins orange yellow. Head, breast and sides covered with pale blue ocelli with darker blue margins, which may cover whole of sides or may be absent from posterior and lower sides; ocelli about pinhead size and about same size as interspaces, larger and more crowded on head, sometimes smaller on sides and much smaller than interspaces, extending onto bases of dorsal and anal fin spines, first pelvic fin spine and first pelvic fin ray, and if present on caudal peduncle, extending onto bases of outer rays of caudal fin. Some small specimens (3 or 4 cm total length) have vertical blue lines on sides which later fragment into the ocelli. In living specimens a diffuse, dark, triangular smudge adjacent to and above orbit. Iris unspotted, orange brown.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Siganus stellatus: large brown spots on sides, much larger than interspaces; iris with about 11 dark spots arranged radially; lower and, usually, upper lobes of caudal fin broadly rounded at tips.

S. puelloides: yellow spots on lower sides, larger than interspaces, fusing on upper sides; body less deep, depth 2.2 to 2.4 times in standard length (1.7 to 2.4 in S. corallinus); snout not so tubulate.

Other Siganus species: either not so deep bodied (body depth contained more than 2.4 times in standard length), or with lines and vermiculations on sides, or spots arranged in different patterns.



S. stellatus

SIZE:

Maximum: 25 cm; common to 15 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, known only from Maldives, Seychelles and Aldabra. Elsewhere, from New Caledonia through the New Guinea arc and the Indo-Malayan Archipelago to the Andaman Sea and tropical islands of northwest Pacific.

Lives around coral reefs. Association in pairs begins at about 6 cm in length. By about 15 cm, pairs are sedentary; but up to this size pairs may form feeding groups in areas flooded by the tide.

Browses on algae growing on coral substrates.

PRESENT FISHING GROUNDS:

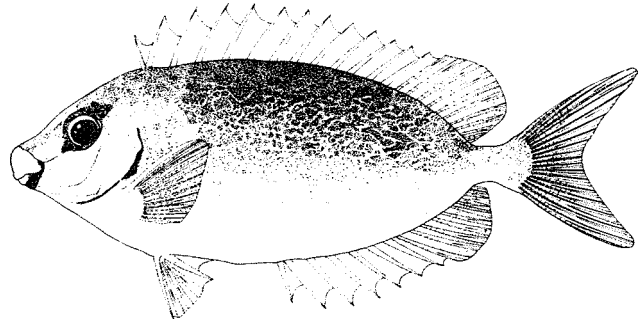
In shallow coastal waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

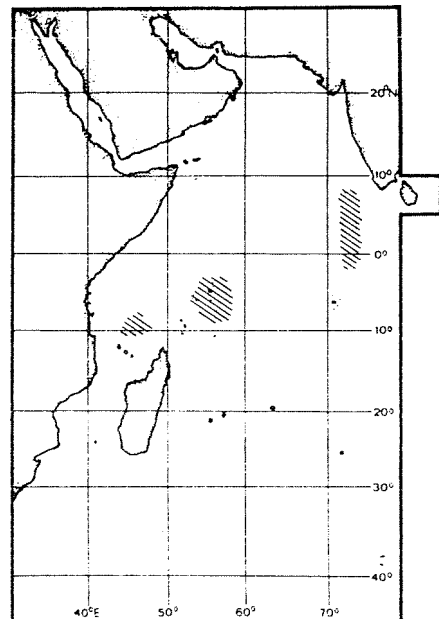
Separate statistics are not reported for this species.

Caught by spearing, and with setnets and traps.

Marketed fresh.

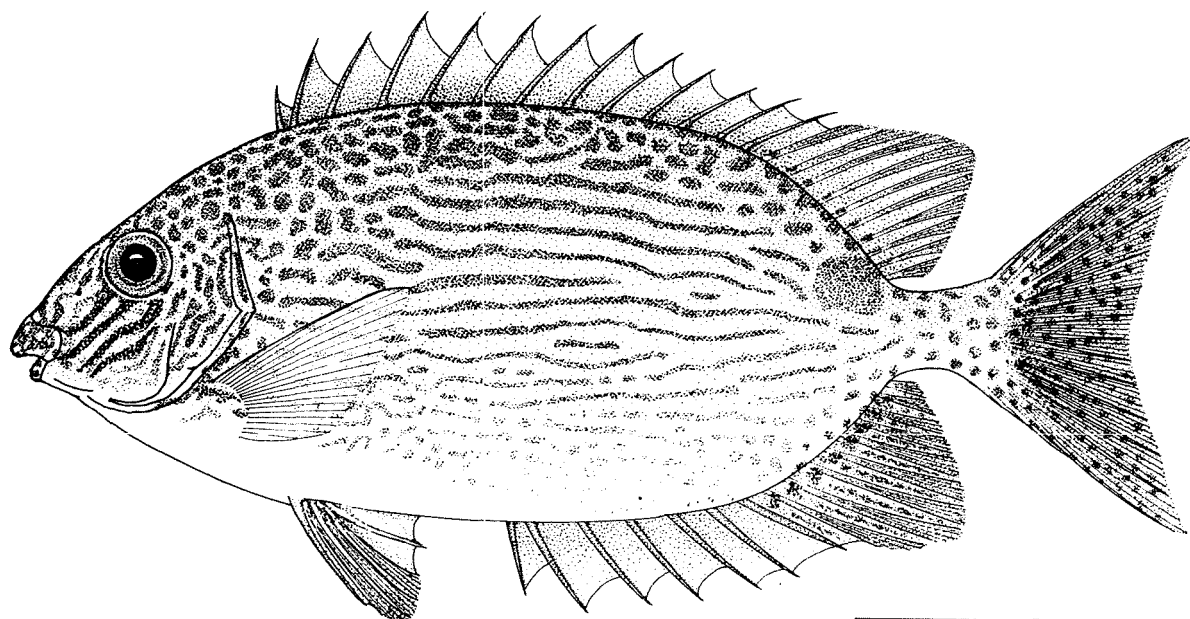


S. puelloides



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREA 51
(W. Indian Ocean)*Siganus lineatus* (Valenciennes, 1835)OTHER SCIENTIFIC NAMES STILL IN USE: *Teuthis lineata* (Valenciennes, 1835)

VERNACULAR NAMES:

FAO : En - Golden-lined spinefoot
 Fr - Sigan raies d'or
 Sp - Sigano rayas doradas

NATIONAL:

DISTINCTIVE CHARACTERS:

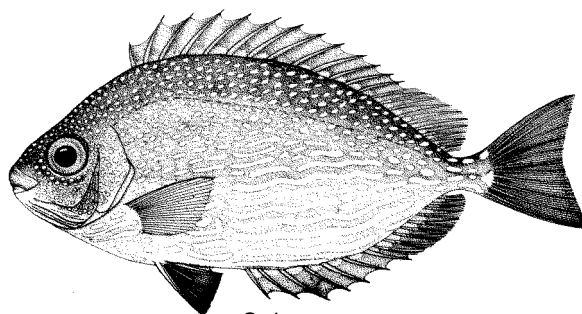
Body deep and compressed, its depth contained 1.9 to 2.2 times in standard length. Dorsal profile of head descending fairly steeply, slightly concave before eye; anterior nostril with a low flange slightly expanded posteriorly. A forward-directed spine present in front of dorsal fin, imbedded in nape; longest dorsal spine the 4th to 7th and only a little longer than (1.1 times) last dorsal spine; longest anal spine the last, about 1.7 times the length of the first; caudal fin emarginate. Scales minute; cheeks covered with prominent scales; 19 to 25 scale rows between lateral line and bases of leading dorsal fin spines.

Colour: blue above to silver below; horizontal golden bronze bands, some broken, running the length of the sides, breaking up into spots near bases of dorsal and anal fins and also on caudal peduncle. Head golden with blue spots and lines convoluted into various shapes, the most constant being a diagonal line across cheek from below orbit to corner of mouth. A bright yellow spot, about size of orbit, at base of last few rays of dorsal fin. Caudal fin bluish with rows of golden spots which appear as 3 or 4 crossbars on the folded fin; dorsal fin spines golden on a dusky membrane; dorsal fin rays silvery on a bluish membrane, with a row of golden spots at bases of rays; anal fin spines golden on a dusky blue membrane; anal fin rays bluish, membrane dusky with a golden spot at base and a bar above in each membrane cell; pelvic fins dusky blue, outer spine and ray silvery, other rays dusky; pectoral fins hyaline.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Siganus Javus: alternating silver and bronze horizontal bands on sides, but on lower half only, upper sides spotted; caudal fin without spots; no large yellow spot at base of dorsal fin; 30 to 35 scale rows between lateral line and leading dorsal spines (19 to 25 in S. lineatus).

Other Siganus species: without horizontal bands on sides or, if so, body less deep, depth usually more than 2.2 times in standard length (1.9 to 2.2 times in S. lineatus).



S. javus

SIZE:

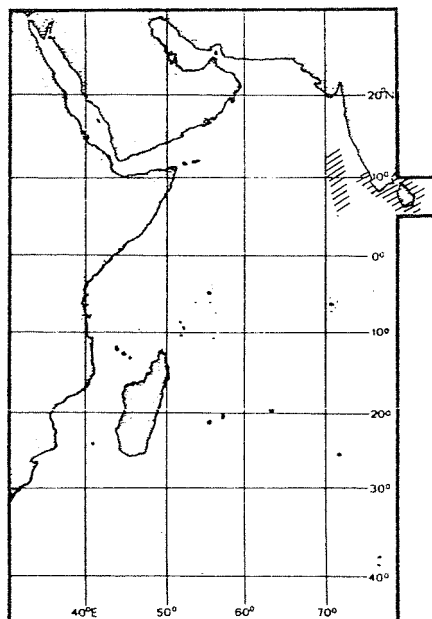
Maximum: 40 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, only Sri Lanka, Laccadive Islands and southern India. Apparently replaced by the related species, S. guttatus, in Southeast Asia, but reappears further east in the Philippines, New Guinea, northern Australia and as far east as New Caledonia.

Occurs in schools in coastal areas; particularly common in shallow waters of coralline areas; adults and subadults on reef flats, young about mangroves. Common school size about 20, but occasionally in thousands.

Feeds by scraping algae from coral surfaces and browsing on seaweeds and sea grasses.



PRESENT FISHING GROUNDS:

Shallow coastal waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with setnets and fixed traps on reef flats.

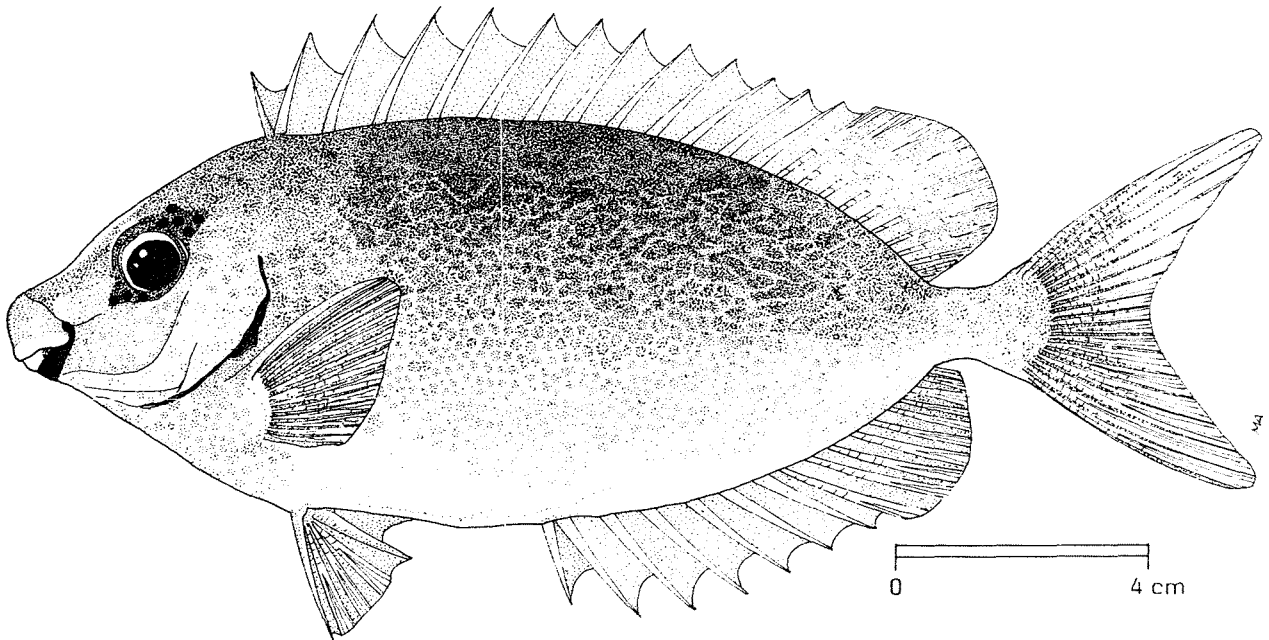
Marketed fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREA 51
(W. Indian Ocean)Siganus puelloides Woodland & Randall, 1979

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Black-eyed spinefoot
Fr - Sigan oeil noir
Sp - Sigano ojinegro

NATIONAL:

DISTINCTIVE CHARACTERS:

Body compressed, not particularly deep, its depth contained 2.2 to 2.4 times in standard length. Anterior profile wedge-shaped, more or less symmetrical about its midline; snout slightly protuberant; anterior nostril with a small flange, produced into a very short peak posteriorly. A forward-directed spine present in front of dorsal fin; longest dorsal spine the 6th or 7th, but only slightly longer than (1.1 to 1.2 times) the last; longest anal spine the 4th or last, these spines more or less subequal; soft part of dorsal and anal fins high, longest dorsal ray 1.1 to 1.4 times the length of longest dorsal spine; caudal fin prominently forked, the tips of its lobes acutely pointed. Scales minute; cheeks completely covered with fine scales; about 20 scale rows between lateral line and bases of leading dorsal fin spines.

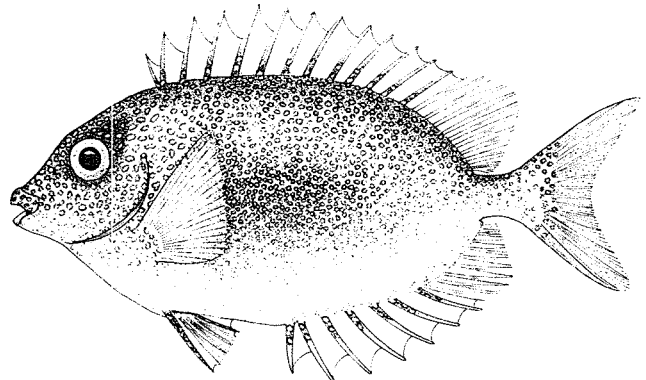
Colour: head and trunk covered with yellow spots, mostly round on lower sides but joining to form an irregular anastomosing pattern on upper sides; spots larger than interspaces. Areas between spots bluish above grading to silvery below. A dark brown band under chin, terminating at angle of jaws; lips yellow; a diagonal, diffuse, dark brown patch around eye containing 3 to 5 small black spots just above, and 2 or 3 just below, orbit. Pelvic fins silvery; rays and spines of other fins yellow-orange, their membranes blue to dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Siganus corallinus: blue ocelli on sides, much smaller than interspaces; body deeper, its depth contained 1.7 to 2.4 times in standard length (2.2 to 2.4 times in S. puelloides); snout more tubulate.

S. stellatus: large spots on sides, extending onto fins; lobes of caudal fin obtusely rounded at tips.

Other Siganus species: either not deep bodied, or lines or vermiculations present on sides.



S. corallinus

SIZE:

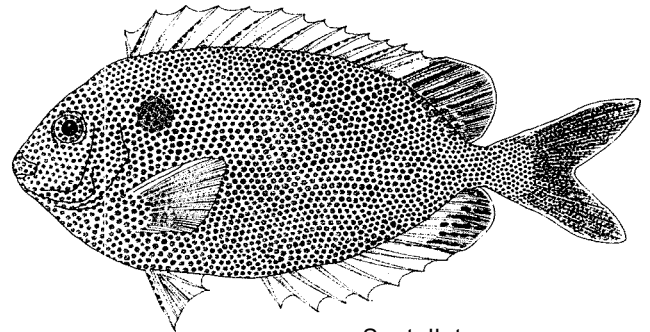
Maximum: 30 cm; common to 20

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known only from the Maldives and the Andaman Sea.

Lives in pairs amongst coral and deeper areas of reefs.

Browses on sponges, tunicates and algae.



S. stellatus

PRESENT FISHING GROUNDS:

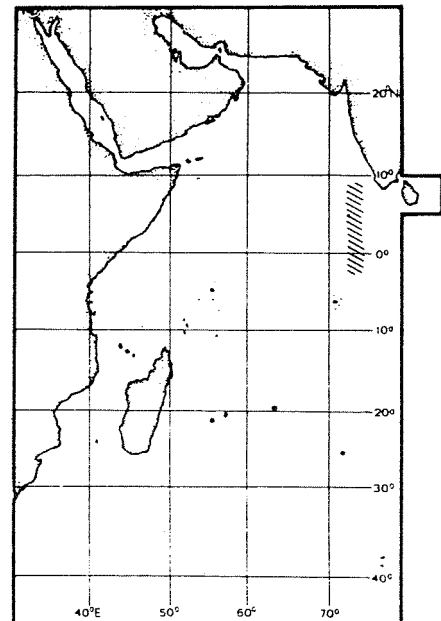
Shallow coastal waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

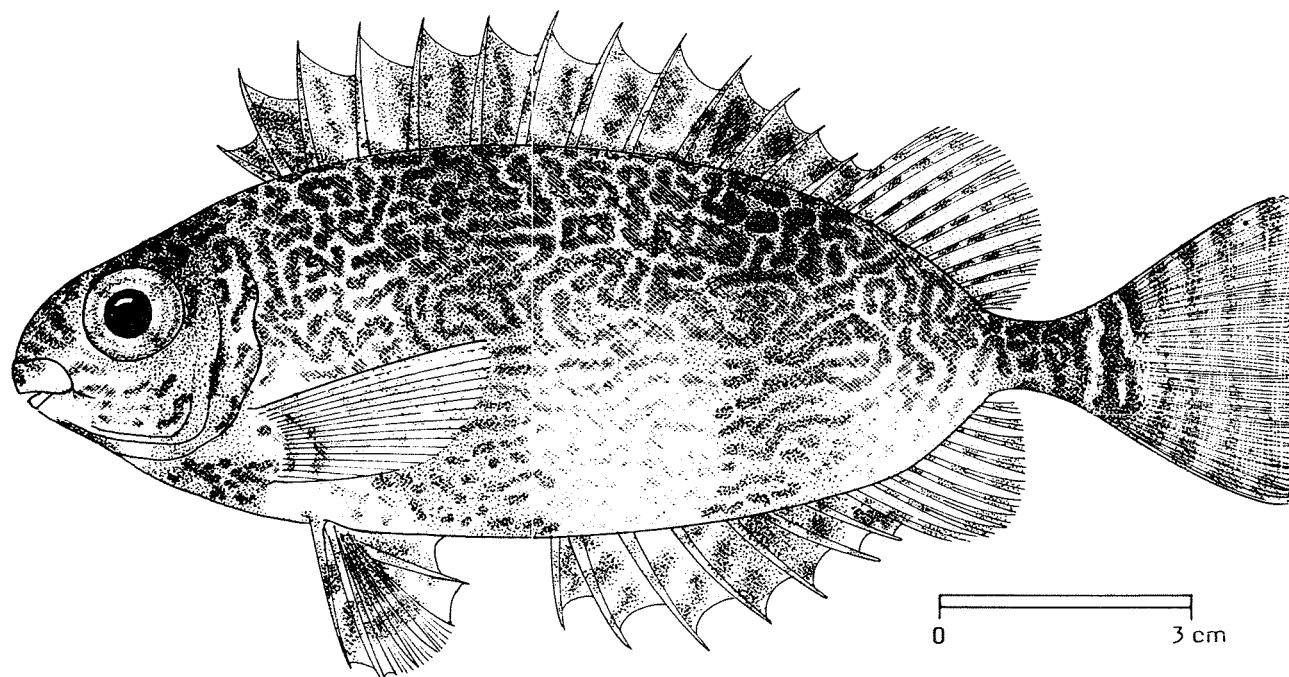
Caught by spearing.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREA 51
(W. Indian Ocean)*Siganus spinus* (Linnaeus, 1758)OTHER SCIENTIFIC NAMES STILL IN USE : *Teuthis striolata* Günther, 1861

VERNACULAR NAMES:

FAO : En - Little spinefoot
Fr - Petit sigan
Sp - Siganito

NATIONAL:

DISTINCTIVE CHARACTERS:

Body compressed, fairly slender, its depth contained 2.3 to 2.8 times in standard length. Profile of head concave above eye, snout convex and blunt; anterior nostril with a long flap extending at least two-thirds of the way to posterior nostril. A forward-directed spine present in front of dorsal fin; longest dorsal spine the 4th to 7th, 1.6 to 2 times the length of last dorsal spine; longest anal spine the 3rd or 4th, 1.2 to 1.5 times the length of last anal spine; soft part of dorsal and anal fins of moderate length, longest dorsal ray subequal to longest dorsal spine; caudal fin emarginate in juveniles, truncate in adults. Scales minute; cheeks covered with fine scales; 14 to 18 scale rows between lateral line and bases of leading dorsal spines.

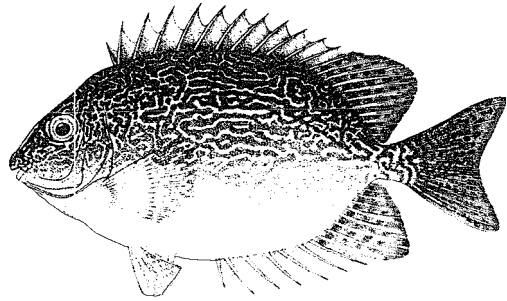
Colour: head and trunk covered with pearly blue to pale cream labyrinthine lines, one quarter to half the breadth of the interspaces which can be various shades of brown or grey. Two or 3 dark crossbars on chin and isthmus (underside of head); iris yellowish, dissected by a chocolate cross. Pattern on trunk extending onto pelvic fins and spinous parts of dorsal and anal fins; dorsal and anal fin rays with 2 or 3 dark bands, membranes hyaline; prominent pale bar present across caudal fin base; 4 more pale bars on caudal fin, but often indistinct except on outer rays; pectoral fins hyaline.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Siganus vermiculatus: body deeper, body depth contained 1.9 to 2.2 times in standard length (2.3 to 2.8 times in S. spinus); caudal fin emarginate to forked.

S. luridus (very similar in proportions to S. spinus, but confined to the western part of the area): vermiculate pattern on sides of trunk only, and often indistinct; no pale bar across caudal fin base.

Other Siganus species. caudal fin not truncate.



S. vermiculatus

SIZE:

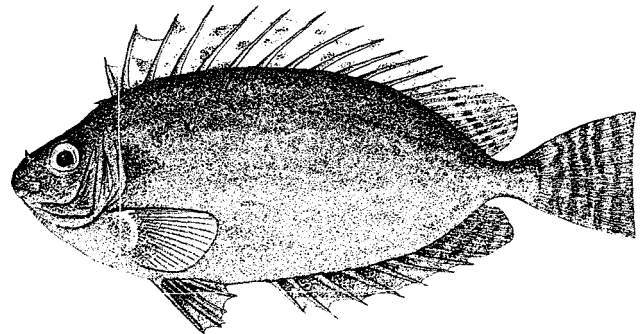
Maximum: 21 cm; common to 15 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, reported from the "Gulf", southern India and Sri Lanka. Elsewhere, widespread throughout most of the coralline areas of the south, central and western Pacific Ocean and throughout the Indo-Malayan Archipelago.

A small species, the adults live on shallow coral reef flats in small schools of usually less than 10 individuals. The immediate post-larval stages form immense aggregations which, at fixed times of the year, migrate from the open sea onto the reef flats. These "runs" are fished heavily in some Pacific areas.

Post-larval and later stages browse on a wide range of bottom algae.



S. luridus

PRESENT FISHING GROUNDS:

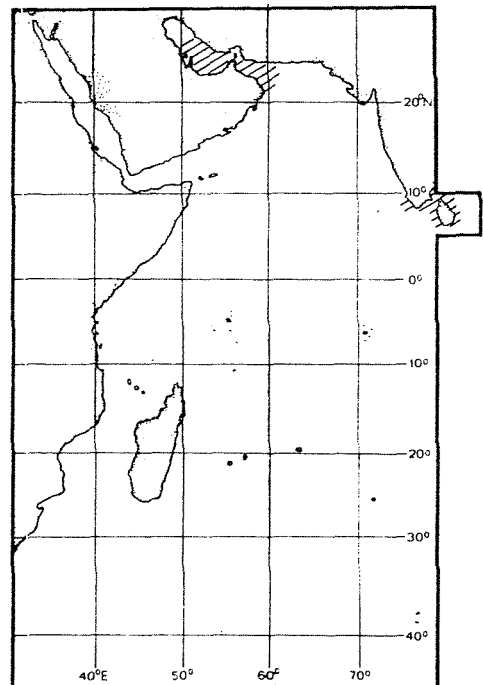
Coral reef flats.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

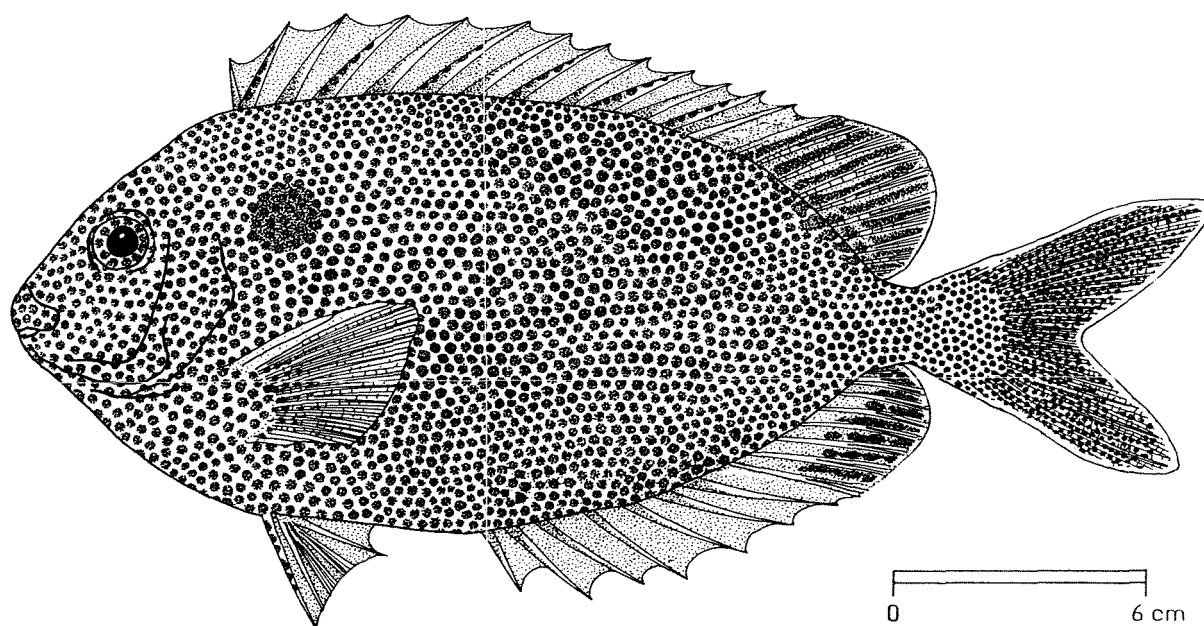
The early stages are caught with a variety of nets, the later stages with setnets and by spearing.

The early stages are pickled in brine or made into fish pastes and sauces; adults are eaten fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREA 51
(W. Indian Ocean)*Siganus stellatus* Forsskål, 1775OTHER SCIENTIFIC NAMES STILL IN USE : *Teuthis stellata* (Forsskål, 1775)

VERNACULAR NAMES:

FAO : En - Brown-spotted spinefoot
 Fr - Sigan marguerite
 Sp - Sigano margarita

NATIONAL:

DISTINCTIVE CHARACTERS:

Body deep and compressed, its depth contained 2 to 2.3 times in standard length. Dorsal profile of head virtually a straight line descending at an angle of about 45°, ventral profile strongly concave below chin; juveniles with a long triangular flap on anterior nostril, reduced to a low rim in adults. A forward directed spine present in front of dorsal fin; longest dorsal spine the 4th to 6th, about 1.25 times the length of last dorsal spine; last anal spine the longest or subequal to 6th; soft dorsal and anal fins high, longest dorsal ray 1.2 to 1.4 times last dorsal spine; caudal fin emarginate in young, gradually changing to deeply forked in old individuals; caudal fin lobes usually broadly rounded at tips, but upper lobe sometimes acutely pointed. Scales minute; cheeks strongly scaled; 23 to 28 scale rows between lateral line and bases of leading dorsal spines.

Colour: in life, greyish green with brown spots all over head and trunk. Spotted pattern extending onto all fins, including basal portion of pectoral fin rays; spots large (2 mm diameter) and crowded on trunk, producing a hexagonal lattice pattern, reducing to pin-head size toward the trailing edge of caudal fin. In specimens from the Red Sea, the spots decline in size toward the nape, creating a large green oval patch about the leading spines of the dorsal fin. Perimeter of caudal fin and trailing edges of soft parts of dorsal and anal fins, yellow. A dark patch of about size of orbit, present at origin of lateral line. After death, the spots become very dark brown and the intermediate areas pale to dark lilac; trailing edges of caudal fin and soft parts of dorsal anal and fins orange.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Siganus corallinus: small blue ocelli on bright yellow; snout protruding; tips of caudal fin lobes acutely pointed.

Other Siganus species: either more slender, or colour pattern with lines and vermiculations.

SIZE:

Maximum: 40 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, along the east coast of Africa, in the Red and Andaman Seas, Madagascar, Comores, Aldabra, Mauritius, Seychelles, Laccadives, Maldives and Sri Lanka.

Lives about coral reefs, subadults in schools, adults in pairs.

Browses on seaweeds.

PRESENT FISHING GROUNDS:

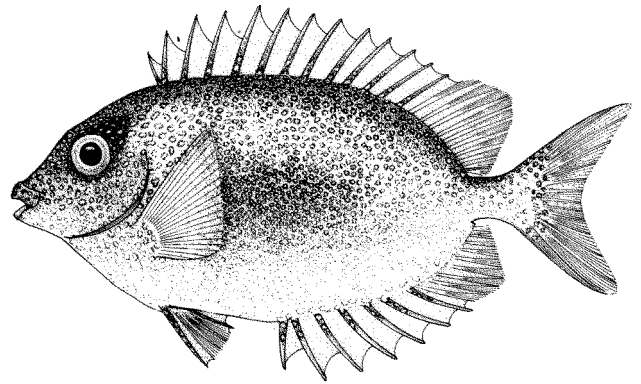
About reefs.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

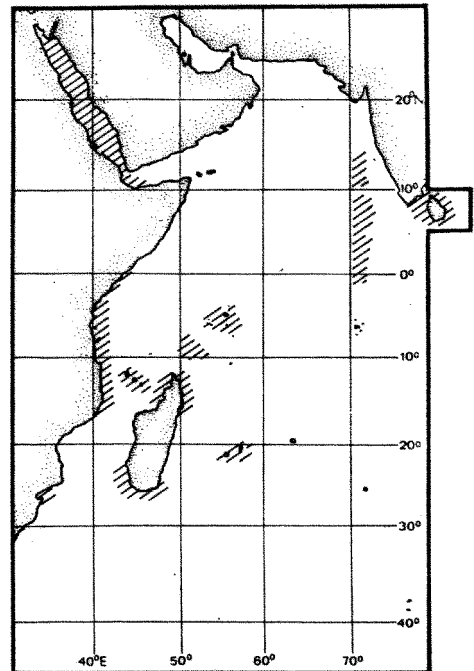
Separate statistics are not reported for this species.

Caught in set traps and by spearing.

Marketed fresh.



S. corallinus

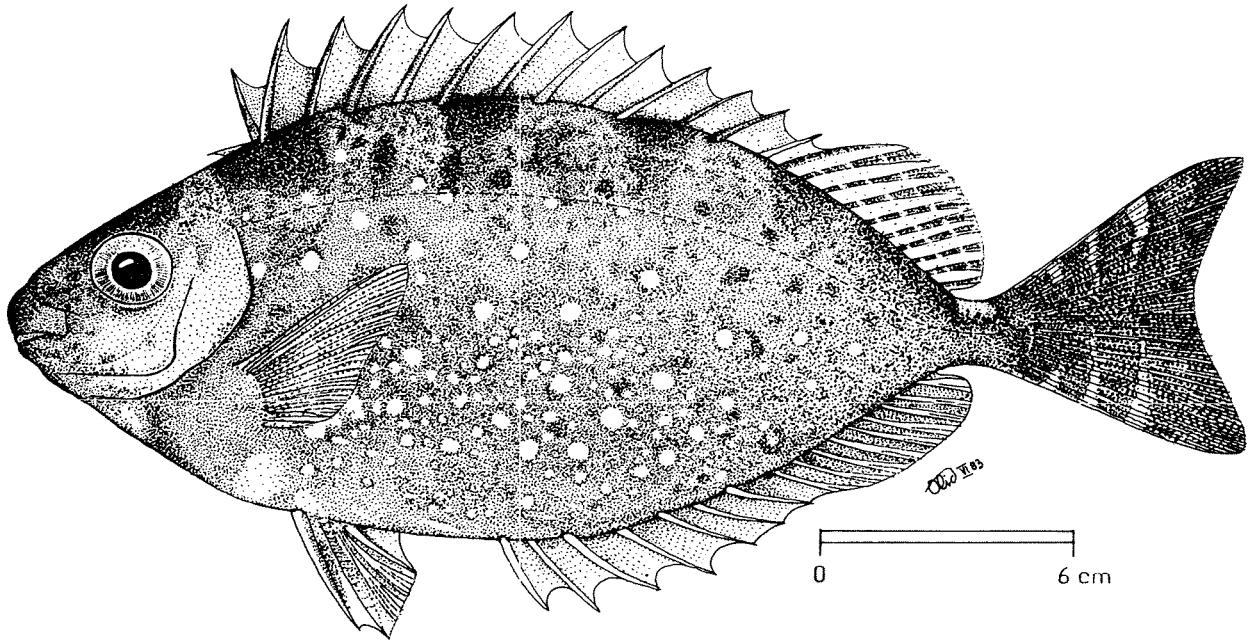


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREA 51
(W. Indian Ocean)*Siganis sutor* (Valenciennes, 1835)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Shoemaker spinefoot
 Fr - Sigan cordonnier
 Sp - Sigano zapatero

NATIONAL:

DISTINCTIVE CHARACTERS:

Body compressed, fairly slender, its depth contained 2.2 to 2.6 times in standard length. Head pointed, upper profile only slightly concave above eye; anterior nostril with a long flap in juveniles, shortening progressively with age, the tip reaching less than halfway to posterior nostril in specimens more than 12 cm standard length. A forward-directed spine present in front of dorsal fin; longest dorsal spine 5th to 8th; last dorsal spine the shortest, but not less than half the length of longest; longest anal spine 3rd or 4th, 1.3 to 1.5 times the length of last anal spine; caudal fin forked, median rays half to two-thirds the length of longest rays. Scales minute; cheeks either scaleless or with a few to many very fine soles; 26 to 31 scale rows between lateral line and bases of leading dorsal spines.

Colour: highly variable, depending on mood of fish and colour of substrate. In life, usually green-grey to sandy above, paler below; sides with about 30 large spots, the largest bigger than the pupil; spots evenly spaced over sides in 6 irregular rows, the upper row lying close to lateral line, their colour changing from blue to cream to silvery; centres of spots much darker than perimeters in certain phases of change. Frightened and injured fish are mottled brown, with 6 darker diagonal zones alternating with 6 paler ones across head, trunk and fins; mottling includes dappling with numerous small spots, large spots often obscured. Caudal fin yellow-brown, outer rays sometimes barred with paler; dorsal fin rays banded; pectoral fins hyaline; other fins mottled dark and lighter brown. After death, brown mottled with dark brown; spots absent.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING THE AREA:

Siganus canaliculatus: very similar in proportions, but appears to be confined to the eastern part of the area; the spots are much smaller and more numerous, with many in the area above lateral line.

S. rivulatus: body more slender, its depth contained 2.7 to 3.4 times in standard length (2.2 to 2.6 times in S. sutor); 18 to 21 scale rows between lateral line and leading dorsal spines (26 to 31 in S. sutor); horizontal lines present on sides.

S. argenteus: caudal fin deeply forked; longest anal fin spine not less than 2 times length of last anal fin spine (1.3 to 1.5 times in S. sutor).

Other Siganus species: either deeper bodied, or with truncate caudal fin, or different colour pattern.

SIZE:

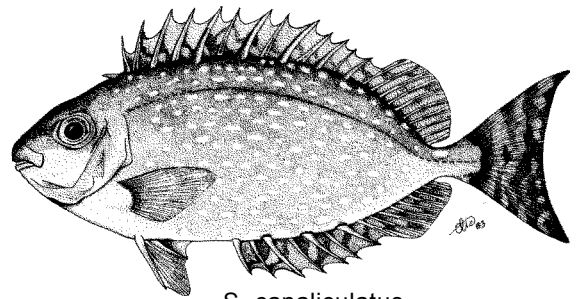
Maximum: 45 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR

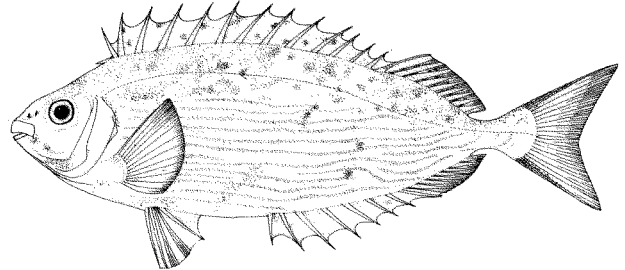
Found in the eastern part of the area, along the east coast of Africa, from Tanzania to Knysna, South Africa, including the Seychelles, Madagascar, Mauritius and Comores.

Schools about reefs and weedy flats.

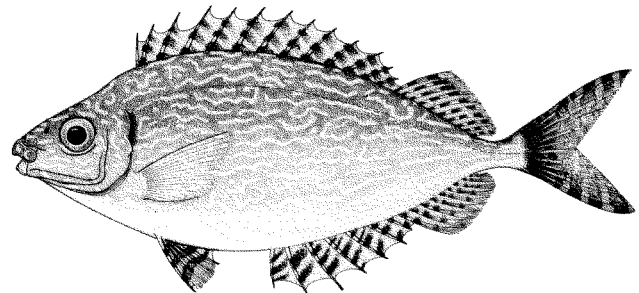
Feeds by scraping algae from rocks and corals, and by browsing on seaweeds and sea grasses.



S. canaliculatus



S. rivulatus



S. argenteus

PRESENT FISHING GROUNDS

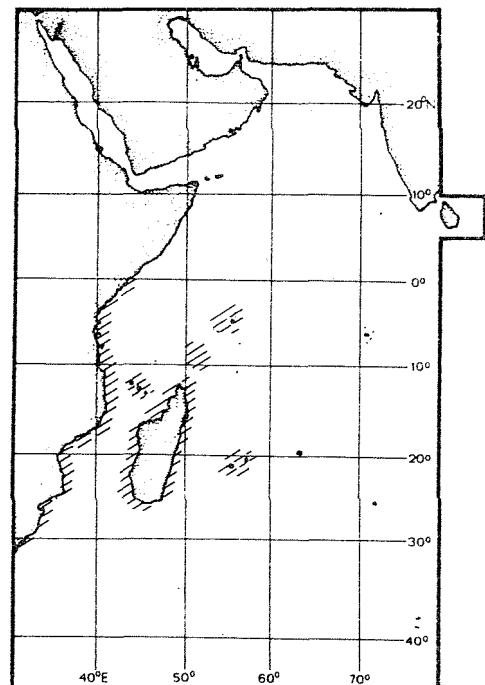
Coastal waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with seines, setnets and traps.

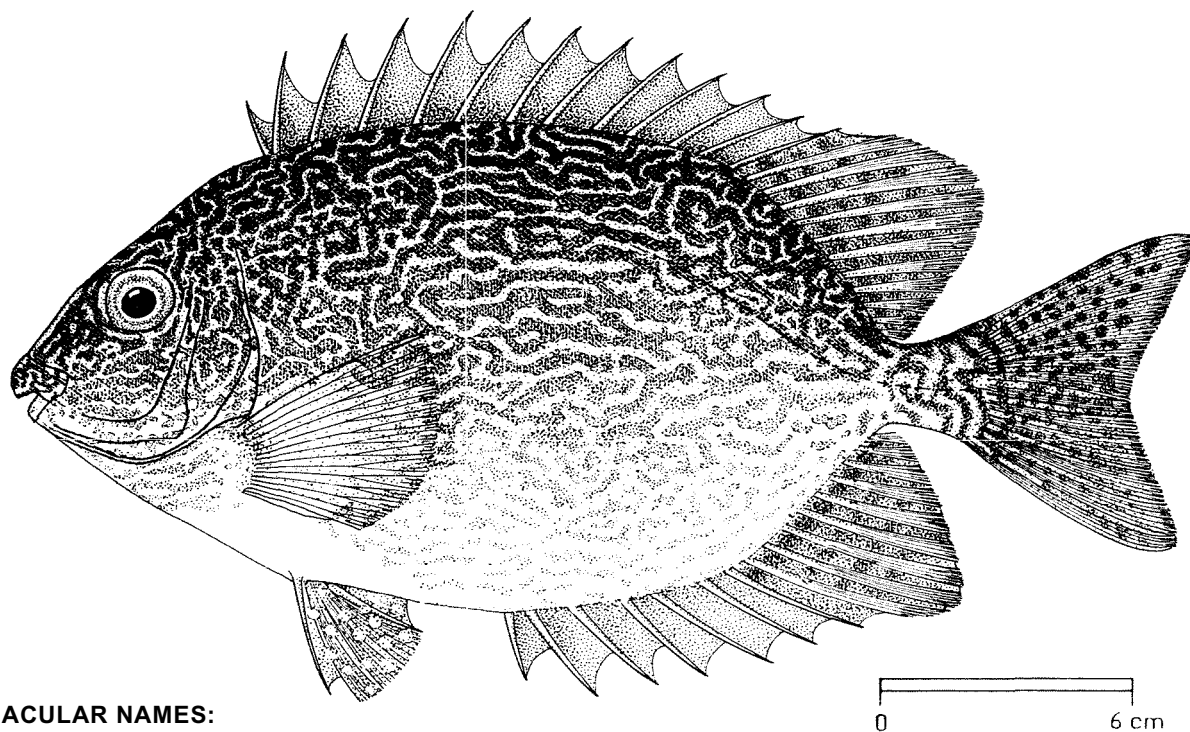
Marketed mostly fresh.



1983

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREA 51
(W. Indian Ocean)Siganus vermiculatus (Valenciennes, 1835)OTHER SCIENTIFIC NAMES STILL IN USE: Teuthis vermiculata (Valenciennes, 1835)

VERNACULAR NAMES:

FAO: En - Vermiculated spiaefoot
Fr - Sigan vermicelle
Sp - Sigano vermiculado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body deep and compressed, its depth contained 1.9 to 2.2 times in standard length. Nape convex, interorbital space concave, snout convex, deep and blunt; anterior nostril with a flange which is slightly broadened posteriorly. A forward-directed spine present in front of dorsal fin, but imbedded in nape; last dorsal fin spine longest in individuals above 12.5 cm standard length, and 5th to 8th spines longest in smaller fish; last anal fin spine the longest, about 1.8 times the length of the first; soft parts of dorsal and anal fins high, particularly the dorsal in which the longest ray is at least 1.5 times the longest dorsal spine; caudal fin emarginate. Scales minute; cheeks covered with prominent scales; 17 to 26 scale rows between lateral line and bases of leading dorsal spines.

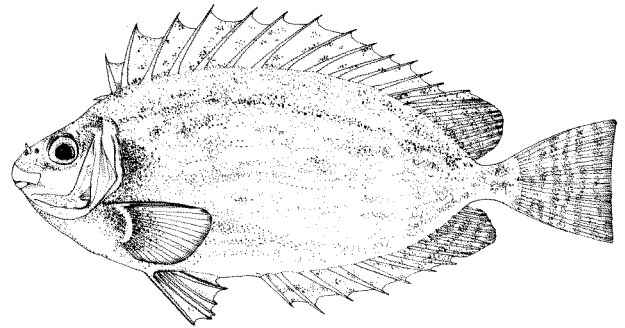
Colour: head and body with a vermiculate pattern, the darker coloured areas brownish, the paler ones bluish above grading to silvery below; darker lines much broader than paler ones on nape and head, about equal in breadth posteriorly. Head with a golden flush; lines on cheeks blue. Dark lines breaking into spots on caudal fin, spots arranged in 4 vertical rows. Dark spots also present on soft parts of dorsal and anal fins, arranged in rows, the proximal row prominent; other parts of median fins dusky; pectoral fins hyaline; pelvic fins dusky and golden yellow.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING THE AREA:

Siganus luridus: caudal fin truncate and longest anal spine the 3rd or 4th (last anal spine the longest in S. vermiculatus).

S. spinus: a prominent pale bar present at base of caudal fin; longest anal spine the 3rd or 4th; body more slender, 2.3 to 2.8 times in standard length (1.9 to 2.2 in S. vermiculatus).

Other Siganus species: sides not covered with vermiculating lines.



S. luridus

SIZE:

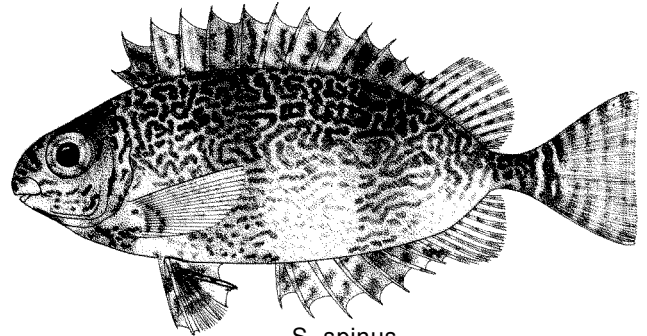
Maximum: 45 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, found along the southwest coast of India and Sri Lanka. Elsewhere, from the coasts of India through the Indo-Malayan Archipelago to the Philippines and Belau islands, northern Australia and the Fiji islands.

Occurs in small schools in and about river mouths and brackish lagoons; said to enter freshwater.

Herbivorous.



S. spinus

PRESENT FISHING GROUNDS:

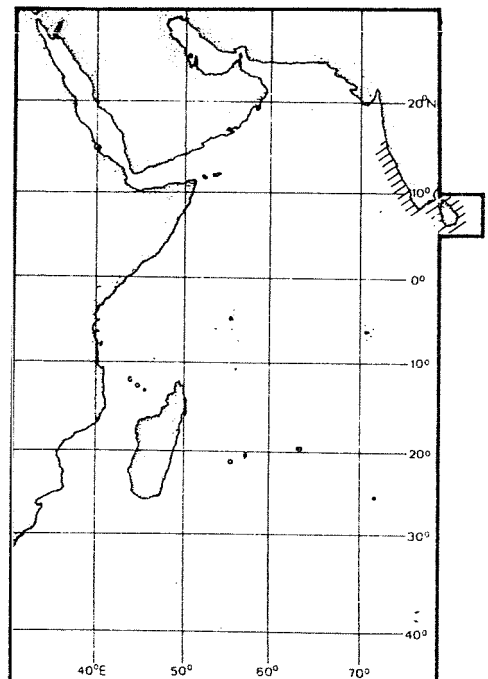
Estuarine and mangrove areas.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

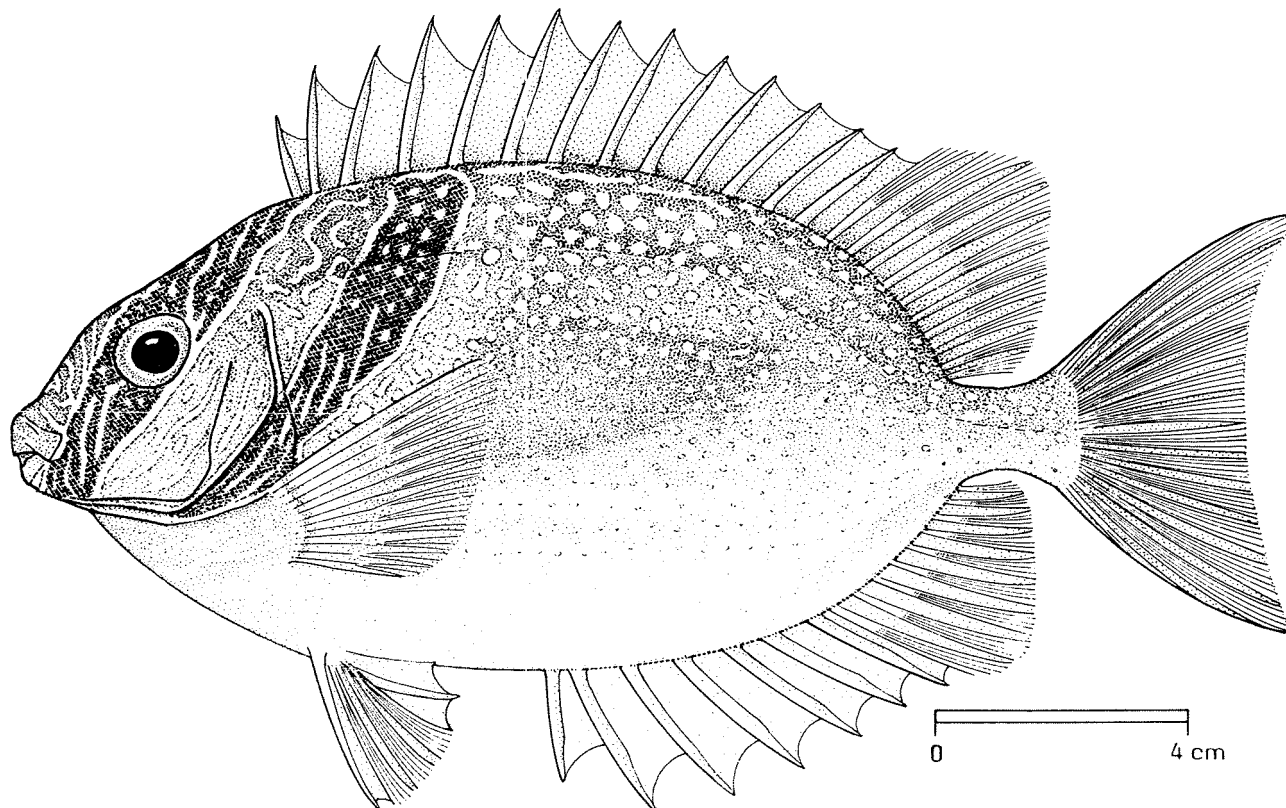
Caught mainly with nets and fixed traps.

Marketed mostly fresh; commands very high prices.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREA 51
(W. Indian Ocean)*Siganus virgatus* (Valenciennes, 1835)OTHER SCIENTIFIC NAMES STILL IN USE: *Teuthis virgata* (Valenciennes, 1835)

VERNACULAR NAMES:

FAO : En - Double-barred spinefoot
 Fr - Sigan à deux bandes
 Sp - Sigano de dos bandas

NATIONAL:

DISTINCTIVE CHARACTERS:

Body deep and compressed, its depth contained 1.8 to 2.2 times in standard length. Dorsal profile of head convex; anterior nostril with a high flange, a little higher and pointed posteriorly. A forward-directed spine present in front of dorsal fin, imbedded in nape; longest dorsal spine the 5th to 7th, 1.2 to 1.4 times the length of last dorsal spine; longest anal spine, typically the 3rd or 4th, only a little longer than the last anal spine which is infrequently the same length; soft parts of dorsal and anal fins moderately high, longest dorsal ray 1 to 1.2 times the longest dorsal spine; caudal fin emarginate. Scales minute; cheek scalation variable, ranging from a few scattered scales to almost fully scaled, but scales usually confined to posterior part of cheek; 19 to 27 scale rows between lateral line and bases of leading dorsal spines.

Colour: a seal brown bar running from nape through eye to chin ("ocular") another from base of 4th to 6th dorsal spines to base of pectoral fin ("shoulder"). Shoulder bar and posterior margin of ocular bar outlined with blue lines, which are persistent after death even though brown fades. Shoulder bar contains small blue spots sometimes elongated into short lines, residual area orange-brown; ocular bar below eye containing blue spots. Area between two bars lemon yellow, with meandering blue lines breaking up into blue spots on cheek. Snout orange; about 10 blue lines running transversely across nape and snout; upper lip yellow, with 2 or 3 transverse blue lines. A pale lemon yellow bar immediately behind shoulder bar, and narrower than it. Lemon yellow areas between bars and posterior to shoulder bar flashing silvery in life. Sides of trunk lemon yellow above to silvery below with rosy flush on midsides. Posterior to shoulder bar, sides variously marked with small blue ocelli and short blue lines, sometimes covering most of upper sides, sometimes confined to small area just behind shoulder bar; 4 ephemeral yellow lines from base of pectoral fin across thorax. Dorsal spines orange, some with a blue streak, in a dusky orange membrane; soft part of dorsal fin and caudal fin yellow; spinous part of anal fin dusky and silver; anal rays orange, membrane bluish; pelvic fins silvery; pectoral fins hyaline.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

No other Signanus species in the area possesses both ocular and shoulder bars.

SIZE:

Maximum: 30 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, found only in southern India and Sri Lanka. Elsewhere, in the Indo-Malayan Archipelago, Ryukyu Islands, Irian Jaya and northwest Australia.

Lives in pairs about coral reefs.

Feeds on bottom algae.

PRESENT FISHING GROUNDS:

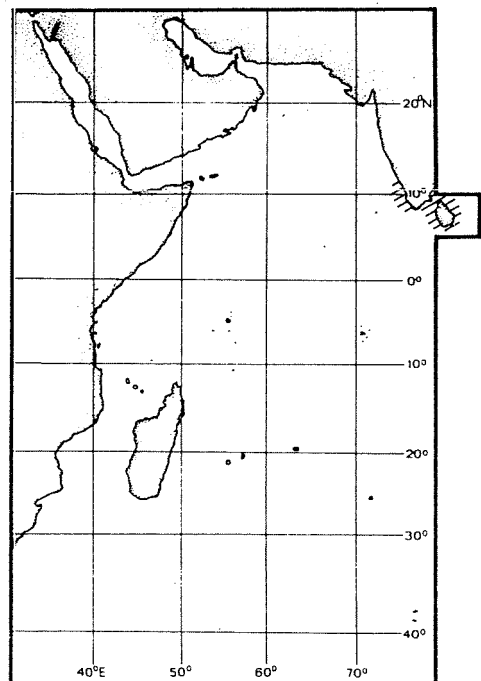
Shallow coastal waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught by spearing, with setnets and traps.

Marketed fresh.



FAO SPECTES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

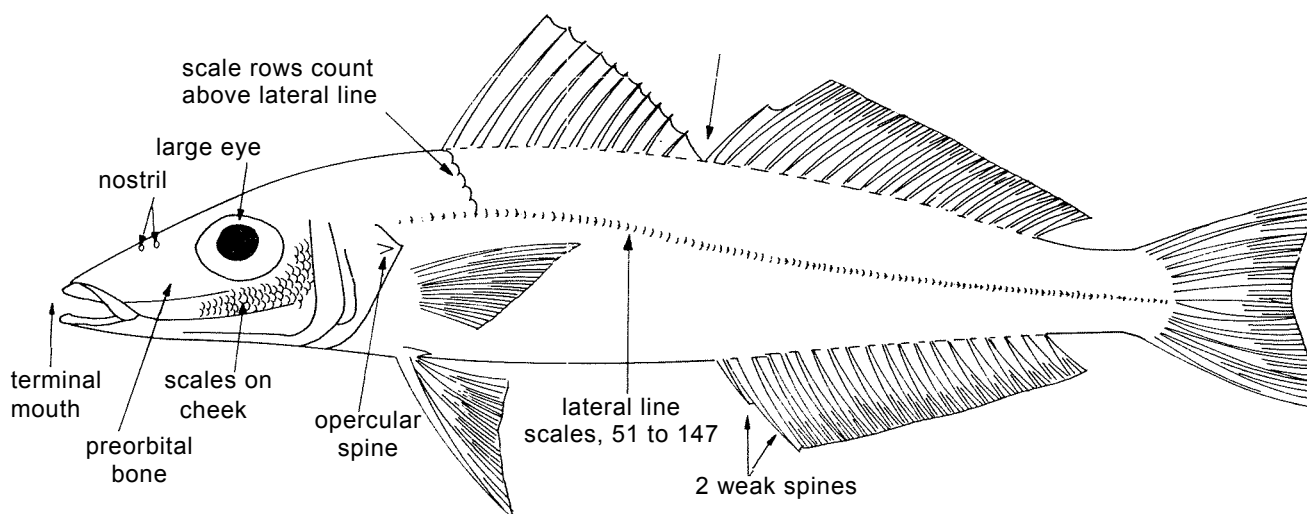
SILLAGINIDAE

Sillagos

Body elongate, slightly compressed, tapering from middle of spinous dorsal fin to head and tail. Opercle with a small, sharp spine; mouth small, terminal; end of upper jaw slides below preorbital bone; jaw teeth villiform, in broad bands; small teeth on roof of mouth restricted to anterior part of vomer, none on palatines. Two separate dorsal fins, the first with 9 to 12 slender spines, its origin above middle of pectoral fins; the second with 1 spine and 16 to 26 rays, its base about twice that of 1st dorsal fin; pelvic fin origin slightly behind origin of pectoral fin; anal fin with two weak spines. Scales small, ctenoid (rough to touch); lateral line slightly arched.

Colour: silvery grey/green, sometimes with black spots.

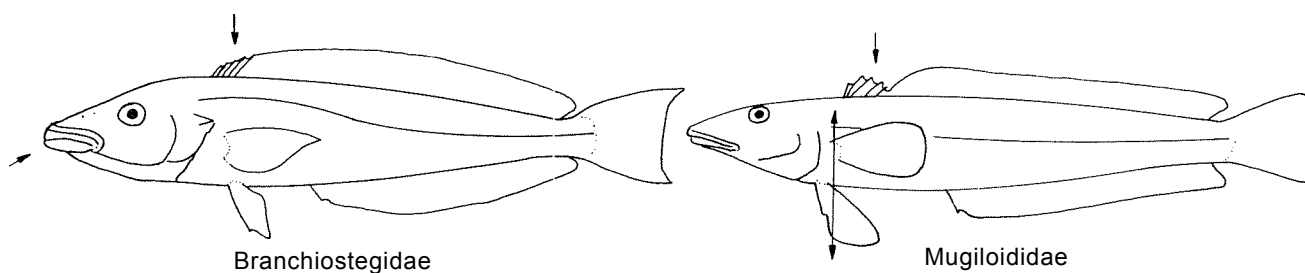
Small to medium-sized fishes (all less than 50 cm in total length) inhabiting sandy or muddy bottoms in shallow marine waters and estuaries. Caught with bottom trawls, beach seines, castnets and handlines. Good foodfishes, flesh of excellent flavour.



SIMILAR FAMILIES OCCURRING IN THE AREA:

Branchiostegidae: a single continuous dorsal fin; mouth large, with fleshy lips.

Mugiloididae (Parapercidae): dorsal fin spines short; spinous dorsal fin sometimes joined to soft dorsal fin; bases of pelvic fins in advance of pectoral fin bases.

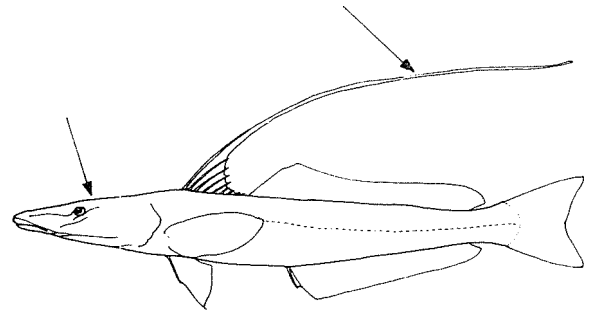


KEY TO GENERA AND SPECIES OCCURRING IN THE AREA:

1a. Snout and head greatly depressed; second dorsal spine very elongate; eyes small, 3 to 11% of head length, and almost covered by adipose tissue (Fig.1); swim bladder vestigial or absent Sillaginopsis panijus

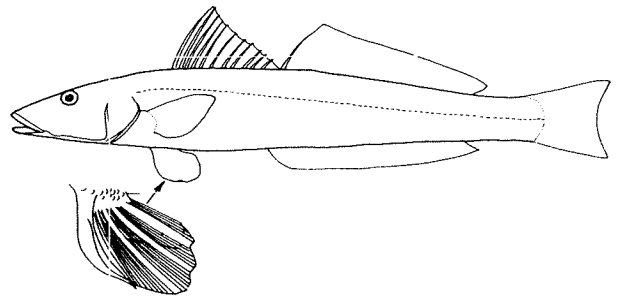
1b. Snout and head not depressed; second dorsal spine not elongate; eyes normal, 17 to 22% of head length; swimbladder present..... Sillago

2a. Pelvic fin with the spine inconspicuous and almost hidden by the much thickened club-like first pelvic ray (Fig.2); swimbladder without postcoelomic projections into the tail section; vertebral column without modified haemal spines overlying the posterior extensions of the swimbladder (no haemal funnel) ... Sillago chondropus



Sillaginopsis panijus Fig.1

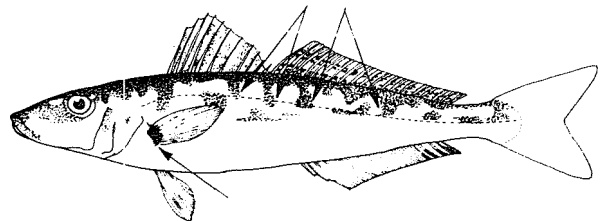
2b. Pelvic fin without a thickened club like first ray; swimbladder with 1 or 2 postcoelomic extensions; vertebral column with some modified haemal spines overlying the posterior part of the swimbladder (haemal funnel present)



Sillago (S.) chondropus Fig.2

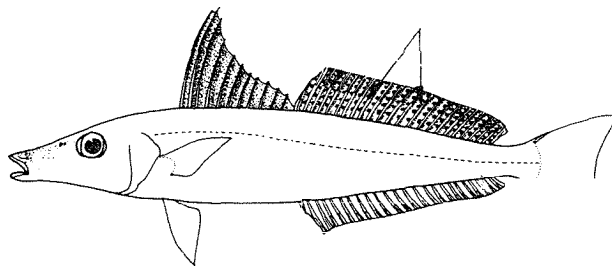
3a. Base of pectoral fin with a conspicuous dark brown, black or blue-black blotch or spot; body with irregular dark blotches; dorsal fin rays 10 to 21; anal fin rays 19 to 21 (Fig.3) Sillago maculata

3b. Base of pectoral fin without a dark brown or blackish blotch, or spot; body without dark blotches, although the belly or sides may be darkened; dorsal fin rays 21 to 23; anal fin rays 21 to 24



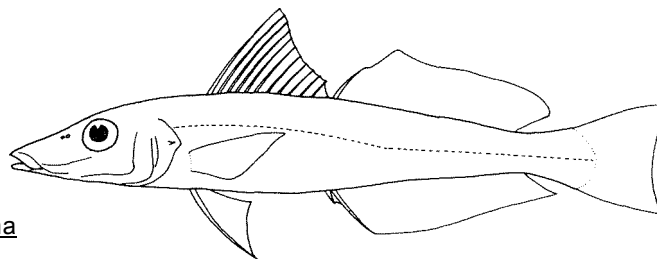
Sillago maculata Fig.3

4a. Second dorsal fin with at least 5 rows of dusky-black or black-brown spots that may be quite separate or somewhat confluent (Fig.4); swimbladder with only one post-coelomic extension and no anterolateral or anterior tubular extensions projecting forward or extending laterally towards the vent (Fig.6a) Sillago vincenti



Sillago vincenti Fig. 4

4b. Second dorsal fin with or without rows of dusky spots on the membranes, and when spots are present these may be confluent (Fig.5); swimbladder with 2 very distinct postcoelomic extensions, 2 anteriorly directed extensions, and an anterolateral convoluted tube that may send off small blind tubules and continues along the lateral wall of the abdomen to the region of the vent or a little beyond (Fig.6b)..... Sillago sihama



Sillago sihama Fig.5

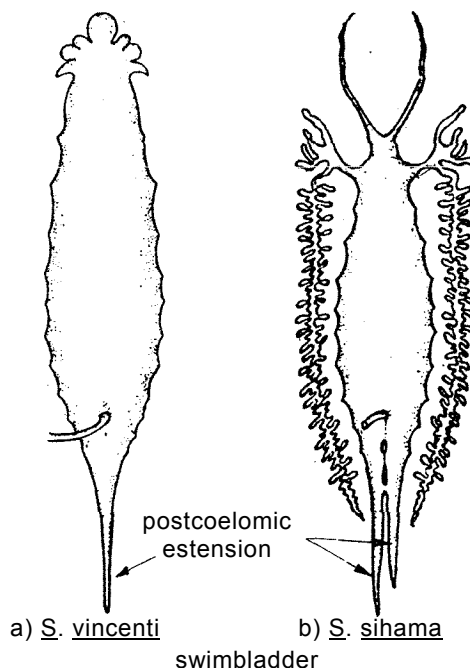


Fig.6

LIST OF SPECIES OCCURRING IN THE AREA

Code numbers are given for those species for which Identification Sheets are included

<u>Sillaginopsis panijus</u> (Hamilton-Buchanan, 1822)	SILL Si 1
<u>Sillago (Sillaginopodys) chondropus</u> Bleaker, 1849	SILL Sill 3
<u>Sillago maculata</u> Quoy & Gaimard, 1824	SILL Sill 1
<u>Sillago sihama</u> (Forsskål, 1775)	SILL Sill 2
<u>Sillago vincenti</u> McKay, 1980	SILL Sill 4

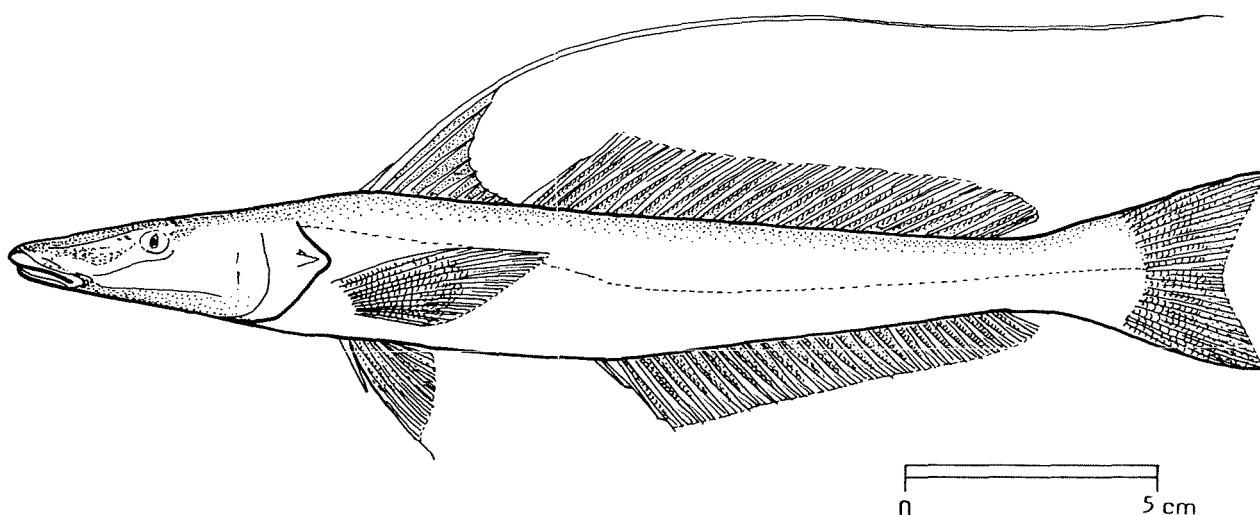
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SILLAGINIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Sillaginopsis panijus</i> (Hamilton-Buchanan, 1822)
--

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Flathead sillago
 Fr - Pêche-madame camus
 Sp - Silago chato

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate. Head greatly flattened; eyes small, covered by adipose tissue; mouth small, terminal; teeth villiform, in bands on jaws and vomer, the outer row of teeth in jaws slightly enlarged, with the 2 anterior - most teeth in the upper jaw larger than the remainder; 3 or 4 series of scales on cheek. First dorsal fin with 10 spines, second spine filamentous; second dorsal fin with 1 spine and 25 to 27 rays; anal fin with 2 spines and 24 to 27 rays. Lateral line with 84 to 88 scales, 6 rows above lateral line. Swimbladder vestigial or absent.

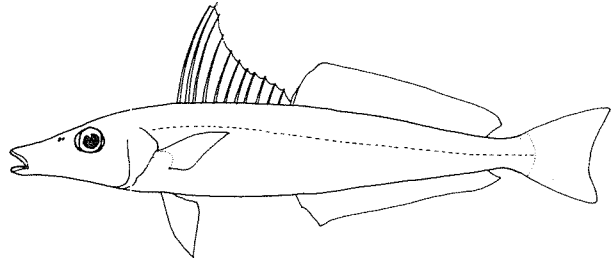
Colour: back light brown, lower flanks and belly pale brown to white; fins pale brownish, with a light dusting of fine black spots.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Sillago species: head not flattened; eyes normal; second dorsal fin spine not filamentous.

SIZE:

Maximum: 44 cm; common to 25 cm.



GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Within the area, recorded only from the southwest coast of India. Also present in the Eastern Indian Ocean, from Pondicherry northward along the Coromandel coast, Ganges delta, Burma, southward to Malaysia and rarely to the Indonesian Archipelago.

Inhabits shallow, open muddy bays and estuaries.

Feeds on small fishes and crustacea.

PRESENT FISHING GROUNDS:

Shallow waters throughout its range; its main fisheries are outside Fishing Area 51, in the Hooghly and Ganges river deltas

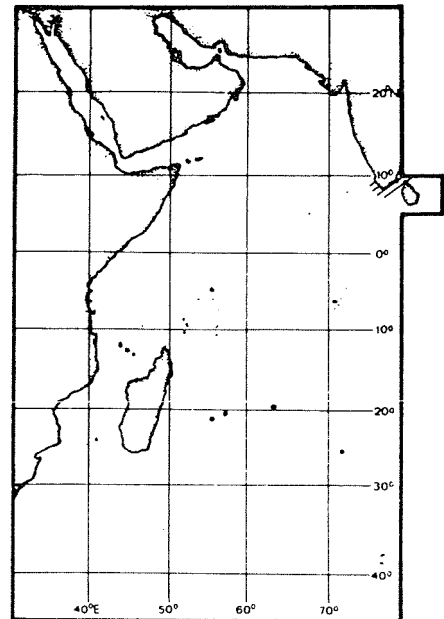
CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with nets and longlines.

Flesh white, of good quality; marketed fresh, frozen and dried salted.

Sillago



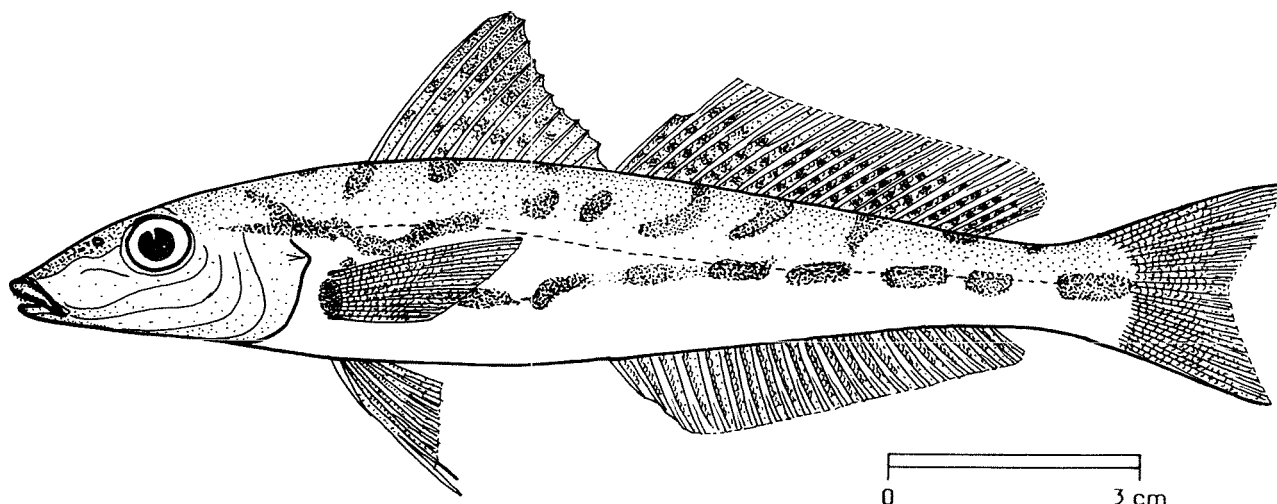
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SILLAGINIDE

FISHING AREA 51
(W. Indian Ocean)

<i>Sillago maculata</i> Quoy & Gaimard, 1824
--

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Trumpeter sillago
 Fr - Pliche-madame trompette
 Sp - Silago trompetero

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate. Snout pointed; upper head profile slightly convex; mouth small, terminal; villiform teeth in jaws and on vomer (roof of mouth); 3 series of scales on cheek; a small, sharp spine on opercle; gillrakers on lower limb of first arch 10. First dorsal fin with 11 spines; second dorsal with 1 spine and 18 to 21 soft rays; anal fin with 2 slender spines and 18 to 21 soft rays. Lateral line with 67 to 74 scales; 5 or 6 scale rows above lateral line. Swimbladder with a single postcoelomic extension. Three subspecies, distinguished by the structure of the swimbladder, are recognized (*S. maculata maculata*, *S. maculata burrus* and *S. maculata aeolus*) of which only the latter occurs in the Western Indian Ocean.

Colour: back light brown, lower flanks and belly whitish or silvery, with a silvery stripe along middle of flanks; conspicuous dark blotches on back and flanks; a blue/black spot at base of pectoral fin; spinous dorsal fin blotched on membrane; second dorsal fin blotched to form 2 horizontal or slightly converging bars; anal fin hyaline to yellow with a horizontal stripe very finely speckled with black or dark brown and with a white margin; upper and lower margins of caudal fin brown, hind margin dark.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other species of Sillaginidae: base of pectoral fin without a blackish spot; flanks without dark blotches.

SIZE:

Maximum: 20 cm; common to 12 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

The subspecies occurring in the Western Indian Ocean, *S. maculata aeolus*, is found off East Africa and the southern coast of India, but its precise distributional range is not well known. It also occurs outside the area, in the Eastern Indian Ocean and the Western Central Pacific, northward to China, but does not extend southward to southern New Guinea or Australia.

Inhabits shallow sandy bottoms of shores and bays; also estuaries.

Feeds on small invertebrates.

PRESENT FISHING GROUNDS:

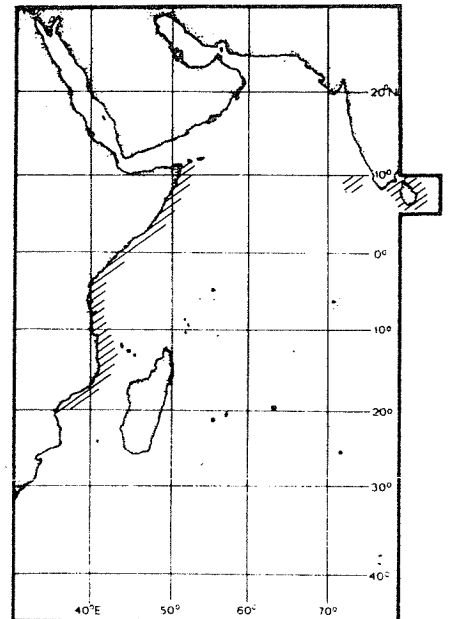
Shallow waters throughout its range; apparently not common off East Africa and India.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with bottom trawls, beach seines and handlines.

Not a very good food fish because of its small size; the flesh is white and of good quality; marketed fresh, frozen and dried salted.

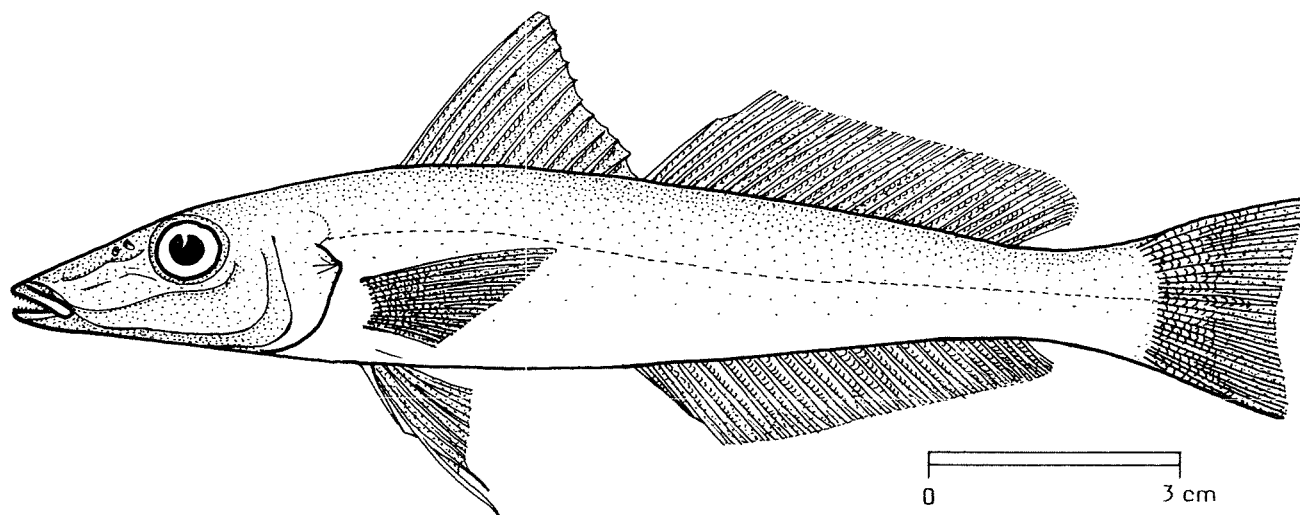


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SILLAGINIDAE

FISHING AREA 51
(W. Indian Ocean)Sillago sihama (Forsskål, 1775)

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES:

FAO : En - Silver siliago
 Fr - Pêche-madame argenté
 Sp - Silago plateado

NATIONAL:

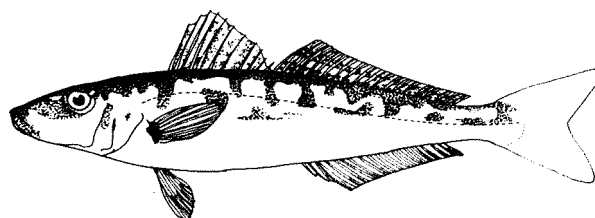
DISTINCTIVE CHARACTERS:

Body elongate. Snout pointed; upper head profile slightly convex; mouth small, terminal; villiform teeth present in jaws and on vomer (roof of mouth); 2 or 3 (usually 2), series of scales on cheeks; a small, sharp spine on opercle; gillrakers on lower limb of first arch 7 to 9. First dorsal fin higher than second and with 11 weak spines; second dorsal fin with 1 spine and 20 to 23 soft rays; anal fin with 2 spines and 21 to 24 soft rays. Lateral line with 66 to 73 scales; 5 to 6 scale rows above lateral line. Swimbladder with 2 postcoelomic extensions.

Colour: back light brown, lower ventral flanks and belly whitish or silvery, without dark blotches. Both dorsal fins and caudal fin dusky, other fins pale.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

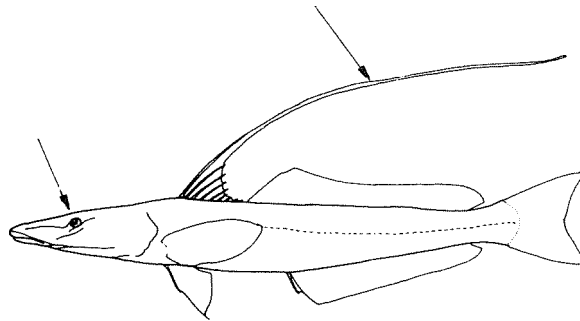
Sillago maculata: conspicuous dark blotches on back and flanks, and darker markings on dorsal and caudal fins.

Sillago maculata

Sillago (Sillaginopodys) chondropus: pelvic fin spines minute, first soft ray thickened to form a club-like structure.

Sillago vincenti: swimbladder with a single postcoelomic extension; 5 to 7 rows of dark spots on second dorsal fin.

Sillaginopsis panijus: head greatly flattened, eyes small, covered with adipose tissue; second dorsal fin spine filamentous.



Sillaginopsis panijus

SIZE:

Maximum: 25 cm; common to 15 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout most of the area. Elsewhere, in the Eastern Indian Ocean and Western Central Pacific, southward to the northern coasts of Australia.

Inhabits shallow sandy bottoms of shores and bays, also estuaries.

Feeds on small invertebrates.

PRESENT FISHING GROUNDS:

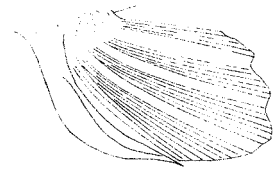
Shallow waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

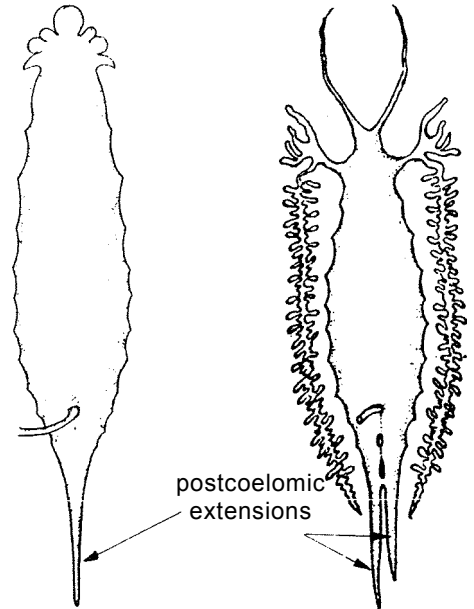
Separate statistics are not reported for this species.

Caught with beach seines and handlines.

A very good food fish, marketed fresh, frozen and dried salted.

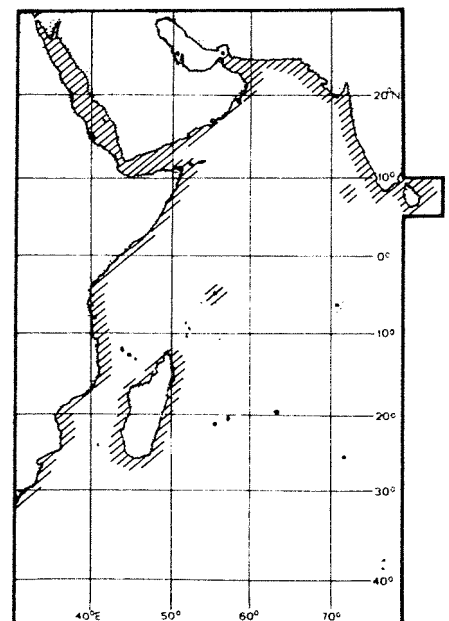


pelvic fin
S. chondropus



S. vincenti

S. sihama
swimbladder



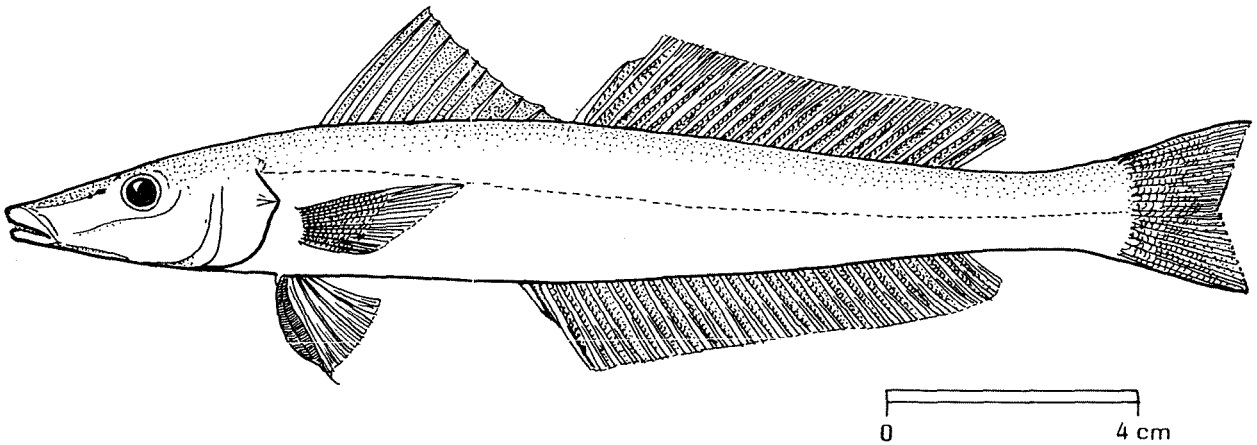
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SILLAGINIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Sillago (Sillaginopodys) chondropus</i> Bleeker, 1849
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OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

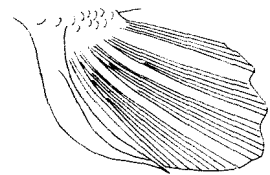
FAO : En - Clubfoot sillago
 Fr - Pêche-madame diablotin
 Sp - Silago pateta

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate. Snout pointed; upper head profile slightly convex; mouth small, terminal; villiform teeth present in jaws and on vomer (roof of mouth); 3 or 4 series of scales on cheeks; a small, sharp spine on opercle. First dorsal fin higher than second and with 11 or 12 weak spines; second dorsal fin with 1 spine and 20 to 22 soft rays; anal fin with 2 spines and 22 or 23 soft rays; pelvic fin with spine minute and first ray greatly thickened to form a club-like structure. Lateral line with 66 to 73 scales; 6 scale rows above lateral line. Swimbladder flattened, not penetrating into tail musculature.

Colour: back pale brown, lower ventral flanks and belly paler; a dull silver-grey midlateral band; fins pale, the first dorsal fin with dusky tip.



pelvic fin
S. chondropus

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other species of Sillaginidae: pelvic fins normal, without a thickened first ray.

SIZE:

Maximum: 36 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

From the East Africa coast to India. Also present in the Eastern Indian Ocean and Western Central Pacific northward to the Philippines, but not extending to southern New Guinea or Australia.

Inhabits shallow sandy bottoms of shores and bays, also estuaries.

Feeds on small invertebrates.

PRESENT FISHING GROUNDS:

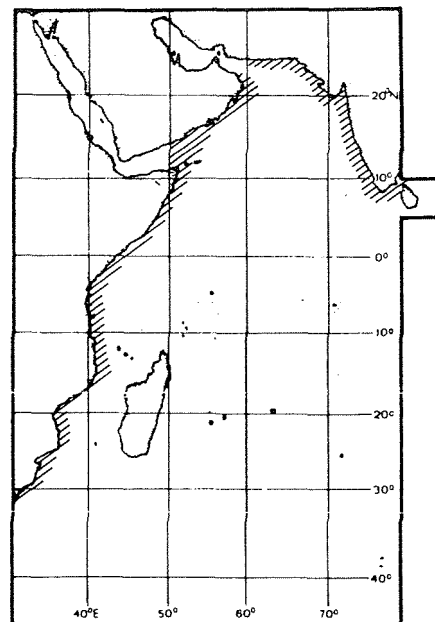
Shallow waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with beach seines, handlines and castnets.

A good food fish, marketed fresh.

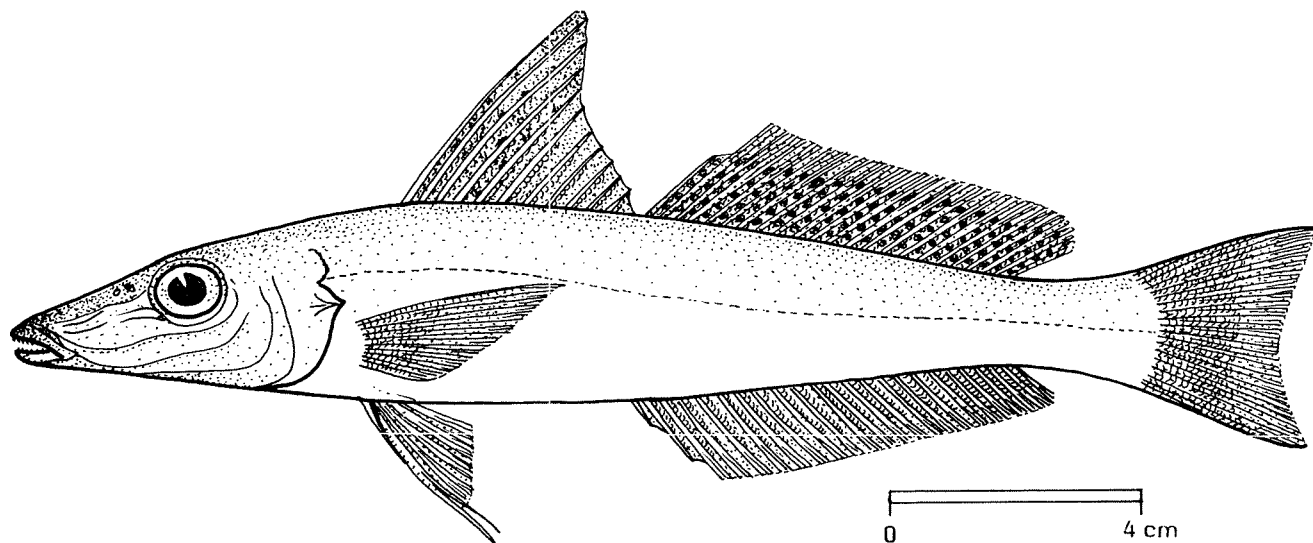


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SILLAGINIDAE

FISHING AREA 51
(W. Indian Ocean)*Sillago vincenti* McKay, 1980

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Vincent's sillago
 Fr - Pêche-madame truité
 Sp - Silago de Vincent

NATIONAL:

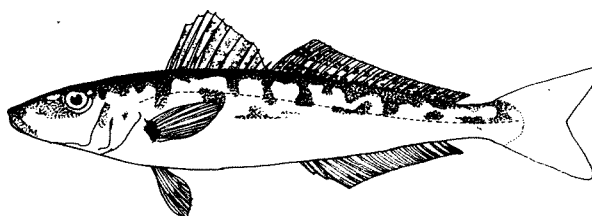
DISTINCTIVE CHARACTERS:

Body elongate. Snout pointed; upper head profile slightly convex; mouth small, terminal; villiform teeth present in jaws and on vomer (roof of mouth); 2 series of scales on cheeks; a small, sharp spine on opercle. First dorsal fin higher than second and with 10 to 12 weak spines; second dorsal fin with 1 spine and 21 to 23 soft rays; anal fin with 2 spines and 22 to 24 soft rays. Lateral line with 70 to 74 scales; 5 or 6 scale rows above lateral line. Swimbladder with a single postcoelomic extension.

Colour: back light brown, lower ventral flanks and belly white, without dark blotches. First dorsal fin pale with a dark tip and scattered dark irregular blotches, second dorsal fin pale with 5 to 7 rows of blackish spots; other fins pale, yellowish or white, the caudal sometimes with the lower lobe dark.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

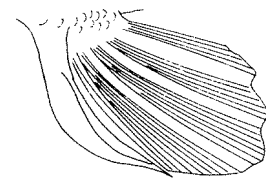
Sillago maculata: conspicuous dark blotches on back and flanks; a darker spot at base of pectoral fin.

*Sillago maculata*

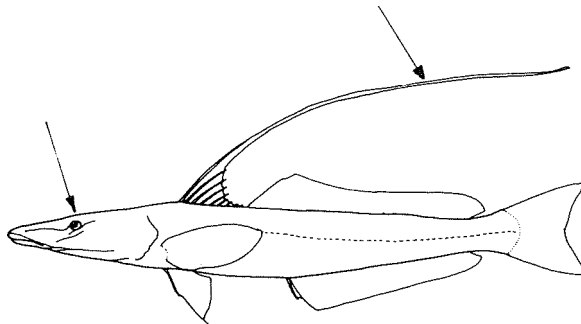
Sillago sihama: second dorsal fin usually without dark spots; posterior end of the swimbladder, where it projects into the tail below the vertebral column, bifurcate.

Sillago (Sillaginopodys) chondropus: pelvic fin spines minute, first soft ray thickened to form a club-like structure.

Sillaginopsis panijus: head greatly flattened, eyes small, covered with adipose tissue; second dorsal fin spine filamentous.



pelvic fin
S. chondropus



Sillaginopsis panijus

SIZE:

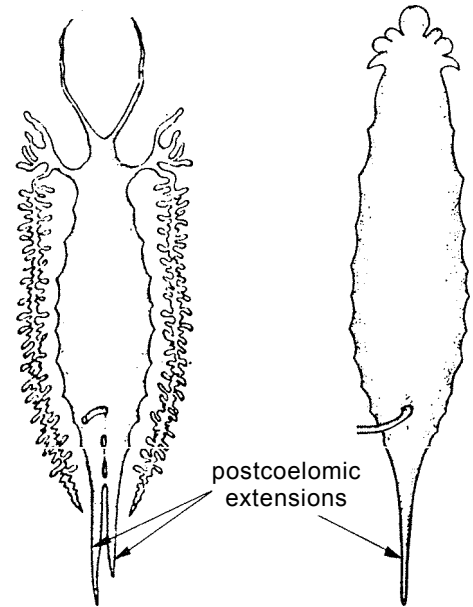
Maximum: 31 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known only from southwest India but possibly of wider distribution.

Inhabits shallow bottoms of estuaries.

Feeds on polychaete worms.



S. sihama

S. vincenti

swimbladder

PRESENT FISHING GROUNDS:

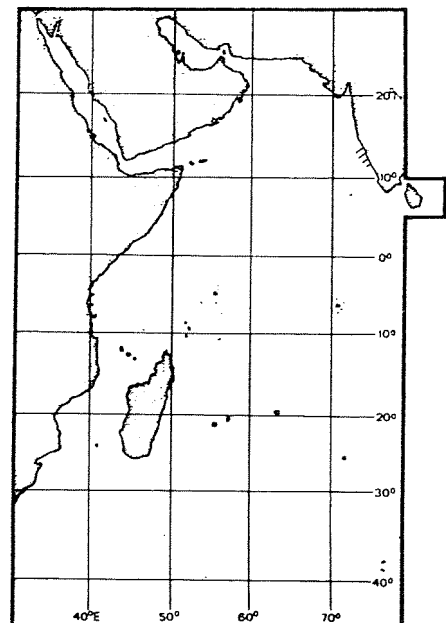
Estuarine waters of southwest India.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with beach seines and castnets.

A very good food fish of excellent flavour, marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

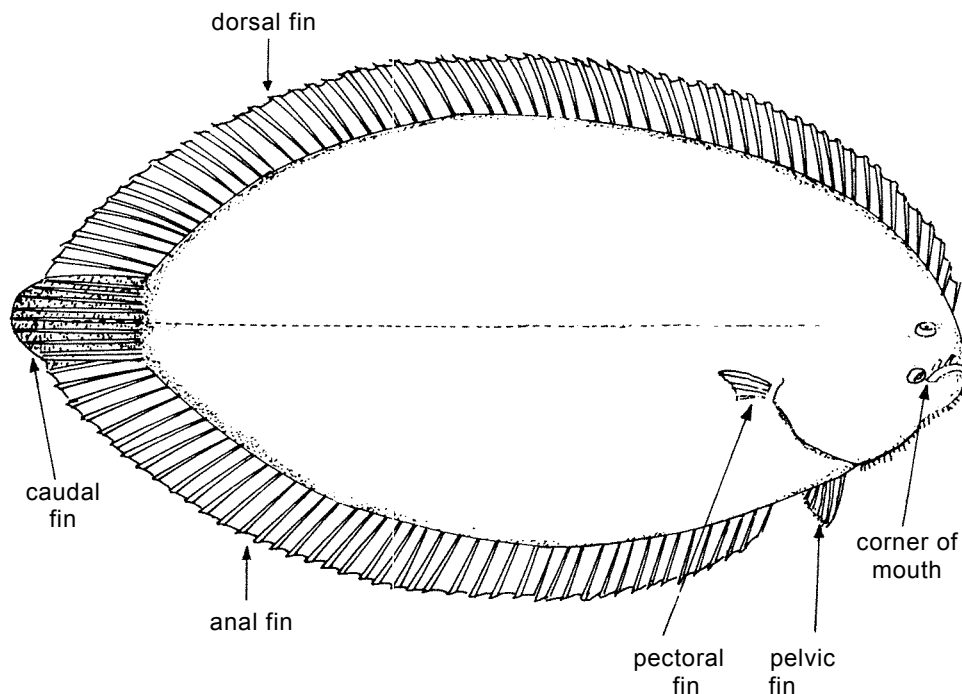
FISHING AREA 51
(W. Indian Ocean)

SOLEIDAE

Soles

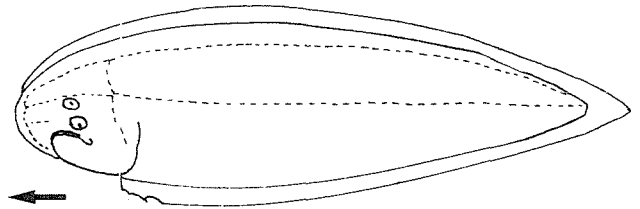
Oval or somewhat elongate and strongly compressed flat fishes with eyes on right side of body. Preopercle without a free margin, embedded in skin. Mouth small and asymmetrical, terminal or slightly inferior; snout sometimes hook-shaped; teeth small, villiform, better developed on blind side. No spines in fins; dorsal fin extending far forward on head; dorsal and anal fins completely separate from, adherent to, or fused with caudal fin; pectoral fins sometimes absent but when present, the right always longer than the left; pelvic fins sometimes asymmetrical, either free or joined to anal fin. Scales moderately large, cycloid (smooth) or ctenoid (rough), sometimes modified into skin flaps fringed with sensory filaments. Lateral line single and straight on body, but sometimes branched on head.

Colour: usually brown, sometimes with scattered black spots or blotches or dark crossbands on eyed side of body and vertical fins; blind side yellow/white. Colour highly variable according to substratum.



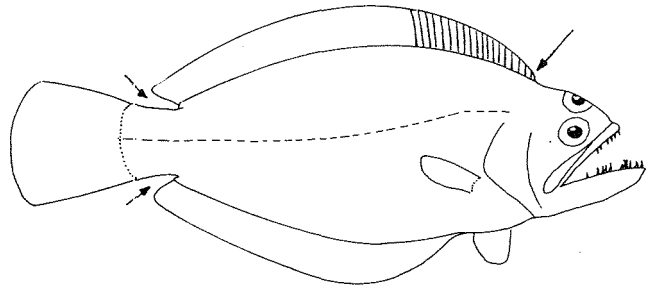
SIMILAR FAMILIES OCCURRING IN THE AREA:

Cynoglossidae: also have dorsal fin origin far forward on head, and dorsal and anal fins always joined to caudal fin, but eyes on left side of body (eyes on right side in Soleidae).



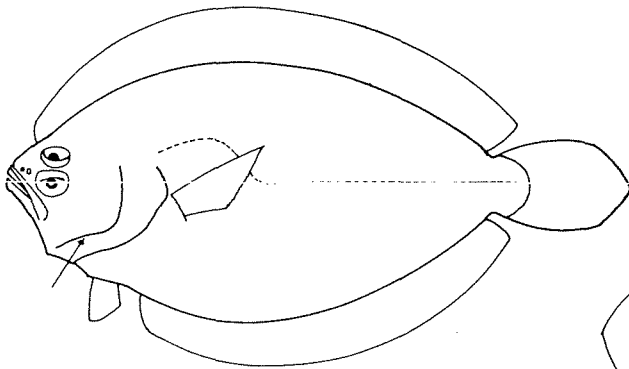
Cynoglossidae

Psettodidae: dorsal and anal fins always separated from caudal fin, dorsal fin not extending forward onto head, and spiny rays present on dorsal and pelvic fins (no spiny rays in Soleidae).

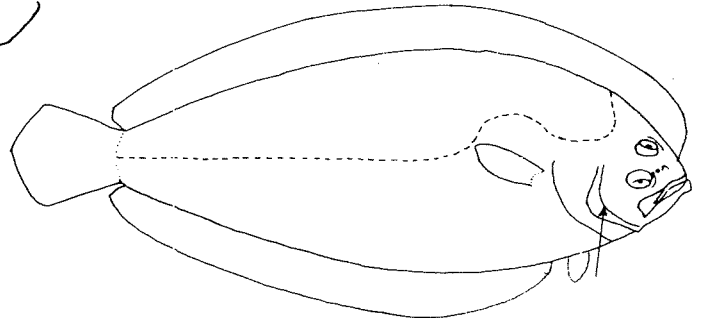


Psettodidae

Pleuronectidae, Bothidae: margin of preopercle free and distinct (no preopercular margin, preopercle hidden beneath skin in Soleidae).



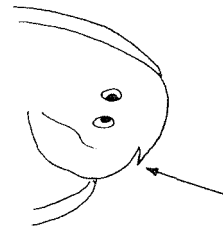
Bothidae



Pleuronectidae

KEY TO GENERA OCCURRING IN THE AREA:

- 1a. Snout forming a distinct hook (Fig.1) Heteromycteris
- 1b. Snout not forming a distinct hook



Heteromycteris

Fig.1

2a. Caudal fin separate from dorsal and anal fins (Fig.2a)

3a. Pectoral fins absent

4a. Pelvic fins of eyed side short-based, separate from genital papilla and anal fin; dorsal and anal rays without basal pores

5a. One lateral line on each side; pelvic fins short-based, symmetrical..... Aseraggodes

5b. One lateral line on each side, besides a second one on blind side along upper profile of neck; base of pelvic fin on eyed side longer than base of pelvic fin on blind side Liachirus

4a. Pelvic fin of eyed side long-based, joined to genital papilla or anal fin; dorsal and anal rays with open basal pores Pardachirus

3b. Pectoral fins well developed

6a. Pectoral fins about equal Solea

6b. Pectoral fin on blind side smaller than that on eyed side, or absent Monochirus

2b. Caudal fin joined to dorsal and anal fins (Fig.2b)

7a. Opercular membrane not joined to pectoral fin (Fig.3)

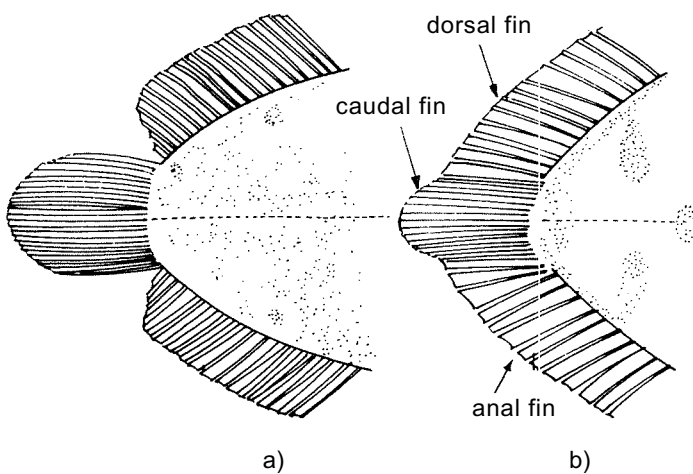
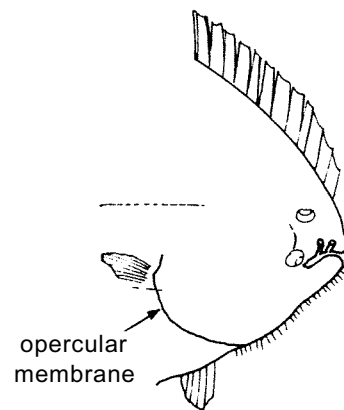


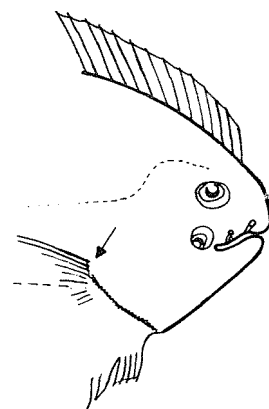
Fig.2



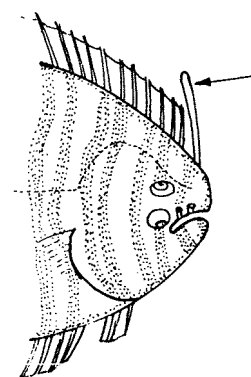
Euryglossa

Fig.3

- 8a. Body elongate
 - 9a. Pectoral fin on eyed side longer than head Austroglossus
 - 9b. Pectoral fin on eyed side shorter than head Synaptura
- 8b. Body oval Euryglossa
- 7b. Opercular membrane of both sides of body joined to upper rays of pectoral fin (Fig.4)
 - 10a. First ray of dorsal fin not modified Zebrias
 - 10b. First ray of dorsal fin enlarged and free (Fig.5) Aesopia



Zebrias Fig.4



Aesopia Fig.5

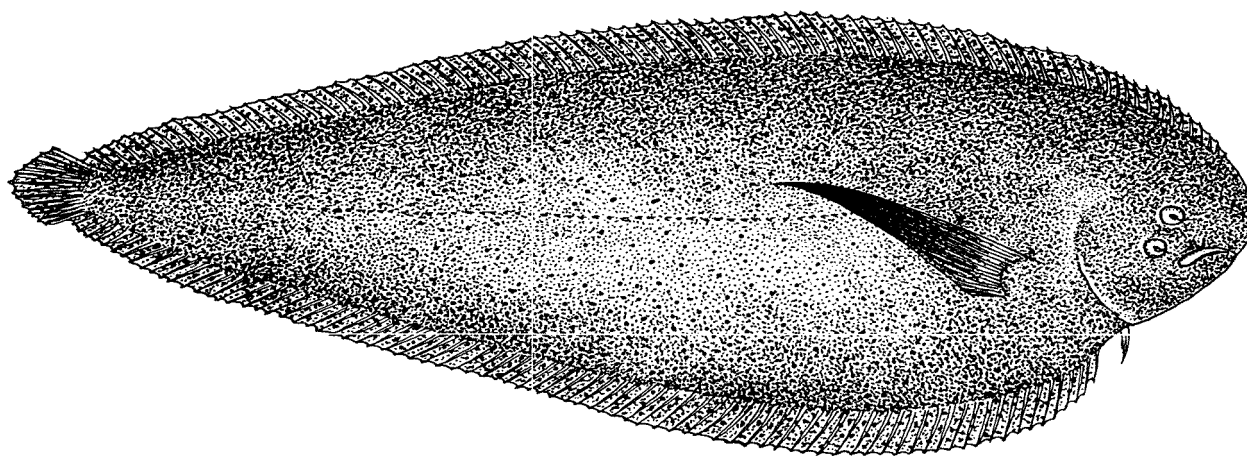
LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

<u>Aesopia cornuta</u> Kaup, 1858	
<u>Aseraggodes cyaneus</u> (Alcock, 1890) ,	
<u>Aseraggodes morrowi</u> Chabanaud, 1931	
<u>Aseraggodes sinus-arabici</u> Chabanaud, 1931	
<u>Austroglossus pectoralis</u> (Kaup, 1858)	SOL Austro 1
<u>Euryglossa orientales</u> (Schneider, 1801)	SOL Eury 1
<u>Heteromycteris capensis</u> (Kaup, 1858)	
<u>Heteromycteris oculus</u> (Alcock, 1889)	
<u>Liachirus melanospilus</u> (Bleeker, 1854)	
<u>Monochirus quadriocellatus</u> Bonde, 1922	
<u>Pardachirus marmoratus</u> (Lacepède, 1802)	SOL Par 2
<u>Solea bleekeri</u> Boulenger, 1863	
<u>Solea fulvomarginata</u> Gilchrist, 1904	
<u>Soles elongata</u> Day, 1877	SOL Sol 4
<u>Solea ovata</u> Richardson, 1849	
<u>Synaptura commersoniana</u> (Lacepède, 1802)	SOL Syn 1
<u>Synaptura marginata</u> Boulenger, 1900	SOL Syn 4
<u>Zebrias quagga</u> (Kaup, 1858)	SOL Zeb 2
<u>Zebrias regani</u> (Gilchrist, 1902)	
<u>Zebrias synapturoides</u> (Jenkins, 1910)	SOL Zeb 3

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SOLEIDAE

FISHING AREA 51
(W. Indian Ocean)Austroglossus pectoralis (Kaup, 1858)OTHER SCIENTIFIC NAMES STILL IN USE : Synaptura pectoralis Kaup, 1858

VERNACULAR NAMES:

FAO : En - Mud sole
 Fr - Sole de vase
 Sp - Lenguado de fango



NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and flat, broad anteriorly and tapering posteriorly. Eyes on right side, upper only slightly in advance or at vertical through lower, their diameter equal to the space between them; mouth small, curved, cleft reaching below middle of upper eye. Dorsal and anal fins joined to caudal fin; pectoral fins well developed; pectoral fin on eyed side longer than head, 1.25 to 2 times length of head and about 3 times length of pectoral fin on blind side. Scales on eyed side small, ctenoid (rough to touch), those on blind side feebly ctenoid.

Colour: brown, more or less speckled with darker; dorsal and anal fins spotted and speckled with dark brown or black, pectoral fin on eyed side black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

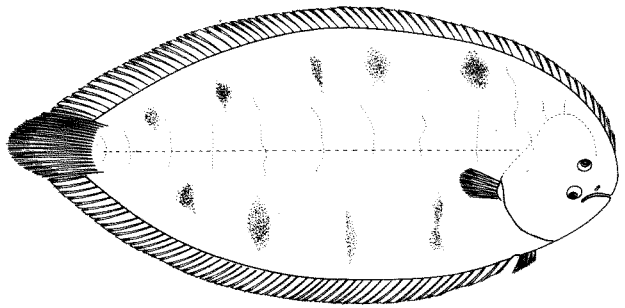
Synaptura species: pectoral fin on eyed side shorter than head length.

Euryglossa orientalis: body oval.

Zebrias and Aesopia species: opercular membrane joined to upper pectoral fin rays and dark crossbars on body.

Species of Aseraggodes, Liachirus, Pardachirus, Solea and Monochirus: have dorsal and anal fins separate from caudal fin.

Heteromycteris species: snout forming a long hook.



Euryglossa orientalis

SIZE:

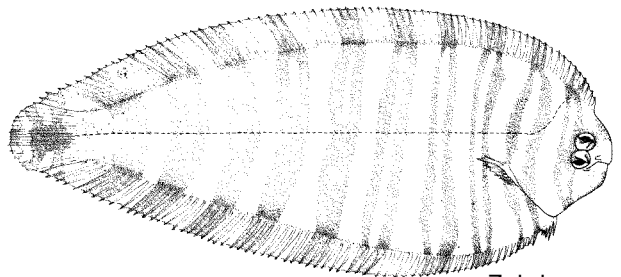
Maximum: 60 cm; common to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found from Natal (South Africa) to Mozambique.

Inhabits shallow coastal waters.

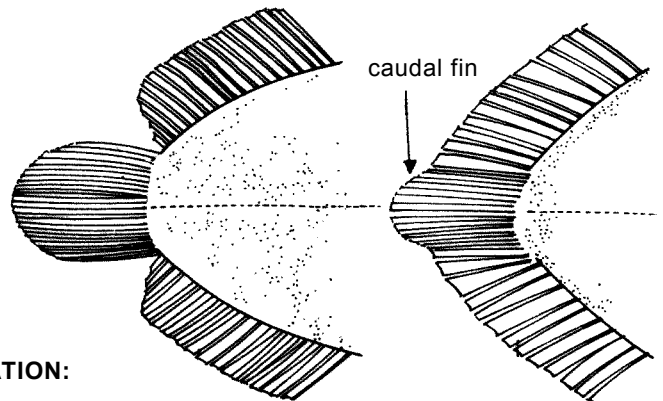
Carnivorous, feeds on bottom living organisms.



Zebrias quagga

PRESENT FISHING GROUNDS:

Coastal waters of Natal.



Austroglossus

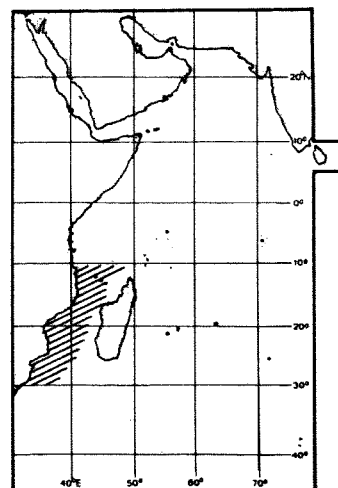
CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species

Caught mainly with bottom trawls.

Usually marketed fresh.

Aseraggodes, Liachirus,
Pardachirus, Solea
and Monochirus

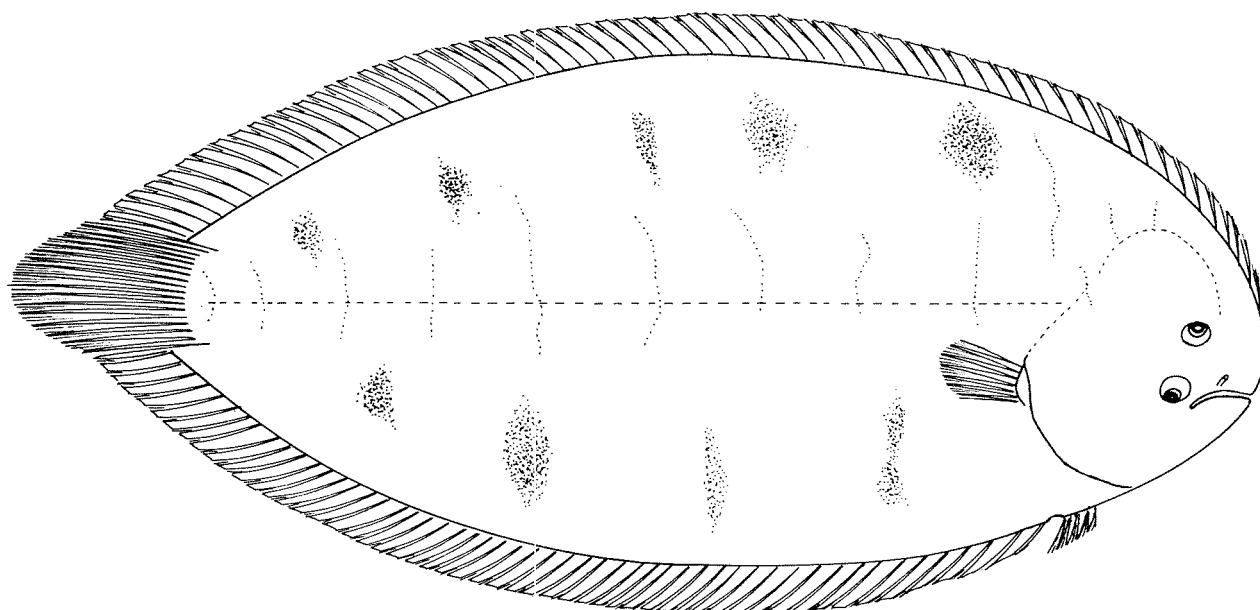


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SOLEIDAE

FISHING AREA 51
(W. Indian Ocean)*Euryglossa orientalis* (Bloch & Schneider, 1801)

OTHER SCIENTIFIC NAMES STILL IN USE:

Brachirus orientalis (Bloch & Schneider, 1801)*Synaptura orientalis* (Bloch & Schneider, 1801)

VERNACULAR NAMES:

FAO : En - Oriental sole
 Fr - Sole d'orient
 Sp - Lenguado oriental

NATIONAL:

DISTINCTIVE CHARACTERS:

Body oval and flat, both contours equally arched. Eyes on right side, separated by a scaly space; mouth small, curved, cleft reaching to below middle of lower eye. Dorsal and anal fins joined to caudal fin; pectoral fins well developed, that on blind side somewhat shorter than that on eyed side; pelvic fins moderately symmetrical, united basally. Scales on both sides ctenoid (rough), head scales of blind side modified into cutaneous sensory processes.

Colour: grey or brown with cloudy indistinct patches on eyed side, tinged yellow on blind side; pectoral fin on eyed side darker.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Synaptura and Austroglossus species: body elongate; furthermore, a bony process on snout in Synaptura species and pectoral fin on eyed side longer than head length in Austroglossus species.

Zebrias and Aesopia species: opercular membrane joined to upper pectoral fin rays and a number of dark crossbars on body.

Species of Solea, Pardachirus, Aseraggodes, Liachirus and Monochirus: have dorsal and anal fins separate from caudal fin.

Heteromycteris species: snout forming a long hook.

SIZE:

Maximum: 24 cm; common to 12 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, found in the Red Sea and the "Gulf", off the west coast of India and Sri Lanka. Elsewhere, eastward through the Malay Peninsula and Archipelago to China and east coast of Australia.

Inhabits shallow sand/mud bottoms in coastal waters.

Feeds predominantly on bottom living invertebrates, especially small crustaceans.

PRESENT FISHING GROUNDS:

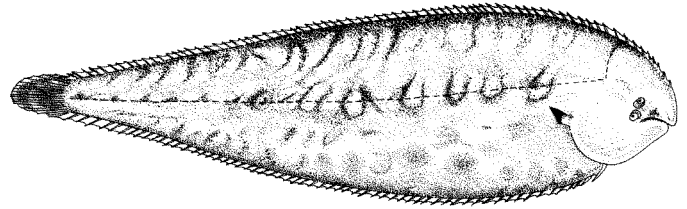
Shallow sand/mud grounds of the continental shelf.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

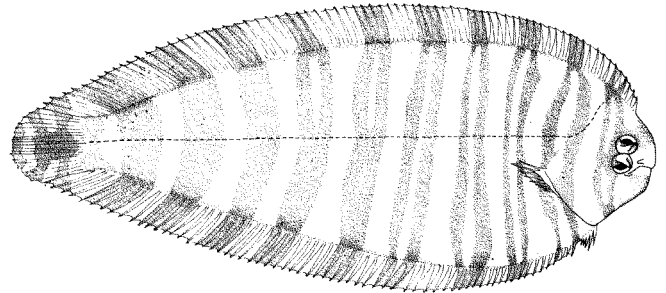
Separate statistics are not reported for this species.

Caught mainly with bottom trawls.

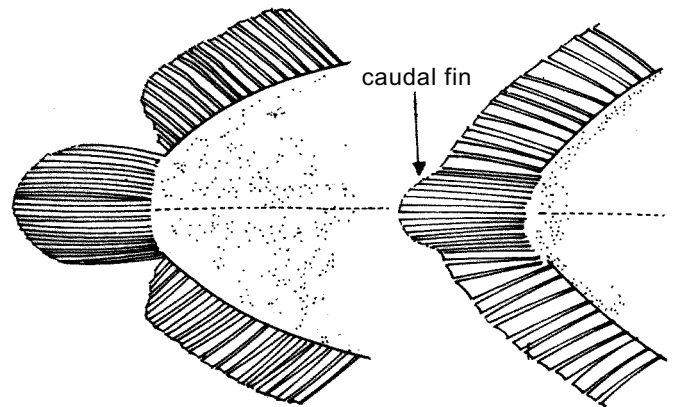
Marketed fresh, frozen and dried salted.



Synaptura

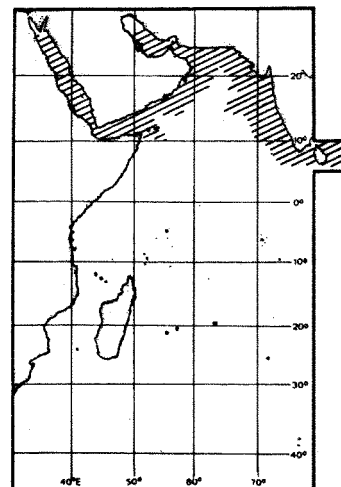


Zebrias



Aseraggodes, Liachirus,
Pardachirus, Solea
and Monochirus

Euryglossa

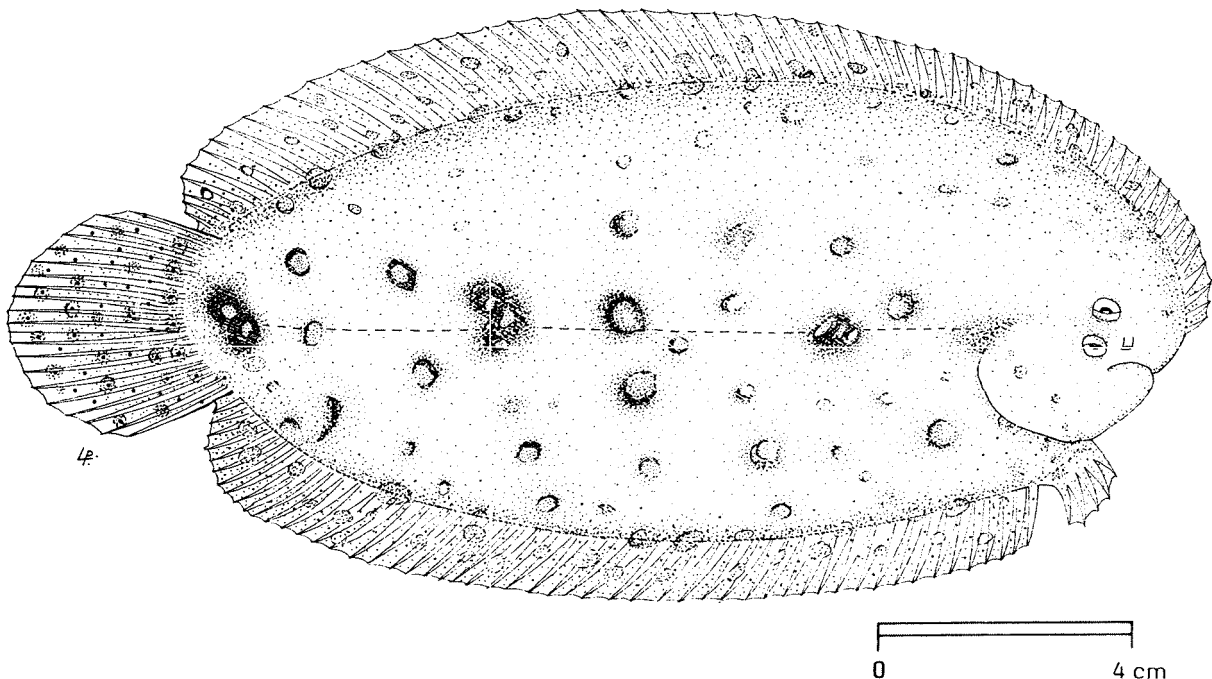


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SOLEIDAE

FISHING AREA 51
(W. Indian Ocean)*Pardachirus marmoratus* (Lacepède, 1802)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Finless sole
 Fr - Sole de lait
 Sp - Lenguado de leche

NATIONAL:

DISTINCTIVE CHARACTERS:

Body oblong and flat. Eyes on right side small, separated by a space, slightly smaller than eye diameter; mouth small, curved, cleft reaching opposite front border of lower eye; lips fleshy, entire. Dorsal and anal fins separated from caudal fin; pectoral fins absent; pelvic fins asymmetrical. Scales on eyed side feebly ctenoid (rough to touch), each scale on eyed side of head with a roughened patch posteriorly but without marginal spinules; blind side smooth.

Colour: olive green, with a number of indistinct rounded or irregular pale, dark edged areas, with or without a dark central spot; head, body and fins with numerous small dark spots in addition to markings.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Aseraggodes and Liachirus species: pelvic fins short-based and separate from genital papilla and anal fin.

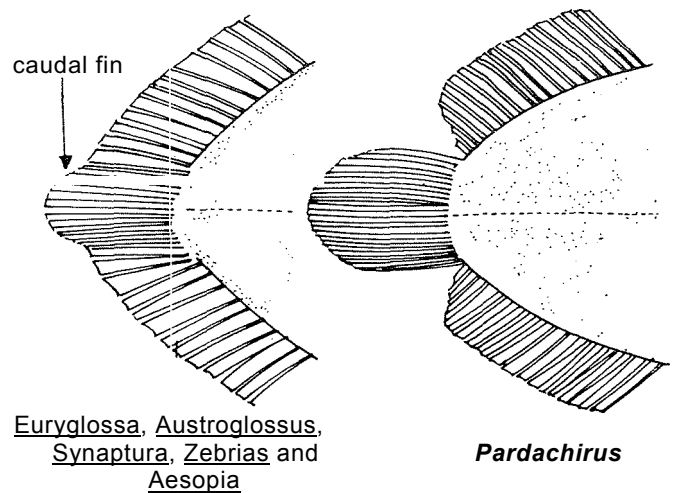
Solea and Monochirus species: pectoral fins well developed.

Species of Euryglossa, Austroglossus, Synaptura, Zebrias and Aesopia: have dorsal and anal fins joined to caudal fin.

Heteromycteris species: snout forming a long hook.

SIZE:

Maximum: 25 cm; common to 20 cm.



GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found along the east African coast from Mozambique to the Red Sea, eastward extending to the "Gulf" and Pakistan; also off Madagascar, Seychelles and Mauritius islands.

Inhabits shallow coastal waters.

Feeds mainly on bottom living invertebrates.

PRESENT FISHING GROUNDS:

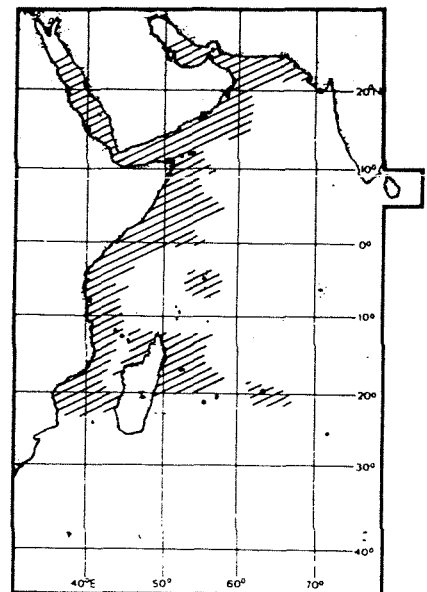
Shallow mud/sand grounds of the continental shelf and creeks.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with bottom trawls, also in shore seines.

Marketed fresh.

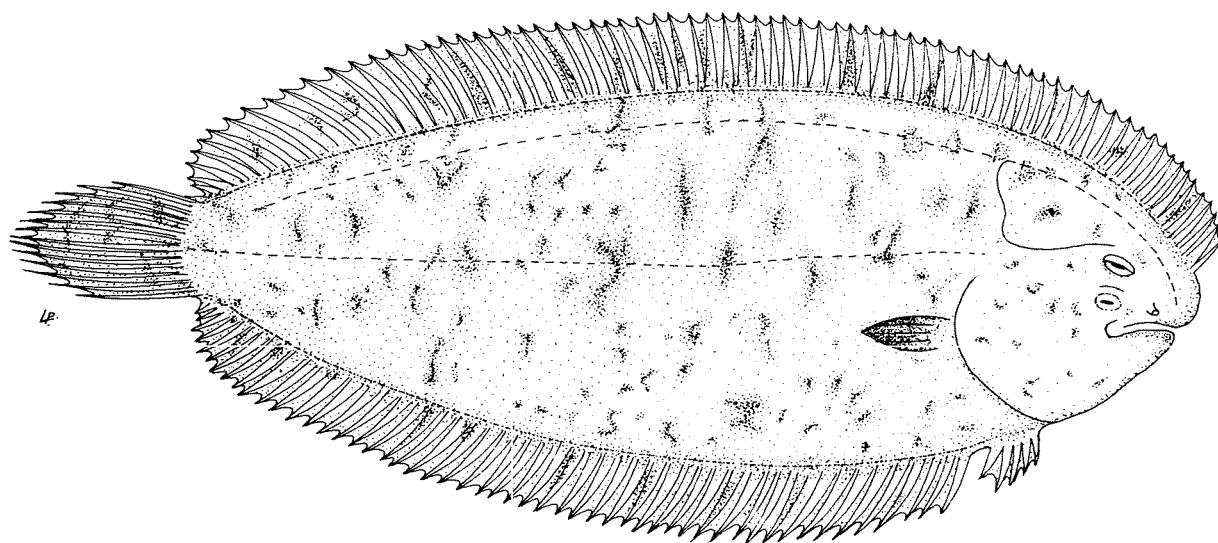


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SOLEIDAE

FISHING AREA 51
(W. Indian Ocean)*Solea elongata* Day, 1877

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Elongate sole
 Fr - Sole élancée
 Sp - Lenguado larguirucho

NATIONAL

DISTINCTIVE CHARACTERS:

Body elongate and flat. Eyes on right side, small, separated by a scaly space, half the eye diameter; mouth small, curved, cleft reaching to below middle of lower eye. Dorsal and anal fins separated from caudal fin; pectoral fins well developed, symmetrical; pelvic fins short, symmetrical.

Colour: brownish or greyish, spotted or blotched darker; the markings are more distinct near the edge of the body, and often tend to form irregular vertical bands; a black blotch present on distal part of pectoral fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Monochirus quadriocellatus: pelvic fin on blind side smaller than that on eyed side or absent.

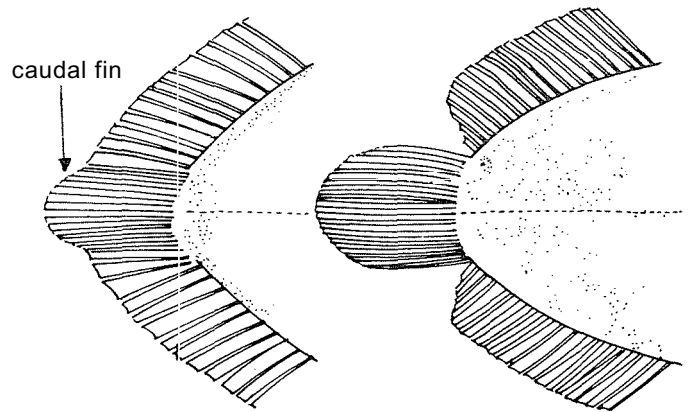
Pardachirus, Aseraggodes and Liachirus species: pectoral fins absent.

Species of Synaptura, Austroglossus, Eurylossa, Zebrias and Aesopia: dorsal and anal fins joined to caudal fin.

Heteromycteris species: snout forming a long hook.

SIZE:

Maximum: 30 cm; common to 12 cm.



Euryglossa, Austroglossus,
Synaptura, Zebrias and
Aesopia

Solea

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, from the Red Sea and the "Gulf" to the west coast of India and Sri Lanka. Elsewhere, along the east coast of India.

Inhabits shallow sand/mud bottoms in coastal waters.

Feeds predominantly on bottom living invertebrates, especially small crustaceans.

PRESENT FISHING GROUNDS:

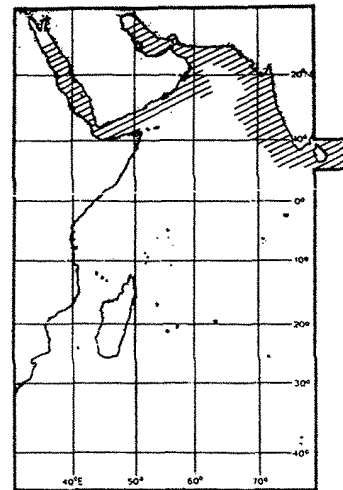
Shallow sand/mud grounds of the continental shelf and creeks.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with bottom trawls, also in shore seines.

Marketed fresh.

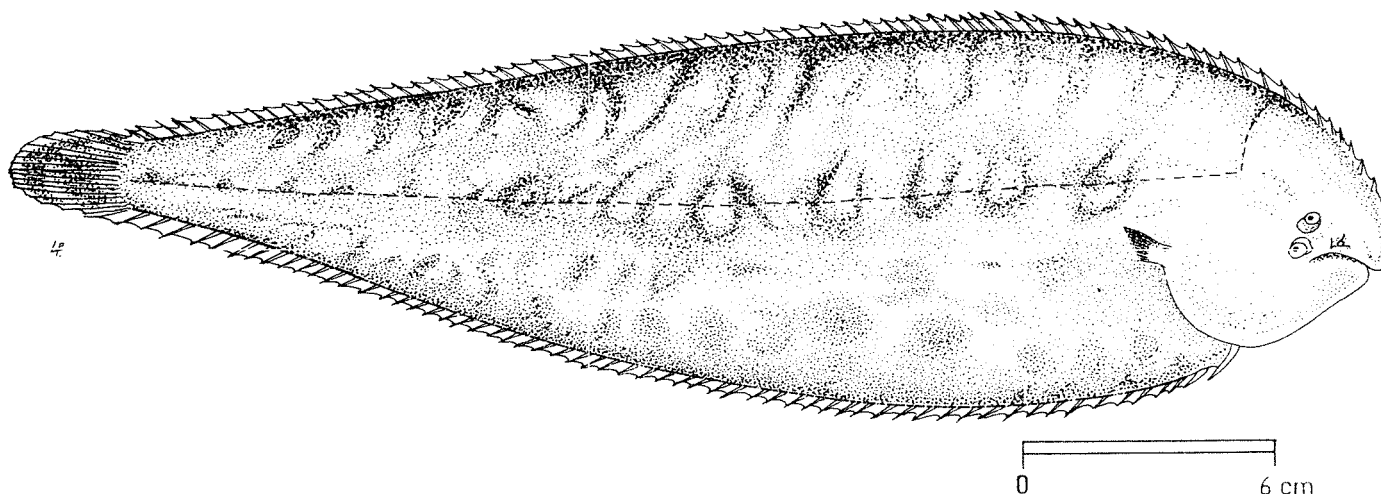


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SOLEIDAE

FISHING AREA 51
(W. Indian Ocean)*Synaptura commersoniana* (Lacepède, 1802)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Commerson's sole
 Fr - Sole de Commerson
 Sp - Lenguado de Commerson

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and flat, broad anteriorly and tapering posteriorly. Eyes on right side, separated by a scaly space; anterior part of snout with a bony process; mouth curved, cleft reaching beyond middle of upper eye. Dorsal and anal fins joined to caudal fin; pectoral fins symmetrical; pectoral fin of eyed side shorter than head; pelvic fins short and asymmetrical. Scales on eyed side ctenoid (rough), those on blind side cycloid (smooth); scales on head and nape of eyed side larger than those on body, and scales on blind side of head modified into cutaneous sensory processes.

Colour: grey/brown on eyed side of body; dorsal, anal and caudal fins dusky toward edges of both sides and with a conspicuous white margin; pectoral fin on eyed side dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Synaptura marginata: body deeper; pectoral fin on eyed side blackish with a white edge.

Euryglossa and Austroglossus species: lack bony process on snout. Furthermore, body oval in Euryglossa orientalis and pectoral fin on eyed side longer than head in Austroglossus species.

Species of Zebrias and Aesopia: opercular membrane joined to upper pectoral fin rays and a number of dark crossbars present on body.

Solea, Monochirus, Pardachirus, Liachirus and Aseraggodes species: dorsal and anal fins separate from caudal fin.

Heteromycteris species: snout forming a long hook.

SIZE:

Maximum: 32 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found in the northern part of the area, from the Red Sea to the "Gulf", west coast of India and Sri Lanka; also off Mauritius and Seychelles. Elsewhere, from the east coast of India to the Malay archipelago.

PRESENT FISHING GROUNDS:

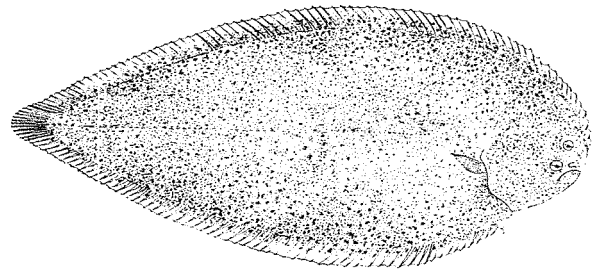
Shallow sand/mud grounds of the continental shelf and creeks.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

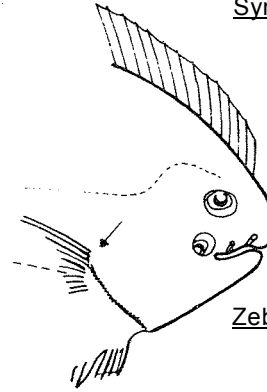
Separate statistics are not reported for this species.

Caught mainly with bottom trawls and shore seines.

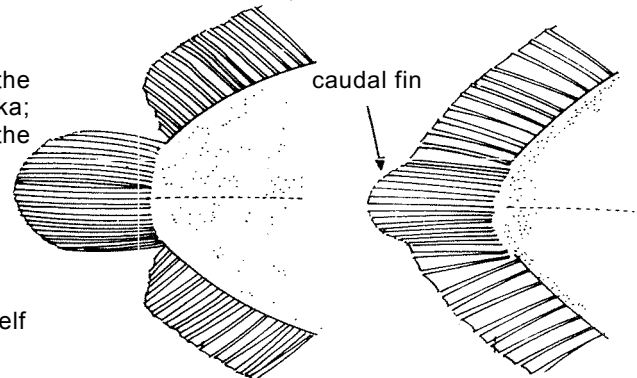
Marketed fresh.



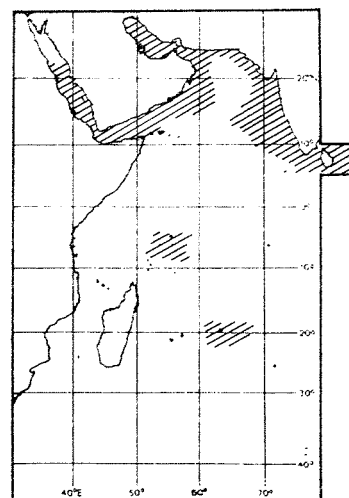
Synaptura marginata



Zebrias



Aseraggodes, Liachirus, Pardachirus, Synaptura,
Soles and Monochirus

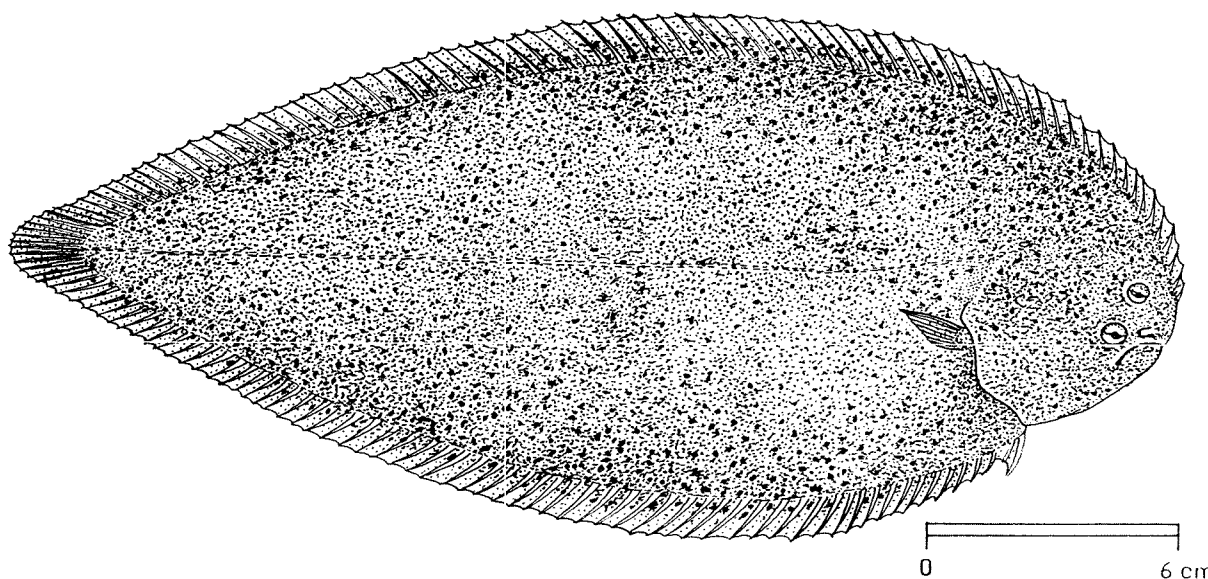


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SOLEIDAE

FISHING AREA 51
(W. Indian Ocean)*Synaptura marginata* Boulenger, 1900

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - White-margined sole
 Fr - Sole poivrée
 Sp - Lenguado pimienta

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and flat. Eyes on right side, separated by a space equal to eye diameter; mouth small, curved, cleft reaching below anterior half of lower eye; lips and border of gill clefts fringed, whole of head and coloured side of body covered with hair-like processes. Dorsal and anal fins joined to caudal fin; pectoral fins well developed, asymmetrical, pectoral fin on eyed side shorter than head; pelvic fins short. Scales on right side of body strongly ctenoid (rough).

Colour: Dark brown with darker specks; dorsal and anal fins speckled with dark spots and edged with white, pectoral fin on eyed side blackish with a white edge.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Synaptura commersoniana: pectoral fin dusky, without a white edge; body more elongate.

Euryglossa and Austroglossus species: lack bony process on snout. Furthermore, body oval in Euryglossa orientalis and pectoral fin on eyed side longer than head in Austroglossus species.

Zebrias and Aesopia species: opercular membrane joined to upper pectoral fin rays and a number of dark crossbars present on body.

Species of Aseraggodes, Liachirus, Pardachirus, Solea and Monochirus: dorsal and anal fins separate from caudal fin.

Heteromycteris species: snout forming a long hook.

SIZE:

Maximum: 40 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found in the Mozambique Channel southward to Natal (South Africa).

Inhabits shallow coastal waters.

Feeds mainly on bottom living invertebrates.

PRESENT FISHING GROUNDS:

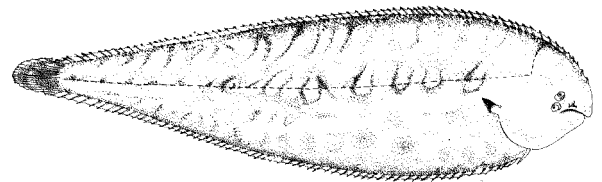
Shallow coastal waters below low tide mark.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

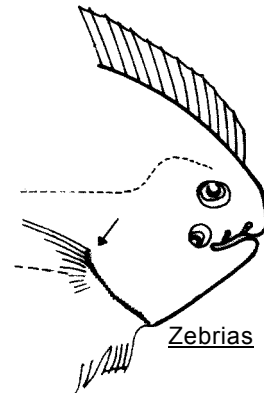
Separate statistics are not reported for this species.

Caught mainly by spearing with pronged pitch-fork.

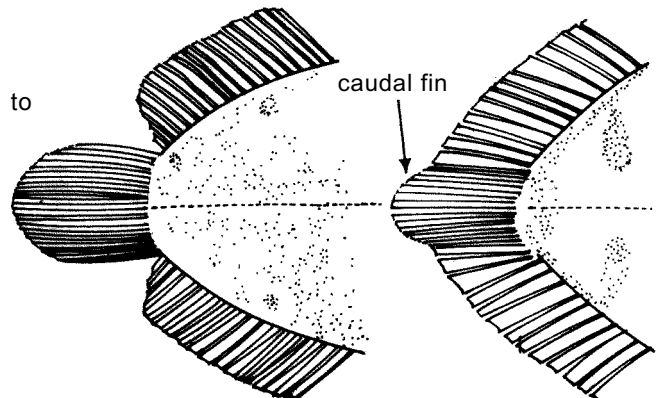
Marketed fresh.



Synaptura commersoniana

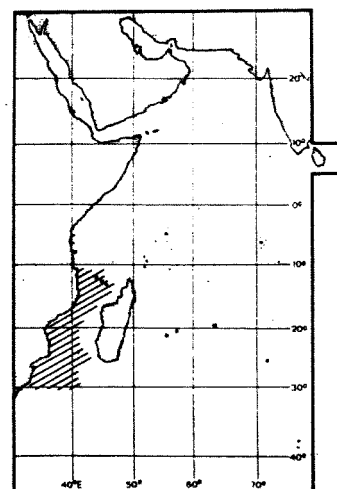


Zebrias



Aseraggodes, Liachirus, Pardachirus,
Solea and Monochirus

Synaptura

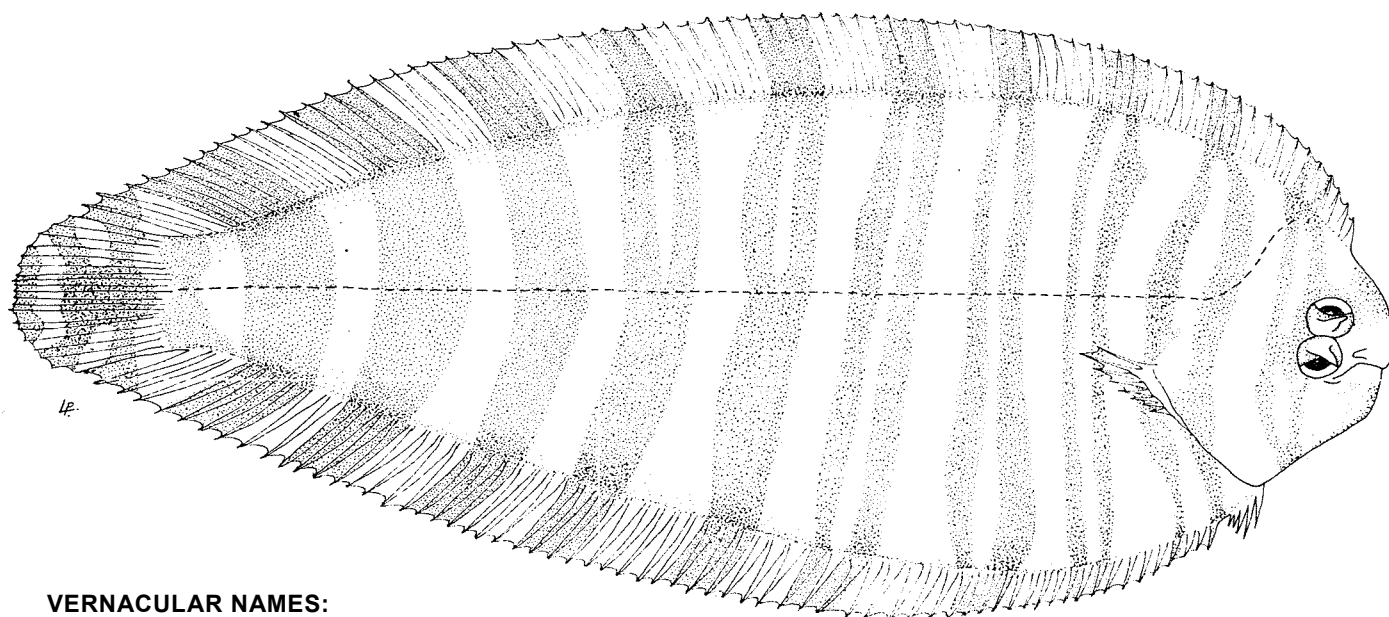


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SOLEIDAE

FISHING AREA 51
(W. Indian Ocean)Zebrias quagga Kaup, 1858

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Fringefin zebra sole
Fr - Sole quagga
Sp - Lenguadillo quagga



NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and flat. Eyes on right side, their diameter slightly longer than snout, close together, usually with a short tentacle each; mouth small, curved, cleft reaching third of the lower eye. Dorsal and anal fins more or less completely joined to caudal fin; pectoral fins well developed, asymmetrical, that on eyed side smaller; pelvic fins short. Scales on both sides ctenoid (rough).

Colour: light brown with 10 or 11 darker simple or double crossbands wider than pale interspaces, continued in oblique slant on dorsal and anal fins. Caudal fin darker, brown, with a long, whitish median blotch.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Zebrias synapturoides: posterior rays of dorsal and anal fins joined to basal half of caudal fin.

Zebrias regani: 13 or 14 dark, double crossbars on body (10 or 11 single or double crossbars in Z. quagga); no tentacles on eye.

Aesopia cornuta: first dorsal ray fin enlarged (not enlarged in Z. quagga); scales cycloid; single crossbars on body.

All other species of Soleidae: do not have crossbars on body.

SIZE:

Maximum: 15 cm; common to 12 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, found in the Red Sea and the "Gulf" to the west coast of India and Sri Lanka. Elsewhere, eastward extending to the Malay Peninsula and Archipelago to China.

Inhabits shallow coastal waters.

Feeds mainly on bottom living invertebrates

PRESENT FISHING GROUNDS:

Shallow sand/mud grounds of the continental shelf and creeks.

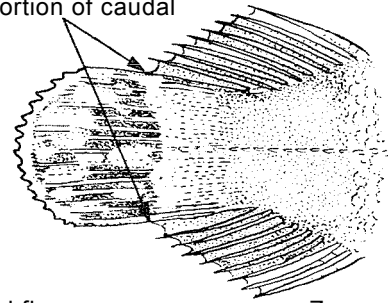
CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with bottom trawls and shore seines.

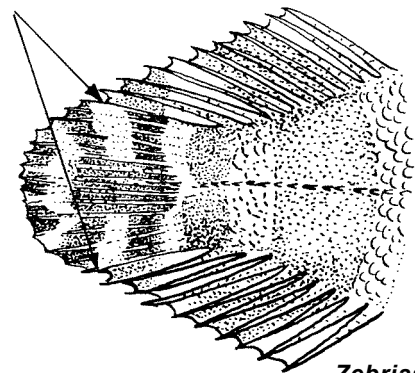
Marketed fresh.

dorsal and anal fins
joined to basal
portion of caudal

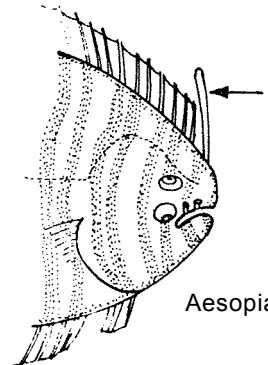


Z. synapturoides

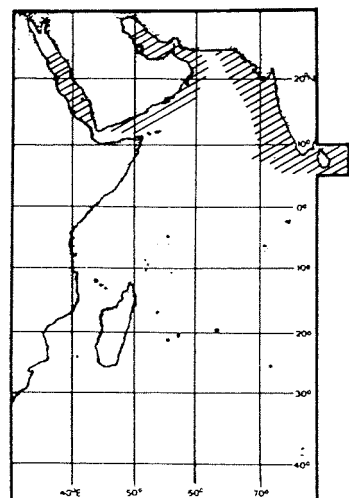
dorsal and anal fins
completely joined to caudal



Zebrias quagga



Aesopia

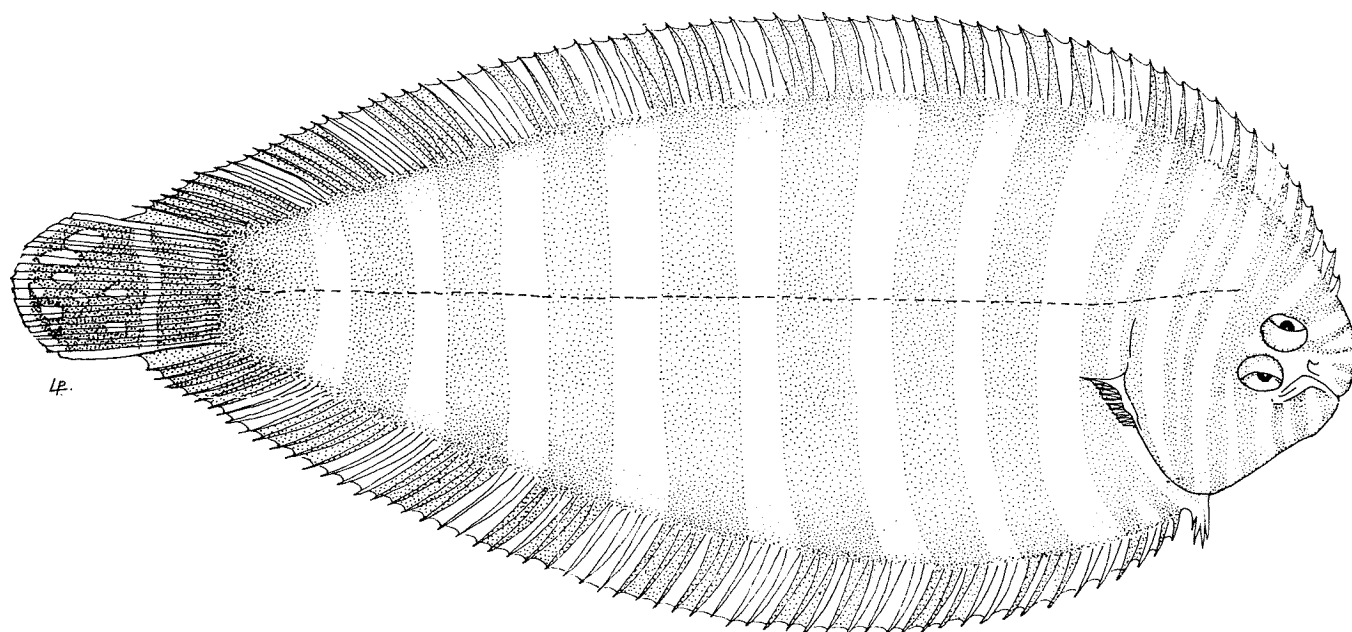


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SOLEIDAE

FISHING AREA 51
(W. Indian Ocean)*Zebrias synapturoides* (Jenkins, 1910)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Zebra sole
Fr - Sole zèbre
Sp - Lenguadillo acebrado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and flat. Eyes on right side, nearly contiguous, their diameter a little longer than snout, without tentacle; mouth small, curved, cleft reaching to below middle of eye. Posterior rays of dorsal and anal fins joined to basal half of caudal fin, which is quite distinct and rounded; pectoral fins well developed, asymmetrical; pelvic fins short, asymmetrical. Scales on both sides of body ctenoid (rough).

Colour: greyish, with 12 or 13 darker crossbars, broader than the interspaces, continued in an obliquely caudal direction on dorsal and anal fins; posterior part of caudal fin with a circular area of dark brown, margined with yellowish-white, and with a number of yellowish white spots and blotches in the centre.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Zebrias quagga: posterior rays of dorsal and anal fins more or less completely joined to caudal fin.

Zebrias regani: 13 or 14 dark, double crossbars on body (12 or 13 single crossbars in Z. synapturoides).

Aesopia cornuta: first dorsal fin ray enlarged (first dorsal fin ray not enlarged in Z. synapturoides); scales cycloid.

All other species of Soleidae: do not have crossbars on body.

SIZE:

Maximum: 15 cm; common to 10 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, found along the west coast of India and off Sri Lanka. Elsewhere, northward extending along the east coast of India to Ganjam (Orissa).

PRESENT FISHING GROUNDS:

Shallow sand/mud grounds of the continental shelf and creeks.

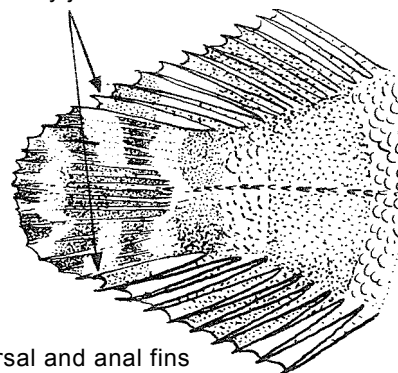
CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with bottom trawls and shore seines.

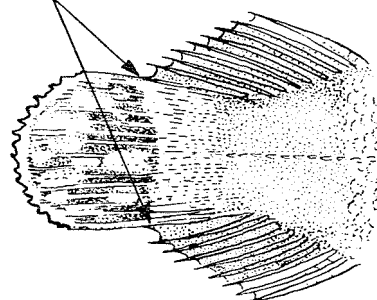
Marketed fresh.

dorsal and anal fins completely joined to caudal

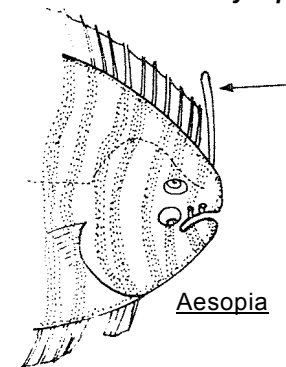


Zebrias quagga

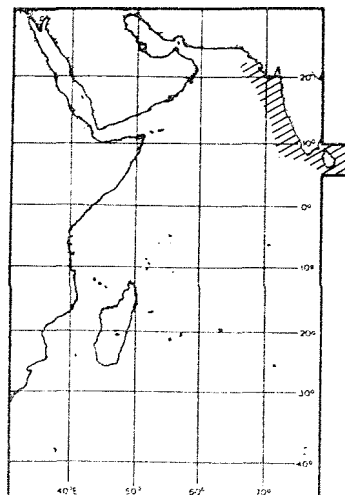
dorsal and anal fins joined to basal portion of caudal



Zebrias synapturoides



Aesopia



FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

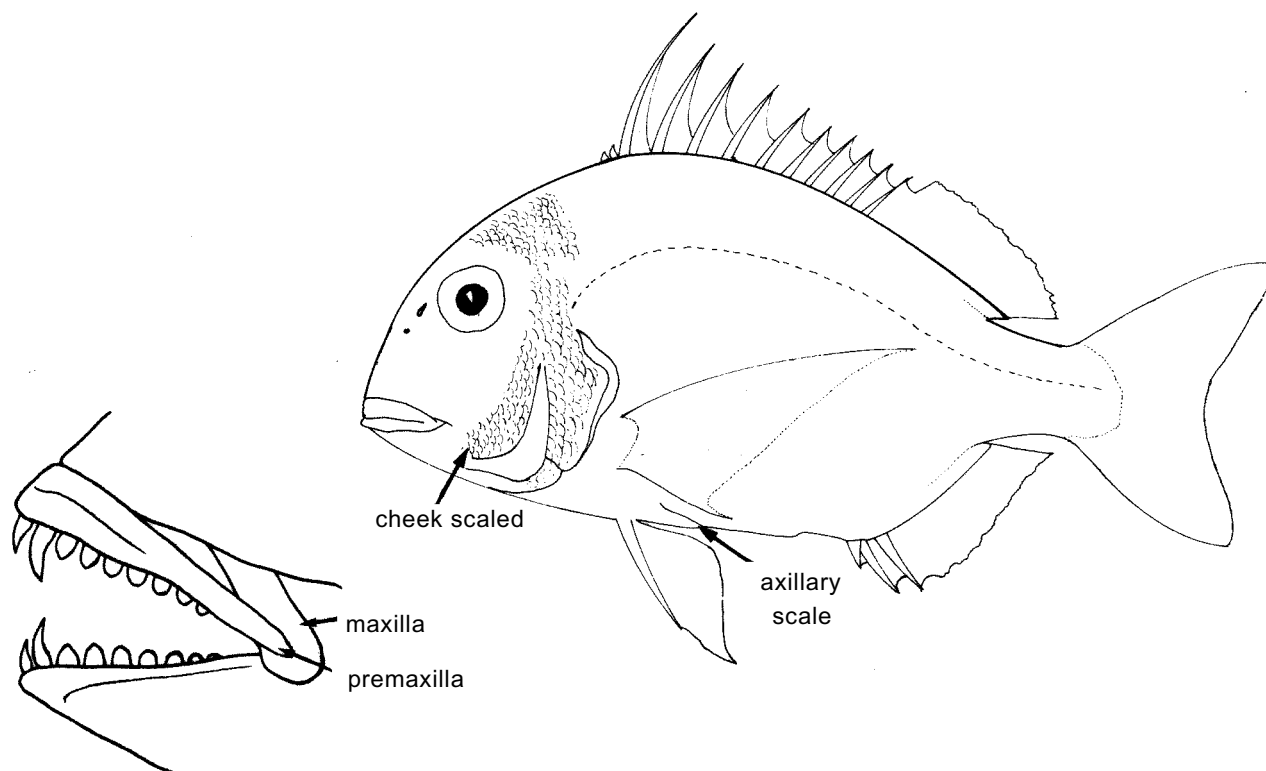
SPARIDAE

Dentex, hottentots, pandoras, porgies, salemas, seabreams, stumpnoses

Body oblong, more or less deep and compressed. Head large, often with a steep upper profile; snout scaleless, cheeks scaly, preopercle with or without scales, without spines or serrations on margin; opercle scaly without spines; mouth subhorizontal and slightly protrusible, upper jaw never reaching backward beyond a vertical line through middle of eye; hind tip of premaxilla overlapping maxilla, jaw teeth well developed, differentiated into either conical (canine-like), or flattened (incisor-like), and often rounded, molar-like; roof of mouth (vomer and palatines) toothless; gillrakers variable, 7 to 20 inferior* on first arch. Dorsal fin single, with 10 to 13 spines and 9 to 17 soft** rays, the spiny and soft portions not separated by a notch, anterior spines sometimes elongate or filamentous; anal fin with 3 spines and 7 to 15 soft** rays, the spines, especially the second, often stout; pectoral fins usually long and pointed; pelvic fins below or just behind pectoral fin bases, with 1 spine and 5 soft rays, and an axillary scale at their base; caudal fin more or less deeply emarginate or forked. Scales cycloid (smooth) or weakly ctenoid (rough to touch); a single continuous lateral line extending backward to base of caudal fin.

Colour: overall colour highly variable, from pinkish or reddish to yellowish or greyish, often with silvery or golden reflections, often with dark or coloured spots, stripes or bars.

Seabreams inhabit tropical and temperate coastal waters. They are demersal inhabitants of the continental shelf and the slope. The smaller species, as well as the young of large species, usually form aggregations, while large adults are less gregarious or solitary and occur in deeper waters. Occasionally they are found in estuaries used as nurseries. Hermaphroditism is widespread in this family. Most seabreams are excellent foodfish and are of notable commercial importance. The catch of seabream from Fishing Area 51 totalled about 8 000 tons in 1980.



*The gillraker in the angle of the arch has been included with those on the lower arch

**The last soft dorsal and anal ray double, being counted as one

SIMILAR FAMILIES OCCURRING IN THE AREA:

Haemulidae: edge of preopercle serrate; suborbital space scaled; at least 2 conspicuous pores beneath chin; also never molar teeth.

Lutjanidae: edge of preopercle usually serrate, and often excavated to accommodate a bony knob; also never molar or incisor-like teeth; palate usually toothed (except in Aphareus).

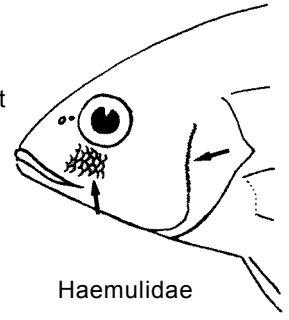
Lobotidae: edge of preopercle strongly toothed; never molar teeth; dorsal, anal and caudal fins rounded, appearing as a single tri-lobed fin (Triple-tails).

Serranidae: edge of preopercle serrate; suborbital space scaly; similar species lack pelvic axillary scale; caudal fin generally rounded, never forked; also never molar teeth.

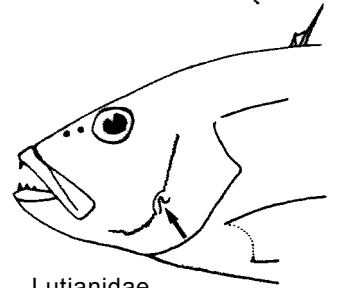
Lethrinidae: posterior tip of maxilla overlapping premaxilla (posterior tip of premaxilla overlapping maxilla in Sparidae); cheek and preopercular flange scaleless (but scales present on cheek in Wattsia, Monotaxis, Gymnocranius and Gnathodentex); 8 to 11 soft dorsal fin rays 9 to 17 in Sparidae; incisor-like teeth never present.

Kyphosidae: head entirely scaled, except for snout; teeth in jaw incisor-like, close-set and of a peculiar hockey-stick shape, with their base set horizontally, resembling a radially striated bone inside mouth.

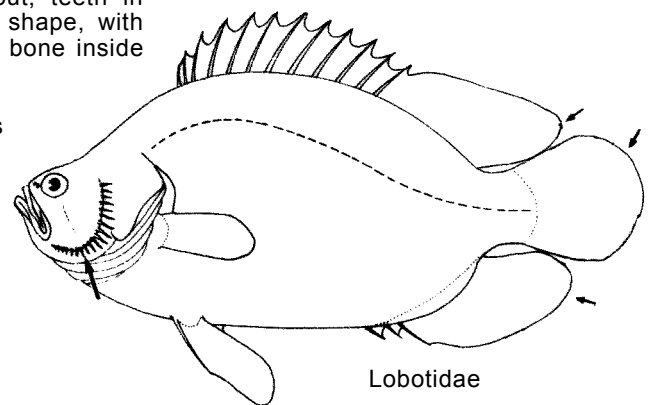
Cirrhitidae and Cheilodactylidae: lower pectoral rays simple and thickened.



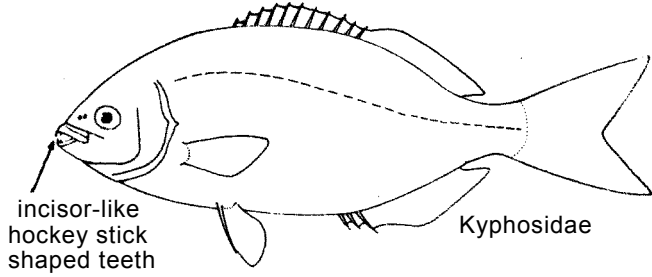
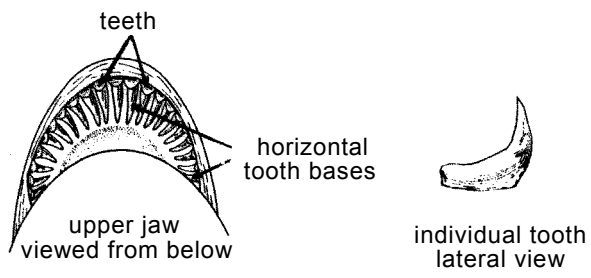
Haemulidae



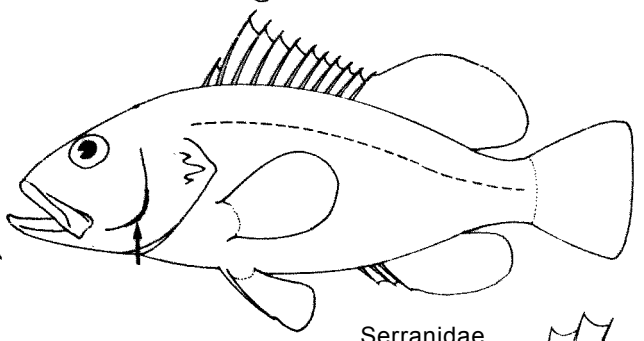
Lutjanidae



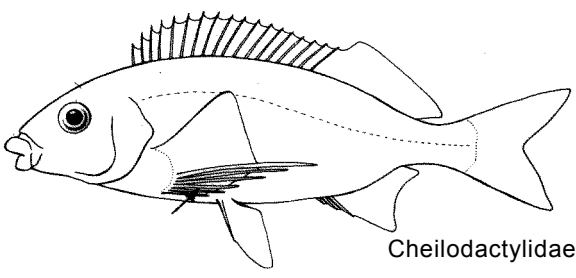
Lobotidae



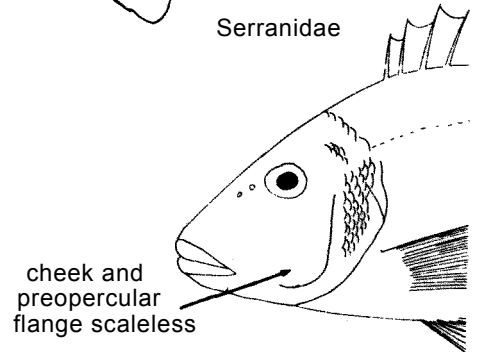
Kyphosidae



Serranidae



Cheilodactylidae



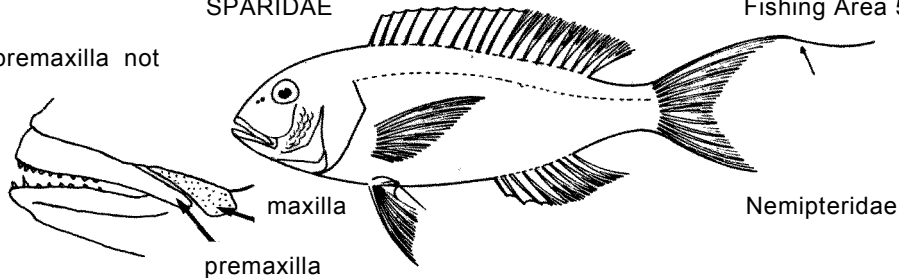
Lethrinidae (Lethrinus)

Fao Sheets

SPARIDAE

Fishing Area 51

Nemipteridae: hind tip of premaxilla not overlapping maxilla.



KEY TO GENERA OCCURRING IN THE AREA:

1a. Molar or granular teeth present

2a. A distinct separate group of 4 to 9 enlarged teeth in front of each jaw

3a. Head between eyes naked (scales ending at or behind level of vertical eye diameter (Figs 2 to 4)

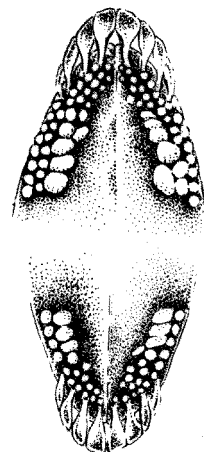
4a. More than 6 enlarged incisi-form teeth in front of jaws (Fig.1) Diplodus

4b. 4 to 6 more or less compressed, enlarged teeth in front of jaws (Figs 2,4)

5a. More than 5 scales between lateral line and 4th dorsal spine; usually dorsal spines slender, riot appearing alternately broad and narrow on each side; one enlarged molar posteriorly on each jaw (Fig.2)

6a. Enlarged front teeth subequal (Fig.2) Rhabdosargus

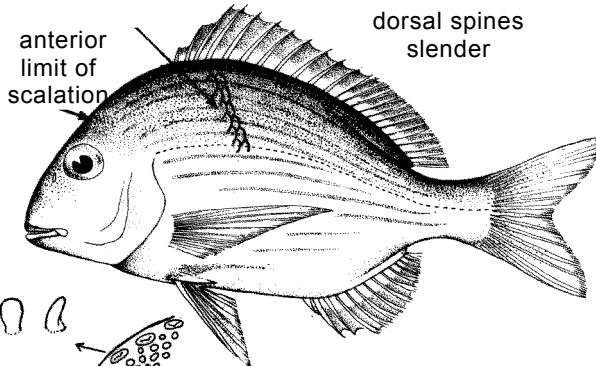
6b. Middle pair of teeth very large (Fig.3) Sparodon



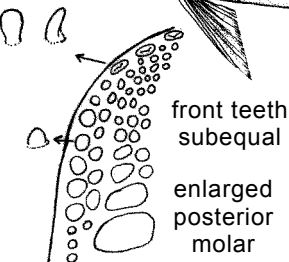
upper and lower jaws

Diplodus Fig.1

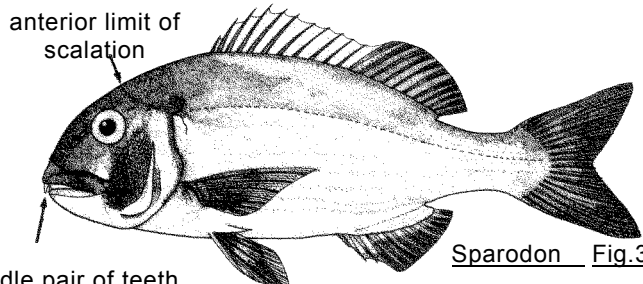
more than 5 rows of scales



Rhabdosargus Fig.2



right half of roof of mouth



middle pair of teeth very large

Sparodon Fig.3

5b. Less than 5 scales between lateral line and 4th dorsal spine; dorsal spines strong, appearing alternately broad and narrow on each side; no single, greatly enlarged molar posteriorly (Fig.4) ... Acanthopagrus

3b. Head between eyes scaly (scaling reaching beyond level of vertical diameter of eye) (Figs 6 to 9)

7a. Preopercle flange naked; first two dorsal spines very short, with the following (at least the 3rd) elongate, flattened, filamentous in juveniles (Fig-5) Argyrops

7b. Preopercle flange entirely or partly scaly; dorsal spines normally graduated, not filamentous (except Chrysoblephus lophus) (Figs 6 to 9)

8a. 13 dorsal spines; over 70 scales in lateral line (Fig.6) Porcostoma

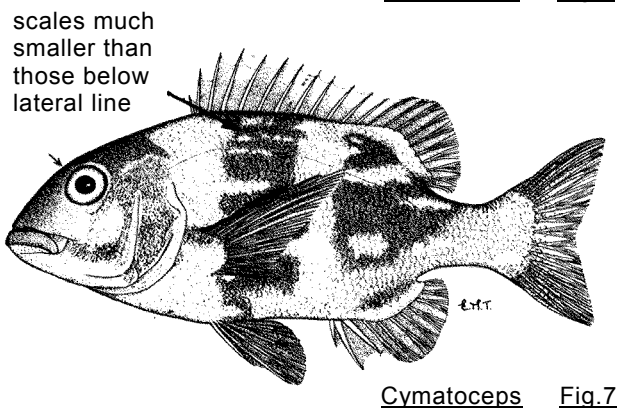
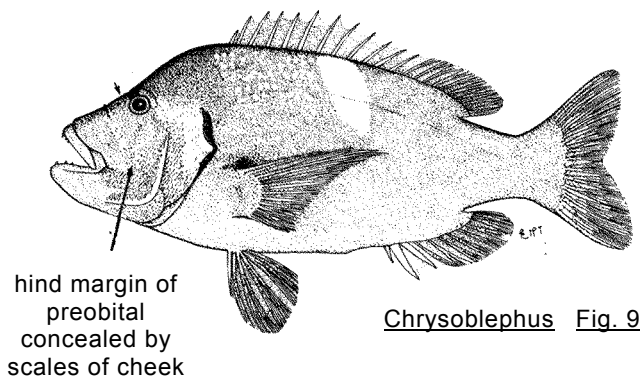
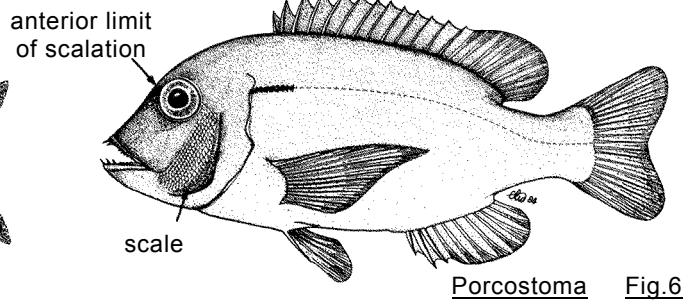
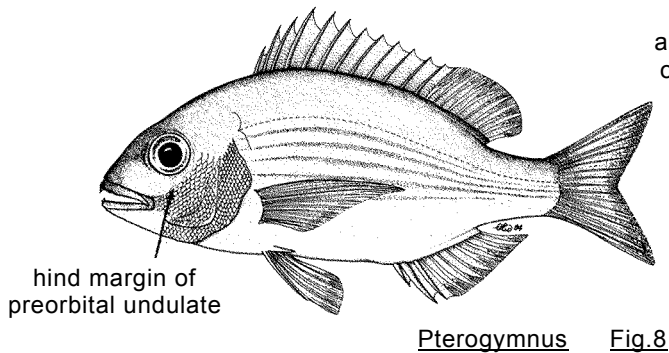
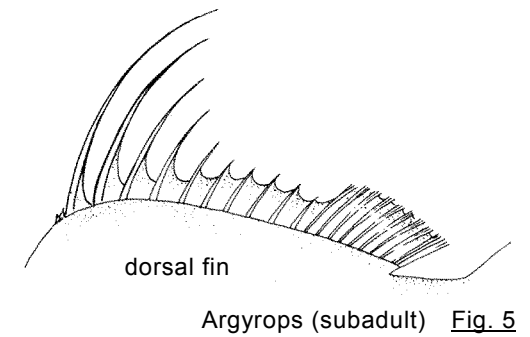
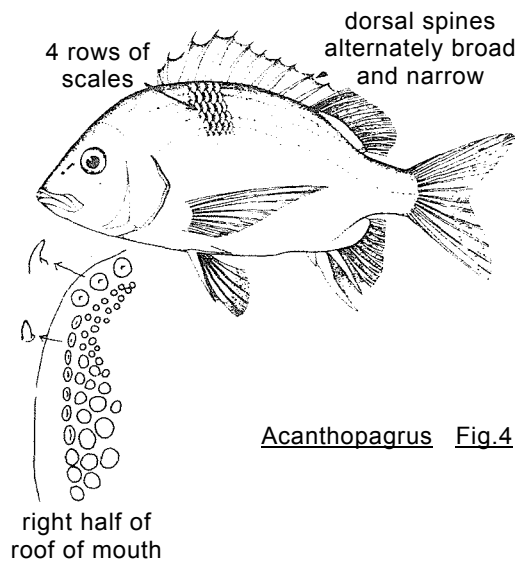
8b. 12 or fewer dorsal spines; less than 70 scales in lateral line

9a. Scales above lateral line much smaller than those below (Fig.7). Cymatoceps

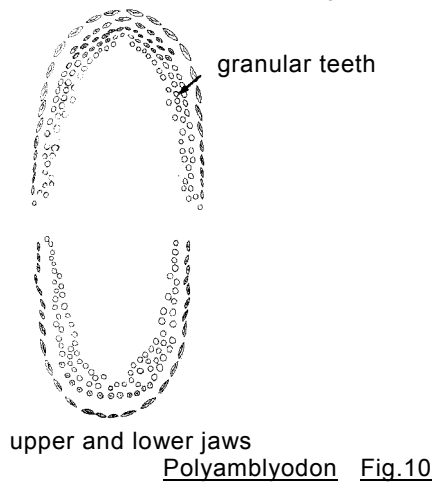
9b. Scales above lateral line about equal to those below

10a. Hind margin of preorbital bone undulate, and free, not concealed by scales of cheek (Fig. 8) Pterogymnus

10b. Hind margin of preorbital not undulate, concealed by scales of cheek (Fig.9) Chrysoblephus

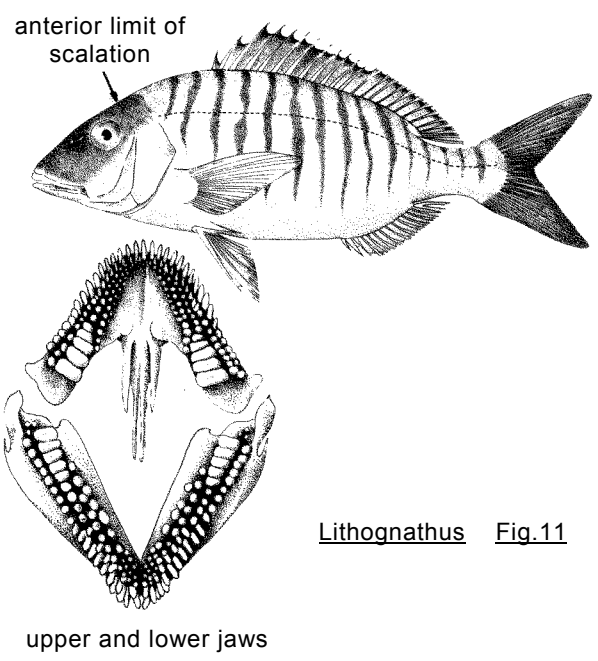


- 2b. No enlarged teeth at front of each jaw (Figs 10 to 12)
- 11a. One outer series of incisors, behind them a pavement of granular teeth (Fig.10) Polyamblyodon
- 11b. Teeth not as above (Figs 11 and 12)
- 12a. Head between eyes naked (scales not extending beyond level of posterior eye margin); dorsal fin with 11 (exceptionally 12); spines and 11 to 12 rays (Fig.11) Lithognathus
- 12b. Head between eyes scaly (scales reaching to beyond the level of vertical eye diameter); dorsal fin with 12 spines and 10 rays (Fig.12) Pagellus



1b. Molariform teeth absent

- 13a. Outer teeth incisiform, compressed (Fig.13)
- 14a. A single series of teeth in each jaw; notched incisors in upper jaw (Fig.13a) Sarpa
- 14b. 2 or more series of teeth in each jaw



- 15a. Outer series of incisors with edge crenulate (Fig.13b)... Crenidens
- 15b. Outer series of incisors with edge entire

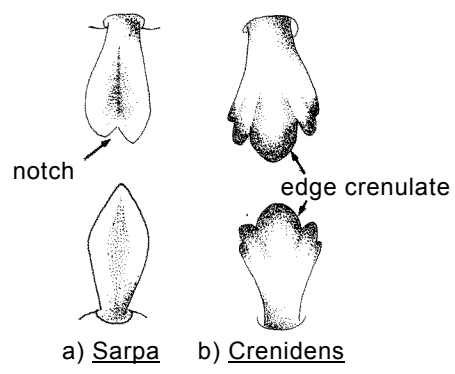
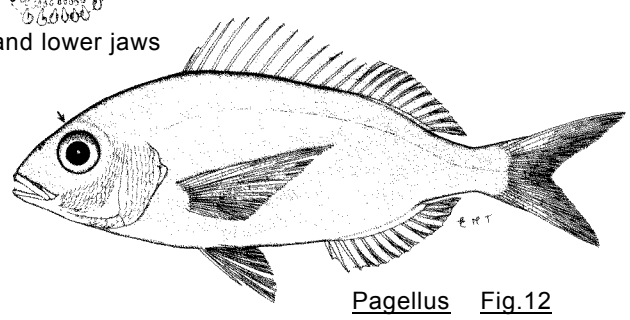
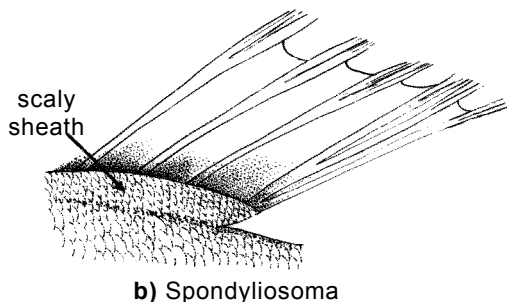
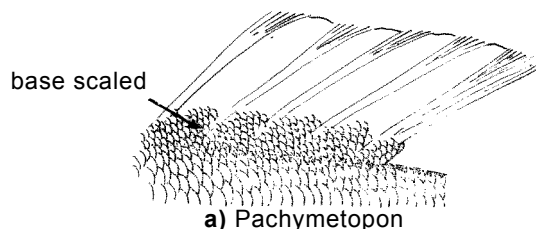
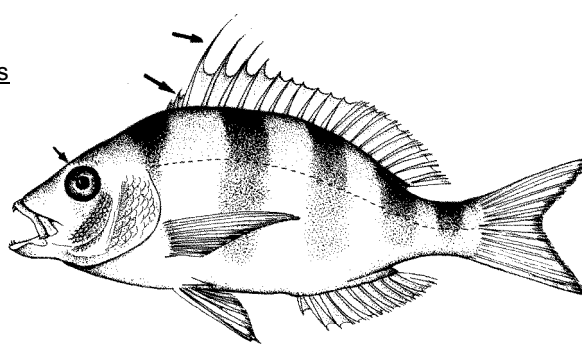


Fig.13

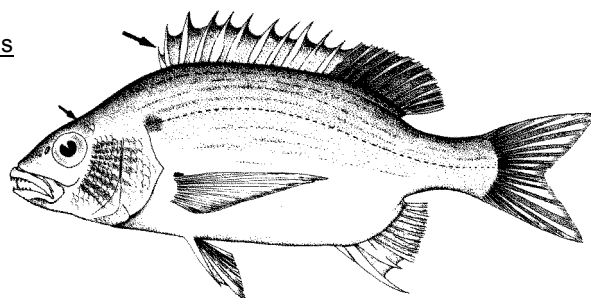
- 16a. Soft dorsal and anal fins scaly at base, without sheath (Fig.14a) Pachymetopon
- 16b. Soft dorsal and anal fins with a low scaly sheath at base (Fig.14b) Spondyliosoma
- 13b. Outer teeth canines, some enlarged in front of jaws
 - 17a. First two dorsal spines short, 3rd and 7th elongated, filamentous (especially in juveniles and subadults) (Fig.15) Cheimerius
 - 17b. Dorsal spines normally graduated, not filamentous (Figs 16 to 19)
 - 18a. Scales on head not reaching forward to level of vertical diameter of eye (Fig.16) Sparidentex
 - 18b. Scales on head reaching forward to beyond vertical diameter of eye (Figs 16 to 19)
 - 19a. Gillrakers short, laminate, few (less than 10 inferior on first arch) (Fig.17) Petrus
 - 19b. Gillrakers more or less elongate, numerous (more than 10 inferior on first arch) (Fig.19)
 - 20a. Head length less than body depth; pectoral fins long and about equal to head length and reaching to beyond anal spines (Fig.18) gillrakers 11 to 16 inferior on first arch Polysteganus



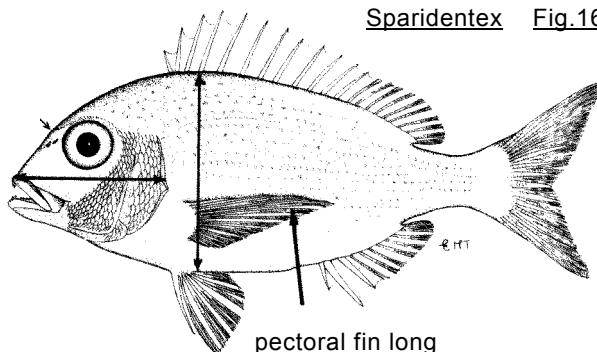
posterior part of dorsal fin Fig.14



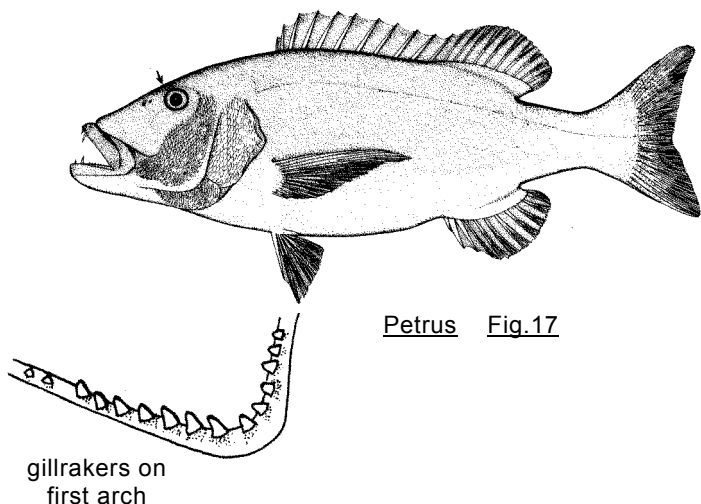
Cheimerius Fig.15



Sparidentex Fig.16



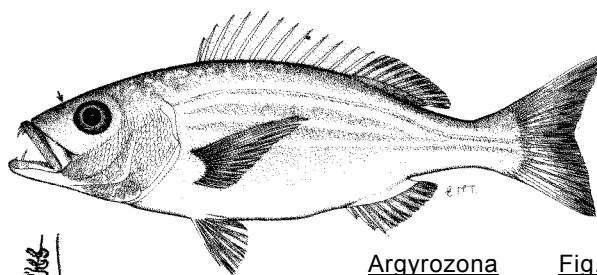
Polysteganus Fig.18



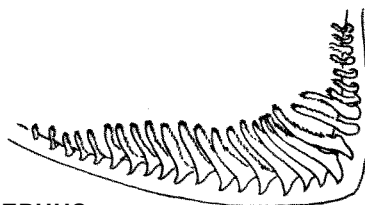
Petrus Fig.17

gillrakers on first arch

20b. Head length equal to., or longer than, body depth; pectoral fins short, much shorter than head, not reaching to beyond anal spines; gillrakers 17 to 20 inferior on first arch (Fig.19) Argyrozona



Argyrozona Fig.19



gillrakers on first arch

KEY TO SPECIES OF CHRYSOBLEPHUS:

1a. A black blotch at base of last dorsal ray (Fig.1) C. cristiceps

1b. No black blotch at base of last dorsal ray

2a. A blue line below eye (Fig.2) C. puniceus

2b. No blue line below eye

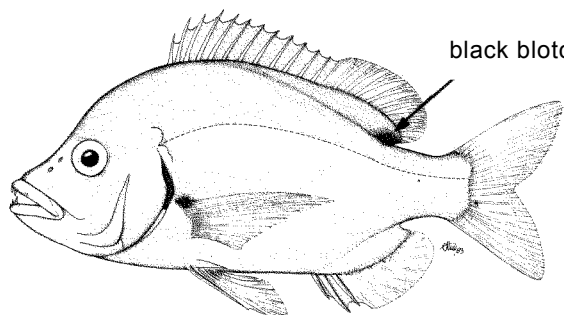
3a. A white bar on opercle and a white saddle below 7th to 9th dorsal spines (Fig.3) C. laticeps

3b. No white bar on opercle and no white saddle below 7th to 9th dorsal spines

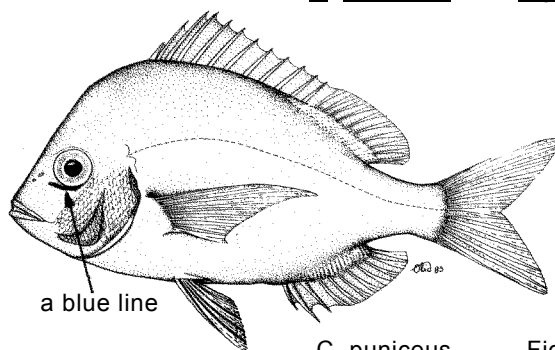
4a. No patch of small scales on preorbital bone below eye (Fig.4)

4b. A patch of small scales on preorbital bone below eye (Fig.5)

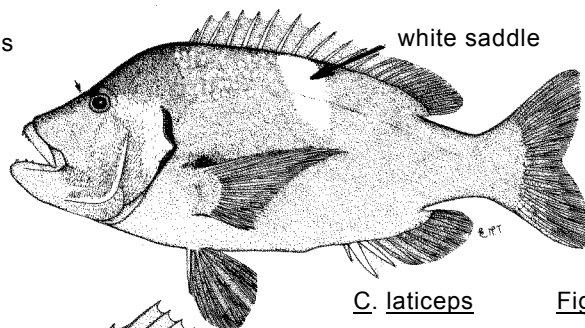
5a. 5 to 7 faint dark red cross bars; a hump on forehead above eyes in adults (Fig.5) C. gibbiceps



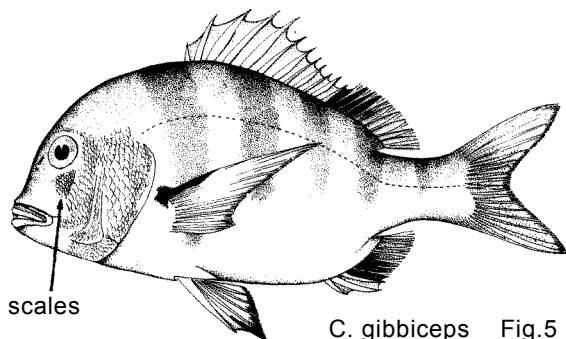
C. cristiceps Fig.1



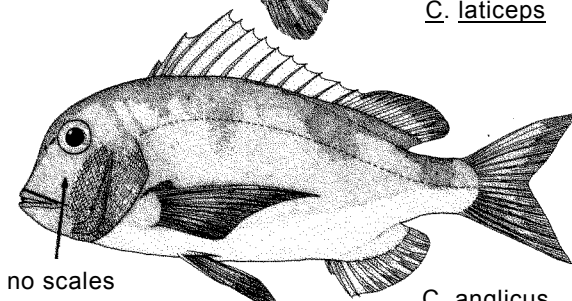
C. puniceus Fig.2



C. laticeps Fig.3



scales C. gibbiceps Fig.5



no scales C. anglicus Fig.4

- 5b. Alternate yellow and red lines across corrugated bony interorbital space; profile concave from there to upper lips; 3rd to 7th spines elongate (Fig.6)..... C. lophus

KEY TO SPECIES OF DIPODUS:

- 1a. 10 to 12 incisors at front of upper jaw; 5 broad, dark crossbars on sides (Fig.1) D. cervinus hottentotus

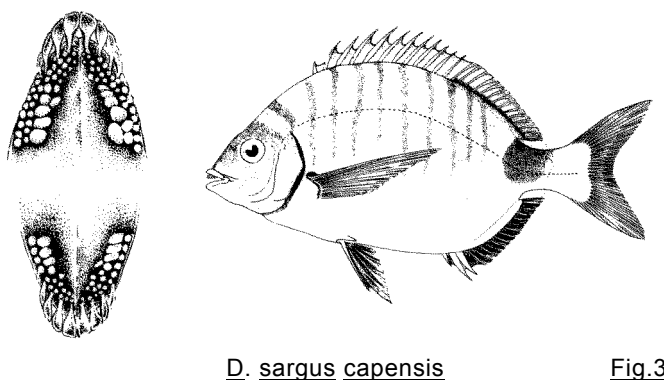
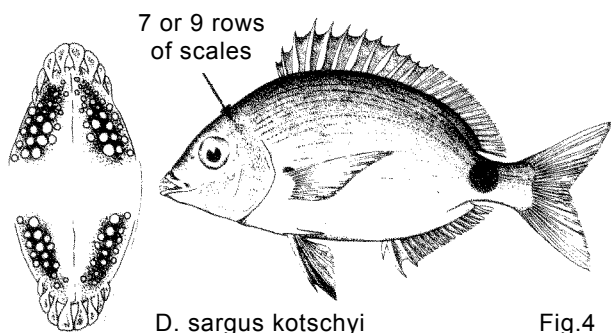
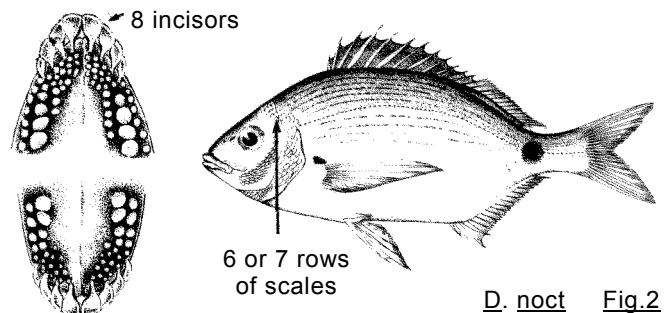
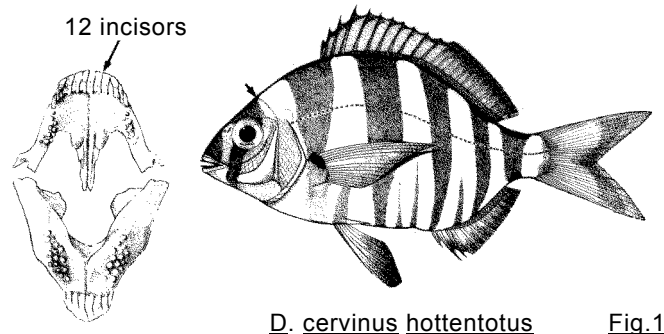
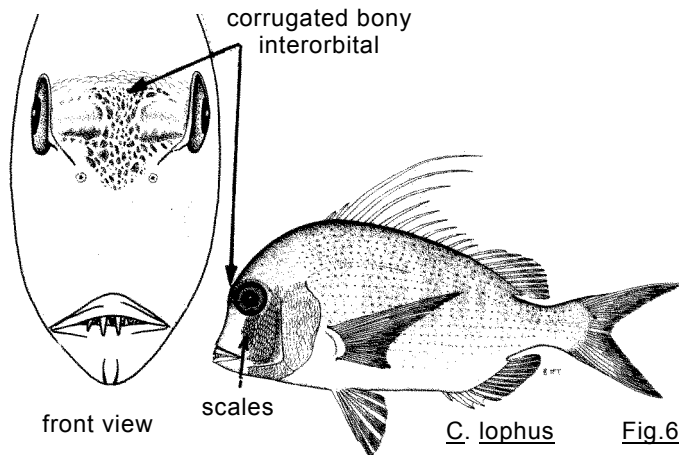
- 1b. 8 incisors (exceptionally 7 to 10) at front of upper jaw; no broad crossbars on sides; juveniles with 8 or 9 narrow dark crossbars disappearing with age; a dark blotch on caudal peduncle (Figs 2 to 4)

- 2a. 12 to 14 gillrakers on lower limb of first arch; 6 or 7 scales between lateral line and 4th dorsal spine; depth 2.25 to 2.6 times in standard length (Fig.2)..... D. noct

- 2b. 8 to 10 gillrakers on lower limb of first arch; 7 to 9 scales between lateral line and 4th dorsal spine; depth 2 to 2.3 times in standard length (Figs 3,4)

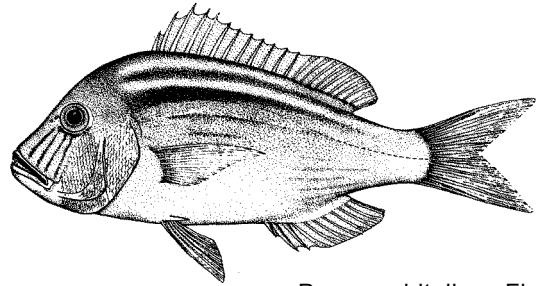
- 3a. A saddle-shaped black blotch on caudal peduncle, larger than eye (Fig.3) (restricted to South Africa and Madagascar) D. sargus capensis

- 3b. A round, very distinct black blotch on caudal peduncle, smaller than, or about equal to, eye (Fig.4) (restricted to the "Gulf" and Northern Indian coasts) D. sargus kotschy

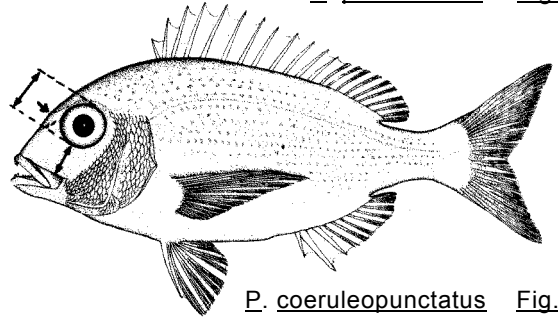


KEY TO SPECIES OF POLYSTEKANUS:

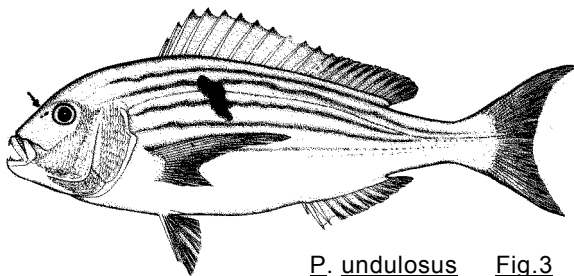
- 1a. Eye smaller than suborbital space (1.6 to 2 times in suborbital depth) (Fig.1) P. praeorbitalis
- 1b. Eye about equal to suborbital depth (Figs 2 to 4)
 - 2a. Each scale with a dot resulting in rows of dots along body (Fig.2) P. coeruleopunctatus
 - 2b. Every alternate row of scales with a narrow light line resulting in 8 or 9 wavy lines along body (Figs 3,4)
 - 3a. A large, dark blotch across lateral line beneath 5th and 6th dorsal spines (Fig.3); 14 to 16 gillrakers on lower limb of first arch P. undulosus
 - 3b. No dark blotches on body (Fig.4); 11 gillrakers on lower limb of first arch ... P. baissaci



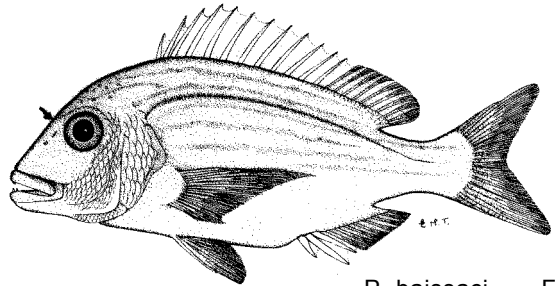
P. praeorbitalis Fig.1



P. coeruleopunctatus Fig.2



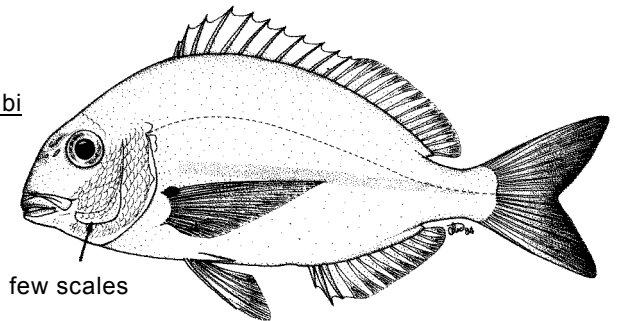
P. undulosus Fig.3



P. baissaci Fig.4

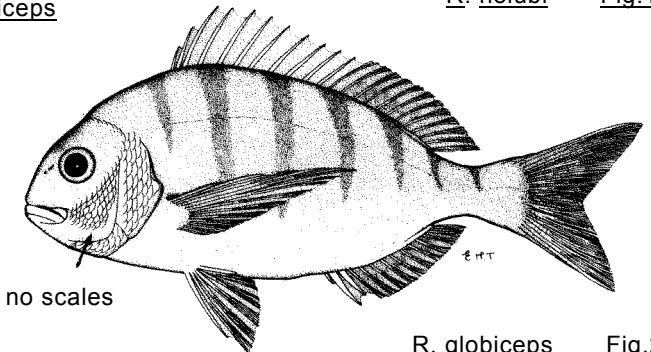
KEY TO SPECIES OF RHABDOSARGUS:

- 1a. Preopercle flange with a few scales (Fig.1); anterior teeth in juveniles tricuspid R. holubi
- 1b. Preopercle flange naked; anterior teeth in juveniles not tricuspid (Figs 2 to 5)
 - 2a. Body rather elongate (depth 2.2 to 3 times in standard length)
 - 3a. 6 or 7 darker crossbars (restricted to South Africa) (Fig.2) R. globiceps



few scales

R. holubi Fig.1



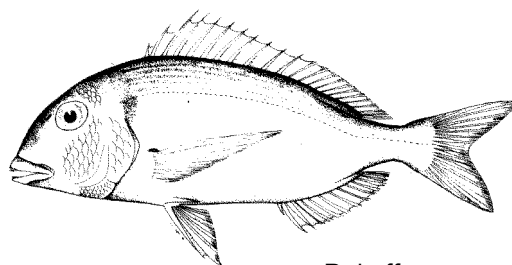
no scales

R. globiceps Fig.2

3b. No darker crossbars (Red Sea to the "Gulf")
(Fig.3) R. haffara

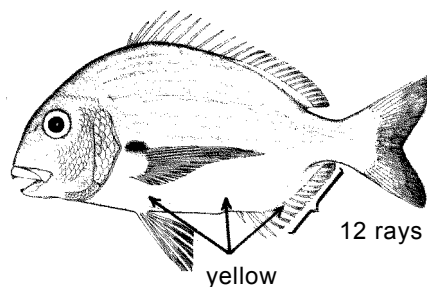
2b Body moderately deep (depth less than 2.2
times in standard length) (Figs 4,5)

4a Anal soft rays 12; gillrakers 10 to 12
on lower limb of first arch; bright
yellow from chest to above end of anal
fin including pelvic and anal fins
(Fig.4) R. thorpei

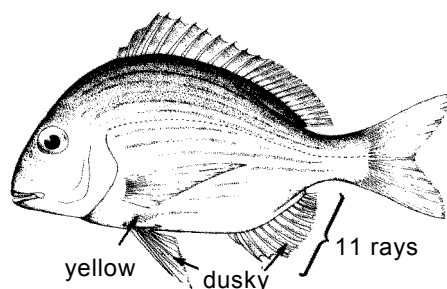


R. haffara Fig.3

4b Anal soft rays 11; gillrakers 7 to 8 on
lower limb of first arch; a yellow
streak on body from origin of pelvic
fin first flaring dorsally, then bending
posteriorly, tapering to end above
anus (Fig.5) R. sarba



R. thorpei Fig.4



R. sarba Fig.5

LIST OF SPECIES OCCURRING IN THE AREA:

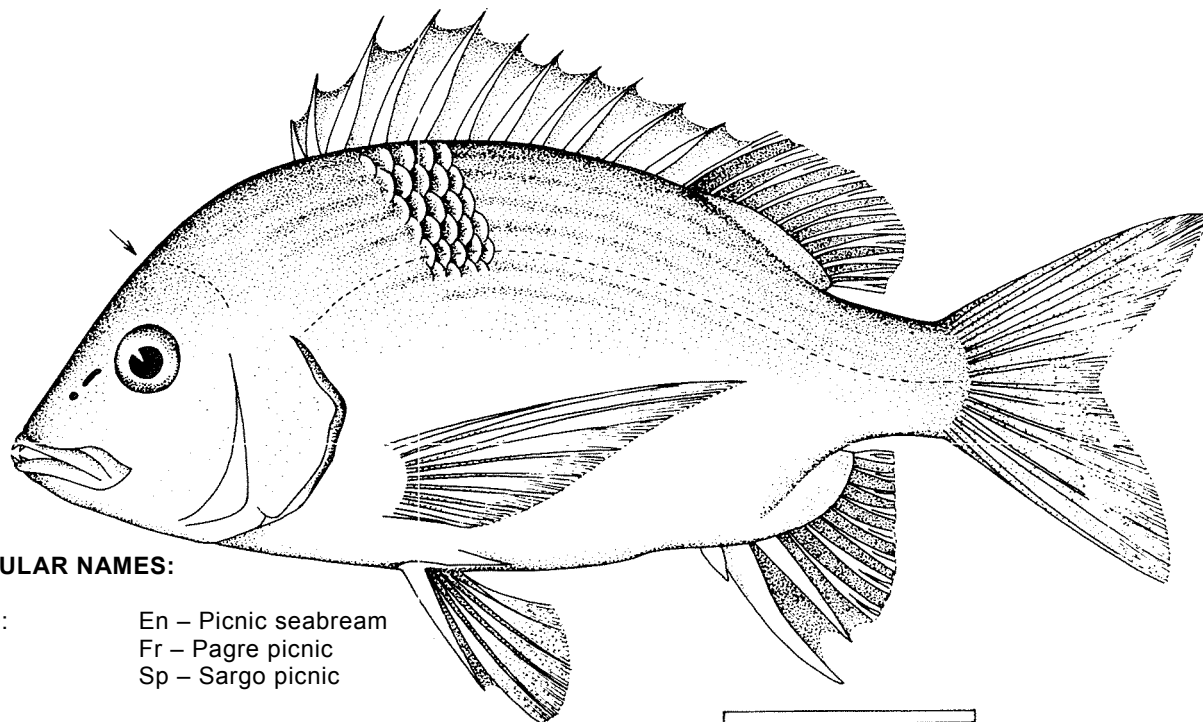
Code numbers are given for those species for which Identification Sheets are included

<u>Acanthopagrus berda</u> (Forsskål, 1775)	SPARID Acanth 1 (= SPARID Myl 1, Areas 57/71)
<u>Acanthopagrus bifasciatus</u> (Forsskål, 1775)	SPARID Acanth 3
<u>Acanthopagrus latus</u> (Houttuyn, 1782)	SPARID Acanth 2 (= SPARID Myl 2, Areas 57/71)
<u>Argyrops filamentosus</u> (Valenciennes, 1830)	SPARID Argy 2
<u>Argyrops spinifer</u> (Forsskål, 1775)	SPARID Argy 1
<u>Argyrozona argyrozona</u> (Valenciennes, 1830)	SPARID Argyr 1
<u>Cheimerius nufar</u> (Valenciennes, 1830)	SPARID Cheim 1
<u>Chrysoblephus anglicus</u> (Gilchrist & Thompson, 1908)	SPARID Chry 1
<u>Chrysoblephus cristiceps</u> (Valenciennes, 1830)	SPARID Chry 2
<u>Chrysoblephus gibbices</u> (Valenciennes, 1830)	SPARID Chry 3
<u>Chrysoblephus latices</u> (Valenciennes, 1830)	SPARID Chry 4
<u>Chrysoblephus lophus</u> (Fowler, 1925)	SPARID Chry 5
<u>Chrysoblephus puniceus</u> (Gilchrist & Thompson, 1908)	SPARID Chry 6
<u>Crenidens crenidens</u> (Forsskål, 1775)	SPARID Cren 1
<u>Cymatoceps nasutus</u> (Castelnau, 1861)	SPARID Cyma 1

<u>Diplodus cervinus hottentus</u> (Smith, 1849)	SPARID Diplod 7b
<u>Diplodus noct</u> (Valenciennes, 1830)	SPARID Diplod 11
<u>Diplodus sargus capensis</u> (Smith, 1846)	SPARID Diplod 1c
<u>Diplodus sargus kotschyj</u> (Steindachner, 1876)	SPARID Diplod 1e
<u>Lithognathus lithognathus</u> (Cuvier, 1830)	SPARID Litho 2
<u>Lithognathus mormyrus</u> (Linné, 1758)	SPARID Litho 1
<u>Pachymetopon aenum</u> (Gilchrist & Thompson, 1908)	SPARID Pachy 3
<u>Pachymetopon grande</u> (Günther, 1859)	SPARID Pachy 2
<u>Pagellus affinis</u> Boulenger, 1887	SPARID Page 5
<u>Pagellus natalensis</u> Steindachner, 1902	SPARID Page 6
<u>Petrus rupestris</u> (Valenciennes, 1830)	SPARID Petr 1
<u>Polyamblyodon germanum</u> (Barnard, 1934)	SPARID Polyam 1
<u>Polyamblyodon gibbosus</u> (Pellegrin, 1914)	SPARID Polyam 2
<u>Polysteganus baissaci</u> Smith, 1978	SPARID Polys 1
<u>Polysteganus coeruleopunctatus</u> Klunzinger, 1870	SPARID Polys 2
<u>Polysteganus praeorbitalis</u> (Günther, 1859)	SPARID Polys 3
<u>Polysteganus undulosus</u> (Regan, 1908)	SPARID Polys 4
<u>Porcostoma dentata</u> (Gilchrist & Thompson, 1908)	SPARID Porc 1
<u>Pterogymnus lanarius</u> (Cuvier, 1830)	SPARID Pter 1
<u>Rhabdosargus globiceps</u> (Valenciennes, 1830)	SPARID Rhab 1
<u>Rhabdosargus haffara</u> (Forsskål, 1775)	SPARID Rhab 3
<u>Rhabdosargus holubi</u> (Steindachner, 1881)	SPARID Rhab 4
<u>Rhabdosargus sarba</u> (Forskål, 1775)	SPARID Rhab 2
<u>Rhabdosargus thorpei</u> Smith, 1979	SPARID Rhab 5
<u>Sarpa salpa</u> (Linnaeus, 1758)	SPARID Sarpa 1
<u>Sparidentex hasta</u> (Valenciennes, 1830)	SPARID Sparid 1
<u>Sparodon durbanensis</u> (Castelnau, 1861)	SPARID Sparod 1
<u>Sporilyliosoma emarginatum</u> (Cuvier, 1830)	SPARID Spond 2

FAO SPECIES IDENTIFICATION SHEETS

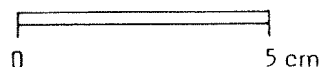
FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)(= SPARID Myl 1)
Areas 57,71*Acanthopagrus berda* (Forsskål, 1775)OTHER SCIENTIFIC NAMES STILL IN USE: *Myllo berda* (Forsskål, 1775)

VERNACULAR NAMES:

FAO: En – Picnic seabream
Fr – Pagre picnic
Sp – Sargo picnic

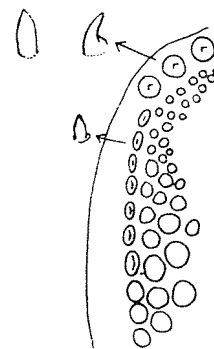
NATIONAL:



DISTINCTIVE CHARACTERS:

Body fairly deep, compressed, its depth about twice in standard length. Head 3 or 4 times in standard length, its upper profile straight (sometimes a bulge above eye); snout pointed; eye moderate in size; ventral profile almost straight to anus; in both jaws, 4 to 6 large, more or less compressed teeth in front, followed by 3 to 5 rows of molar-like teeth; upper lateral teeth of outer row conical and blunt; gillrakers 9 to 11 on lower limb of first arch. Dorsal fin with 11 (rarely 12) spines and 10 to 13 (usually 11 or 12) soft rays, 4th to 6th spines longest (spines appear alternately broad and narrow on either side); anal fin with 3 spines and 8 or 9 soft rays, 1st spine shorter than eye diameter, 2nd spine flattened laterally, longer and stronger than the 3rd; pelvic fins with a strong spine; caudal fin slightly forked, with rounded lobes. Scales large, 43 to 45 in lateral line (to base of caudal fin); 4 to 4.5 scale rows between lateral line and 4th dorsal spine; a scaly sheath at base of dorsal and anal fins; a long pelvic axillary process.

Colour: grey, dark silver/grey or dull olive/brown with silvery or brassy reflections; upper part of body and base of scales darkest, lower part of head and body paler, a dark edge along opercle. Spinous dorsal fin with a dark edge and spines often silvery; pectoral fins dusky with a yellow tinge, soft dorsal, anal and pelvic fins blackish; caudal fin grey with darker shading.

right half of upper jaw
from below

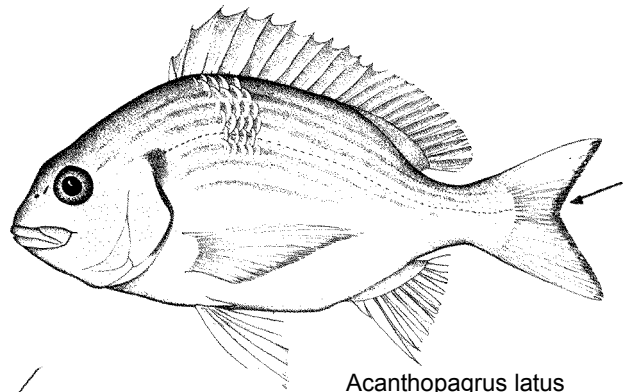
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Acanthopagrus latus: caudal fin bright yellow with a black margin; anal and pelvic fins whitish, tinged with yellow.

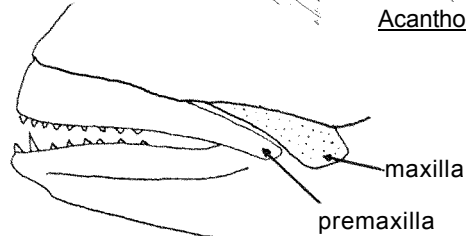
Rhabdosargus sarba: a yellow flare upward and backward from pelvic fin; 6 or 7 scales between lateral line and 4th dorsal spine, dorsal spines not appearing alternately broad and narrow on each side; 2nd anal spine about equal to 3rd (stronger and longer than third in A. berda).

Gymnocranius griseus (Lethrinidae, but under Pentapodidae in areas 57/71): dorsal fin with 10 spines and 10 soft rays; tip of premaxilla not overlapping maxilla; vertical bars on body and head, particularly in juveniles.

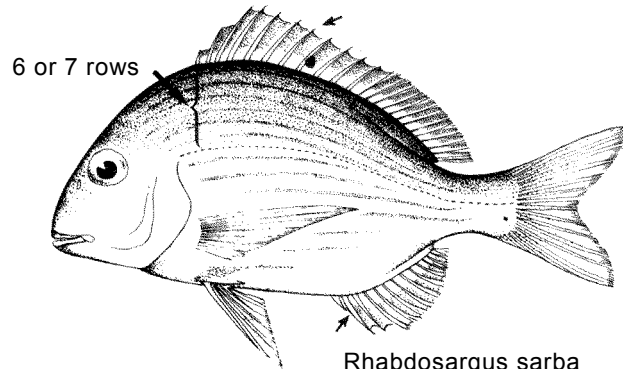
Pomadasys guoraca (Pomadasyidae): margin of preopercle serrated; scales between eye and mouth, snout blunt, lower profile of head straight, horizontal; 2 to 6 pores and a pit behind lower lip.



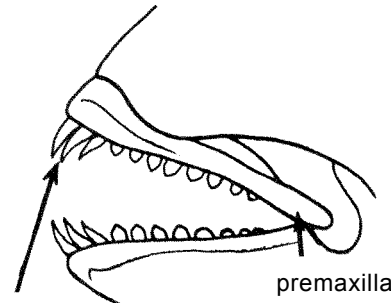
Acanthopagrus latus



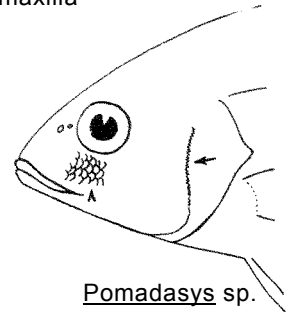
Gymnocranius



Rhabdosargus sarba



Sparidae



Pomadasys sp.

SIZE:

Maximum: 75 cm; common to 30

sometimes incisor-like teeth

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Whole area from South Africa to India, extending to Western Pacific, Japan and Northern Australia. Not yet recorded in Mauritius and Réunion.

A bottom-living fish, very shy, cunning, found mainly on rough and muddy sand grounds in coastal waters, particularly in estuaries, from shallow water to depths of about 50 m. Juveniles usually occur in more sheltered shallow bays and estuaries.

Feeds on a wide variety of bottom invertebrates (worms, molluscs, crustaceans, echinoderms, etc.).

PRESENT FISHING GROUNDS:

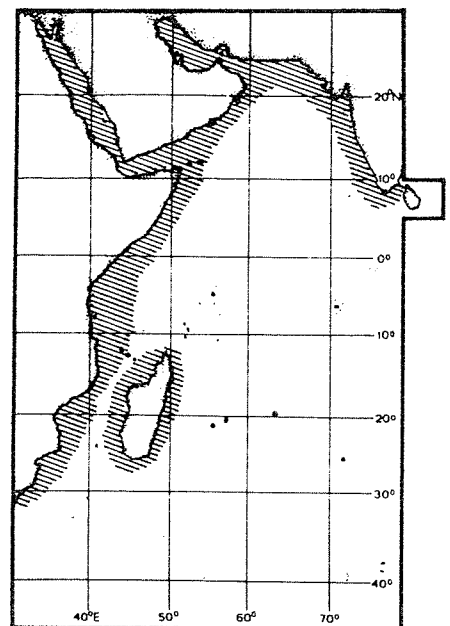
Not intensively fished, but locally exploited by artisanal fisheries along the Arabian and Indian coasts.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with bottom trawls and handlines.

Marketed fresh, the flesh is excellent.

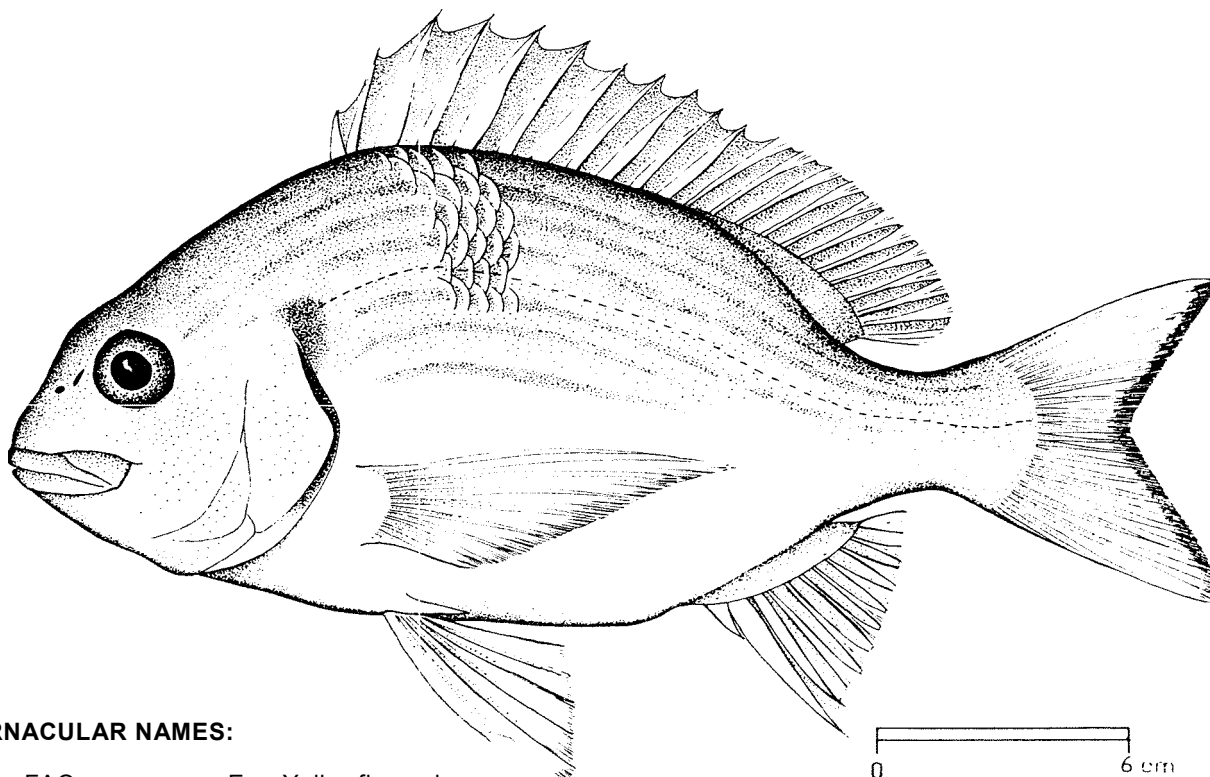


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SPARIDAE

FISHING AREA 51
(W. Indian Ocean)(= SPARID Myl 2)
Areas 57 71

Acanthopagrus latus (Houttuyn, 1782)

OTHER SCIENTIFIC NAMES STILL IN USE: Sparus latus Houttuyn, 1782
Mylio latus (Houttuyn, 1782)

VERNACULAR NAMES:

FAO : En - Yellowfin seabream
Fr - Pagre à nageoires jaunes
Sp - Sargo aleta amarilla

NATIONAL:

DISTINCTIVE CHARACTERS:

Body fairly deep, compressed, its depth about twice in standard length. Head 3 times in standard length, its upper profile notably convex and angular due to a prominent bulge at eye; eye moderate in size; in both jaws, 4 to 6 large, more or less compressed teeth in front, followed by 3 to 5 rows of molar-like teeth; upper lateral teeth of outer row conical and blunt. Dorsal fin with 11 spines and 11 or 12 soft rays, 4th to 6th spines longest (spines appear alternately broad and narrow on either side); anal fin with 3 spines and 8 or 9 soft rays, the 1st spine shorter than eye diameter, 2nd spine flattened laterally, longer and stronger than 3rd, pelvic fins with a strong spine; caudal fin slightly forked, with tips sharp. Scales large, about 48 to 50 in lateral line (to base of caudal fin); 4 to 4.5 rows between lateral line and 4th dorsal spine; a scaly sheath at base of dorsal and anal fins; a long axillary pelvic process.

Colour: pale grey to whitish, darker above, belly usually yellowish; golden streaks along longitudinal rows of scales; a diffuse dark blotch at origin of lateral line; a dark interorbital band and a dark edge along opercle. Dorsal fin greyish to hyaline, pelvic and anal fins whitish, tinged with yellow; caudal bright yellow with a black margin.

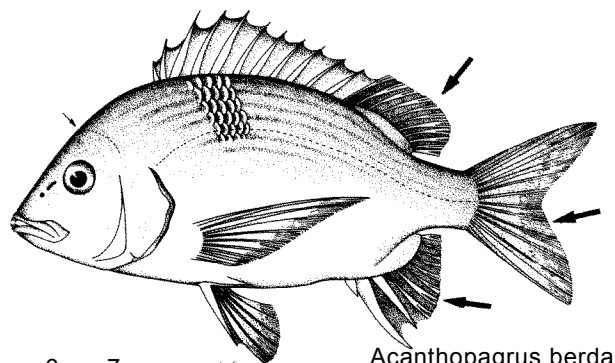
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Acanthopagrus berda: caudal fin grey dusky (bright yellow with a black margin in A. latus); soft dorsal, anal and pelvic fins blackish.

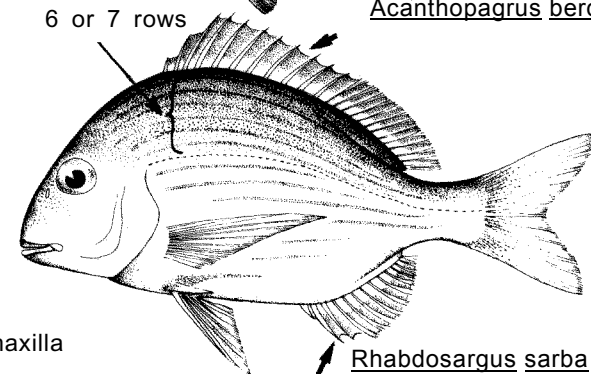
Rhabdosargus sarba: a bright yellow band upward and backward from pelvic fin; 6 or 7 scales between lateral line and 4th dorsal spine; dorsal spines not appearing alternately broad and narrow on each side; 2nd anal spine about equal to 3rd (longer and stronger than third in A. latus).

Sparidentex hasta: body more elongate, depth about 2.6 to 3 times in standard length (about 2 times in A. latus); no molars.

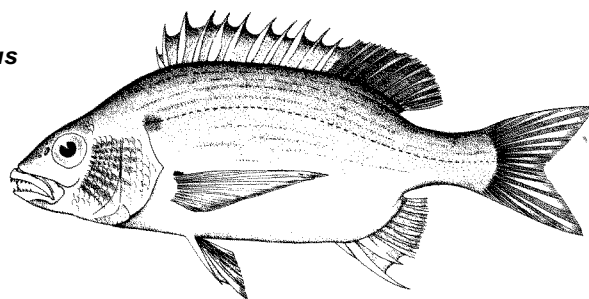
Gymnocranius griseus: dorsal fin with 10 spines; tip of premaxilla not overlapping maxilla; vertical bands on body and head, particularly in juveniles.



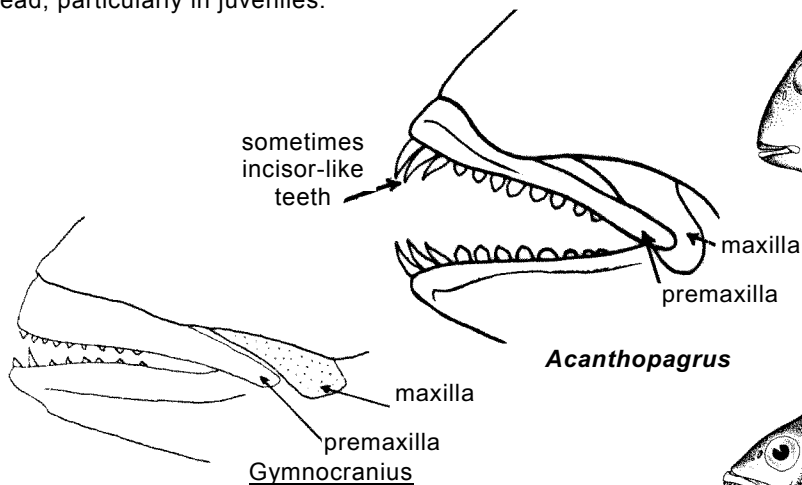
Acanthopagrus berda



Rhabdosargus sarba



Sparidentex hasta



Acanthopagrus

Gymnocranius

SIZE:

Maximum: 45 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area found in the "Gulf" and along the coasts of India; eastward extending to the Philippines, Japan and Northern Australia.

Inhabits shallow coastal waters to about 50 m depth; enters estuaries.

Carnivorous, feeds on invertebrates, mainly echinoderms, worms, crustaceans and molluscs.

PRESENT FISHING GROUNDS:

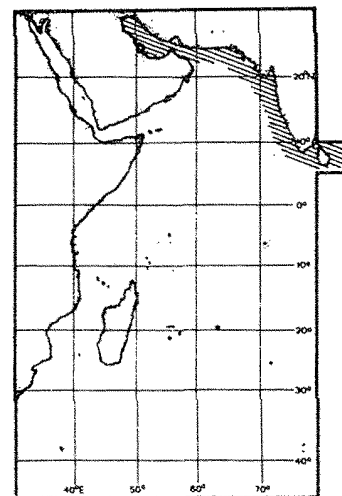
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

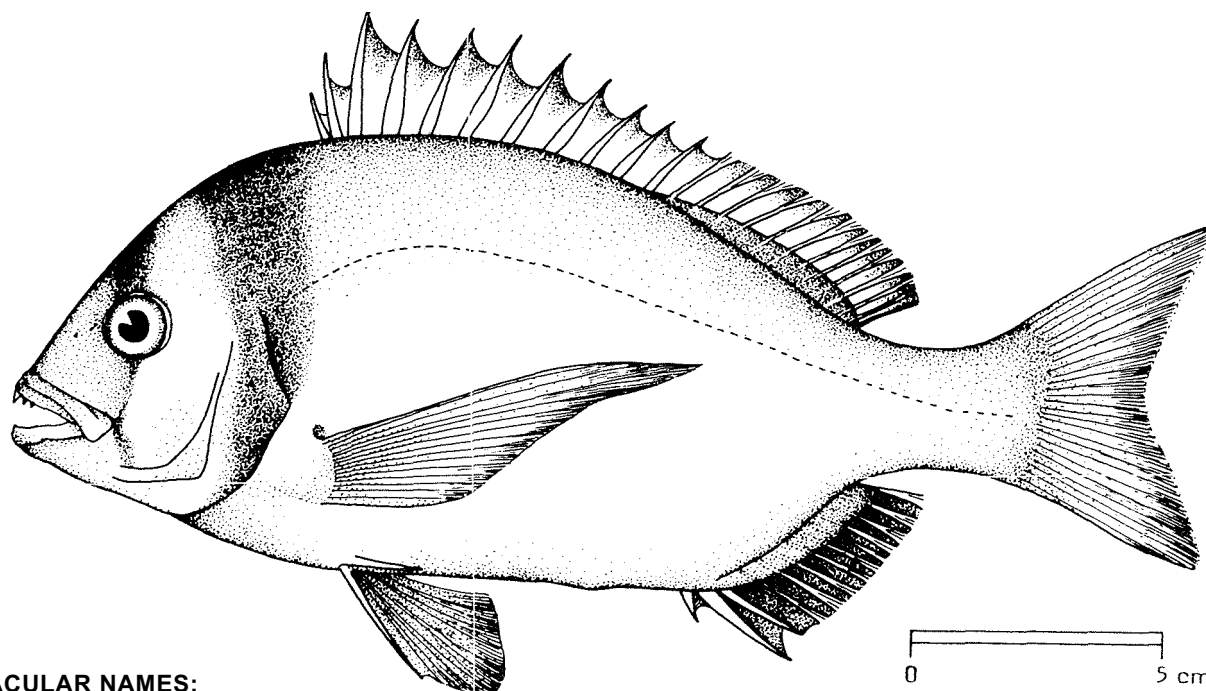
Caught with bottom trawls and lines. Mainly exploited by artisanal fisheries.

Marketed fresh, whole.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)Acanthopagrus bifasciatus (Forsskål, 1775)OTHER SCIENTIFIC NAMES STILL IN USE : Sparus bifasciatus Forsskål, 1775
Mylio bifasciatus (Forsskål, 1775)

VERNACULAR NAMES:

FAO : En - Twobar seabream
Fr - Pagre double bande
Sp - Sargo de dos bandas

NATIONAL:

DISTINCTIVE CHARACTERS:

Body fairly deep, compressed. Upper profile of head nearly straight in young adults, abruptly bent at eye level in juveniles, and developing a bulge over eye with age; eye moderate in size; mouth slightly oblique, the maxilla reaching to below pupil of eye; in front of each jaw, 4 to 6 larger, more or less compressed teeth, followed behind and within by 4 to 6 rows of molars; upper lateral teeth of outer row conical and blunt. Gillrakers 11 or 12 on lower limb of first arch. Dorsal fin single, with 11 spines and 12 to 15 soft rays (spines appear alternately broad and narrow on either side); anal fin with 3 spines and 10 to 12 soft rays, 1st spine short, 2nd the strongest and slightly longer than third; caudal fin forked. Scales large, less than 50 in lateral line; a scaly sheath at base of dorsal and anal fins, a long pelvic axillary process.

Colour: body yellowish above, silvery below, head silvery; 2 vertical black bars across head, the first ending below angle of jaw, the second larger from nape across opercle to its inferior edge; dorsal fin yellow with a narrow black edge, pectoral and caudal fins bright yellow, pelvic and anal fins black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

The coloration described above (two black bars across head) easily separates A. bifasciatus from all other species of this or any other genus in the area.

SIZE :

Maximum: 50 cm; common between 20 and 35 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found in shallow coastal waters throughout the area, including Madagascar, Aldabra, Rodrigues and Mauritius islands (not yet recorded from Seychelles); eastward extending into Indo-Malayan waters. Enters estuaries and bays, mainly around coral reefs.

PRESENT FISHING GROUNDS:

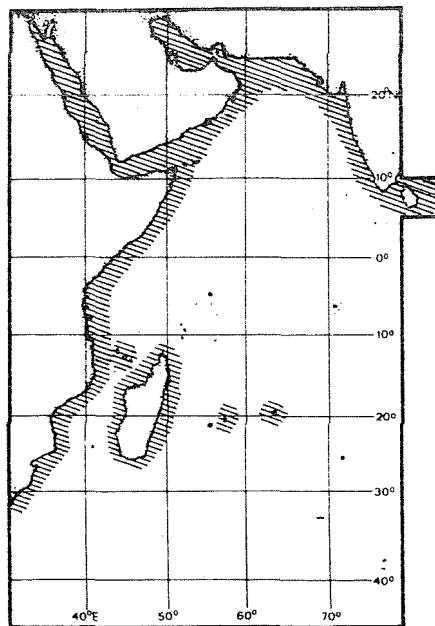
Throughout its range, mainly around coral reefs.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

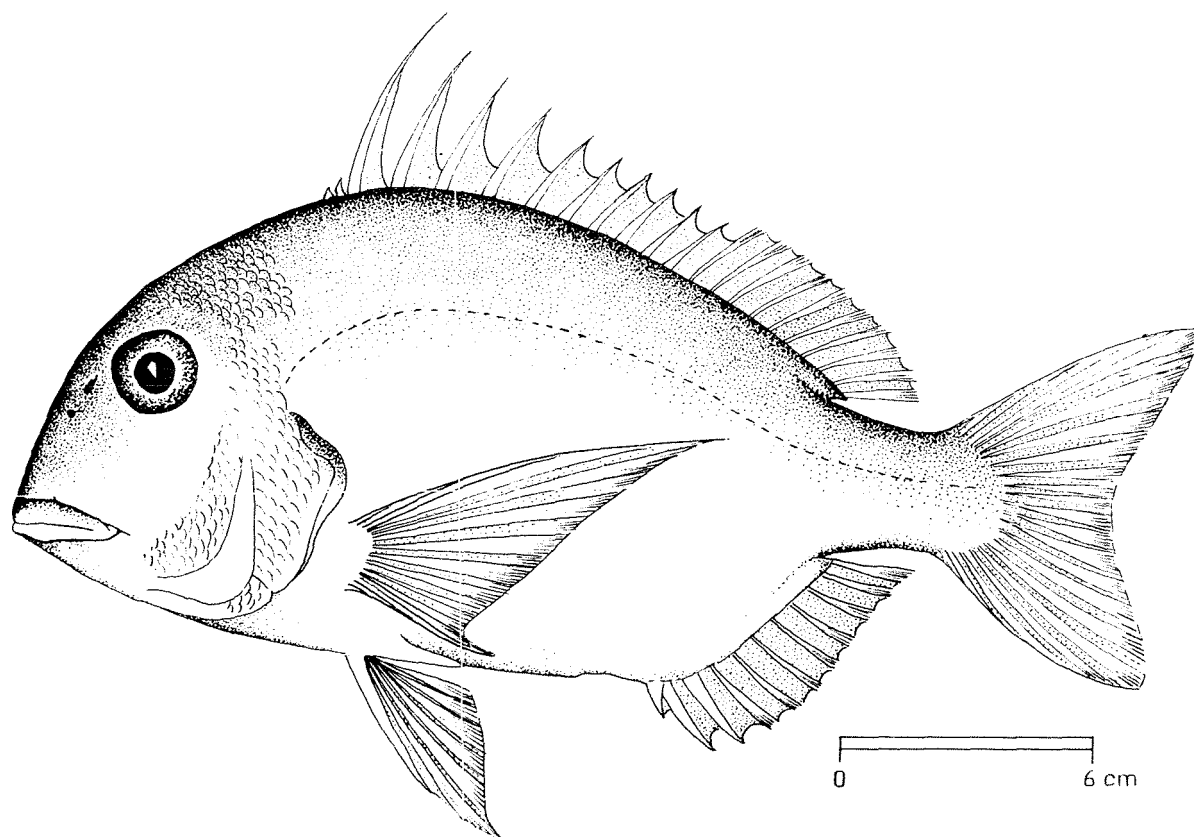
Caught mainly with longlines, handlines, stakenets and traps. Not intensively fished.

Marketed fresh or dried.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Argyrops spinifer* (Forsskål, 1775)OTHER SCIENTIFIC NAMES STILL IN USE : *Sparus spinifer* Forsskål, 1775

VERNACULAR NAMES:

FAO : En - King soldierbream (Longspine seabream, areas 57,71)
 Fr - Spare royal
 Sp - Sargo real

NATIONAL:

DISTINCTIVE CHARACTERS:

Body deep, strongly compressed. Upper profile of head steep and almost straight from upper jaw to eye; eye rather large; at front of jaws, 4 upper enlarged canines and 4 to 6 lower, followed in both jaws by 2 rows of molars, those of outer row bluntly conical anteriorly; small molars behind canines; gillrakers 10 or 11 on lower limb of first arch. Dorsal fin with 11 or 12 spines and 10 or 11 soft rays, the first 2 spines very short, 3rd to 5th spines (sometimes to 7th) flattened and much elongated (in young reaching to level of caudal fin, shorter in old fish); anal fin with 3 spines (2nd and 3rd subequal and 8 or 9 soft rays; caudal fin deeply emarginate to forked with pointed lobes. Scales large, 50 to 54 in lateral line, scaled area between eyes narrow, ending in a point; soft dorsal and anal fins with low basal scaly sheaths.

Colour: body mainly silvery pinkish, darker on head; usually dark red on margin of upper part of opercle; all fins red. Young fish with several vertical red bars on body.

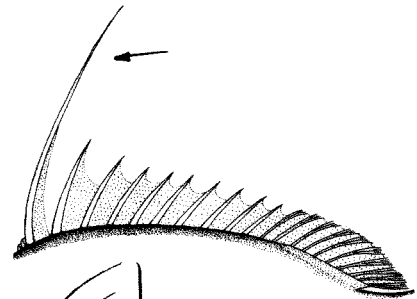
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Argyrops filamentosus: only 3rd and sometimes 4th dorsal spine elongate 3rd to 5th, even 7th in A. spinifer; scale area between eyes broad U-shaped at end.

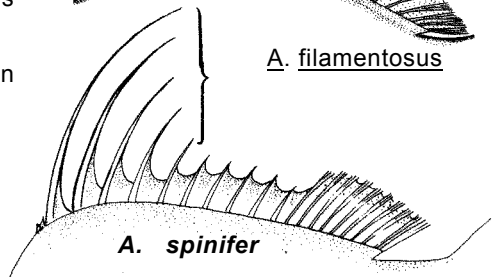
Chrysoblephus lophus: red and yellow lines across corrugated, pitted bony interorbital space; scales on preopercle flange and suborbital space (none in Argyrops).

Cheimerius nufar: profile of head not as steep and curving gently up to nape; no molar teeth; juveniles with 6 darker pink bars across head and body.

Other species of Sparidae: no elongate or filamentous spine in dorsal fin greater than head length.

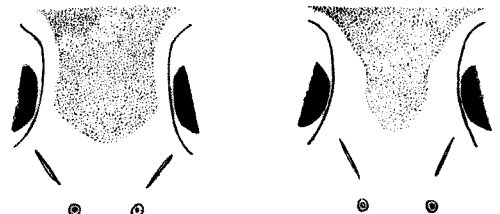


A. filamentosus



A. spinifer

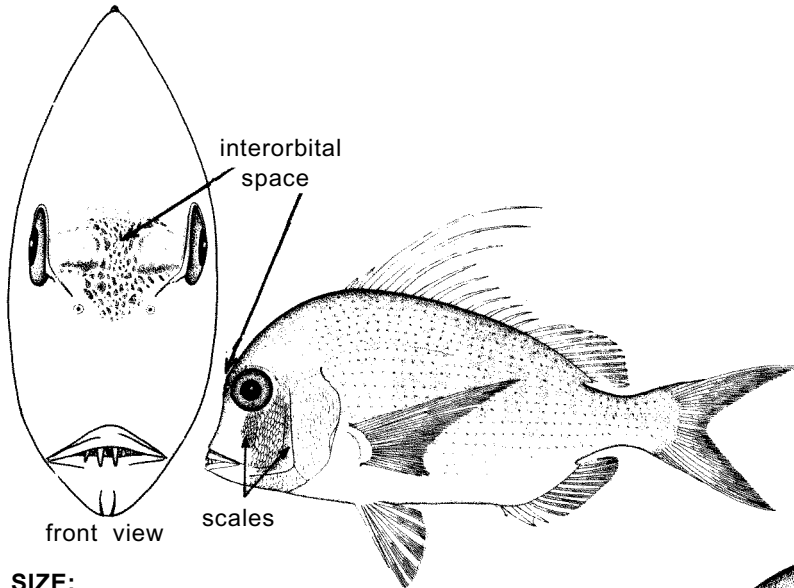
dorsal fin (subadults)



A. filamentosus

A. spinifer

scaled interorbital area



interorbital space

front view

scales

SIZE:

Maximum: 65 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Present throughout the area; eastward extending to the Indo-Malayan archipelago and northern Australia.

This common species inhabits a wide range of bottoms (most common between 5 and 100 m). The young individuals occur in very shallow waters of sheltered bays, the larger ones at greater depths.

Feeds on bottom-living invertebrates, mainly molluscs.

PRESENT FISHING GROUNDS:

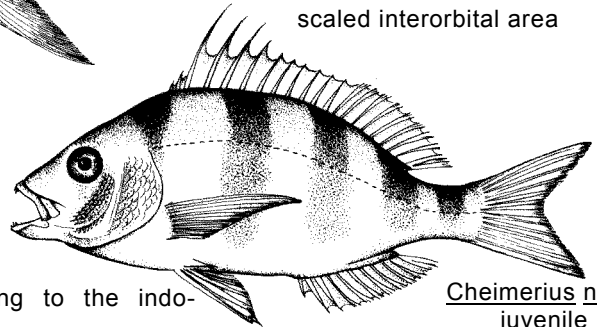
Shallow to moderate depths, throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

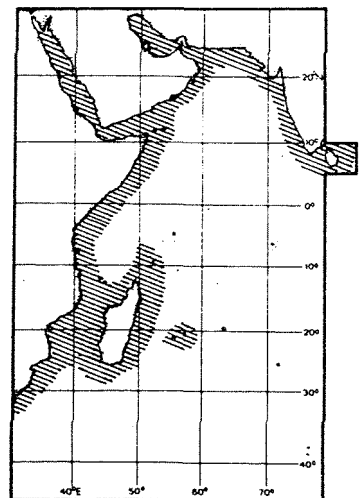
Separate statistics are not reported for this species.

Caught mainly with bottom trawls, longlines and handlines, also with stake traps and fish traps. Mainly exploited by artisanal fisheries.

Marketed usually fresh.



Cheimerius nufar
juvenile

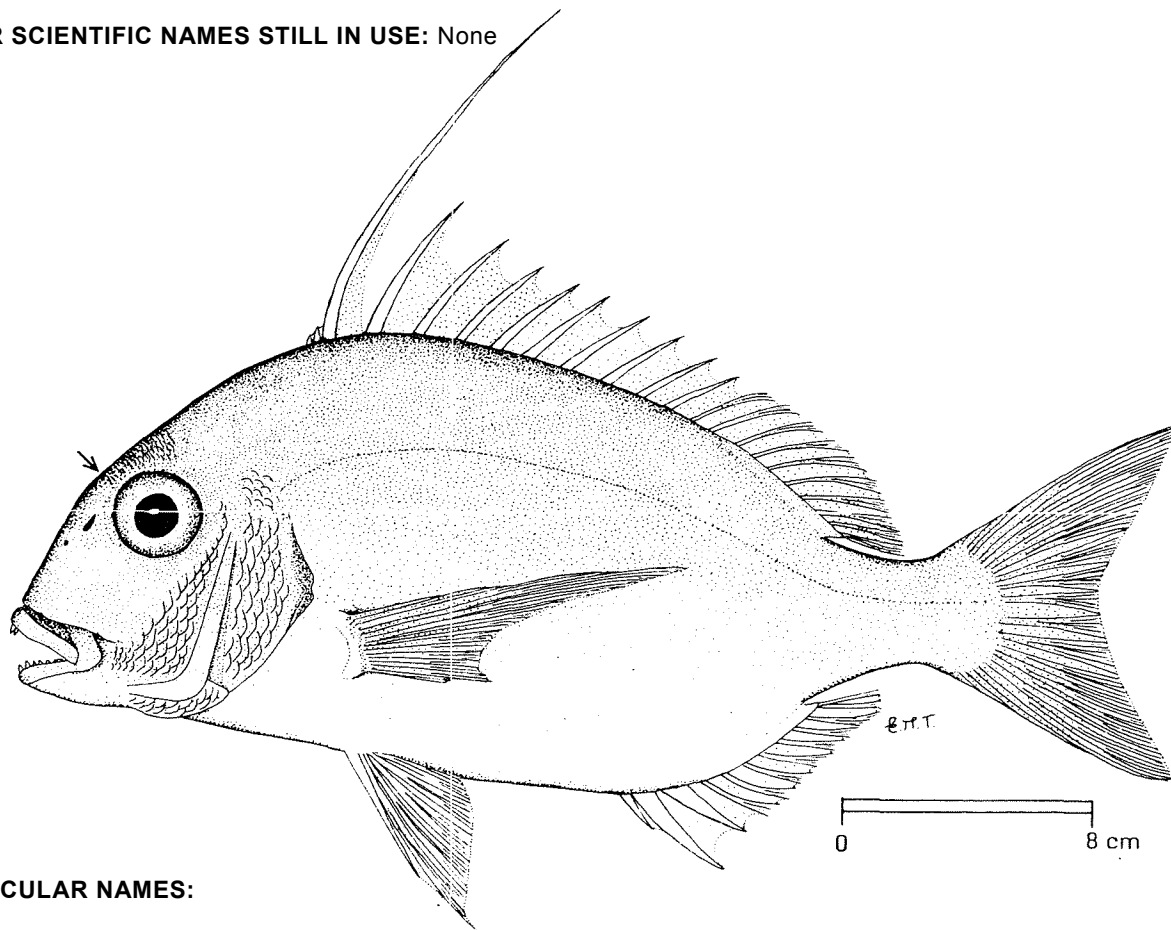


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Argyrops filamentosus* (Valenciennes, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Soldierbream
Fr - Spare soldat
Sp - Sargo soldado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body deep, strongly compressed. Head profile steep, almost straight from upper lip to in front of eyes (where bulge develops with age) then gently curving backward to dorsal fin origin; eye large; at front of jaws, 4 enlarged canines followed by 2 rows of molars, those of outer row bluntly conical anteriorly; very small molars just behind canines; gillrakers 10 or 11 on lower limb of first arch. Dorsal fin single, with 11 or 12 spines and 8 to 10 soft rays, the first 2 spines very short, the 3rd elongate, more so in juveniles than in adults, but always longer than head, 4th spine only slightly elongate, 5th normal, shortening to last; anal fin with 3 spines and 8 soft rays, 2nd spine usually longer and stouter than 3rd spine; caudal fin deeply emarginate with pointed lobes. Scales large, 50 to 54 in lateral line, scaled area between eyes broad (occupying full width of interorbital space) U-shaped at end; soft dorsal and anal fins with low basal scaly sheath.

Colour: pink, with a bluish overlay; bell and chin silvery white. Dorsal, caudal and pectoral fins pink, anal and pelvic fins very pale pink. Red on margin of upper opercle.

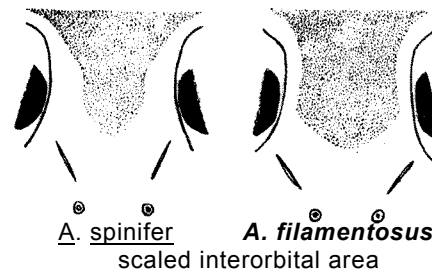
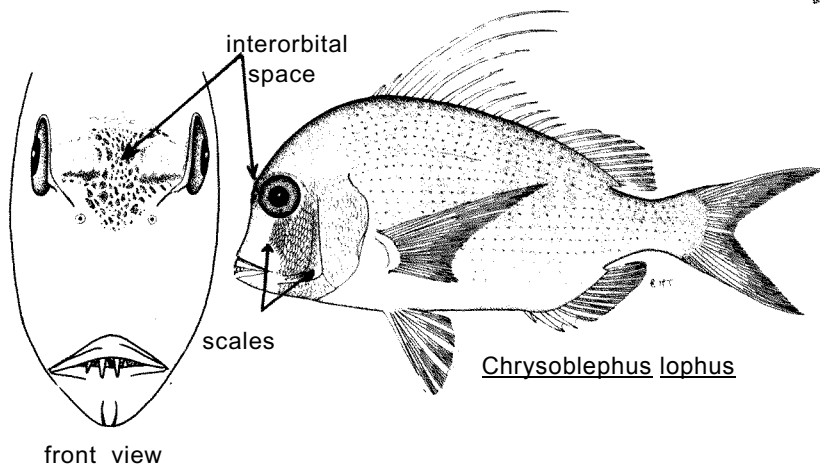
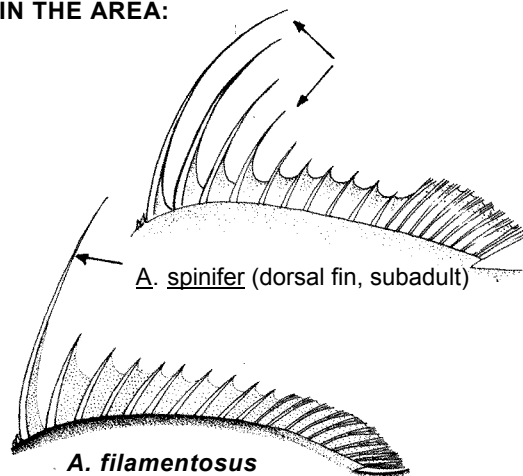
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Argyrops spinifer: at least 3rd to 5th, sometimes to 7th, dorsal spines elongate; scaled area between eyes narrow, ending in a point (broad and U-shaped in A. filamentosus); 2nd and 3rd anal spines subequal.

Chrysoblephus lophus: red and yellow lines across corrugated pitted bony interorbital; scales on preopercle flange and suborbital space (none in Argyrops).

Cheimerius nufar: profile of head not as steep and curving gently up to nape, no molar teeth, juveniles with 6 darker pink bars across head and body.

Other species of Sparidae: no elongate or filamentous spine in dorsal fin longer than the head.



SIZE:

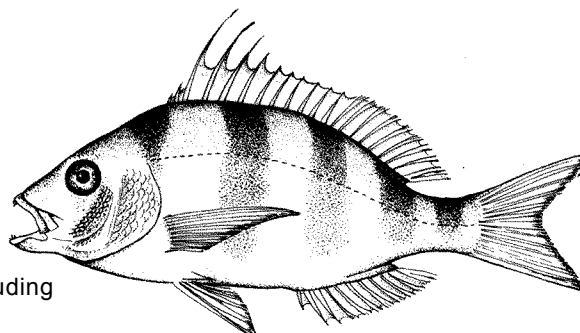
Maximum: 60 cm; common to 40

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, from South Africa to the Red Sea, including Mauritius, Madagascar and Réunion islands.

Caught off reefs in the warmer parts of the area.

Feeds on bottom-living invertebrates.



Cheimerius nufar (juvenile)

PRESENT FISHING GROUNDS:

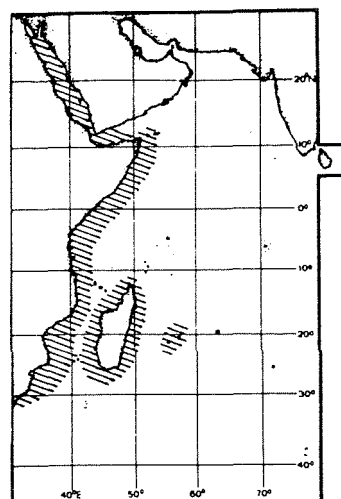
Throughout its range, down to 40 m depth, mainly reef areas.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

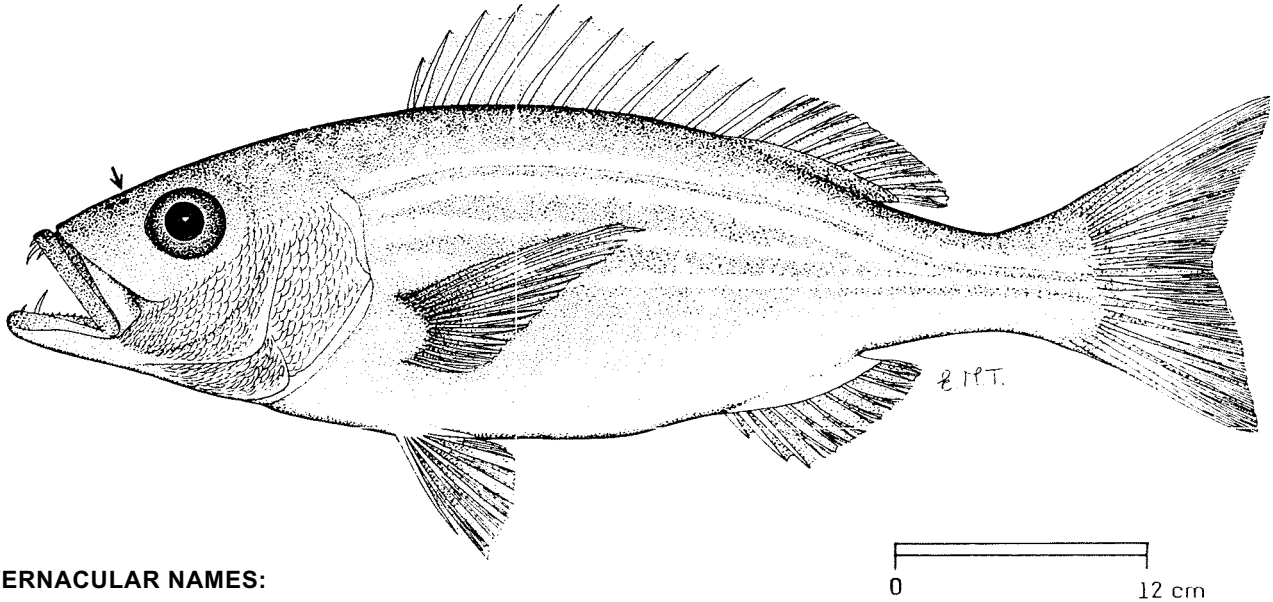
Caught mainly with trawls, handlines and longlines. Mainly exploited by artisanal fisheries.

Marketed usually fresh, whole or dried.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Argyrozona argyrozona* (Valenciennes, 1830)OTHER SCIENTIFIC NAMES STILL IN USE: *Polysteganus argyrozona* (Valenciennes, 1830)

VERNACULAR NAMES:

FAO : En - Carpenter seabream
Fr - Denté charpentier
Sp - Dentén carpintero

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate, with a long, low head (about equal to or longer than body depth), about 3 times in standard length; head profile smooth; eye large, less than 5 times in head length; lower jaw slightly protruding, maxilla fully exposed with upper angle acutely produced. A narrow band of conical teeth, the inner feeble, the outer longer; at front of jaw, 4 upper and 4 to 6 lower enlarged, slender canines, the hinder pair largest, strongest and recurved; no molars; gillrakers slender, 18 to 20 on lower limb of first arch. Dorsal fin single, with 12 spines and 10 soft rays; anal fin with 3 slender spines and 8 soft rays; pectoral fins much shorter than head; caudal fin forked. Scales moderately small, 59 to 62 in lateral line; scaled area on upper surface of head reaching beyond level of posterior nostril; preopercle flange partly scaly; soft dorsal and anal fins with scaly sheaths at their bases.

Colour: silvery, rosy-red, lighter below; several bright red longitudinal lines alternating with silver show just after death; fins pink or rosy; eye brilliant red-orange.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

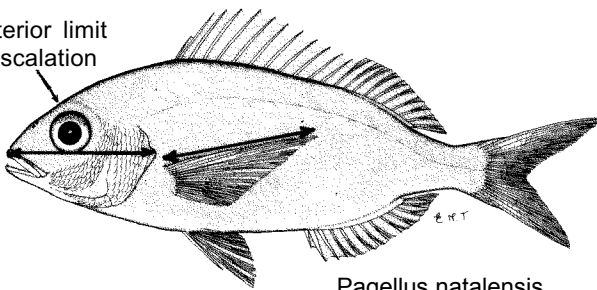
Petrus rupestris: eye small, about 4 (juvenile) to 8 times in head length (less than 5 times in A. argyrozona); gillrakers short, laminate, fewer, 8 or 9 on lower limb of first arch (17 to 20 slender in A. argyrozona); 11 dorsal spines (12 in A. argyrozona).

Pagellus natalensis: no longitudinal red lines along body; small molars present within small pointed external teeth; pectorals about equal to head length (much shorter in A. argyrozona); scaled area on top of head not reaching to anterior nostril.

Pterogymnus laniarius: body deeper, 2.5 times in standard length (about 3 times in A. argyrozona); pectorals long; 2 series of molars within outer canines (none in A. argyrozona)

Lethrinus species (Lethrinidae): cheeks naked (scaly in Sparidae).

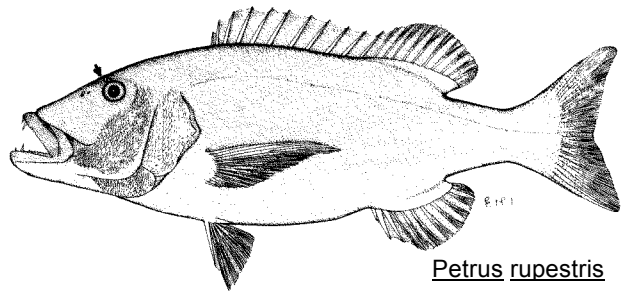
anterior limit of scalation



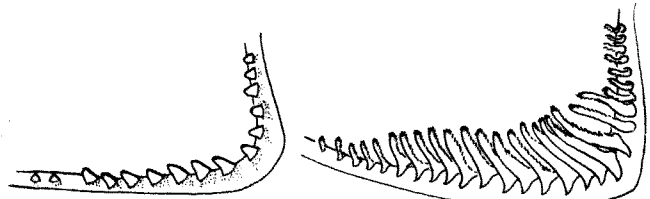
Pagellus natalensis

SIZE:

Maximum: 90 cm; common between 50 and 70 cm.



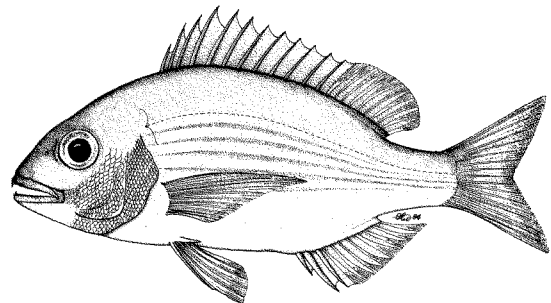
Petrus rupestris



Petrus

Argyrozona

first gill arch



Pterogymnus laniarius

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

A South African endemic species occurring from Cape to Natal, between 20 and 200 m depth.

PRESENT FISHING GROUNDS:

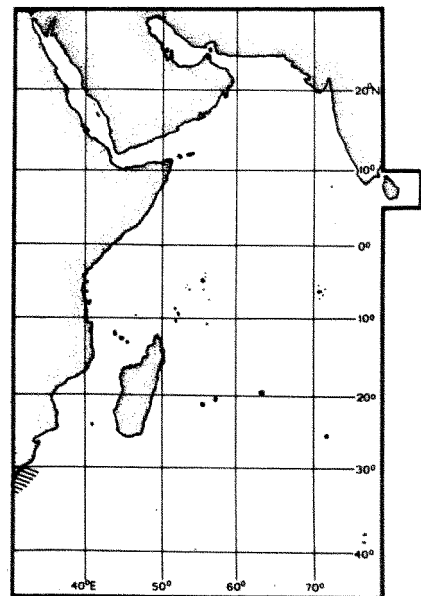
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

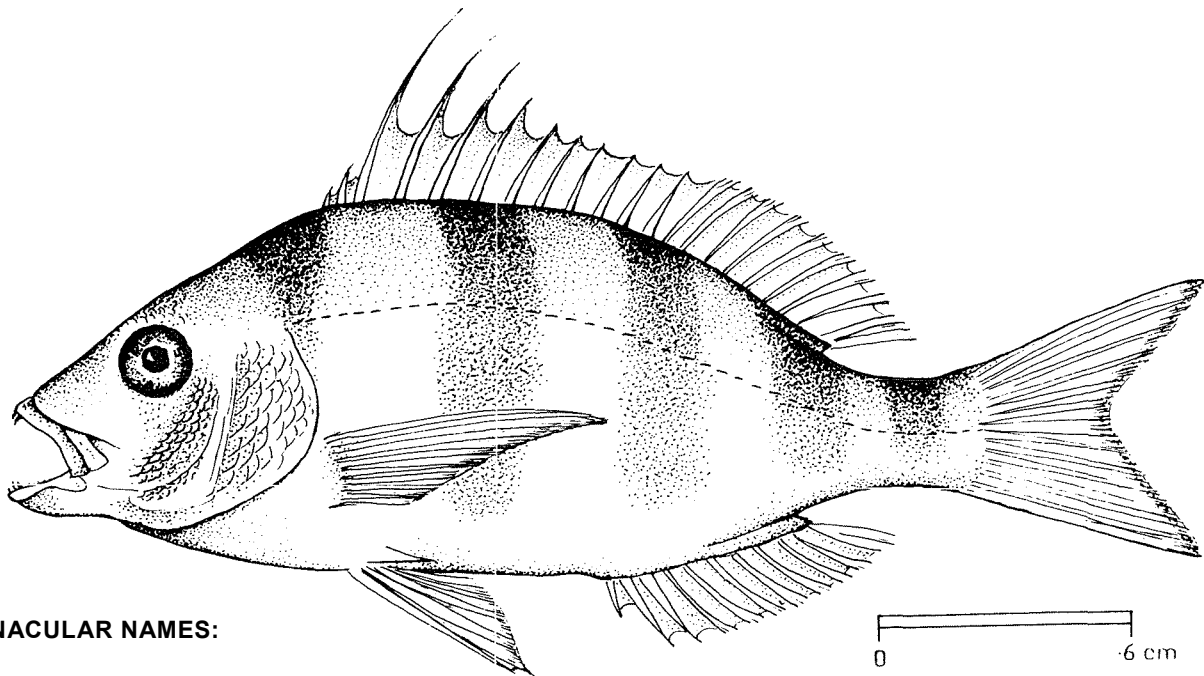
Caught mainly with line gear and trawlers.

Marketed fresh, whole.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)Cheimerius nufar (Valenciennes, 1830)OTHER SCIENTIFIC NAMES STILL IN USE: Dentex nufar Valenciennes, 1830

VERNACULAR NAMES:

FAO: En – Santer seabream
Fr – Denté nufar
Sp – Dentón nufar

NATIONAL:

DISTINCTIVE CHARACTERS:

Body moderately deep, compressed. Head profile gently convex from upper lip to dorsal fin origin (sometimes a slight bump developing before eyes with age), snout rather sharp; eye diameter shorter than snout length; a narrow band of small villiform teeth, the outer lateral series enlarged, especially the 4 to 6 caniniform teeth at front of both jaws; no molars; gillrakers 13 to 15 on lower limb of first arch. Dorsal fin single, with 11 or 12 spines and 10 or 11 rays, the first 2 spines short, 3rd to 7th elongate (shorter in adults); anal fin with 3 spines and 8 rays; first pelvic ray elongate; caudal fin forked, with pointed lobes. Scales moderate, 58 to 63 in lateral line; preopercle flange naked, except for a few small scales on inner margin; scales on top of head reaching to beyond a line through middle of eye.

Colour: rosy pink above, silvery below (turns to purplish pink after death), juveniles with 6 darker pink bars across head (through eye) and body, adults lose bars and have a dark blue spot on each scale on upper body. Dorsal, caudal and pectoral fins rosy, anal and pelvic fins bluish with pink streaks in centre of rays.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

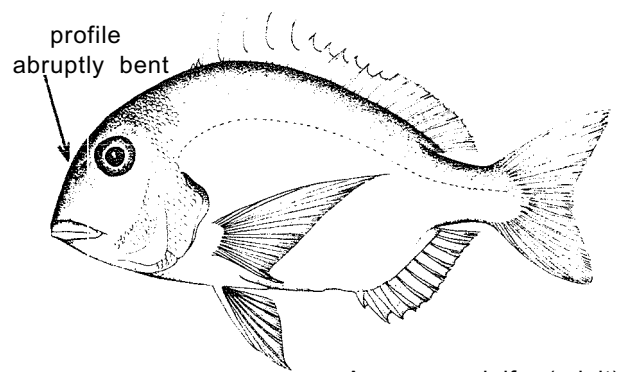
Argyrops species: head profile abruptly bent at eye; molar teeth present.

Chrysoblephus lophus: red and yellow lines across bony, pitted interorbital scales in suborbital space extending below eye; interorbital space bony, corrugated.

Other species of Sparidae: no filamentous dorsal rays.

SIZE:

Maximum: 60 cm; common between 25 and 35 cm.



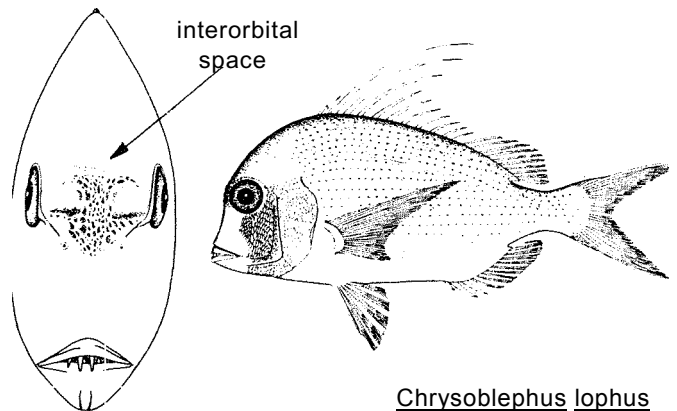
Argyrops spinifer (adult)

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found in coastal waters throughout the area, including Madagascar and Mauritius Islands; juveniles reach nearly Mossel Bay (South Africa), over rocky bottoms from 60 m to about 100 m depth and over. Young seek shelter in estuaries when stormy weather approaches.

PRESENT FISHING GROUNDS:

Shelf waters, at moderate depths, throughout its range.



Chrysoblephus lophus

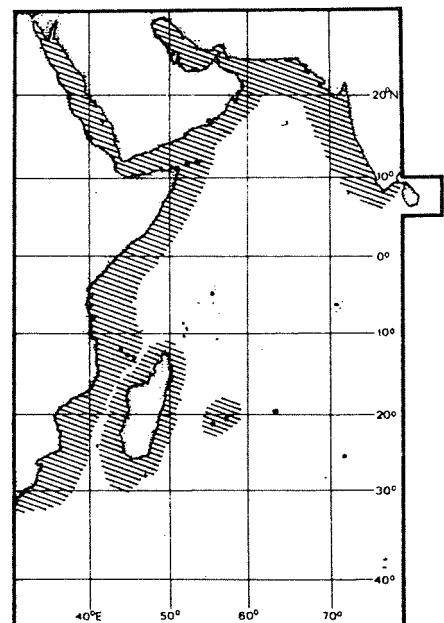
front view

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species

Caught with longlines, handlines and in bottom trawls.

Marketed fresh, whole or dried.



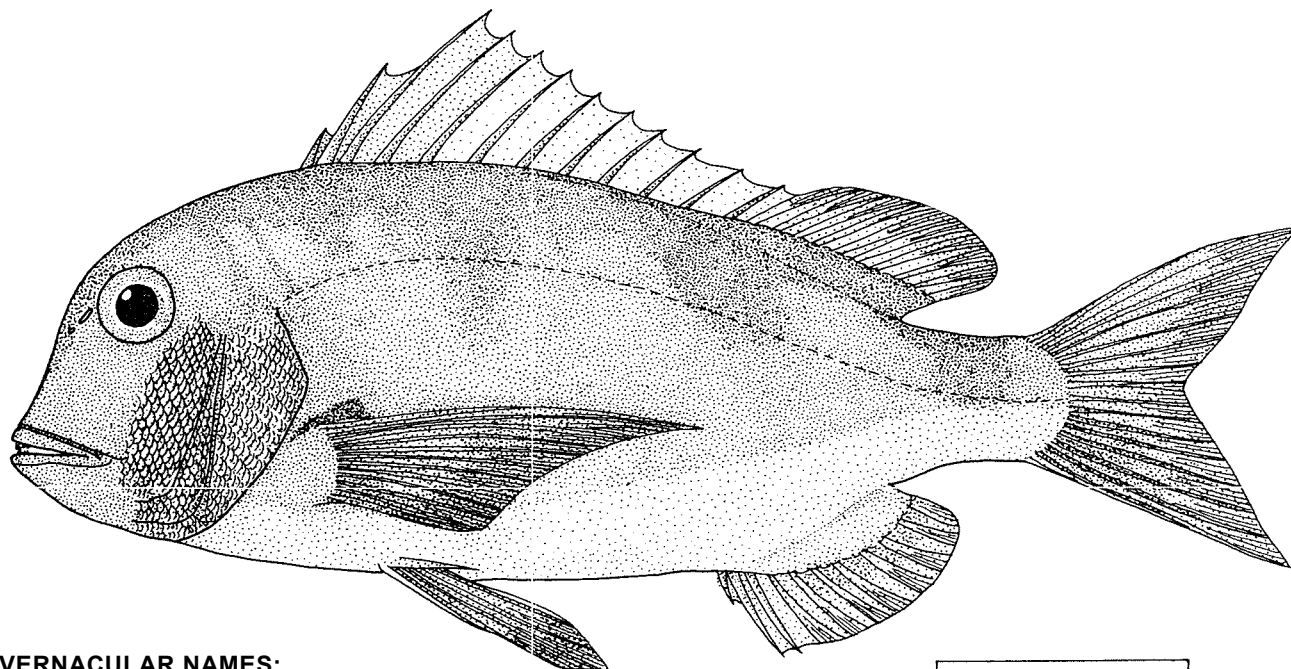
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)

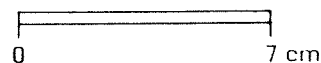
Chrysolephus anglicus (Gilchrist & Thompson, 1908)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

- FAO: En - Englishman seabream
- Fr - Spare du Natal
- Sp - Sargo de Natal



NATIONAL:

DISTINCTIVE CHARACTERS:

Body deep, compressed, its depth 2 to 2.5 times in standard length. Head profile from upper lip to interorbital area almost vertical, then sloping gently to origin of dorsal fin; eye moderately small, its diameter always less than the fairly deep suborbital space; lips rather thin, maxilla reaching to below about centre of eye; at front of jaws, 4 upper and 5 lower, moderately enlarged canines; laterally 4 or 5 series of molars, the outer the largest, with anterior teeth bluntly conical in juveniles; gillrakers 10 to 12 on lower limb of first arch. Dorsal fin with 12 spines, 3rd to 5th rather elongate, but never longer than head, and 10 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fins longer than head, reaching to anal fin; caudal fin forked, tips pointed with age. Scales rough, small, 63 to 68 in lateral line; scaled area on top of head reaching to above nostrils; preopercle flange scaly; dorsal and anal fins densely scaly at base with a vestigial sheath.

Colour: reddish, lighter below, with darker red crossbars and rows of dark blue spots on scales, especially above lateral line; a reddish stripe at pectoral "in base.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

The combination of characters described above, especially the spots on scales, the vertical snout, the deep suborbital and the rather elongated 3rd to 5th dorsal spines, easily separates this species from all other deep, compressed, plain red, fishes occurring in the area.

SIZE:

Maximum: over 100 cm; common between 30 and 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, from Durban (South Africa) to southern Mozambique, some specimens occasionally straying southward to Algoa Bay.

Occurs offshore down to 80 m depth.

Feeds on crustaceans, molluscs and worms.

PRESENT FISHING GROUNDS:

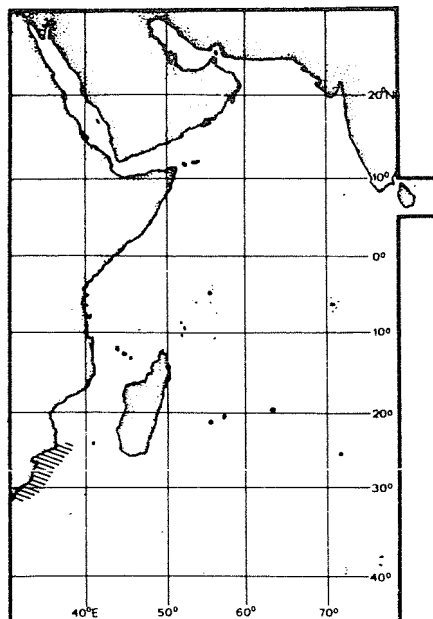
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

An important commercial species, known as one of the "red fishes", caught mainly with line gear.

Marketed fresh, whole.

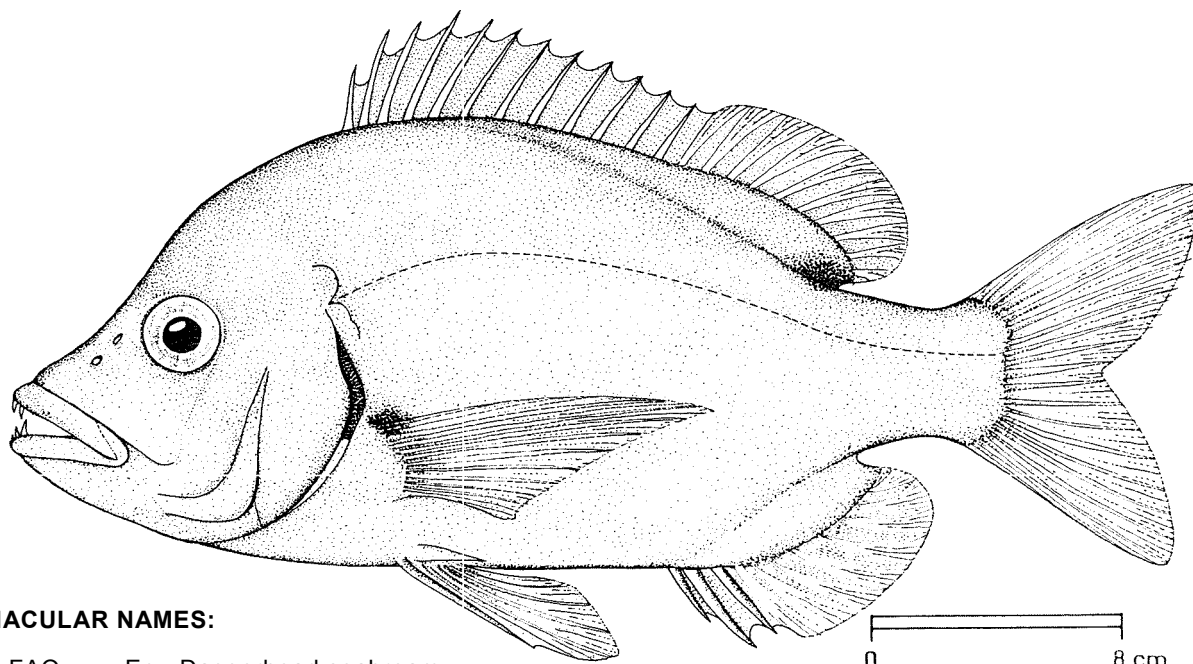


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Chrysolephus cristiceps* (Valenciennes, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Daggerhead seabream
Fr - Spare poignard
Sp - Sargo punal

NATIONAL:

DISTINCTIVE CHARACTERS:

Body deep, compressed, its depth about twice in standard length. Head profile more or less concave from snout tip to above eye, thence gently convex to dorsal fin origin (with age the nape becomes elevated); eye moderate, its diameter less than suborbital space; snout somewhat pointed, mouth oblique, maxilla reaching to below anterior margin of eye or nearly so; at front of jaws, 4 upper and 6 lower enlarged canines; in juveniles, on each side, an outer row of conical teeth anteriorly becoming blunt, with molars posteriorly; several inner rows of small teeth, those behind the canines pointed, the lateral ones granular; in adults, 2 or 3 series of molars, the outer much larger than the inner; gillrakers 10 to 1.3 on lower limb of first arch. Dorsal fin with 12 spines and 10 soft rays; anal fin with 3 spines and 8 soft rays, pectoral fins reaching to above anal fin rays; caudal fin forked, with rounded lobes Scales rough, moderate, 55 to 61 in lateral line; scalation on top of head extending to beyond front margin of eye; preopercle flange completely scaly; soft dorsal and anal fins densely scaly at bases, with a vestigial sheath.

Colour: whole fish red with waves of blue, green, bronze, orange passing over the body as the fish dies (hence the vernacular names meaning daybreak or dawn); a faint blue bar below eye; hind margin of opercle, and scales above it bluish. A dark spot at pectoral fin axil and a black spot at base of last dorsal rays, with dusky to blue shading extending dorsally.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

The presence of the black spot on base of last dorsal ray easily separates this species from any other deep, compressed, red sparid occurring in the area.

SIZE:

Maximum: 65 cm; common to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, found only off Durban (South Africa), southward extending to the Cape of Good Hope.

Occurs in waters from 30 to 100 m depth.

Feeds on crustaceans, molluscs, worms and small fish.

PRESENT FISHING GROUNDS:

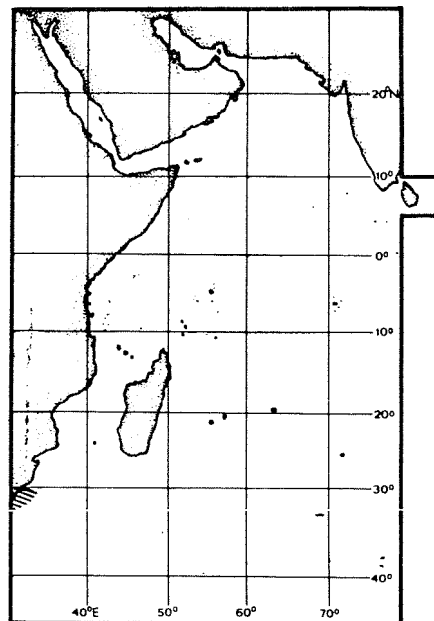
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species; the combined catches of Chrysoblephus species usually do not exceed 200 tons annually.

An important commercial species, known as one of the "red" fishes, caught mainly with line gear.

Marketed fresh.

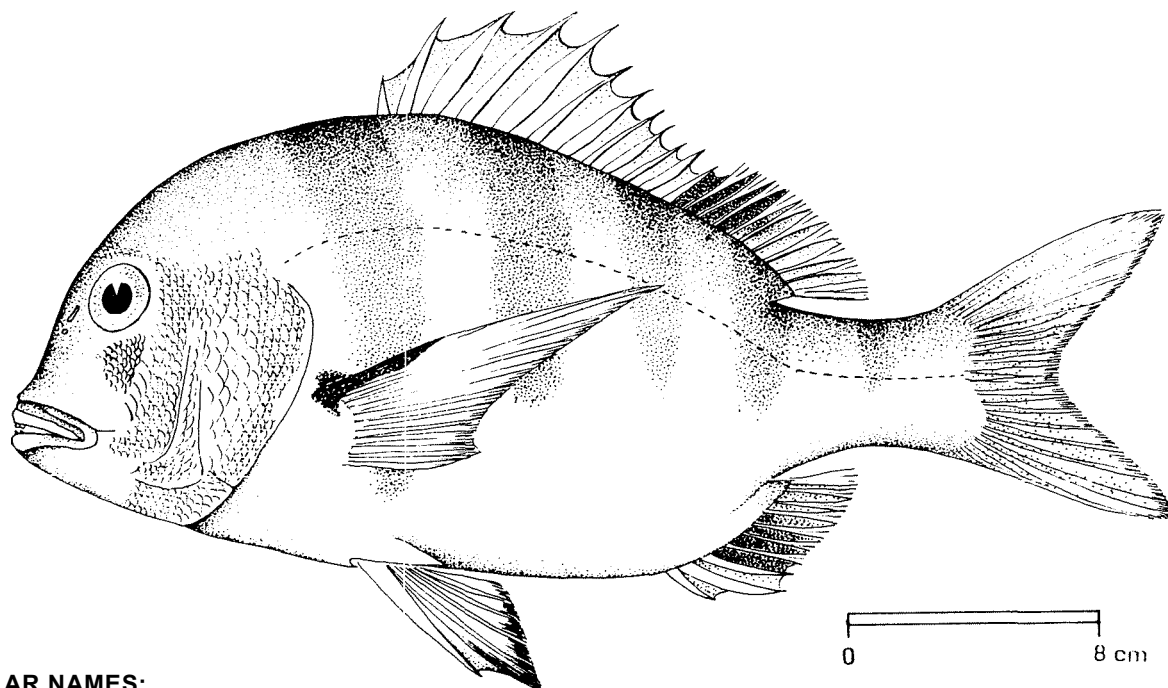


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Chrysoblephus gibbiceps* (Valenciennes, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

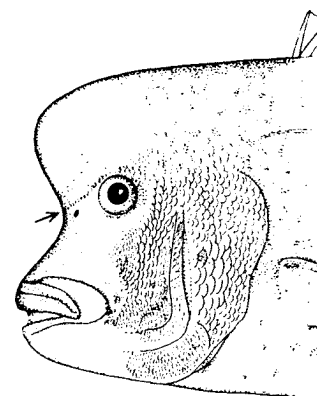
FAO : En - Red stumpnose seabream
 Fr - Spare gibbeux
 Sp - Sargo cabezón

NATIONAL:

DISTINCTIVE CHARACTERS:

Body rather deep, compressed, its depth 2 to 2.4 times in standard length. Head profile very steep from upper lip, slightly concave between snout and nostrils, with a bulge at interorbital space, increasing with growth; in males, the nape becomes gibbous with a large, protruding forehead; mouth subhorizontal, maxilla reaching to below anterior half of eye; at front of jaws, 4 or 5 moderate canines; in juveniles, on each side, an outer row of low, conical teeth anteriorly, becoming large molars posteriorly, and several inner rows of granular teeth; in adults 4 or 5 series of molars, the outer largest; gillrakers 11 or 12 on lower limb of first arch. Dorsal fin with 11 or 12 spines and 10 or 11 soft rays; anal fin with 3 spines and 7 to 9 soft rays; pectoral fins longer than head, reaching to above anal rays; caudal fin forked. Scales moderate, 51 to 55 in lateral line; scalation on top of head reaching to above nostrils; a large patch of small scales in suborbital space below eye; preopercle flange scaly; soft dorsal and anal fins with small basal scales and a vestigial sheath.

Colour: reddish with golden reflections, lighter below; 5 to 7 faint dark red crossbars, body with numerous irregular black flecks. Axil of pectoral fins dark, membrane of soft dorsal, caudal and soft anal fins variably blackish; pelvic fins black-edged; some yellow on median fins.



large male

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

The combination of characters described above, especially the coloration and the characteristic concave profile of snout, easily separates this species from any other sparid in the area.

SIZE:

Maximum: 75 cm; common to 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area found off Natal (South Africa), southward extending to the Cape of Good Hope.

Occurs from shallow coastal waters (10 m) to about 100 m depth.

Feeds on crustaceans, molluscs, worms and small fishes.

PRESENT FISHING GROUNDS:

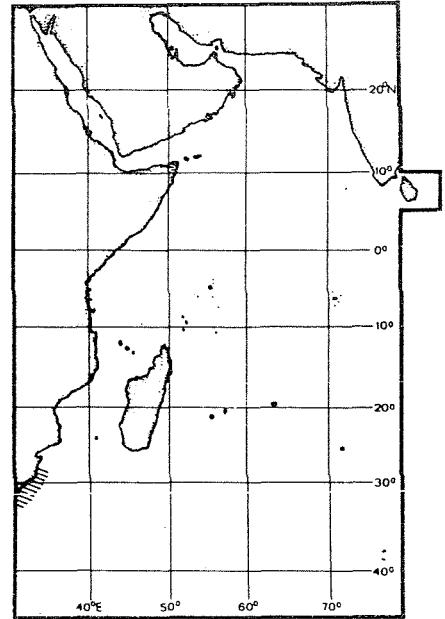
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species; the combined catches of *Chrysoblephus* species usually do not exceed 200 tons annually.

Caught with line gear and trawlers, mainly along the Cape coast, where it forms an important component of the "red fish" group.

Marketed fresh.

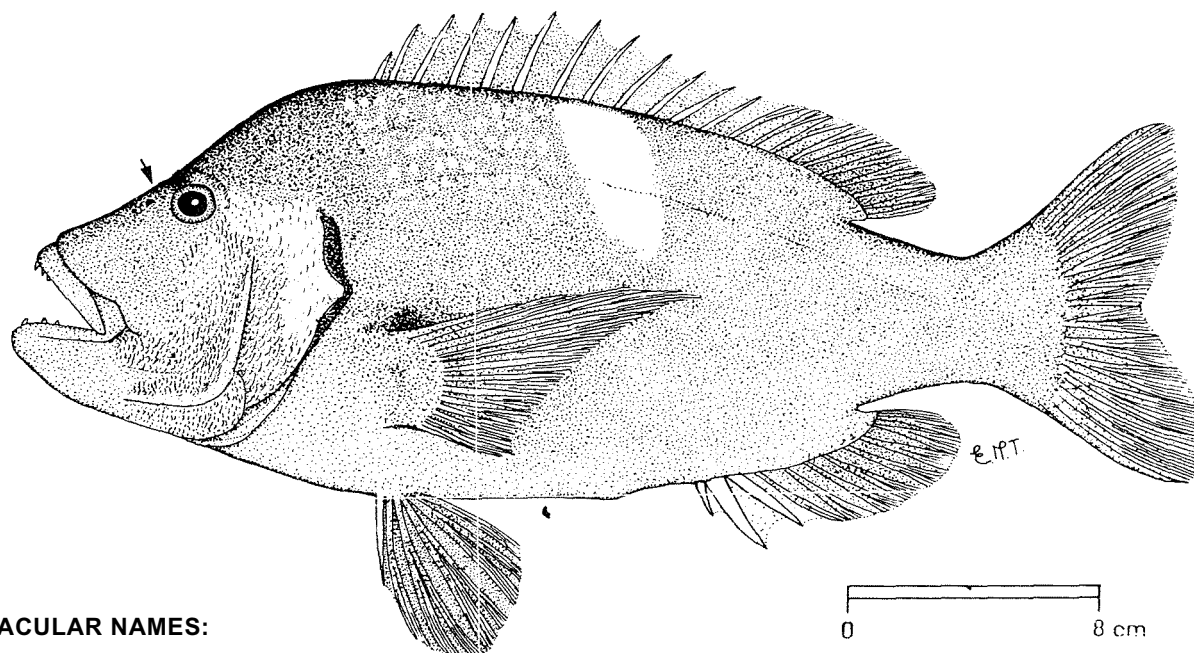


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)Chrysoblephus laticeps (Valenciennes, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Roman seabream
 Fr - Spare à selle blanche
 Sp - Sargo moritura bianca

NATIONAL:

DISTINCTIVE CHARACTERS:

Body ovate, its depth about 2.3 to 2.5 times in standard length. Head profile gently sloping from origin of dorsal fin to snout, becoming concave in front of eye with age; interorbital space and nape broad and convex; mouth oblique, maxilla can extend to below front margin of eye; at front of jaws, 4 to 6 moderate canines; in juveniles, on each side an outer row of small, conical teeth becoming obtuse and molariform posteriorly; several inner series of smaller, pointed teeth behind canines and granular teeth laterally; in adults, 3 to 5 upper, 2 or 3 lower series of molars, the outer largest; lips strongly villose; gillrakers 10 to 12 on lower limb of first arch. Dorsal fin with 12 (rarely 11) spines and 10 (rarely 11) soft rays; anal fin with 3 spines and 7 to 9 (usually 8) soft rays; pectoral fins reaching to above anal fin; caudal fin slightly forked, lobes rounded. Scales moderate, 58 to 62 in lateral line; scalation on top of head extending to above nostrils; preopercle flange scaly except its margin; soft dorsal and anal fins densely scaly at base with a vestigial sheath.

Colour: head, body and fins brilliant vermillion or orange red; a blue bar across interorbital space, a white bar on opercle; a white saddle below 7th and 9th dorsal spines extending below lateral line; silvery spots on scales of body anterior to this bar; pectoral fin axil darkish, yellow reflections on membrane between dorsal spines.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

The coloration of this species, especially the white bar on opercle and the white saddle below 7th and 9th dorsal spines, easily separates it from any other species in the area.

SIZE:

Maximum: 50 cm; common between 30 and 35 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

South Africa only, doubtfully recorded from Mauritius and Zanzibar.

Occurs above rocky grounds in more or less deep waters, often taken well off shore.

Feeds on molluscs, crustaceans, worms and fish.

PRESENT FISHING GROUNDS:

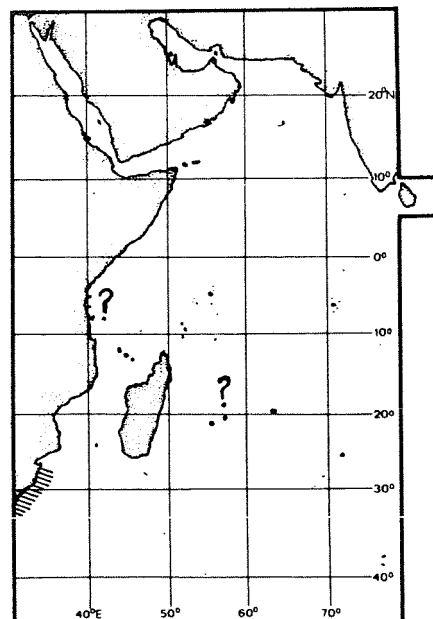
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species; the combined catches of Chrysoblephus species usually do not exceed 200 tons annually.

A rather important commercial fish, caught mainly with line gear. Known as one of the "red fish".

Marketed fresh.

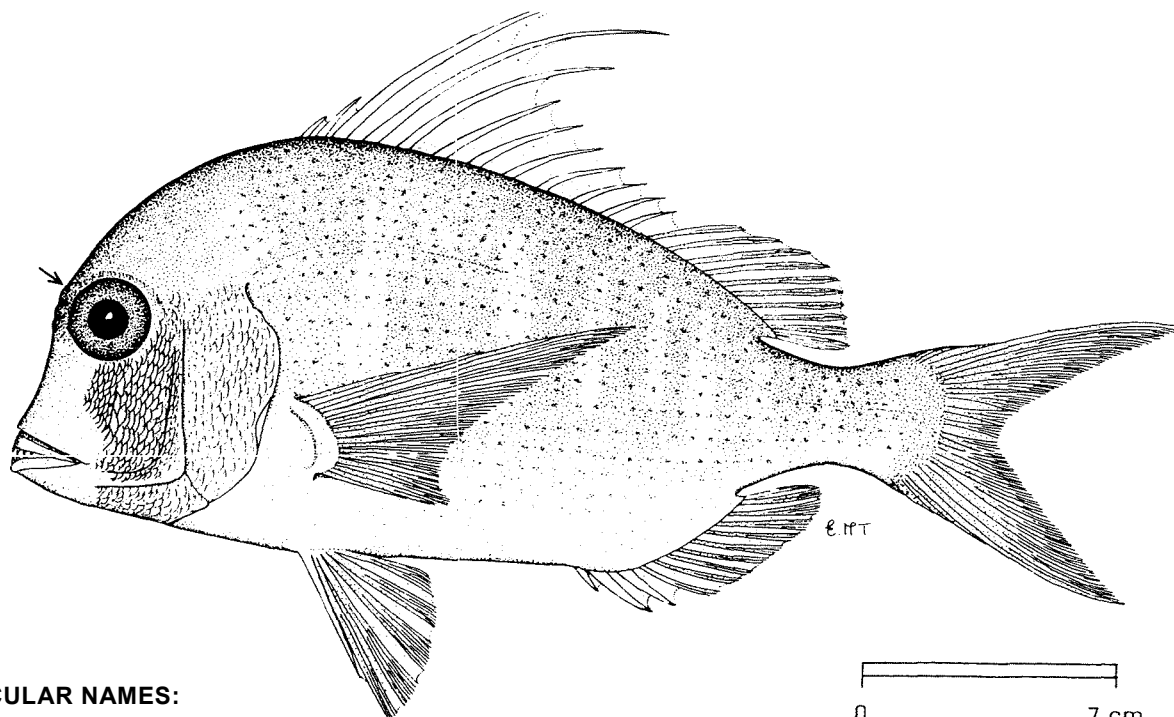


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Chrysotdephus lophus* (Fowler, 1925)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

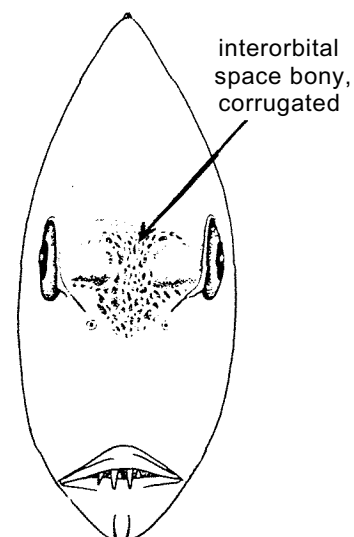
FAO : En - False red stumpnose
Fr - Spare à front rayé
Sp - Sargo nato

NATIONAL:

DISTINCTIVE CHARACTERS:

Body deep, compressed, its depth about twice in standard length. Head profile very steep, concave from above upper lip to corrugated bony interorbital space which becomes more pitted between eyes with growth; snout sharply angular, mouth horizontal, the maxilla reaching to below anterior third of eye; at front of jaws, 4 to 6 moderate canines; in juveniles, on each side, an outer row of low, conical teeth anteriorly, becoming large molars posteriorly, and several inner rows of small granular teeth; in adults, a band of about 5 series of molars in each jaw; gillrakers 12 or 13 on lower limb of first arch. Dorsal fin with 12 spines (3rd to 7th elongated, 3rd the longest, equal to, or longer than, head) and 10 soft rays; anal fin with 3 short spines and 8 or 9 soft rays; pectoral fins longer than head, reaching to above anal rays; caudal fin forked. Scales moderate, 56 to 58 in lateral line; scalation on head extending to bony interorbital space above nostrils; cheek scalation with a forward extension of smaller scales along suborbital space below eye; preopercle flange scaly, soft dorsal and anal fins densely scaly with a vestigial sheath at base.

Colour: red with lighter bars up from light belly, becoming yellow above midline; alternate yellow and red lines across bony interorbital space; all spines and rays red, but membrane of dorsal and anal fins yellow; a blue spot on each body scale becoming fainter toward belly.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

The coloration of this species, especially the yellow and red lines across the pitted interorbital space easily separates it from any other fish in the area.

SIZE:

Maximum: 50 cm; common between 30 and 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found only off Natal (South Africa).

Occurs in about 50 m depth.

Feeds on crustaceans, molluscs, worms and small fish.

PRESENT FISHING GROUNDS:

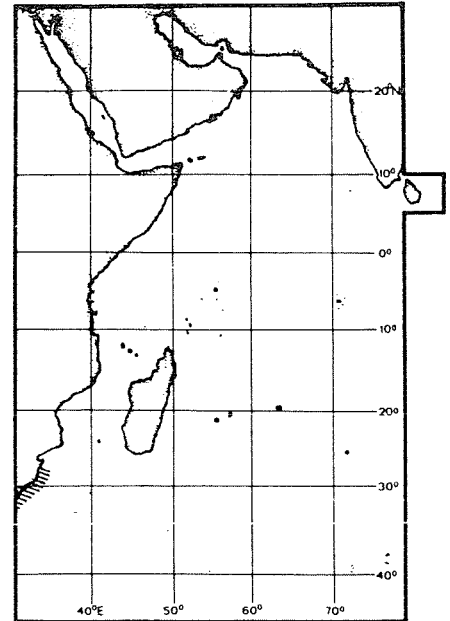
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species; the combined catch of Chrysoblephus species usually do not exceed 200 tons annually.

Caught mainly with line gear. A commercially important species, known as one of the "red fish".

Marketed fresh.

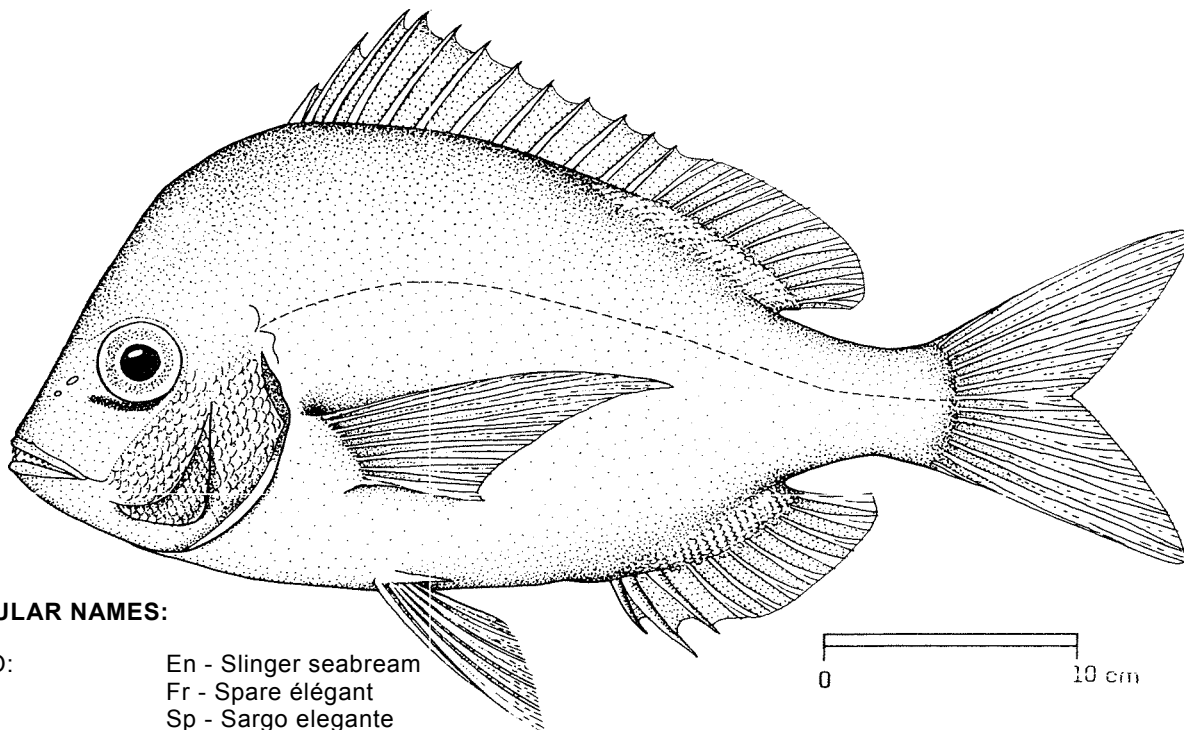


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Chrysolephus puniceus* (Gilchrist & Thompson, 1908)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Slinger seabream
Fr - Spare élégant
Sp - Sargo elegante

NATIONAL:

DISTINCTIVE CHARACTERS:

Body deep, compressed, its depth about twice in standard length. Head profile very steep, almost straight from lip to the very sharp nape, with a ridge before dorsal fin; mouth oblique, the maxilla reaching to below front margin of eye; at front of jaws, 4 or 5 moderate canines; in juveniles, on each side, an outer row of bluntly conical teeth becoming molariform posteriorly; several inner rows of villiform teeth behind canines becoming granular posteriorly; in adults, 3 upper and 2 lower series of molars; gillrakers 14 to 16 on lower limb of first arch. Dorsal fin with 12 spines and 10 soft rays; anal fin with 3 stout spines (2nd and 3rd subequal) and 8 or 9 soft rays; pectoral fins longer than head, reaching to anal rays; caudal fin forked, lobes sharp and elongate in adults. Scales moderate, 48 to 52 in lateral line; scales on top of head extending forward to above nostril, preopercle flange scaly; soft dorsal and anal fins densely scaly at base with a vestigial sheath.

Colour: reddish pink, with a sheen of blue overlapping the pink; fins rosy; a blue line under eye and a dark spot on pectoral fin axil.

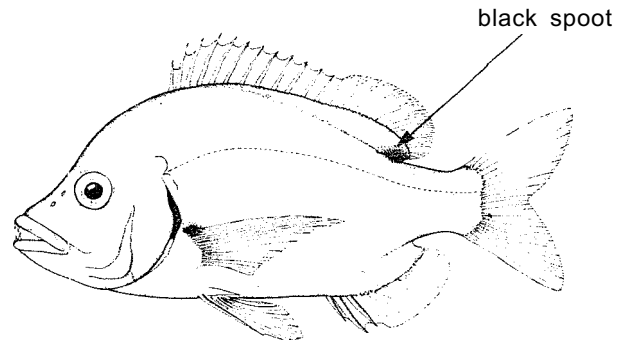
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Chrysoblephus cristiceps: a similar, faint blue line under eye but also a black spot at base of last dorsal ray.

Other species of Sparidae: no bright blue line under eye.

SIZE:

Maximum: 85 cm; common 50 to 60 cm.



Chrysoblephus cristiceps

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, from Natal (South Africa) to Mozambique and southern Madagascar; southward extending to East London.

Occurs from shallow waters (10 m) to about 100 m depth.

Feeds on molluscs, crustaceans, worms and fish.

PRESENT FISHING GROUNDS:

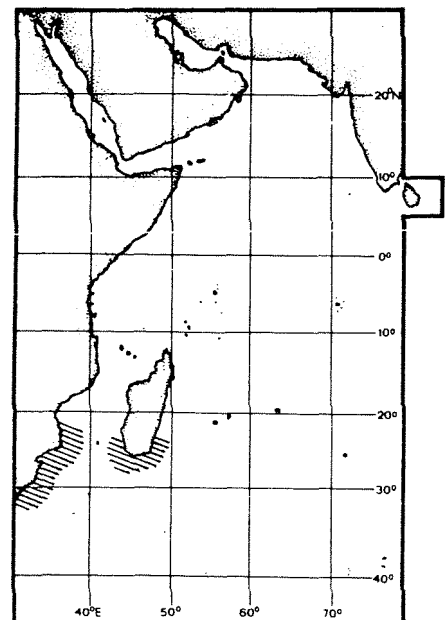
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species; the combined catches of Chrysoblephus species usually do not exceed 200 tons annually.

An important commercial fish in Natal and southern Mozambique, usually caught with line gear.

Generally marketed fresh.



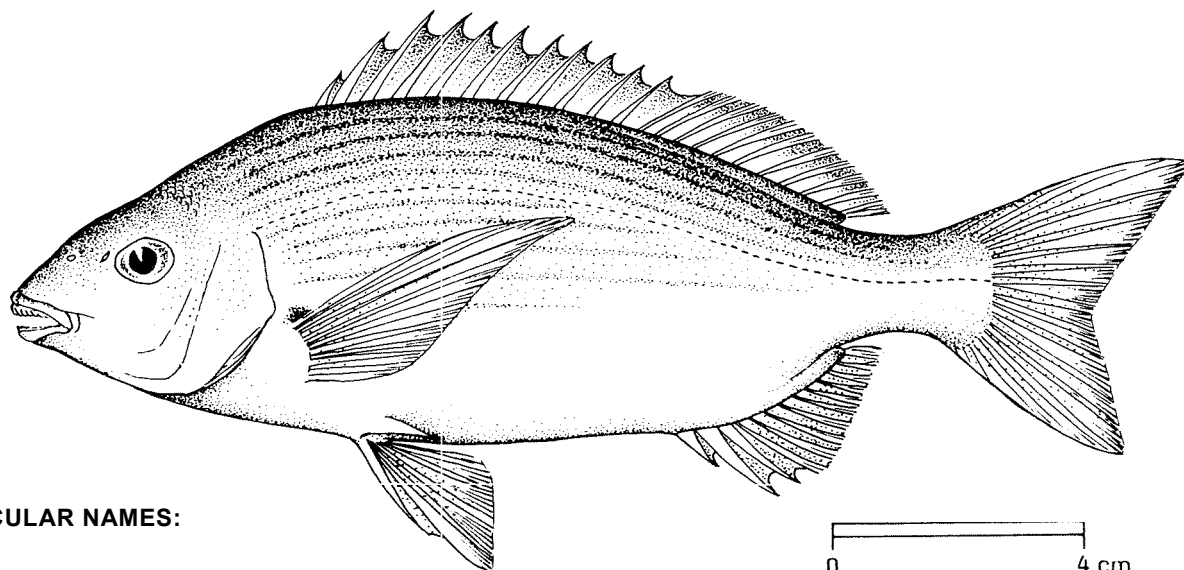
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)

Crenidens crenidens (Forsskål, 1775)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Karanteen seabream
Fr - Saupe de Mer Rouge
Sp - Salema del Mar Rojo

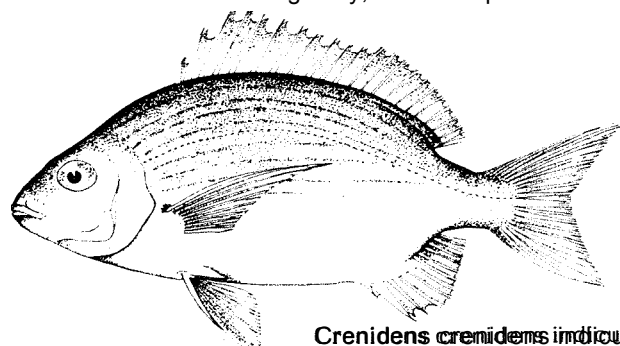
NATIONAL:

DISTINCTIVE CHARACTERS:

Body oblong oval, a little compressed. Upper profile of head in juveniles gently convex to dorsal fin origin, adults becoming concave above eye and convex in front of eye to produce a "nose"; eye moderate; in each jaw, 2 series of incisors (sometimes a third series in upper jaw), the cutting edge of each with five points (3 median points very distinct), outer teeth movable with brown edges; several rows of small, granular teeth within; gillrakers 9 to 11 on lower limb of first arch. Dorsal fin single, with 11 spines and 11 rays; 3rd to 4th spines longest; anal fin with 3 spines and 10 rays, 2nd spine stouter than 3rd; caudal fin forked. Scales moderate, 52 to 60 in lateral line; scalation on top of head not extending beyond vertical diameter of eye; preopercle flange naked; a low scaly sheath at base of dorsal and anal fins.

Colour: silvery, greenish blue or olive above; darker, narrow longitudinal stripes along scale rows from level of pectoral fins dorsally; fins dull yellowish or olive; the dorsal darkened marginally; axil of pectoral fins sometimes darkish.

Two different subspecies are recognized. C. crenidens indicus Day from the coasts of India and Arabian Sea, with body deeper (2.08 to 2.37 times in standard length), caudal peduncle deeper, pectoral and pelvic fins longer; C. crenidens crenidens along the east coast of Africa, with a more slender body (2.40 to 2.76 times in standard length), caudal peduncle narrower, pectoral and pelvic fins shorter; in the Red Sea, the 2 subspecies coexist with a predominance of C. crenidens crenidens, and probably hybrids with intermediate shape.



Crenidens crenidens indicus

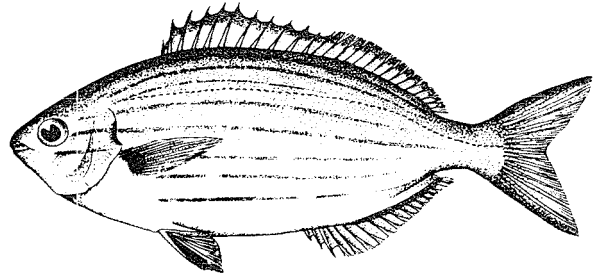
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Sarpa salpa: brighter colour; bright silvery with golden reflections, and about 8 bright golden stripes along body; only one series of notched incisors in upper jaw and no granular teeth; only off Natal.

Other species of Sparidae: either edge of incisors without five points, or canines present.

SIZE:

Maximum: 30 cm; common to 20 cm.



Sarpa salpa

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

The subspecies C. crenidens crenidens occurs from the Red Sea to South Africa, including the southern coast of Madagascar, C. crenidens indicus from the Red Sea to India eastward extending to the Nicobar Islands.

Feed mainly on algae, also invertebrates (crustaceans, worms, etc).

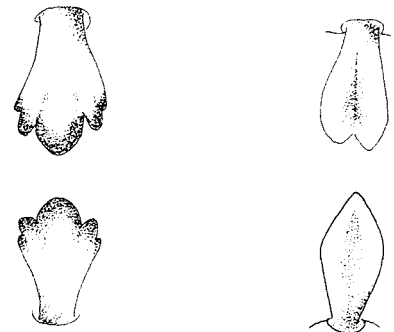
PRESENT FISHING GROUNDS:

Shallow coastal waters, throughout its range. mainly in muddy quiet areas.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

In the northern part of the area, it is caught all year round, in small quantities, with trammelnets and beach seines, and consumed fresh. In the southern part, it is caught principally for bait with seines or on small hooks baited with shrimps or prawns.

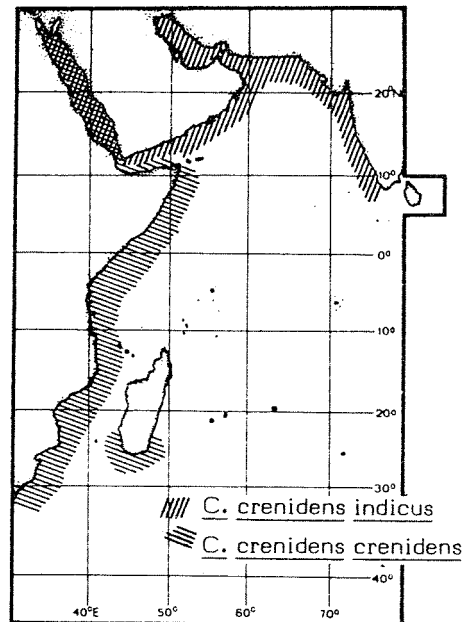
Marketed fresh (for bait), or dried.



Crenidens

Sarpa

upper and lower tooth

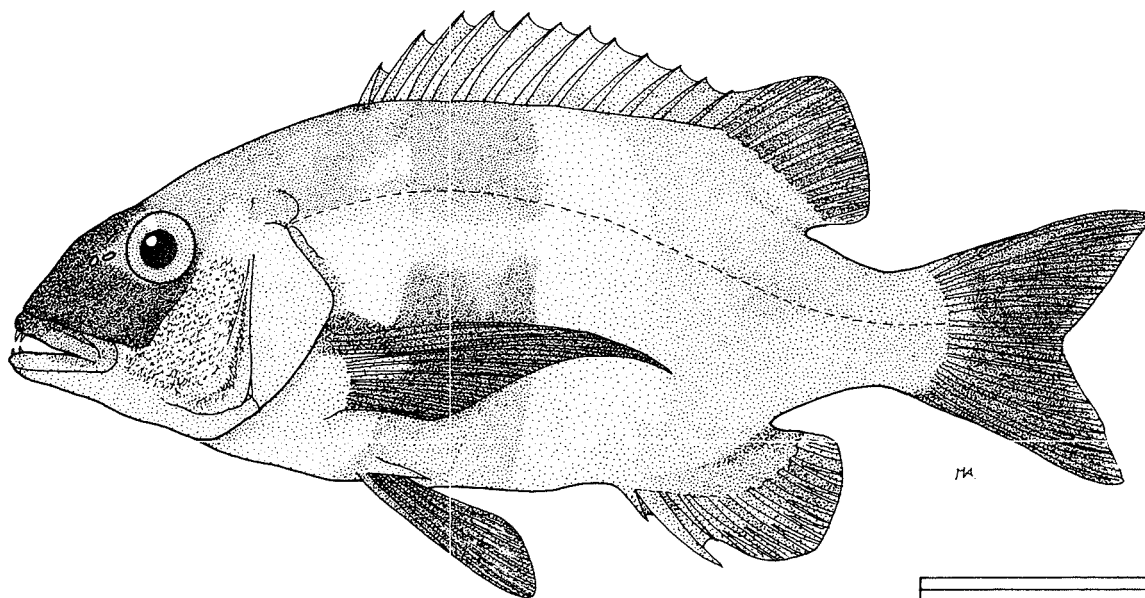


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)Cymatoceps nasutus (Castlenau, 1861)

OTHER SCIENTIFIC NAMES STILL IN USE: None



0 15 cm

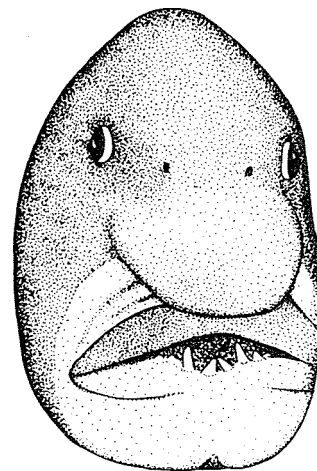
VERNACULAR NAMES:

FAO : Erg - Poenskop seabream
Fr - Spare nasique
Sp - Sargo narigón

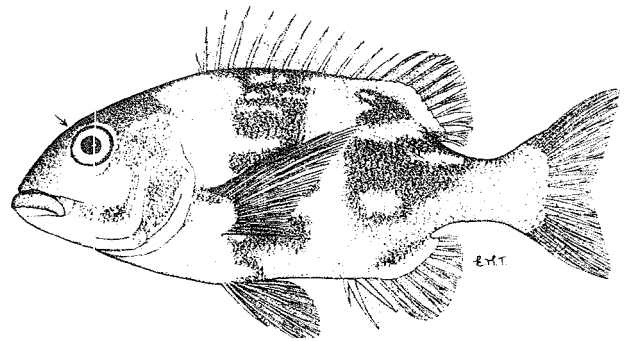
NATIONAL:

DISTINCTIVE CHARACTERS:

Body moderately deep and compressed, its depth 2.3 to 2.5 times in standard length. Head profile gently sloping, developing a bulge before eyes and a large fleshy process or "nose" on the snout in large adults, depth of suborbital space greater than eye, the mouth extending to below anterior half of eye; at front of jaws, 4 upper and 4 to 6 lower enlarged canines, slender in juveniles, but becoming obtuse in old specimens; in juveniles, on each side an outer row of low, conical teeth anteriorly, becoming molariform posteriorly, and several inner rows of small pointed teeth behind the canines, becoming granular posteriorly; in adults 2 series of molars in each jaw, lips strongly villose; gillrakers 10 or 11 on lower limb of first arch. Dorsal fin single, with 12 spines and 10 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fins reaching to above anal fin; caudal fin moderately forked, its lobes becoming pointed with age. Scales rough, those above lateral line very much smaller than those below; 61 to 65 scales in lateral line; preopercle flange scaly only along middle portion; about 16 series of small scales on cheek; scalation on top of head reaching to beyond anterior margin of eye, above nostrils; soft dorsal and anal fins densely scaly at base.

large adult
front view

Colour: a drab dark fish, only the juveniles light yellowish between the dark head and 2 dark vertical bars on body. Adults dusky to black with soft dorsal and anal fins black; belly and chin abruptly white. Pelvic fins black only in half grown specimens.



juvenile

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Similar looking dark species of Sparidae: scales above lateral line not much smaller than those below (much smaller in Cymatoceps); no "nose" in large adults.

Fishes of other families: no biserial molar teeth.

SIZE:

Maximum: 150 cm; common between 60 and 90 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, found only off Natal (South Africa), southward extending to the Cape of Good Hope. Occurs in shallow coastal waters (to 80 m depth), mainly in rocky areas, seldom entering estuaries.

Feeds mainly on molluscs and crustaceans. using the heavy molars to crush the shells.

PRESENT FISHING GROUNDS:

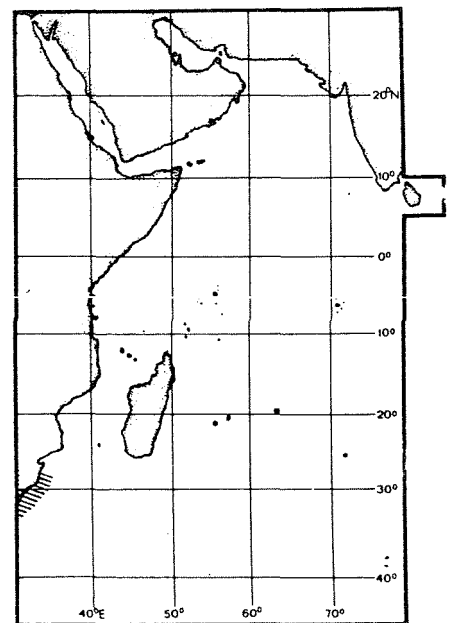
Throughout its area.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

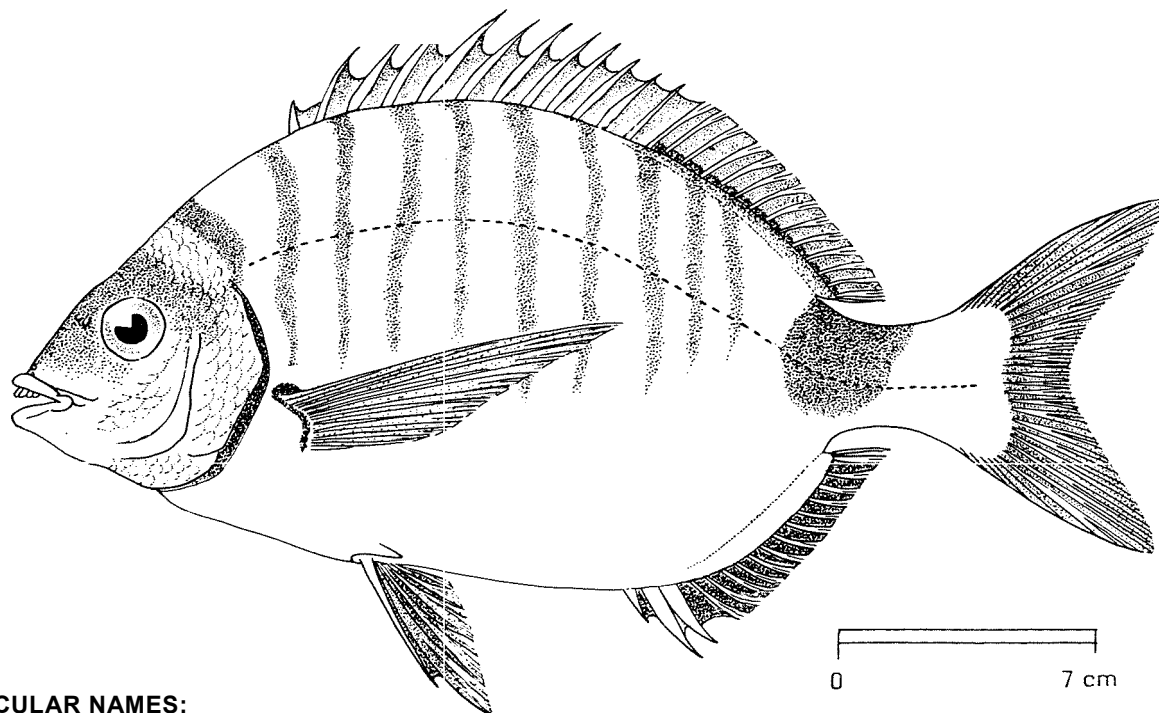
Caught generally on line gear; premier sport fish.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Diplodus sargus capensis* (Smith, 1846)OTHER SCIENTIFIC NAMES STILL IN USE : *Diplodus sargus* (Linnaeus, 1758)

VERNACULAR NAMES:

FAO: En - White seabream (Cape)
Fr - Sar commun du Cap
Sp - Sargo común del Cabo

NATIONAL:

DISTINCTIVE CHARACTERS:

Body oval, compressed, rather deep, its depth 2 to 2.25 times in standard length. Head profile fairly steep, regularly convex to dorsal fin origin; snout rather pointed; mouth somewhat protractile, the maxilla reaching about to below anterior margin of eye, not completely concealed by suborbital bone when mouth is closed; lips moderately thin; 8 inclined, truncate, incisor-like teeth in each jaw, followed behind and laterally by 3 or 4 upper and 2 or 3 lower rows of molars; gillrakers 8 to 10 (rarely 11) on lower limb of first arch. Dorsal fin single, with 12 (rarely 11) spines and 13 to 16 soft rays; anal fin with 3 spines and 13 or 14 soft rays; pectoral fins reaching to above anal fin; caudal fin forked. Scales moderate, 61 to 70 in lateral line, 8 or 9 between lateral line and 4th dorsal spine; no scales between eyes and on preopercle flange; a well developed scaly sheath at base of dorsal and anal fins.

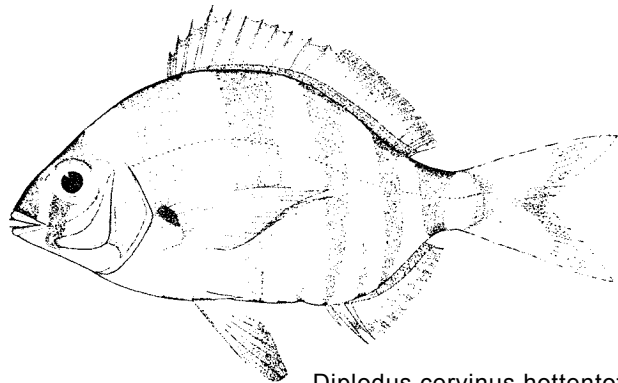
Colour: bright silvery, with a pink sheen, greenish white ventrally; 6 to 9 equally dark crossbars running from dorsal profile to about two thirds of body depth (disappearing with growth); a large black saddle-shaped blotch on caudal peduncle; margin of opercle black, axi'1 of pectoral fin dark with a dark line running along base of pectoral; dorsal fin greenish, base of soft dorsal dark; pectorals dusky; caudal, anal and pelvic fins dark dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

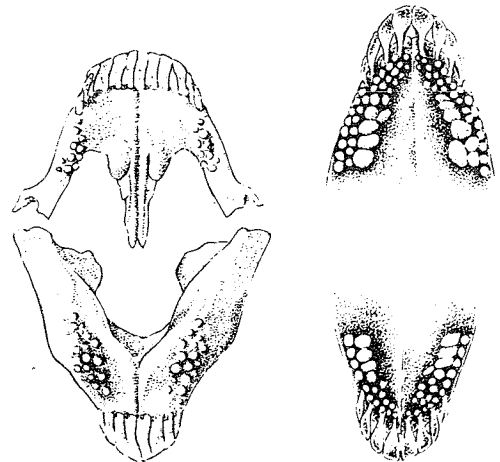
Diplodus cervinus hottentotus: 10 to 12 incisors on upper jaw (8 in D. s. capensis); a bar across caudal peduncle (a large black saddle-shaped blotch in D. s. capensis).

Lithognathus mormyrus: body oblong, with 14 to 17 crossbars (6 to 9 in D. s. capensis); small pointed anterior teeth (incisors in D. s. capensis).

The combination of characters described above easily separates this species from the other sparids in the area.

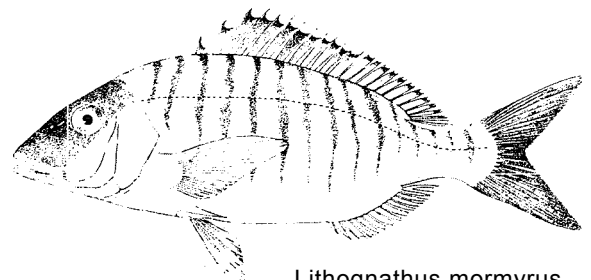


Diplodus cervinus hottentotus



D. cervinus hottentotus D. sargus capensis

upper and lower jaw



Lithognathus mormyrus

SIZE:

Maximum: 45 cm; common 25 to 35 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, found off South Africa and southern Madagascar (possibly also in Mauritius); southward extending around Cape of Good Hope to Angola.

Found in rocky areas to about 50 m depth, enters estuaries, used also as nurseries.

Omnivorous, feeding on any available food; algae, crustacea, worms, molluscs, fish.

PRESENT FISHING GROUNDS:

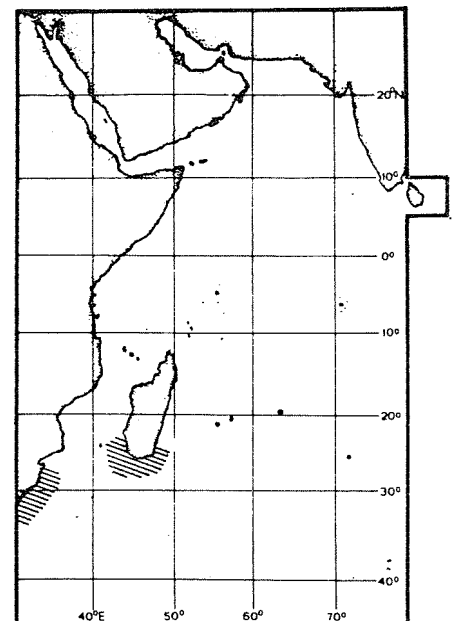
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this subspecies.

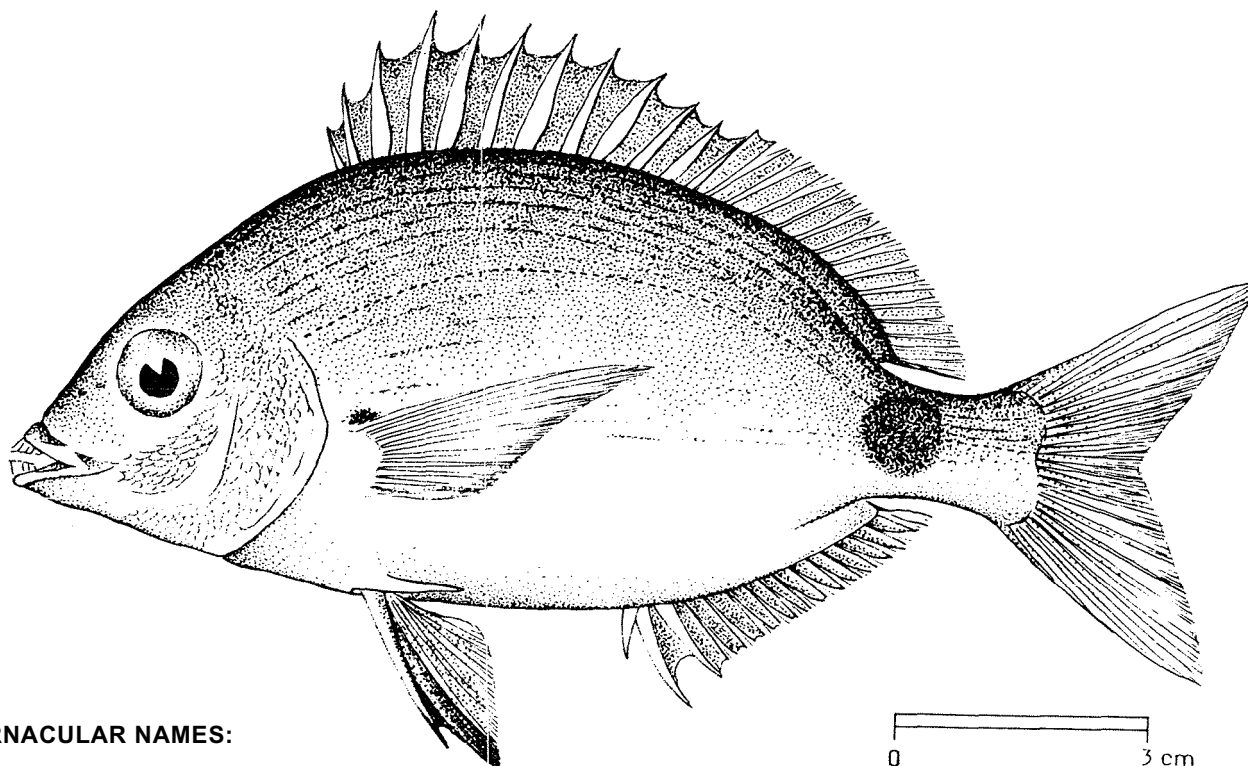
Caught mainly by hook and line by anglers from the shore.

Not sold extensively, used fresh, whole and as bait.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Diplodus sargus kotschyi* (Steindachner, 1876)OTHER SCIENTIFIC NAMES STILL IN USE : *Diplodus noct* Valenciennes, 1830 pro parte

VERNACULAR NAMES:

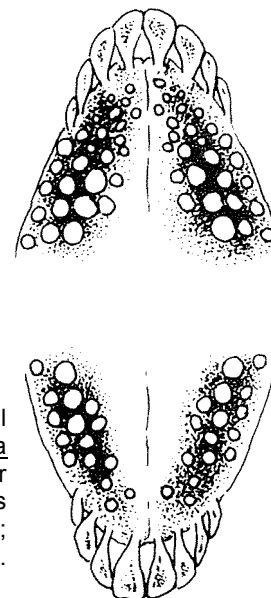
FAO: En - One spot seabream
Fr - Sar lune
Sp - Sargo luna llena

NATIONAL:

DISTINCTIVE CHARACTERS:

Body oval, rather deep, compressed, its depth 2 to 2.3 times in standard length. Head profile fairly steep (almost straight) from tip of snout to nape and strongly convex on back; snout pointed, mouth rather protrusible, the maxilla reaching to about below anterior margin of eye; both jaws with normally 6 broad incisor-like teeth anteriorly, compressed and forwardly inclined; laterally 3 or 4 upper and 2 or 3 lower rows of rounded molar-like teeth and smaller ones just behind the incisors; gillrakers 8 to 10 on the lower limb of first arch. Dorsal fin with 12 spines and 13 to 15 soft ray;; anal fin with 3 spines and 12 to 14 soft rays; pectoral fins long, reaching to anal spines; caudal fin forked. Scales moderate, 60 to 68 in lateral line, 7 or 8 between lateral line and 4th dorsal spine; a well developed scaly sheath at bases of dorsal and anal fins.

Colour: silvery grey with bluish reflections, becoming paler ventrally; longitudinal dark streaks along rows of scales, more conspicuous on midlateral region of sides; a distinct, round, black blotch on caudal peduncle just behind dorsal fin, less large than, or about equal to eye; a dark spot on pectoral fin axils; spinous dorsal fin grey, membranes darker than spines; soft dorsal, anal fins and caudal fin dark with a light orange tinge; pelvic fins dusky, darkened on outer rays; pectoral fins hyaline, with a light brownish tinge. Young individuals with 8 or 9 transverse dark bars.



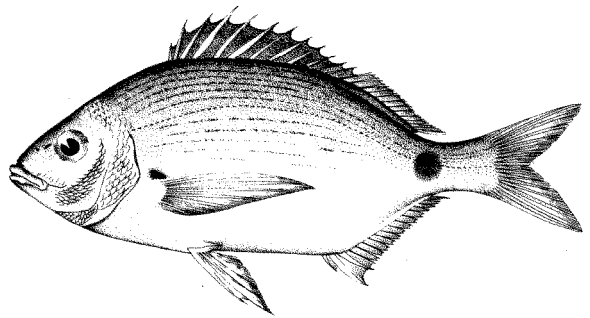
upper and lower jaws

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Diplodus noct (until now not known to overlap geographical range of D. s. kotschy): body more elongate dept 2.25 to 2.6 in standard length; gill-rakers 12 or 13 on lower limb of first arch; pelvic fins pale.

SIZE:

Maximum: 30 cm; common to 15 cm.



Diplodus noct

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

The "Gulf" and Northern Indian coast (Sind).

A common species, especially in rocky shallow coastal waters.

Feeds on algae and small invertebrates.

PRESENT FISHING GROUNDS:

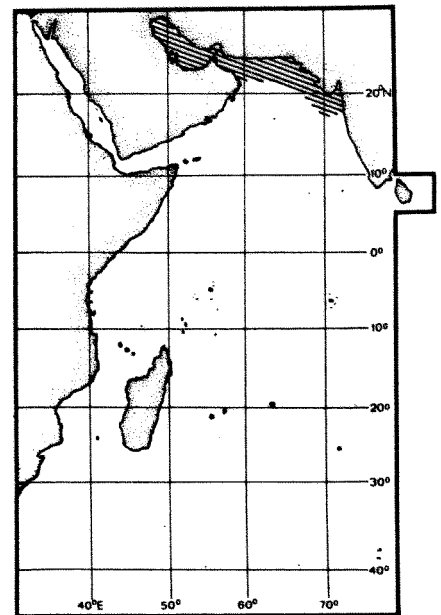
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this subspecies.

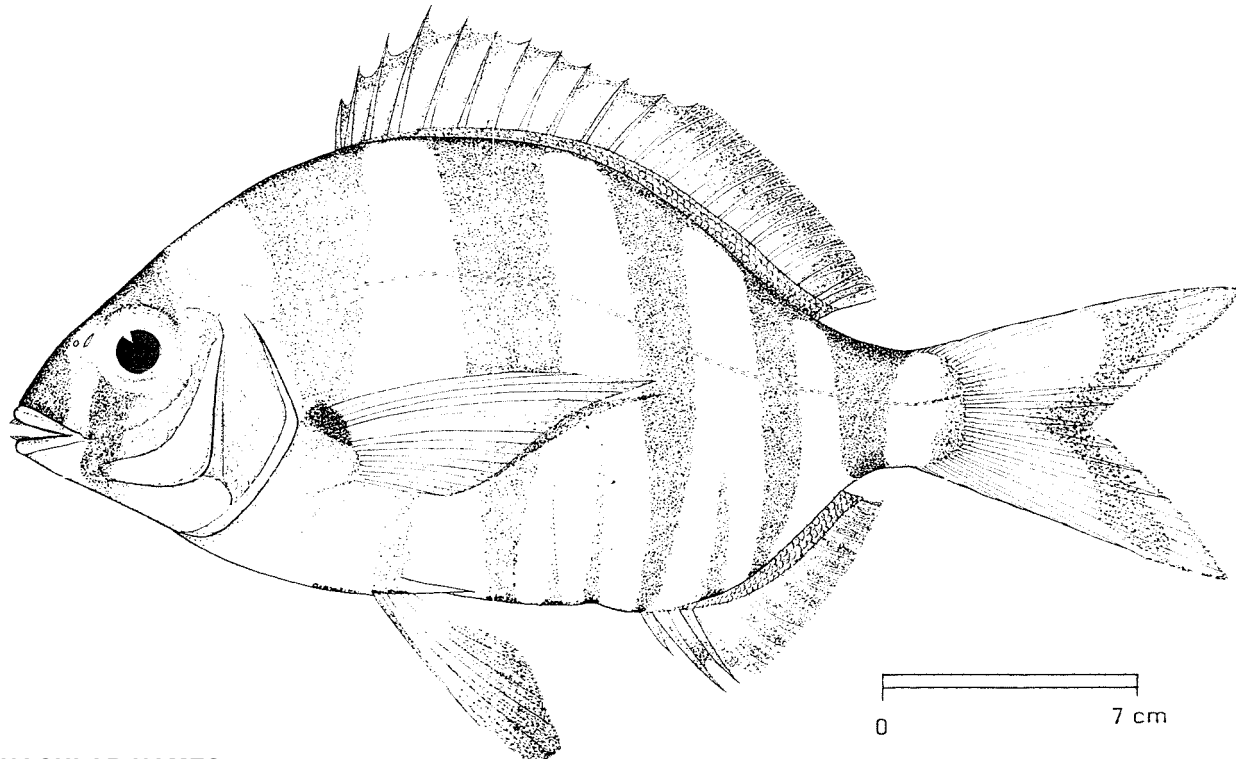
Caught mainly with handlines, also with trawls.

Not sold extensively, used fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SPARIDAE

FISHING AREA 51
(W. Indian Oceans)Diplodus cervinus hottentotus (Smith, 1849)OTHER SCIENTIFIC NAMES STILL IN USE : Diplodus trifasciatus (Rafinesque, 1810)

VERNACULAR NAMES:

FAO : En - Zebra seabream (mouth Africa)
Fr - Sar à grosses lèvres (Afrique du Sud)
Sp - Sargo breado (Africa del Sur)

NATIONAL:

DISTINCTIVE CHARACTERS:

Body oval, deep and compressed, its depth about twice in standard length. Head profile moderately steep and straight from upper lip to nape, thence convex to dorsal fin origin; snout rather blunt; mouth somewhat protractile, the maxilla reaching to below anterior margin of eye and completely concealed by the suborbital bone when mouth is closed; lips thick; 10 to 12 inclined, truncate incisor-like teeth in upper jaw, 8 in lower jaw, followed by 1 to 3 (usually 2) rows of small molars; gillrakers 9 or 10 on lower limb of first arch. Dorsal fin single, with 11 rarely 10) spines, and 12 to Dually 13) soft rays; anal fin with 3 spines and 11 soft rays; pectoral fins reaching to above anal fin; caudal fin forked. Scales moderate, 61 to 68 in lateral line; 9 or 10 between lateral line and 4th dorsal spine; no scales between eyes and on preopercle flange; a scaly sheath at base of dorsal and anal fins.

Colour: silvery yellowish (large adults burnished gold) with 5 distinct, broad, black crossbars on body (the first before dorsal fin, the last on caudal peduncle) and 3 or 4 smaller bars in the 3 first interfaces, reaching about third or half way up body; head with another bar from nape across eyes and cheeks to ventral profile; snout darkish. A black spot at upper part of pectoral fin axil; soft dorsal, anal, edges of caudal and pelvic fins dark maroons-red; pectoral fins lighter maroon-red; lips pink, with a scarlet blotch below at symphysis.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Diplodus sargus capensis: 8 incisors on upper jaw (10 to 12 in D. cervinus); 6 to 9 narrow, more or less faint dark crossbars on sides, and a large black saddle on caudal peduncle.

Dascyllus and Abudefduf species (Pomacentridae) with crossbars: teeth setiform (incisors in Diplodus), scales ctenoid (rough) (smooth in Diplodus).

SIZE:

Maximum: 60 cm; common between 25 and 35 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, from southern Mozambique to South Africa, southward extending to the Cape of Good Hope; (subspecies of D. cervinus cervinus occurs in the Atlantic and Mediterranean). Occurs in coastal waters, down to 100 m depth and more, mainly on rocky bottoms; enters estuaries, which are also used as nursery grounds.

Feeds on a wide variety of organisms (fish, molluscs, crustaceans, worms, etc.).

PRESENT FISHING GROUNDS:

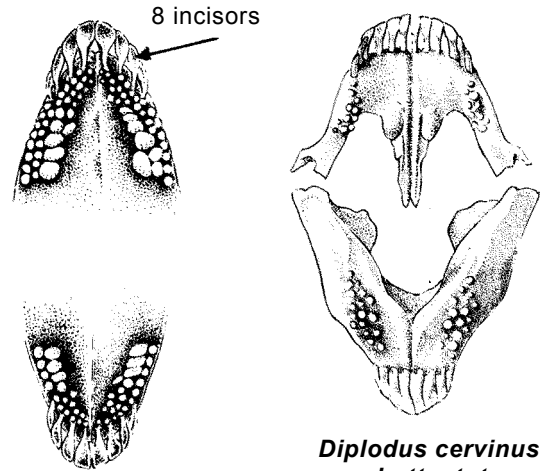
Throughout the area, mainly around rocky reefs, but not extensively fished.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with hook and line, mainly by anglers from the shore, occasionally with trawlers.

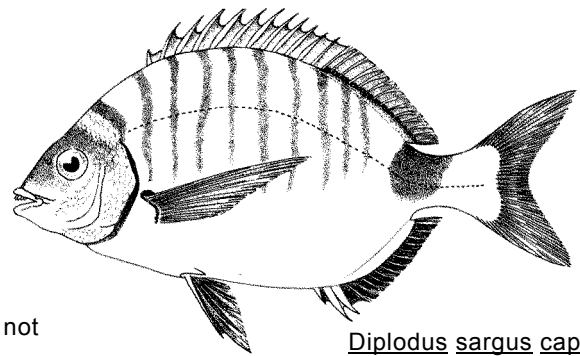
Marketed fresh.



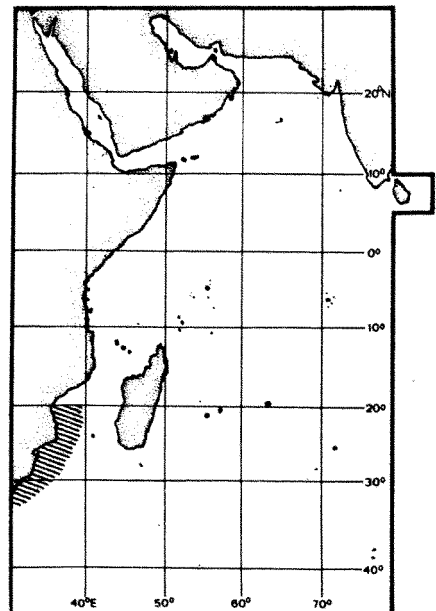
Diplodus sargus capensis

Diplodus cervinus hottentotes

upper and lower jaw



Diplodus sargus capensis



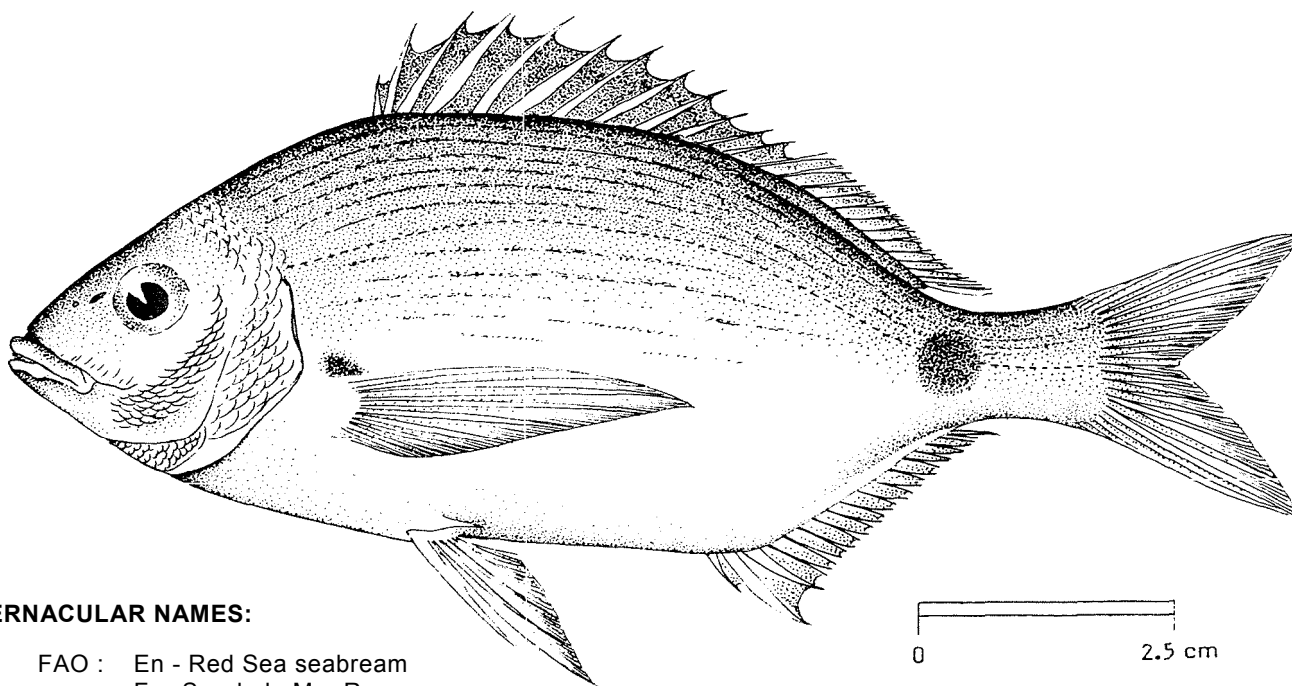
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)

Diplodus noct ([Ehrenberg MS] Valenciennes, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

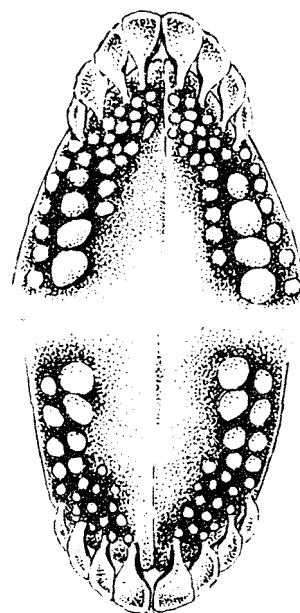
FAO : En - Red Sea seabream
Fr - Sar de la Mer Rouge
Sp - Sargo del Mar Rojo

NATIONAL:

DISTINCTIVE CHARACTERS:

Body oval, rather elongate, compressed, its depth 2.25 to 2.6 times in standard length. Head profile steep and straight from upper lip to nape and smoothly convex to dorsal fin origin; snout rather pointed; mouth rather protrusible; the maxilla scarcely reaching to below anterior eye margin; lips rather thick; both jaws with normally 8 broad, incisor-like teeth anteriorly, compressed and forwardly inclined (rarely 7 to 10 in upper jaw, 7 in lower jaw); laterally, 2 or 3 rows of rounded molar-like teeth (the 2nd row largest) and smaller ones just behind the incisor-like teeth; gillrakers 13 or 14 (rarely 12) on lower limb of first arch. Dorsal fin with 10 to 13 (usually 12) spines and 12 to 15 (usually 13 or 14) soft rays; anal fin with 3 spines and 12 to 14 (usually 13) soft rays; pectoral fins long, reaching anal spines; caudal fin forked. Scales moderate, 60 to 69 in lateral line, 6 or 7 between lateral line and 4th dorsal spine; a low scaly sheath at base of dorsal and anal fins.

Colour: silvery grey, becoming paler ventrally. Longitudinal dark streaks along rows of scales, more conspicuous on midlateral region of sides; a dark blotch located on lateral line, on anterior part of caudal peduncle (often obscured with age); a dark spot on pectoral fin axils; vertical fins grey with a yellowish tinge; pectoral and pelvic fins pale. Young individuals with 8 or 9 narrow, transverse, dark bars.

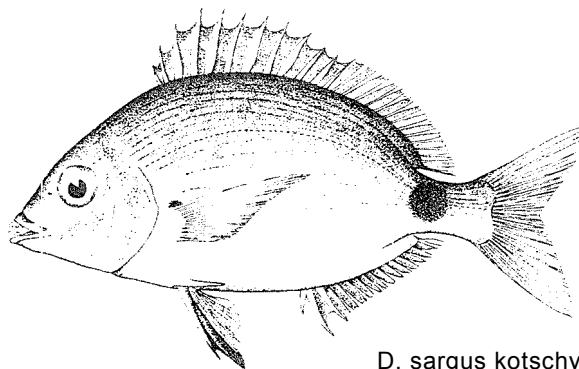


upper and lower jaw

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other subspecies of *Diplodus sargus* (until now not known to overlap with the geographical range of *D. noct*): body rather deep, 2 to 2.23 times in standard length: gillrakers 8 to 10 on lower limb of first arch.

The combination of characters described above, particularly the dark blotch on anterior part of caudal peduncle, easily separates this species from the other sparids within its range.



D. sargus kotschyi

SIZE:

Maximum: 30 cm; common to 15 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Apparently endemic to the Red Sea.

Very common, especially above sandy bottoms, around coral reefs and in shallow coastal waters. The young may form aggregations.

Feeds on algae and small invertebrates.

PRESENT FISHING GROUNDS:

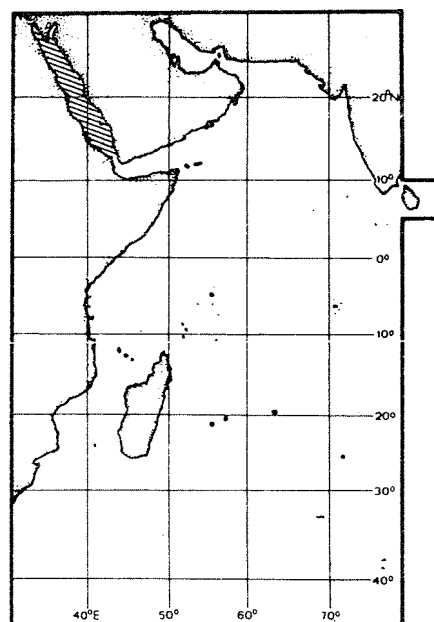
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this subspecies.

Caught mainly with handlines, also with trawls, trammelnets and gillnets.

Marketed whole, fresh.



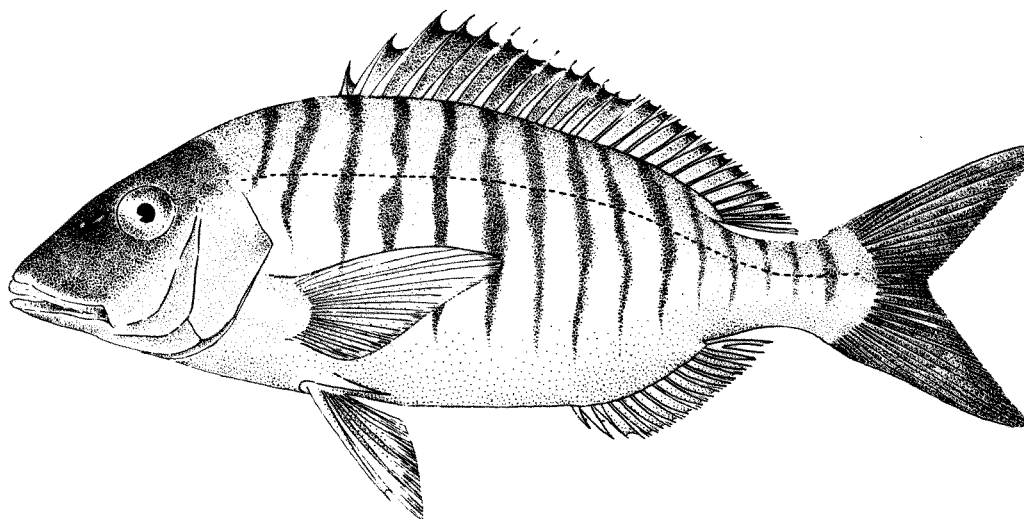
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)

Lithognathus mormyrus (Linné, 1758)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

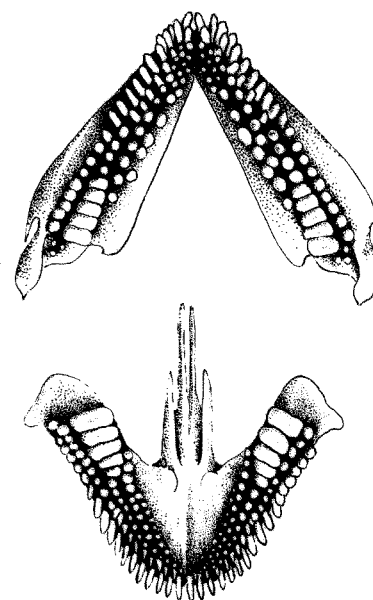
- FAO : En - Striped seabream
- Fr - Marbré
- Sp - Herrera

NATIONAL:

DISTINCTIVE CHARACTERS:

Body oblong and compressed. Head profile from upper lip to dorsal fin origin smoothly convex, eye small; snout elongate and pointed; mouth protractile, low, subhorizontal, reaching to about level of anterior eye margin; anterior teeth small, set in bands, followed by 3 to 6 rows of molars in upper, and 2 to 4 rows in lower jaw; gillrakers 15 to 17 on lower limb of first arch. Dorsal fin single with 11 or 12 spines and 11 or 12 soft rays; anal fin with 3 slender spines and 10 to 13 soft rays; pectoral fins short, not reaching to beyond level of anus; caudal fin forked. Scales rather small, 59 to 65 in lateral line; scalation on top of head not extending forward beyond level of posterior eye margin; preopercle flange naked; soft dorsal and anal fins with a very low, basal scaly sheath.

Colour: body grey silver with a pinkish sheen; 14 to 17 distinct, narrow dark crossbars always present between eye and caudal fin origin, fading out before reaching the belly or any part of the ventral profile; snout and interorbital space darkish; dorsal and caudal fins greenish yellow with dark margins, anal fin deep orange except for lighter colour on margin and last 2 rays, pelvic spine yellow, centre of fin deep orange and remaining edges light; pectoral fins darker above, olive.

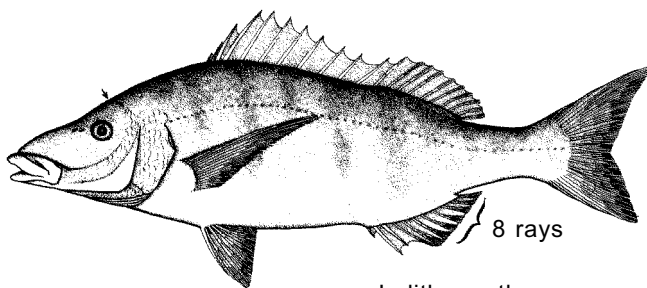


upper and lower jaws

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Lithognathus lithognathus (endemic off South Africa, overlapping L. mormyrus only off Natal): 7 wide, rather indistinct, crossbars (14 or 15 in L. mormyrus), 8 anal fin rays (10 to 13 in L. mormyrus).

Diplodus species: incisor teeth at front of both jaws.



L. lithognathus

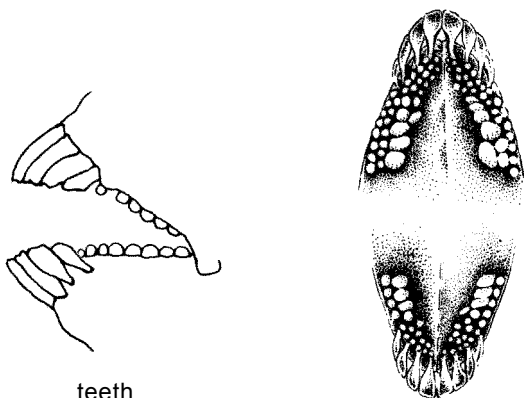
SIZE:

Maximum: 55 cm: common between 20 and 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area from central Mozambique to Natal (South Africa). Elsewhere along the coasts of South Africa, West Africa and Europe (up to the Bay of Biscay); also in the Mediterranean.

Lives over sandy or mud-sandy bottoms as well as in seagrass in shallow coastal areas down to 30 m depth, enters estuaries.



teeth
lateral view upper and lower jaws
Diplodus sargus capensis

PRESENT FISHING GROUNDS:

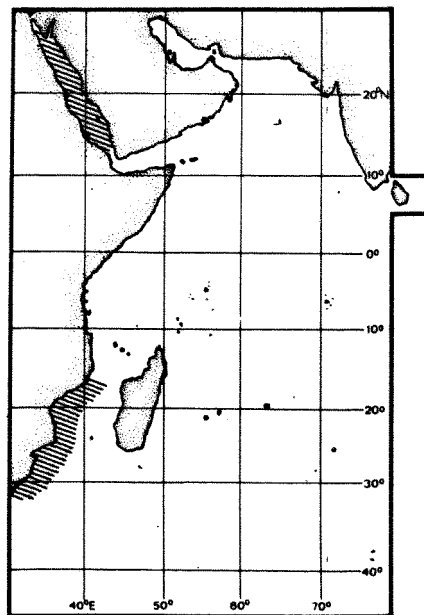
Coastal waters and river mouths.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with line gear, using small hooks, in stake traps and beach seines and with bottom trawls.

Marketed fresh and sometimes dried.

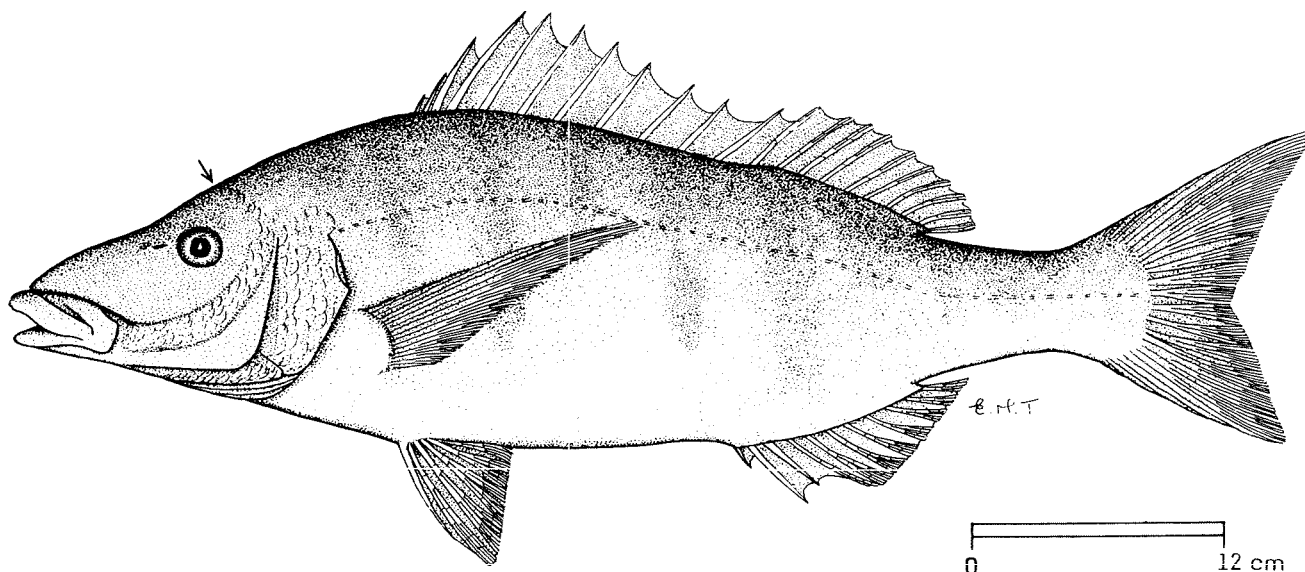


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)Lithognathus lithognathus (Cuvier, 1830 in Cuv. & Val.)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - White steenbras
 Fr - Marbré du Cap
 Sp - Herrera del Cabo

NATIONAL:

DISTINCTIVE CHARACTERS:

Body oblong and compressed, its depth 2.75 to 3.25 times in standard length. Head profile almost straight (becoming convex with growth) from upper lip to dorsal fin origin; eye moderate to small; snout elongate and pointed, the maxilla not reaching to anterior eye margin; mouth very protrusible, and lips very thick in adults; in each jaw, anterior teeth feeble, pointed set in bands, followed by biserial molars, the inner posterior ones larger; gillrakers 13 to 16 on lower limb of first arch. Dorsal fin with 11 spines and 10 soft rays; anal fin with 3 spines and 8 soft rays; pectoral fins reaching to above origin of anal; caudal fin forked. Scales moderately large, 44 to 51 in lateral line; scalation on top of head extending to above hind margin of eye; preopercle flange naked; soft dorsal and anal fins with a scaly basal sheath.

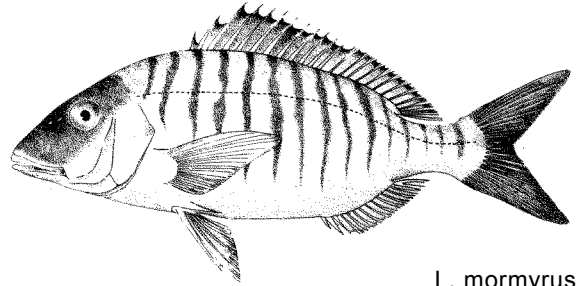
Colour: mainly silvery, darker above, with 6 or 7 dusky crossbars. Iris bluish-grey.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Lithognathus mormyrus: lips thin and about 14 well-defined narrow crossbars 6 or 7 in L. lithognathus).

Argyrozona argyrozona and Petrus rupestris: no molar teeth. Furthermore, 12 dorsal spines in A. argyrozona (11 in L. lithognathus) and pectoral fins much shorter than head in A. argyrozona; 8 or 9 short, laminate gillrakers in P. rupestris (13 to 16 in L. lithognathus).

The long snout, thick lips, protrusible mouth and silvery body readily distinguish this species from all other Sparid genera in the area.



L. mormyrus

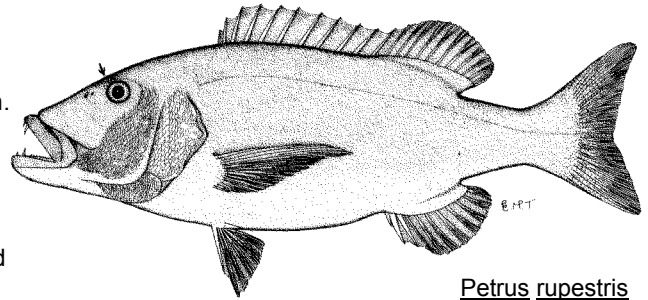
SIZE:

Maximum: 150 cm; common between 60 and 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found only in the extreme south of the area and southward to the Cape of Good Hope.

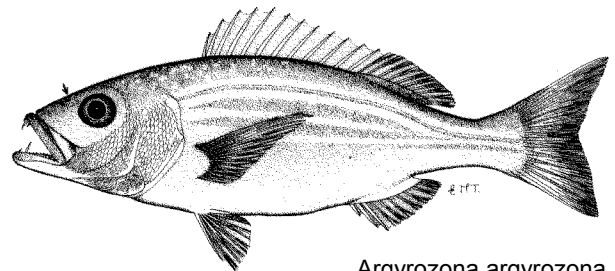
Occurs in estuaries and offshore in sandy areas. Feeds mainly on crustaceans and worms living in sand or mud; tails of Lithognathus are frequently seen waving on shallow banks as fish blows out prey. Spawns in sea but uses estuaries as nursery



Petrus rupestris

PRESENT FISHING GROUNDS

Estuaries and coastal waters from Natal to the Cape of Good Hope.



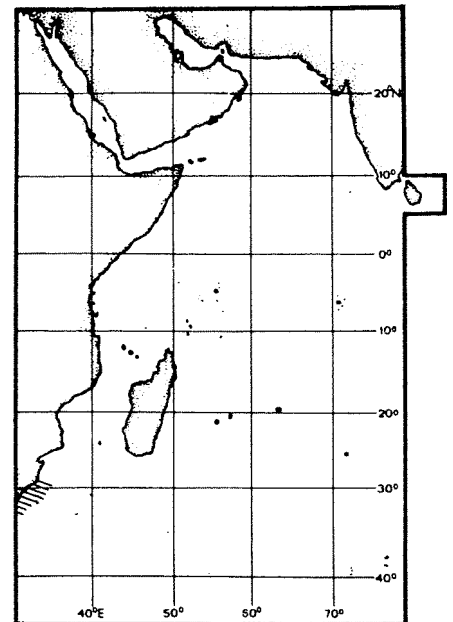
Argyrozona argyrozona

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with line gear and, where permitted, with seines. Premier angling fish of South Africa.

Marketed fresh, whole.



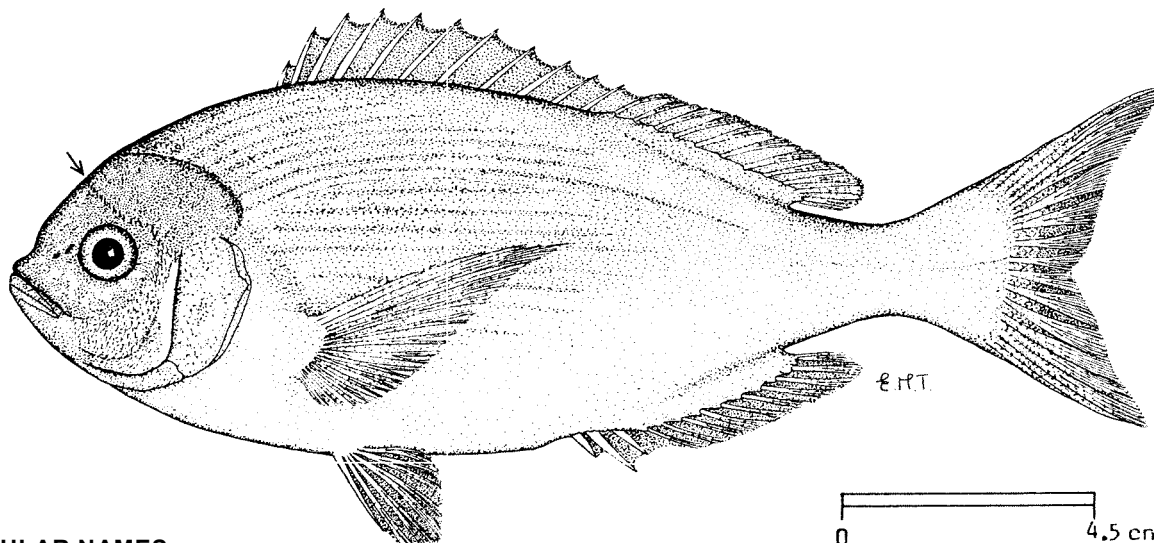
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)

Pachymetopon aeneum (Gilchrist & Thompson, 1908)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

- FAO : En - Blue hottentot
- Fr - Hotentot bleu
- Sp - Hotentote azul

NATIONAL:

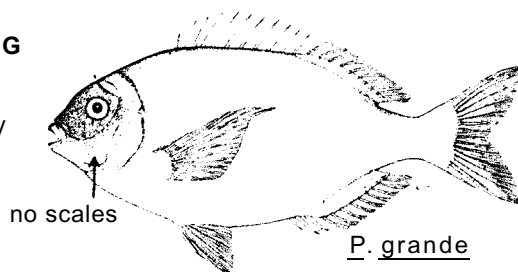
DISTINCTIVE CHARACTERS:

Body ovate, its depth 2.25 to 2.50 times in standard length. Head profile gently rounded from dorsal fin origin to interorbital bulge, then abruptly concave to mouth; mouth oblique, pouting, the maxilla reaching almost to below anterior margin of eye; in both jaws, about 4 or 5 rows of incisors, triangular-tipped in juveniles; no molar or granular teeth; gillrakers 16 or 17 on lower limb of first arch. Dorsal fin with 11 spines and 11 soft rays; anal fin with 3 spines and 10 soft rays; pectoral fins longer than head, reaching to above anal fin origin; caudal fin forked, tips pointed. Scales small, 80 to 91 in lateral line, scalation on top of head extending to above vertical diameter of eye; inner margin of preopercle flange scaly; soft dorsal and anal fins densely scaly at base, but without a sheath.

Colour: head cobalt blue, body bronzy yellow, with fine blue streaks along scale rows becoming iridescent silver below; dorsal spines blue, fins membrane yellow, darker edged.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

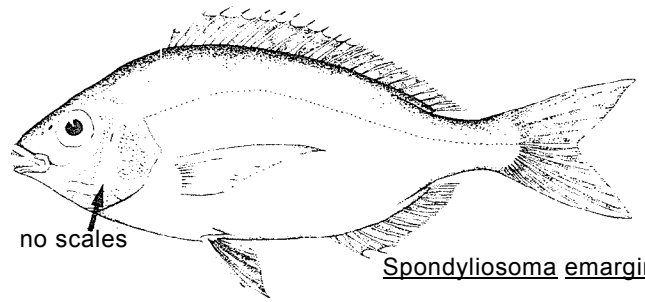
Pachymetopon grande: preopercle flange naked; body slightly deeper; gillrakers 11 to 13 (16 or 17 in P. aeneum).



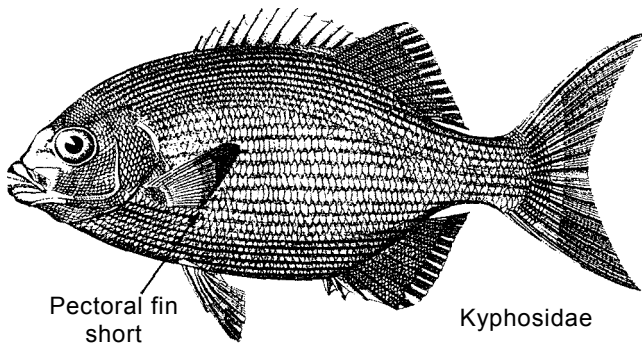
Spondyliosoma emarginatum: preopercle flange naked; soft dorsal and anal fins with a low sheath at base; teeth slender, lanceolate.

Polyamblyodon species: only one series of incisors and several inner rows of granular teeth.

Kyphosus species (Kyphosidae). scales large, about 55 in lateral line (80 to 91 in P. aeneum); pectoral fins short, reaching only half way to above anal fin origin; only one series of hockeystick-shaped incisors.



Spondyliosoma emarginatum



Kyphosidae



Polyamblyodon species
upper and lower jaws

SIZE:

Maximum: 55 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Only in the extreme southern part of the area, off Durban (Natal, South Africa) southward to the Cape of Good Hope.

Occurs in waters from 20 to 50 m depth, around rocky areas.

Feeds on bottom living invertebrates (worms, ascidians, crustaceans, molluscs) and algae.

PRESENT FISHING GROUNDS:

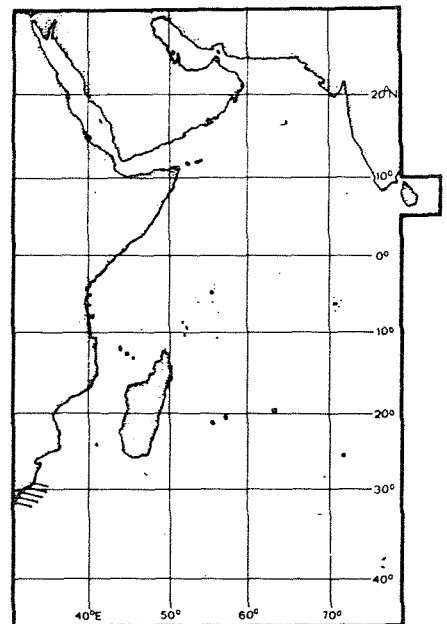
Off South Africa, from Natal to the Cape of Good Hope.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught occasionally on hook and line.

Marketed fresh.

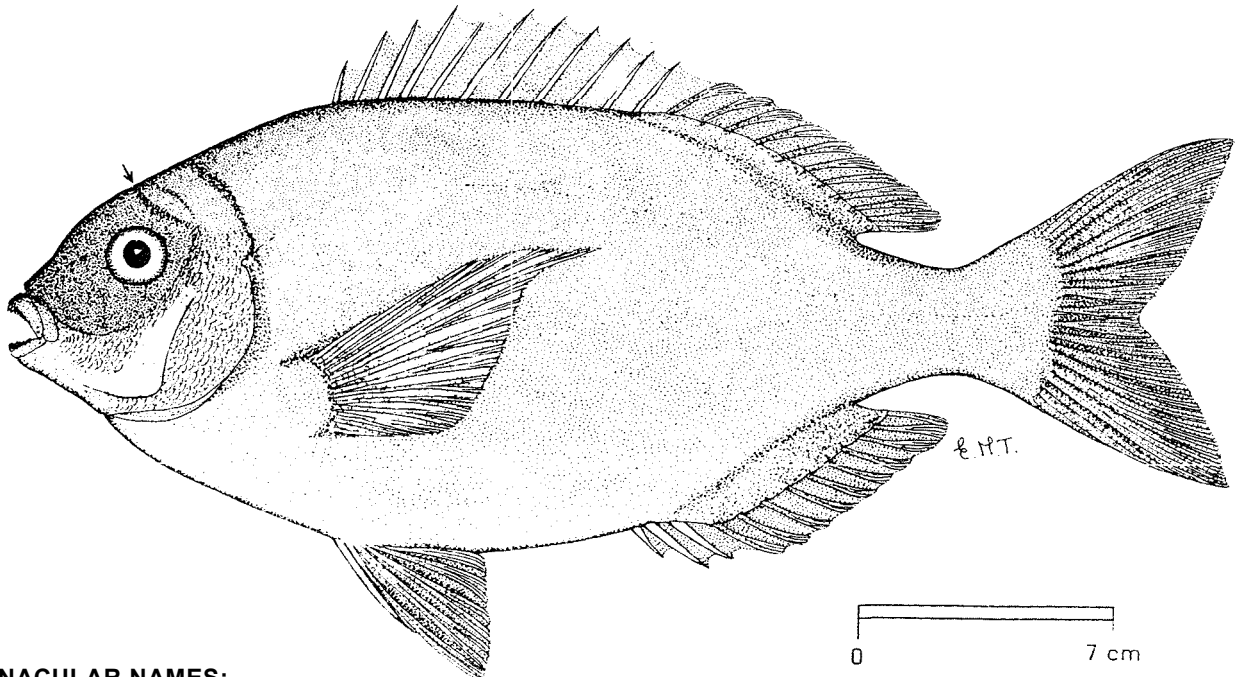


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)Pachymetopon grande (Günther, 1859)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Bronze seabream
Fr - Hotentot bronze
Sp - Hotentote bronceado

NATIONAL

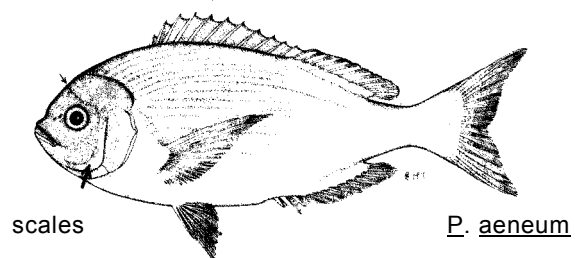
DISTINCTIVE CHARACTERS:

Body plump, deep, its depth 2 to 2.3 times in standard length. Head profile gently convex, with a slight protuberance before eye, making snout profile slightly concave especially with age; mouth small, the maxilla ending before level of anterior eye margin; in both jaws, 4 or 5 rows of incisiform triangular-tipped teeth; no granular or molar teeth; gillrakers 11 to 13 on lower limb of first arch. Dorsal fin with 11 spines and 11 rays; anal fin with 3 spines and 10 or 11 soft rays; pectoral fins much longer than head (nearly 1.5 times as long as head), reaching to above anal fin; caudal fin forked, lobes pointed. Scales small, 80 to 85 in lateral line; scalation on top of head extending to above or slightly beyond vertical eye diameter; preopercle flange naked; soft portions of dorsal and anal fins densely scaly at base, but without a sheath.

Colour: body iridescent bronze, chest and belly lighter; a green iridescence on scales below and in front of dorsal fins and upper head, a blue iridescence behind eyes and below; snout bronze; dorsal, anal, caudal and pelvic fins green with some dark brown medially; pectoral rays blue, fin membrane transparent.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES
OCCURRING IN THE AREA:

Pachymetopon aeneum: preopercle flange scaly at inner margin; body less deep; gillrakers 16 or 17 (11 to 13 in P. grande).



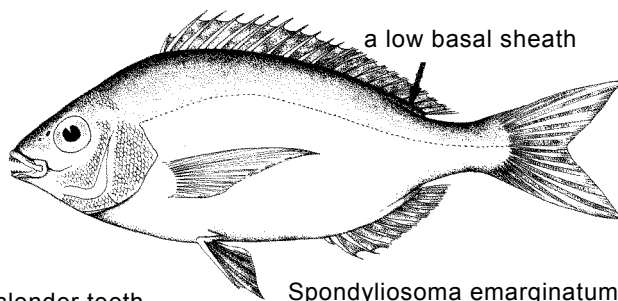
scales

P. aeneum

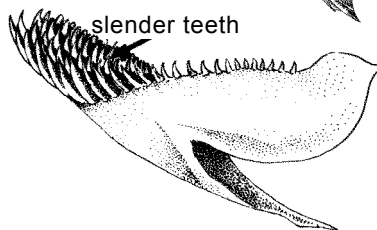
Spondyliosoma emarginatum: soft dorsal and anal fins with a low sheath at base: teeth slender, lanceolate.

Polyamblyodon species. only one series of incisors and several inner rows of granular teeth.

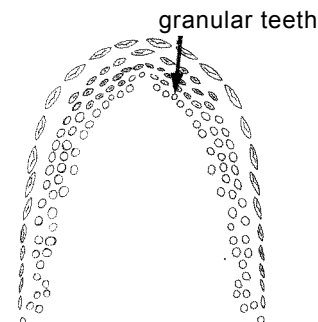
Kyphosus species (Kyphosioae): scales large, about 55 in lateral line (80 to 85 in P. grande); pectoral fins short, reaching only half way to above anal origin; only one series of hockeystick-shaped incisors.



Spondyliosoma emarginatum



Spondyliosoma



Polyamblyodon

SIZE:

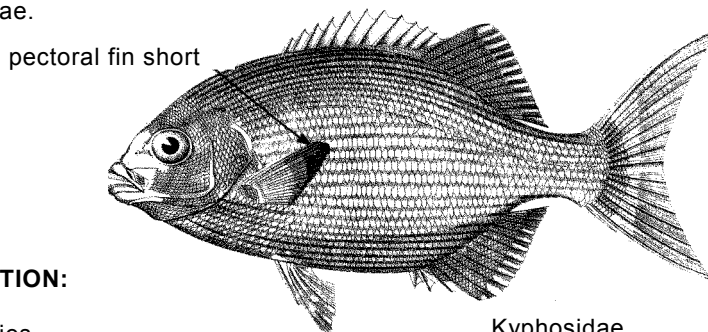
Maximum: 55 cm; common from 30 to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area from southern Mozambique and Madagascar to South Africa, also extending to the Cape of Good Hope.

Occurs in shallow waters around rocks.

Feeds mainly on ascidians, crustaceans and algae.



Kyphosidae

PRESENT FISHING GROUNDS:

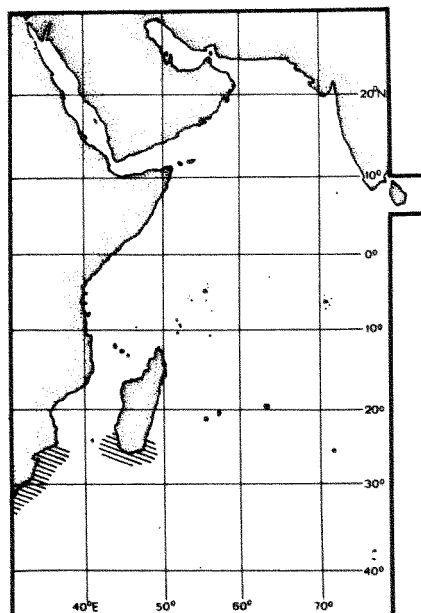
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

An important species for sport fishing, mainly caught by rod and line.

Marketed fresh.

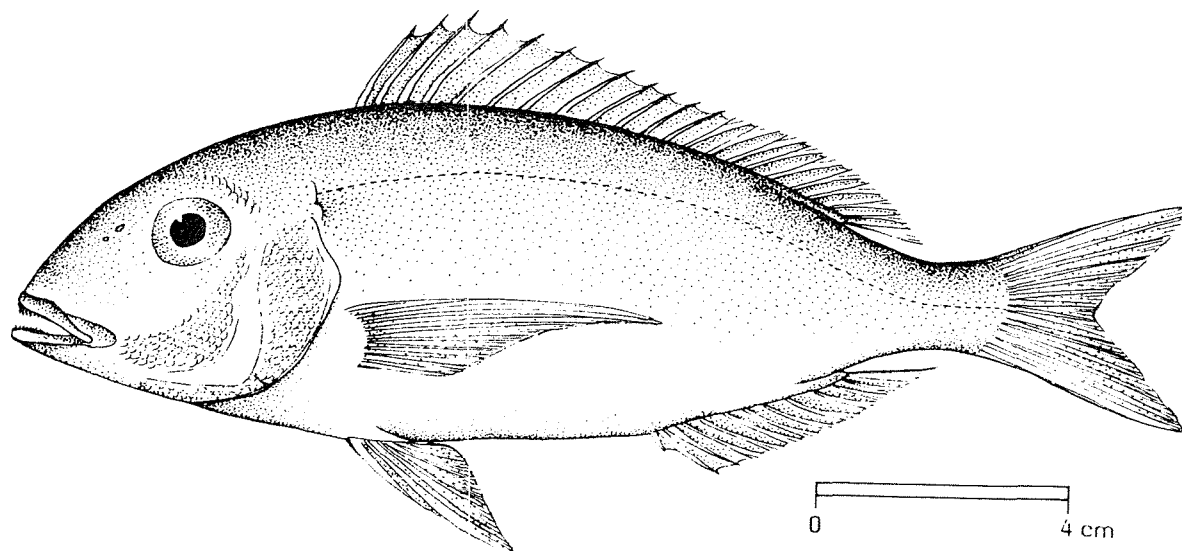


FAQ SPECIES IDENTIFICATION SHEETS

FAMILY : SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Pagellus affinis* Boulenger, 1887

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Arabian pandora
 Fr - Pageot d'Arabie
 Sp - Pandora arabe

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate, fusiform (depth 2.6 to 3 times in standard length), only slightly compressed. Head profile regularly convex from upper lip to origin of dorsal fin; eye large; snout subconical; mouth terminal, moderately protrusible, the maxilla reaching to about anterior margin of eye; in both jaws, anteriorly few conical teeth and several rows of cardiform teeth, laterally two rows of molars; 9 to 11 gillrakers on lower limb of first arch. Dorsal fin single, with 12 slender spines and 10 rays; anal fin with 3 spines and 10 soft rays, last ray of anal and dorsal slightly elongated; pectoral fins about equal to head length, their tips reaching to above anal spines; caudal fin forked. Scales moderately small, 59 to 63 in lateral line; scalation on top of head reaching to beyond vertical diameter of eyes; preopercle flange naked; 10 or 11 rows of scales on opercle, 7 on cheeks; a low, scaly sheath at base of dorsal and anal fins.

Colour: silvery red, each scale on upper half of body with a dark central spot forming about 10 longitudinal lines

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pagellus natalensis (restricted to southern part of area): 8 or 9 rows of scales on opercle (10 or 11 in P. affinis) and 5 to 7, usually 6, on cheeks (7 in P. affinis).

Crenidens crenidens indicus: 2 series of incisors, their cutting edges with 5 points (no incisors in Pagellus species).

Cheimerius nufar: first 2 dorsal spines short, 3rd to 7th elongated; no molars.

Polysteganus coeruleopunctatus: body rather deep; longitudinal lines of blue spots along the scale rows; no molars.

SIZE:

Maximum: 37 cm; common from 15 to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

From the "Gulf" to the Gulf of Aden and northern coasts of Somalia.

Occurs over various grounds, down to 150 m depth.

Omnivorous with preference for carnivorous diet.

PRESENT FISHING GROUNDS:

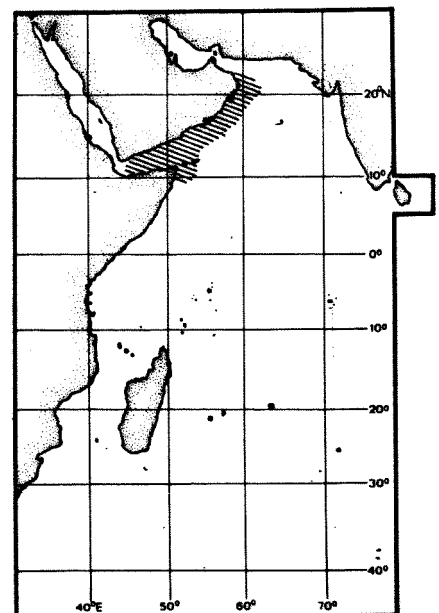
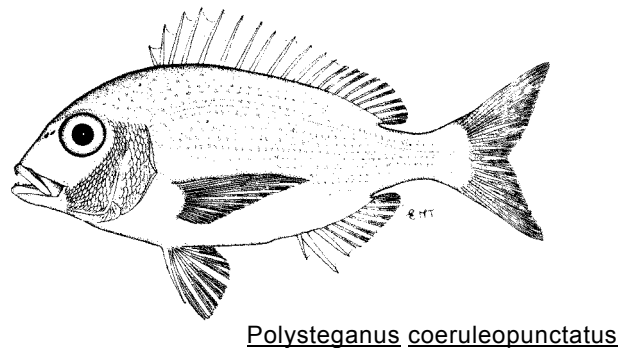
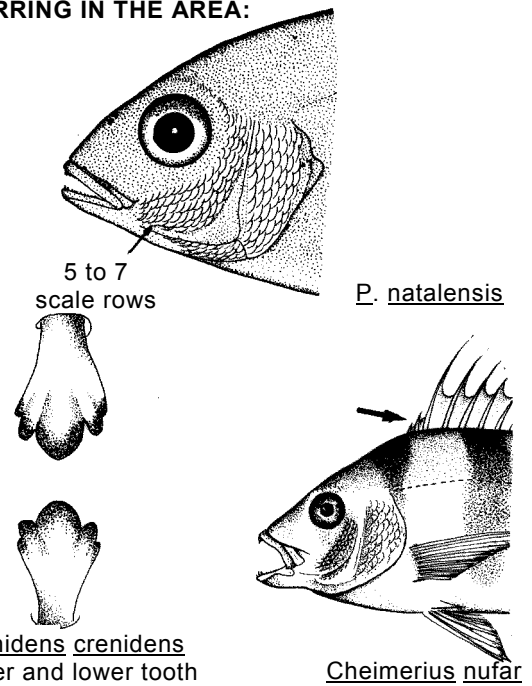
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught in trawlnets.

Marketed fresh.

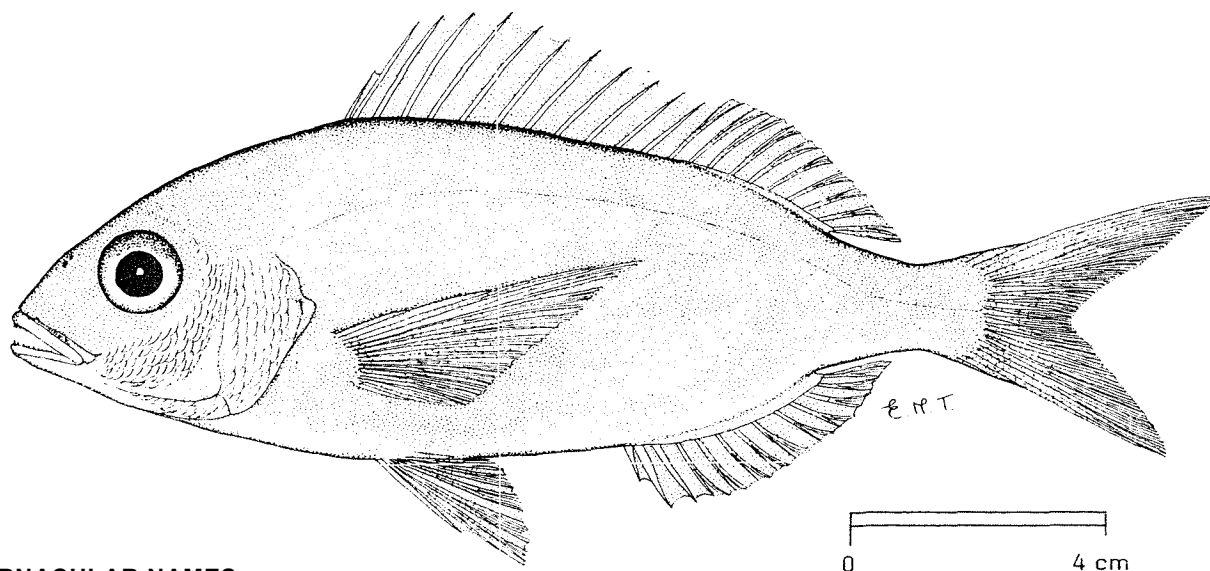


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)Pagellus natalensis Steindachner, 1902 *

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

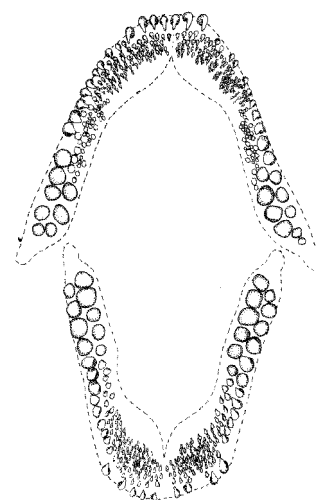
FAO : Erg - Natal pandora
Fr - Pageot du Natal
Sp - Pandora de Natal

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate, fusiform (depth 2.6 to 3.4 times in standard length), only slightly compressed. Head profile regularly convex from upper lip to origin of dorsal fin; eye large; snout subconical, mouth terminal, moderately protrusible, the maxilla reaching to about anterior eye margin; in both jaws, anteriorly few conical teeth and several rows of cardiform teeth; laterally 2 rows of molars; gillrakers 11 or 12 on lower limb of first arch. Dorsal fin single, with 12 slender spines and 10 soft rays; anal fin with 3 spines and 10 soft rays; last ray of dorsal and anal fins slightly elongated; pectoral fins about equal to head length, their tips reaching to above anal spines, caudal fin forked. Scales moderately small, 59 to 62 in lateral line; scales on top of head reaching anterior margin of eye; preopercle flange naked; 8 or 9 rows of scales on opercle, and 5 to 7, usually 6, on cheeks; a low scaly sheath at base of dorsal and anal fins.

Colour: silvery red, fins rosy pink, lower half of head and body light; each scale on upper half of body with a dark central spot forming about 10 faint fins.



upper and lower jaw

* Possibly a subspecies of Atlantic species P. bellottii (Steindachner; 1882)

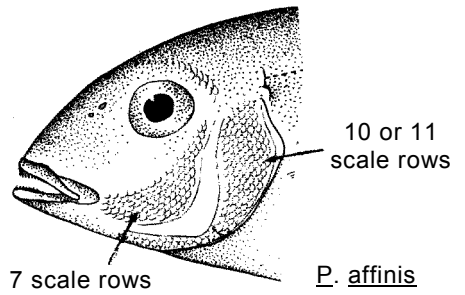
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pagellus affinis (restricted to northern part of area): 10 or 11 scale rows on opercle (8 or 9 in P. natalensis) and 7 on cheeks (5 to 7, usually 6, in P. natalensis)

Argyrozona argyrozona: pectorals much shorter than head; scales present on preopercle flange; no molariform teeth but canines in both jaws.

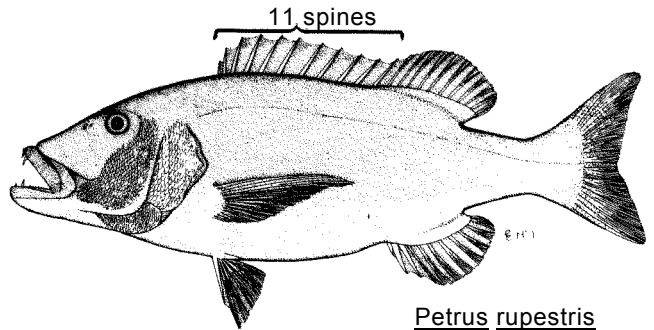
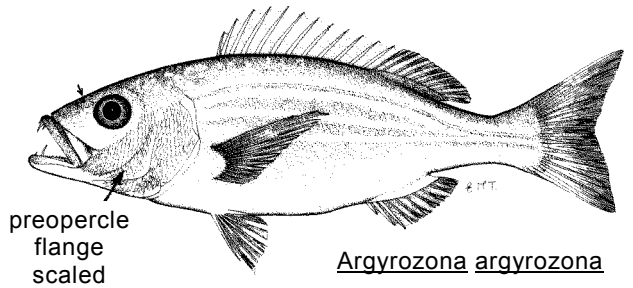
Petrus rupestris (especially juveniles): no molars but enlarged canines in jaws; dorsal fin spines 11 (12 in P. natalensis).

Crenidens crenidens crenidens: 2 series of incisors, their cutting edges with 5 points.



Crenidens

upper and lower tooth



SIZE:

Maximum: 30 cm; common from 15 to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

From South Africa to southern Madagascar and the Mozambique Channel; extending southward to Mossel Bay.

Occurs in deepish waters down to 150 m depth, over sandy-muddy bottoms, when taken from the water, grunts loudly.

Omnivorous with preferences for carnivorous diet (worms, molluscs, crustaceans).

PRESENT FISHING GROUNDS:

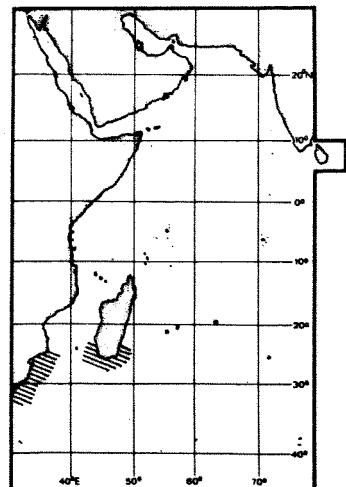
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught in trawlnets. One of the "reds" on the Cape south coast.

Marketed fresh.

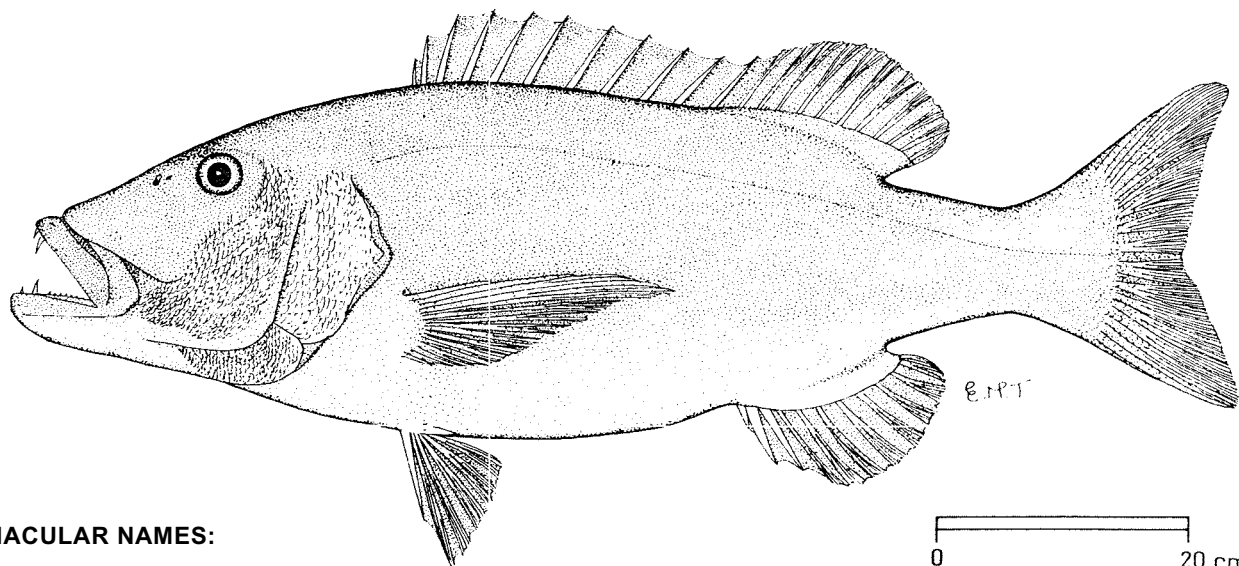


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SPARIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Petrus rupestris</i> (Valenciennes, 1830)
--

OTHER SCIENTIFIC NAMES STILL IN USE: *Dentex rupestris* Valenciennes, 1830

VERNACULAR NAMES:

FAO : En - Red steenbras
Fr - Denté du Cap
Sp - Dentón del Cabo

NATIONAL:

DISTINCTIVE CHARACTERS:

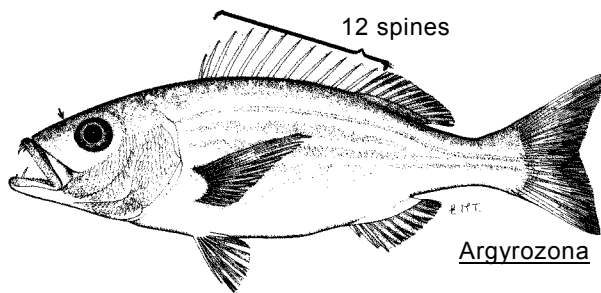
Body oblong, elongate, fairly compressed, its depth about 2.5 to 3 times standard length. Head profile from upper lip to dorsal fin almost straight in juveniles, developing a slight hump before the eyes with growth; eye small, its diameter 4 (juveniles) to 8 times in head length; snout long; mouth large, protrusible, the maxilla reaching almost to level of anterior eye margin; 4 upper and 4 to 6 lower, large canines (the hinder pair the largest); a narrow band of fine teeth in each jaw, the inner obtuse, the outer larger and conical; no molars; gill rakers short, laminate, few (9 to 11 on lower limb of first arch). Dorsal fin single, with 11 spines and 10 or 11 soft rays; anal fin with 3 spines and 8 soft rays, the 2nd spine stoutest, but the 3rd longest; pectoral fins fairly long, reaching to anal fin origin in juveniles, but not in large adults; caudal fin forked, lobes slightly rounded. Scales moderately small, 57 to 63 in lateral line, those above lateral line smaller than those below; scalation on top of head reaching to beyond level of anterior eye margin; flange of preopercle partly scaly; soft dorsal and anal fins scaly at base with a vestigial sheath.

Colour: juveniles (to about 25 cm in length) have a deep red body, whitish below, with a dark round blotch just behind last dorsal ray; head dark brown-red, lips vermillion, fins all red with dark spots on spinous dorsal membrane. Adults are magnificently coloured, ranging from bright red to golden yellow (often mottled red and yellow) with green mottlings dorsally on body; anal, pelvic and pectoral fins uniform red; dorsal and caudal fin rays and spines red; fins with red margins but remainder of membrane green.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Argyrozona argyrozona: eyes larger, less than 5 times in head (about 4 (juveniles) to 8 times in P. rupestris); gillrakers slender, 17 to 20 on lower limb of first arch (8 or 9 short, laminate rakers in P. rupestris); 12 dorsal spines (11 in P. rupestris).

Lutjanus species: all have serrate preopercle margins (entire in P. rupestri) and most of them a deep notch in the hind preopercle margin (to accommodate the bony knob or, the interopercle underneath).



SIZE:

Maximum: 200 cm; common from 80 to 120 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

A South African endemic species, occurring from Natal to the Cape of Good Hope (possibly to Zululand).

Inhabits coastal waters on rocky banks down to moderate depths. Sometimes driven into estuaries by cold upwelling (south coast). Flesh eating predator, stated to be vicious and large specimens have reputations of being man-eaters. Mucus on the teeth is an anticoagulant.

Feeds on octopus, crabs and fish, especially Spondylisoma

PRESENT FISHING GROUNDS:

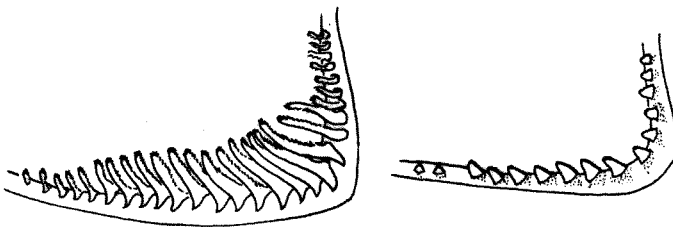
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

About 50 tons are caught yearly (figure referring to trawl fishery only).

One of South Africa's premier angling fishes, caught with flesh bait and spoons on line gear; also with trawls.

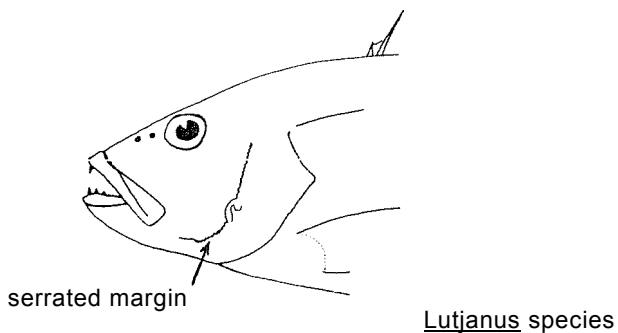
Consumed fresh, the flesh is highly esteemed, but the liver is poisonous as it causes hypervitaminosis.



Argyrozona argyrozona

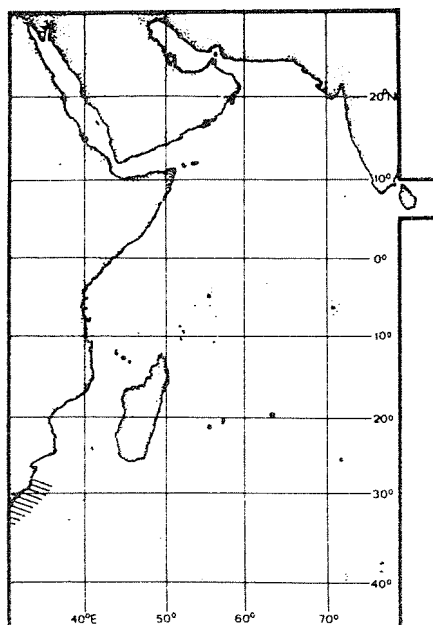
Petrus rupestris

gillrakers



serrated margin

Lutjanus species

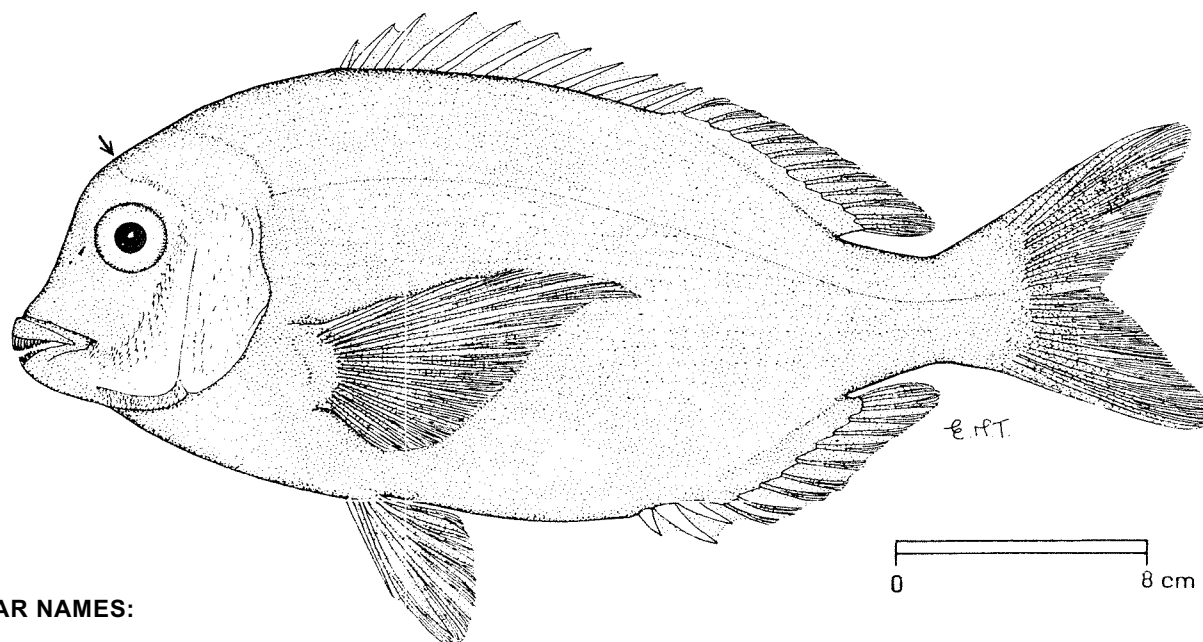


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)Polyamblyadon germanum (Barnard, 1934)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - German seabream
 Fr - Sar germain du Natal
 Sp - Sargo germán de Natal

NATIONAL:

DISTINCTIVE CHARACTERS:

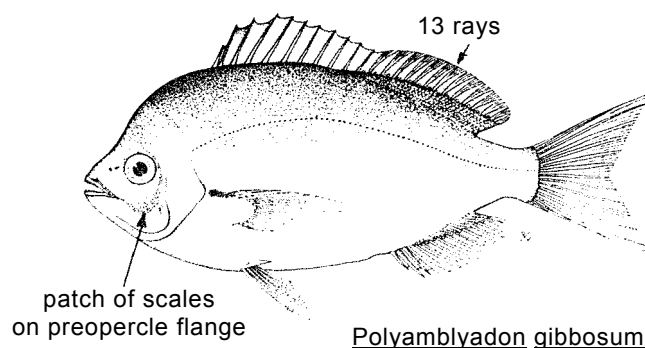
Body ovate, moderately deep (depth 2.2 to 2.5 times in standard length), compressed. Snout concave to bulge between and above eyes, then gently convex to broad nape (interorbital becoming gibbous with age); eye moderate; mouth subhorizontal, the maxilla reaching almost to below anterior eye margin; in both jaws, 1 outer series of strong, curved chisel-like incisors, and several inner rows of small, rounded, granular teeth; gillrakers 15 or 16 on lower limb of first arch. Dorsal fin with 11 spines and 11 soft rays; anal fin with 3 spines and 10 or 11 soft rays; pectoral fins reaching to above anal spines; caudal fin forked. Scales relatively small, 70 to 75 in lateral line; scalation on top of head extending to above vertical diameter of eye; preopercle flange naked; soft dorsal and anal fins densely scaly at base.

Colour: grey-blue, lighter below.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Polyamblyadon gibbosum: nape sharp (broad in P. germanum); preopercle flange with a patch of scales; 13 dorsal rays (11 in P. germanum).

Pachymetopon species: 4 or 5 rows of incisors (only 1 series in P. germanum), no granular teeth.



Spondyliosoma emarginatum: all teeth slender, lanceolate; soft dorsal and anal fins with a low basal sheath.

Kyphosus species (Kyphosidae): pectoral fin short, reaching only half way to above anal fin origin; only 1 series of hockeystick-shaped incisors, no granular inner teeth.

SIZE:

Maximum: 45 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, off Maputo (Mozambique) and Natal (South Africa) and southward to Algoa Bay.

A rare species occurring between 40 and 80 m depth.

Feeds on crustaceans, small molluscs and algae.

PRESENT FISHING GROUNDS:

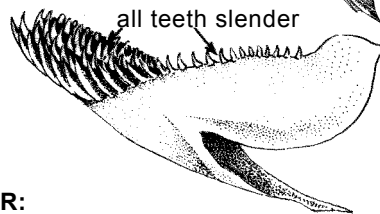
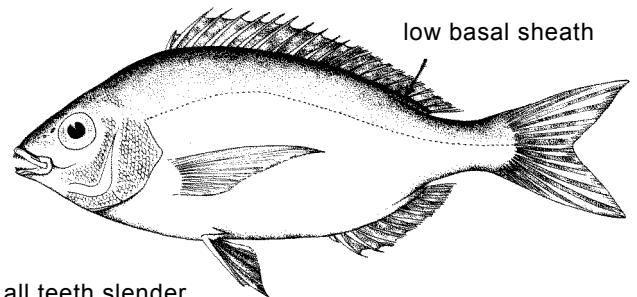
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

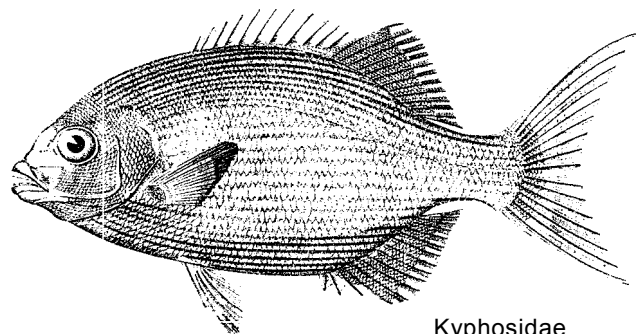
Very rare catch by line fishermen, may prove to be found further north.

Consumed fresh, flesh esteemed.

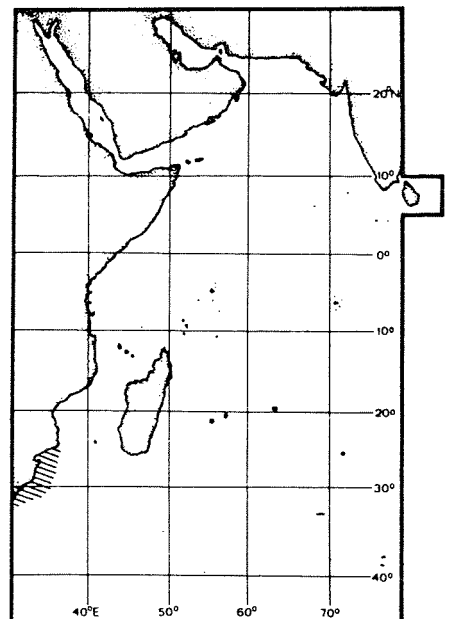


Spondyliosoma emarginatum

lower jaw, lateral view

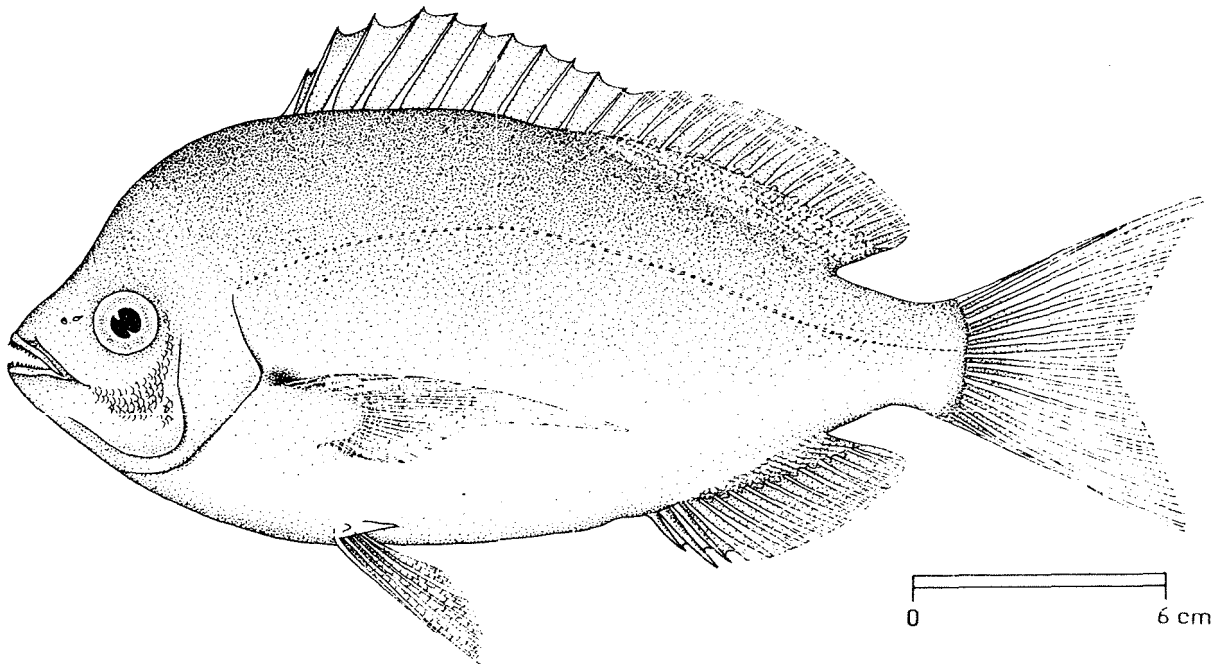


Kyphosidae



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Polyamblyodon gibbosum* (Pellegrin, 1914)OTHER SCIENTIFIC NAMES STILL IN USE: *Polyamblyodon cristiceps* Smith, 1940

VERNACULAR NAMES:

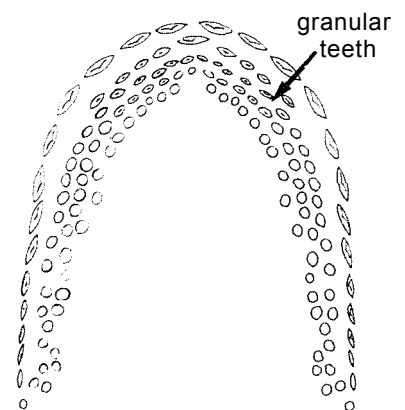
FAO : En - Knifeback seabream
 Fr - Sar couteau
 Sp - Sargo navaja

NATIONAL:

DISTINCTIVE CHARACTERS:

Body ovate (depth 2 to 2.3 times in standard length) compressed. Head profile becoming very elevated with age, being slightly concave from upper lips to sharp nape where it curves backward to dorsal fin origin; maxilla reaching almost to below front margin of eye, mouth protrusible; in both jaws, an outer series of lanceolate incisiform-teeth, the anterior ones the largest; immediately behind them, a pavement of small, granular teeth, more or less pointed anteriorly; gillrakers slender, 15 to 18 on lower limb of first arch. Dorsal fin with 11 slender spines and 13 soft rays; anal fin with 3 spines and 10 or 11 soft rays; pectoral fins reaching to anal origin; caudal fin forked. Scales moderately small, 77 or 78 in lateral line; scalation on upper surface of head extending forward to level of vertical eye diameter; preopercle flange partly scaly; soft dorsal and anal fins basally densely scaly.

Colour: uniform grey-blue to dusky above, shading to light below; a row of heavy dark scales across; fins light except for tips of pelvics, pectoral fin axils and caudal fin lobes, which are dark.



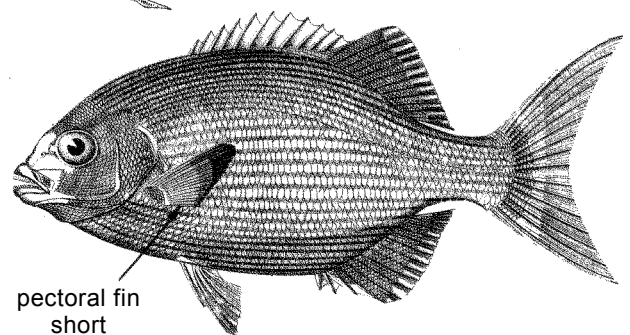
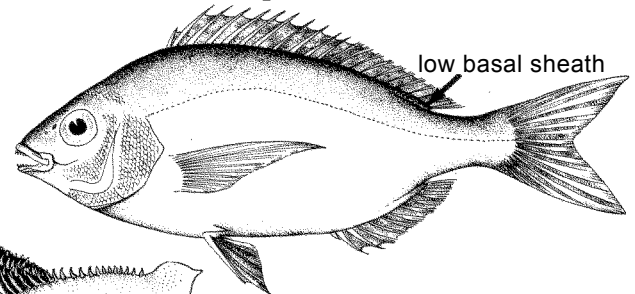
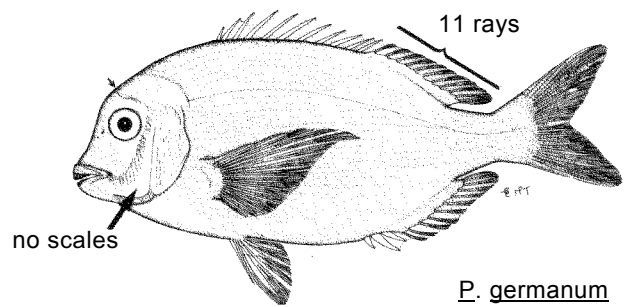
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Polyamblyodon germanum: a broad nape (compressed and sharp in P. gibbosus); preopercle flange completely naked (partly scaled in P. gibbosus); 11 dorsal rays (13 in P. gibbosus).

Pachymetopon species: 4 or 5 rows of incisors (only 1 series of incisors in P. gibbosum); no granular teeth.

Spondyliosoma emarginatum: all teeth slender, lanceolate; soft dorsal and anal fins with a low basal sheath.

Kyphosus species (Kyphosidae): pectoral fins short, reaching only half way to above anal fin origin; only 1 series of hockeystick-shaped incisors, no granular teeth.



SIZE:

Maximum: 60 cm; common from 30 to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

South African coast from Natal to Beira (Mozambique) also in southern Madagascar.

Feeds on invertebrates, mainly crustaceans and molluscs.

PRESENT FISHING GROUNDS:

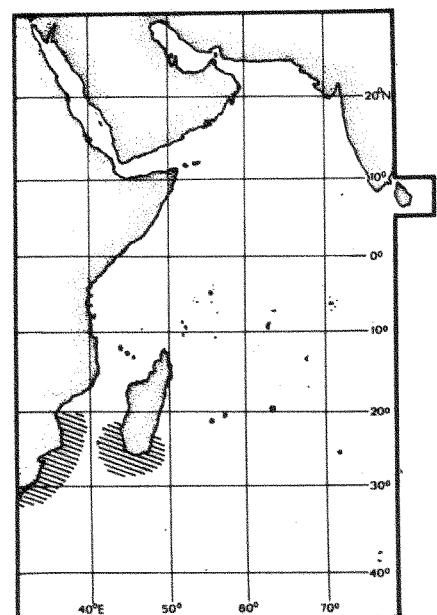
Coastal waters throughout its range, usually near rocky reefs.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught on line gear.

Used fresh, but flesh not greatly esteemed.

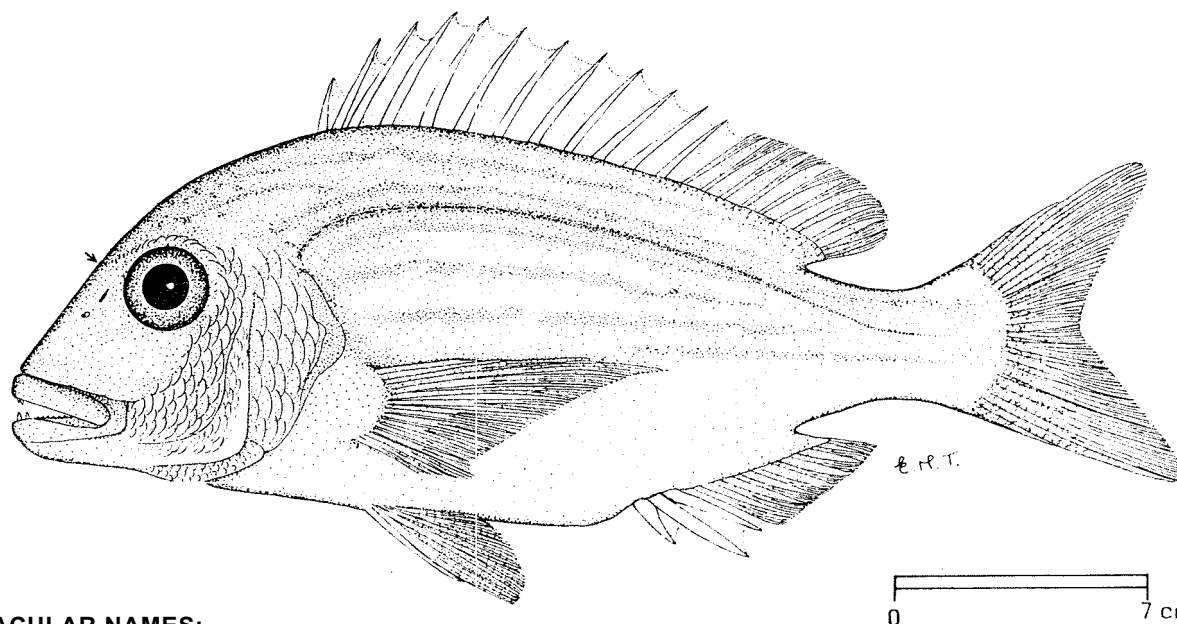


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)Polysteganus baissaci Smith, 1978

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Frenchman seabream
 Fr - Denté guingham
 Sp - Dentón guingan

NATIONAL:

DISTINCTIVE CHARACTERS:

Body moderately deep, its depth about 2.3 to 2.5 times in standard length and longer than head length. Head profile gently curving from upper lip to dorsal fin origin; eye moderate; maxilla reaching to below anterior part of eye; 4 enlarged canines in each jaw, the inner pair smaller than outer, the latter flaring slightly outward and backward; laterally, subconical teeth forming a cutting edge, and inner bands of smaller granular teeth, those behind enlarged canines slightly bigger; in lower jaw, two of these granular teeth (those nearest behind enlarged canines) are larger than the remainder; gillrakers 11 on lower limb of first arch. Dorsal fin with 12 stout spines and 10 soft rays; anal fin with 3 stout spines and 8 soft rays; pectoral fins reaching to above anterior anal rays; caudal fin forked. Scales rough, moderate, 48 to 50 in lateral line; scalation on to of head extending forward to level of posterior nostrils; preopercle flange scaly anteriorly, with about 173 of margin naked; soft dorsal and anal fins with a scaly basal sheath.

Colour: rosy pink with a golden sheen, silvery below; 6 to 7 subparallel, narrow, wavy, blue bands along body, extending onto head as blue spots on area above eye; fins reddish, except fin membranes of dorsal and soft anal which are bluish; eye rosy.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

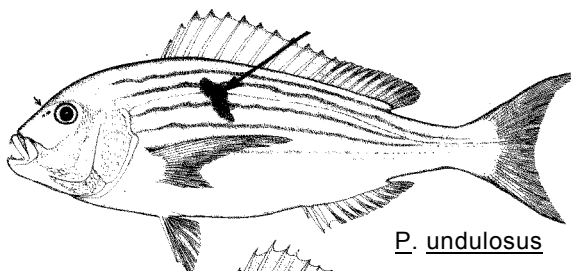
Polysteganus undulosus: a large oval blotch across lateral line below 5th and 6th dorsal spines.

P. preorbitalis: eye smaller than suborbital space.

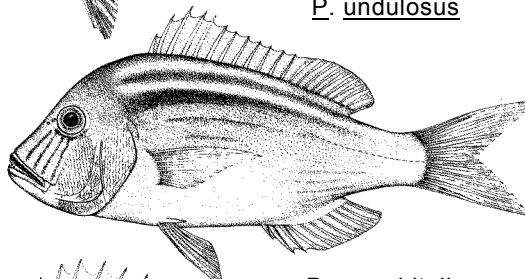
P. coeruleopunctatus: each scale with a blue dot, resulting in rows of dots along body.

Argyrozona argyrozona: head length equal to body depth, shorter in P. baissaci; fish slender, depth 3 times in standard length (2.3 to 2.5 times in P. baissaci); gillrakers 17 to 20 lower (11 in P. baissaci).

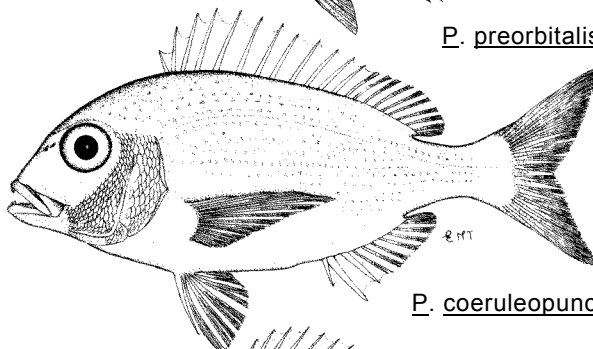
Other species of Sparidae with lines along the body and no blotch: no enlarged canines anteriorly, but granular or molar teeth present.



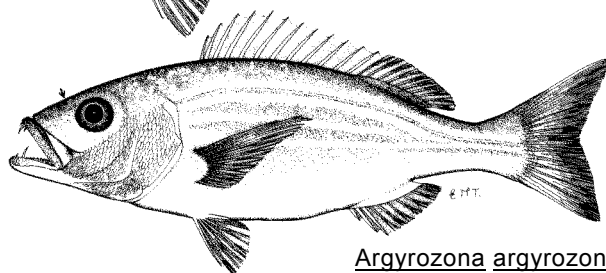
P. undulosus



P. preorbitalis



P. coeruleopunctatus



Argyrozona argyrozona

SIZE :

Maximum: ?; common from 30 to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

At present known only from off Mauritius and Madagascar at depths between 80 and 100 m. Free swimming around reefs and on sandy bottoms.

Carnivorous.

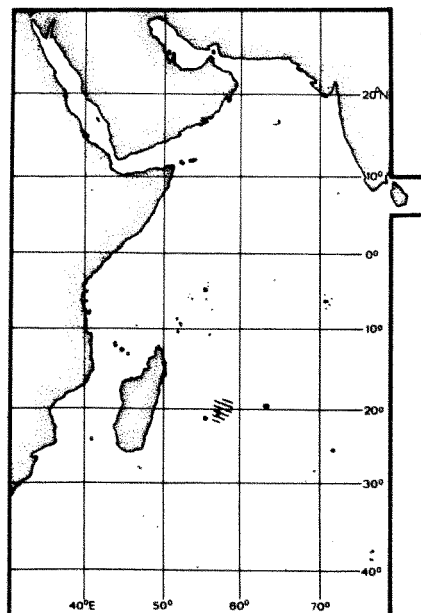
PRESENT FISHING GROUNDS:

Mainly north of the main island of Mauritius.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

A premier eating fish caught on lines.

Marketed fresh.

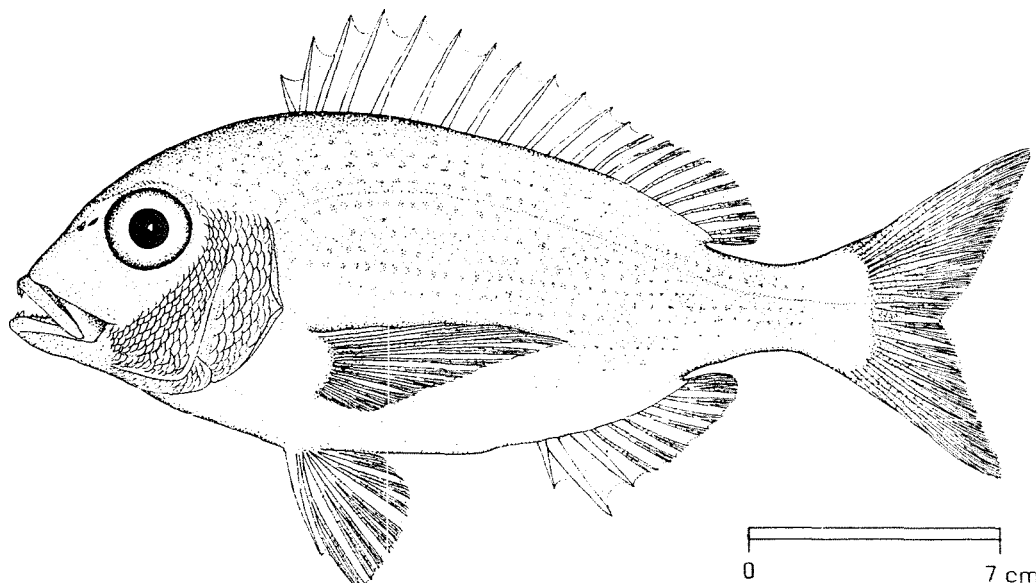


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)Polysteganus coeruleopunctatus Klunzinger, 1870

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Blueskir, seabream
 Fr - Denté à points bleus
 Sp - Dentón azul

NATIONAL:

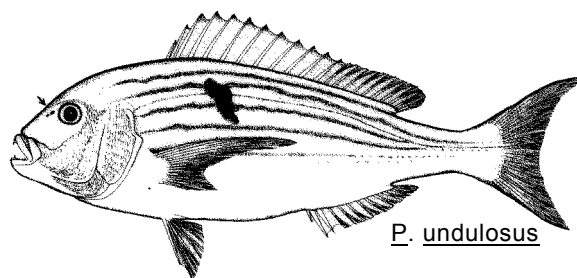
DISTINCTIVE CHARACTERS:

Body rather deep, robust, its depth greater than head length. Head profile convex, with a slight bump in front of eyes in adults; eye large, at least equal to suborbital depth; mouth subterminal, large, the maxilla reaching to anterior eye margin; front canine; not very strong, 4 in upper, 6 in lower jaw, subequal; outer lateral teeth broadly conical, the hindmost obtuse; a few series of small teeth behind the canines, granular laterally; no molars; gillrakers 12 or 13 or, lower limb of the first arch. Dorsal fin single, with 12 spines and 10 soft rays; anal fin with 3 spines (2nd stouter than 3rd) and 8 soft rays; pectoral fins long, reaching to beyond anal spines; caudal fin forked. Scales fairly large, 50 to 52 in lateral line; scalation on top of head reaching to beyond level of anterior eye margin; preopercle flange scaly, except at margin; soft dorsal and anal fins with a basal scaly sheath.

Colour: deep rosy pink above, silvery below; a blue spot on each scale on dorsal half of body forming longitudinal lines of blue spots along scale rows; dorsal, anal, caudal and pectoral fins rosy pink, pelvic fins pink basally with distal 2/3 blue; eye deep ruby with silver reflections.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES
OCCURRING IN THE AREA:

Polysteganus undulosus: narrow blue lines along every alternate scale row forming 8 or 9 wavy lines along body; a large black blotch over lateral line, below 6th dorsal spine.

P. undulosus

P. baissaci: narrow blue lines along every alternate scale row forming S or 9 wavy lines along body; 4 enlarged canines in lower jaw.

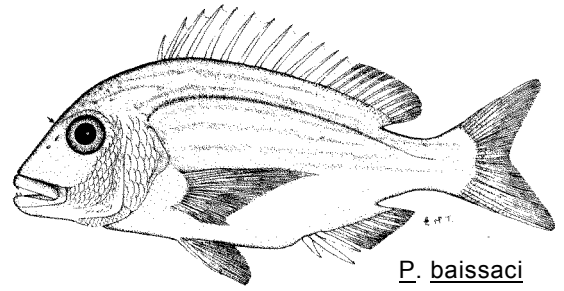
P. preorbitalis: eye small, preorbital depth 1.5 to 2 times the eye diameter (usually less than, or equal to eye diameter in P. coeruleopunctatus).

Argyrozona argyrozona: body elongate, snout pointed; head about equal to body depth (smaller than body depth in P. coeruleopunctatus); lower jaw projecting; pectoral fins much shorter than head (about equal to head in P. coeruleopunctatus).

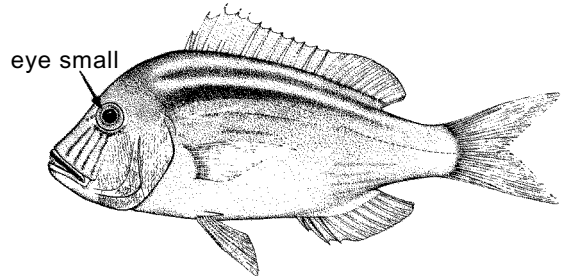
Cheimerius nufar: dorsal spines elongate (normally graduated in P. coeruleopunctatus).

Argyrops species: 2 or more elongate dorsal spines; molar teeth present.

Other species of Sparidae: incisiform and/or molar teeth present.

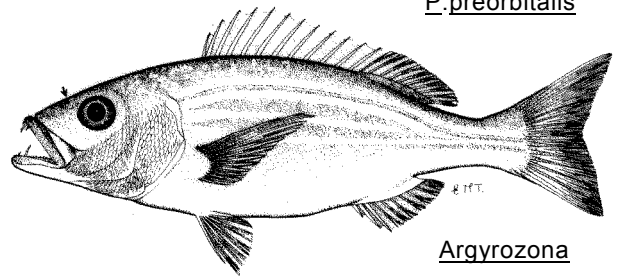


P. baissaci

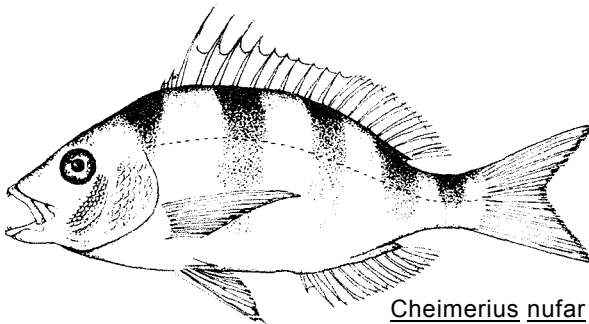


eye small

P. preorbitalis



Argyrozona



Cheimerius nufar

SIZE:

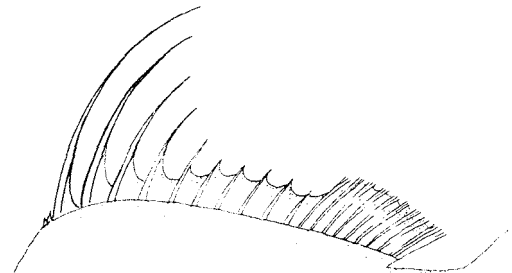
Maximum: 50 cm; common from 25 to 35 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, from South Africa (Natal) to the Red Sea, including Madagascar.

Lives mainly in deep waters around reefs.

Carnivorous predator.



Argyrops spinifer

PRESENT FISHING GROUNDS:

Over reefs and in deep waters.

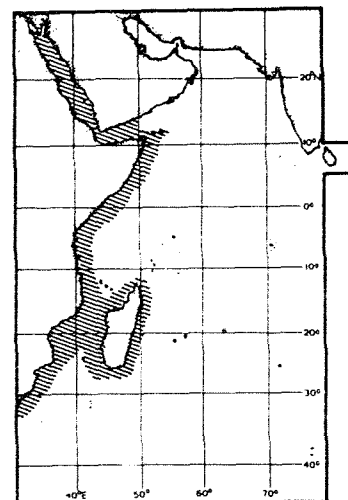
Most abundant in northern South Africa during winter season.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught generally on line gear.

An excellent fish, usually marketed fresh.



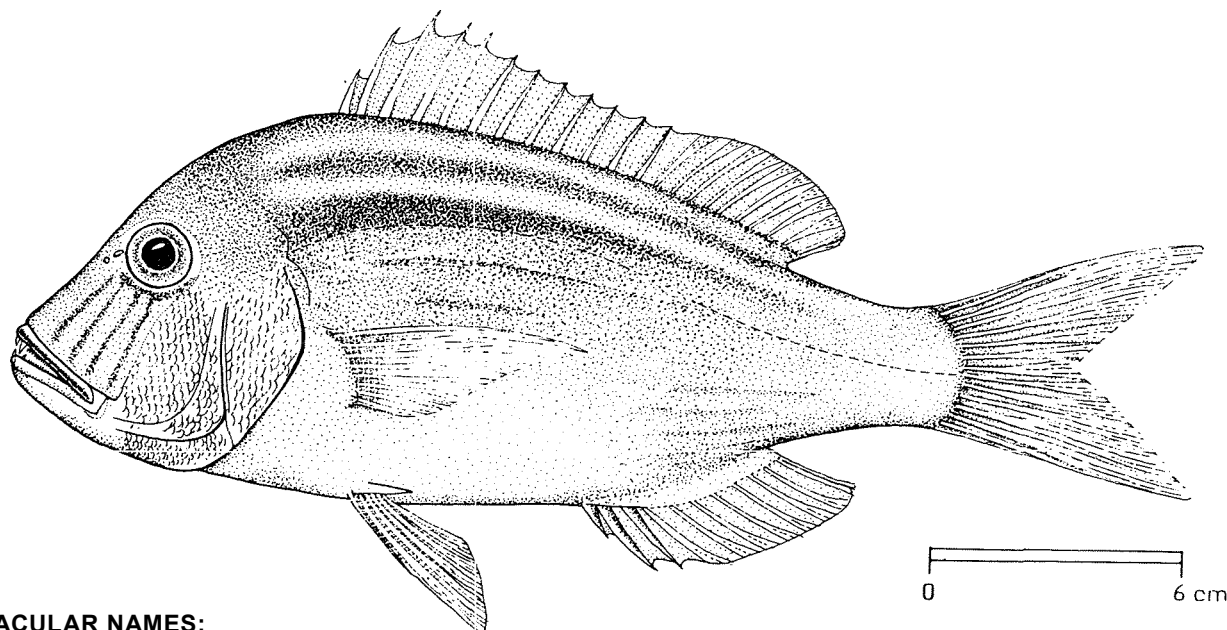
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Polysteganus praeorbitalis</i> (Günther, 1859)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO :	En - Scotsman seabream
	Fr - Denté du Natal
	Sp - Dentón de Natal

NATIONAL:

DISTINCTIVE CHARACTERS:

Body moderately deep, its depth 2.5 to 2.8 times in standard length. Head profile moderately steep up to sharp nape which, in large specimens, bends to become almost straight to dorsal fin origin; eye always smaller than deep suborbital space (which is twice the eye: in large specimens); maxilla not reaching beyond anterior eye margin; preopercle feebly serrate in juveniles; at front of jaws, 4 upper and 6 lower, widely spaced canines, the inner pair smallest; lateral teeth in outer series conical and fairly stout; conical teeth on inner band fine; gillrakers 15 or 16 on lower limb of first arch. Dorsal fin with 12 or 13 spines and 10 soft rays, base of soft portion half that of spinous portion; anal fin with 3 spines and 8 soft rays; pectoral fins equal to or shorter than head; caudal fin forked. Scales rough, moderately small, 59 to 63 in lateral line, those above lateral line much smaller than those below; scales on opercle very small, scalation on top of head extending to above anterior nostril; preopercle flange scaly except for a narrow margin; dorsal and anal fins with a deep and heavy scaly sheath.

Colour: brilliantly coloured; red generally, with blue lines from eye to mouth; blue lines along lips and suborbital edge; blue (and yellow along lateral line) lines along body; dorsal and anal fins red, with blue and yellow mottlings; caudal fin red.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

The combination of characters described above, particularly the brilliant colouring, small eye, deep suborbital space, enlarged canines anteriorly and absence of molars, easily separates this species from any other sparid within its range.

Lethrinus elongatus (Lethrinidae): similar colouring; but snout long and pointed, no cheek scales, and 10 dorsal spines (10 or 13 in P. praeorbitalis).

SIZE:

Maximum: 50 cm; common from 30 to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found only in the southern part of the area, from Durban (Natal, South Africa) to Beira (Mozambique); southward reaching Algoa Bay.

A rock-haunting species.

Carnivorous, generally more abundant during the winter months.

PRESENT FISHING GROUNDS:

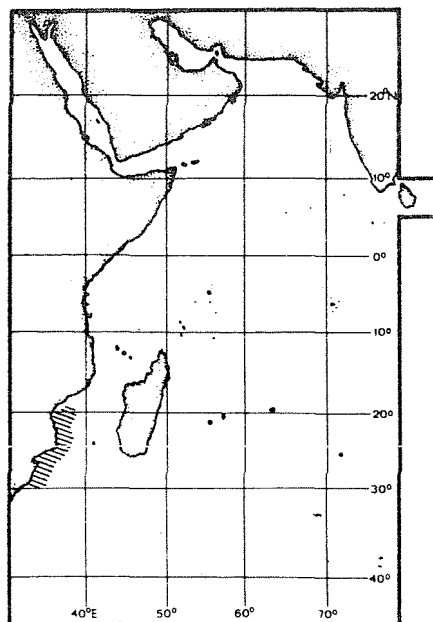
Off Natal, Zululand and Mozambique coast down to 100 m depth.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught on line year.

Marketed fresh.

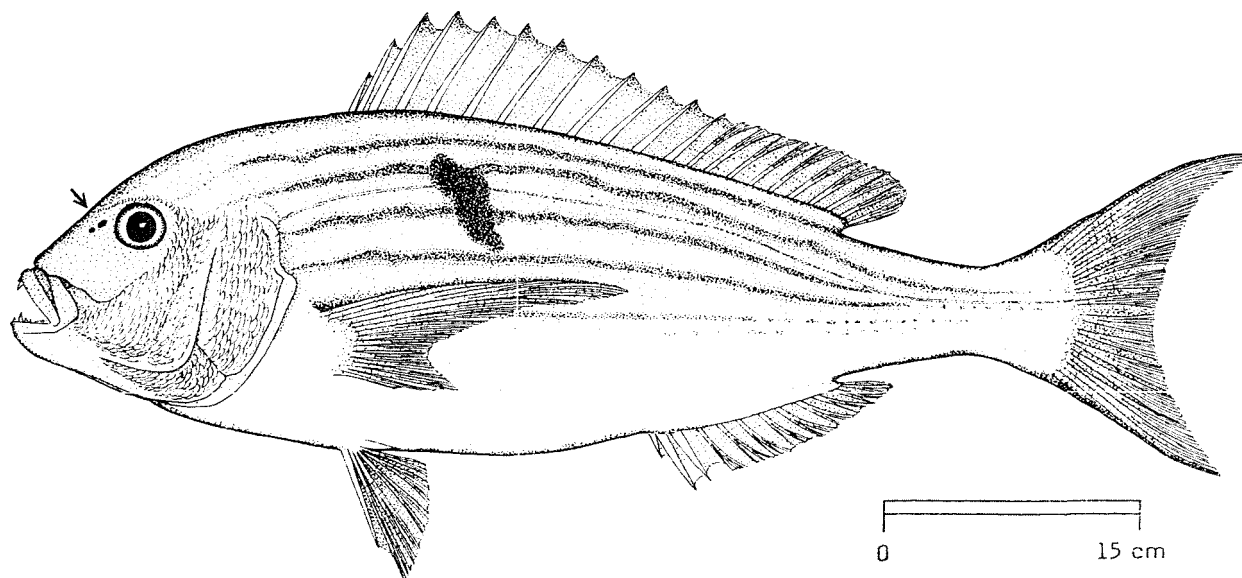


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Polysteganus undulosus* (Regan, 1908)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Seventy-four seabream
 Fr - Denté maculé
 Sp - Dentón marichado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body moderately deep, its depth 2.4 to 2.9 times in standard length. Head profile evenly convex but a nuchal gibbosity can develop in large males; eye moderate; mouth small, the maxilla reaching to, or almost to, below anterior eye margin; at front of jaws, 4 rather feeble, subequal upper canines, and 6 weak, lower canines, the innermost pair smallest; lateral teeth curved, slender, fang-like; an inner, small band of fine conical teeth behind canines and laterally; gillrakers 14 to 16 on lower limb of first arch. Dorsal fin with 12 moderate spines and 10 soft rays; anal fin with 3 spines and 8 or 9 soft rays; pectoral fins reaching to above anal fin origin; caudal fin forked in young, becoming almost lunate with growth. Scales rough, moderately small, 58 to 62 in lateral line; scalation on top of head extending to above anterior nostril; preopercle flange scaly, except for a narrow margin; dorsal and anal fins with low scaly sheaths.

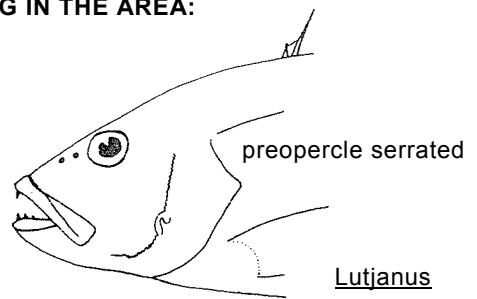
Colour: reddish, with wavy blue lines or dots along sides, mostly above pectoral fins, the lines edged with red, and the interspaces yellow; a large, oval blue-black blotch across lateral line below the 5th and 6th spines; chirp and ventral part of body silvery, fins red.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Lutjanus species: 10 dorsal spines (12 in P. undulosus); edge of preopercle serrated and often with a notch; species with blotch on sides have it further back, below junction of spinous and soft dorsal.

Lethrinus harak: cheek naked, 10 dorsal spines; blotch horizontally oval, below lateral line, at level of 8th spine to 3rd ray of dorsal fin.

The large, vertically oval blotch across lateral line below 5th and 6th dorsal spines, and the blue lines along scale rows above lateral line easily separate this species from any other similar ones in the area.



SIZE:

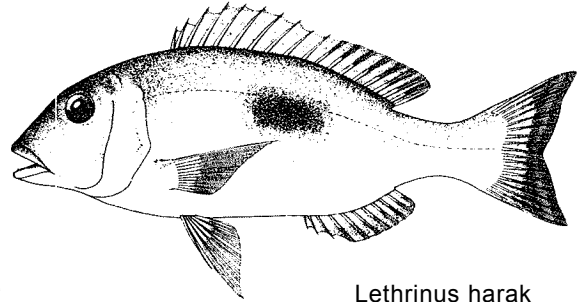
Maximum: 120 cm; common from 70 to 90 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Southern part of the area, from Durban (Natal, South Africa) to southern Mozambique; southward extending to the Cape of Good Hope.

Occurs in deep waters where it is most abundant over rocky areas and banks.

Carnivorous, feeds mainly on fish, squid, etc.



PRESENT FISHING GROUNDS:

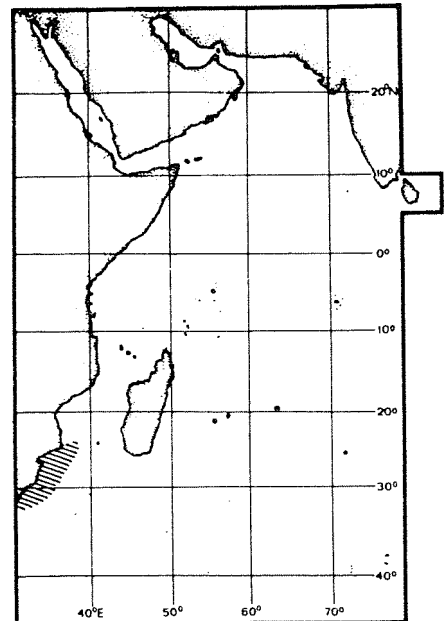
Has mostly been fished out along the Cape Province fishing grounds, reviving somewhat off Transkei and Natal.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with line gear off banks at sea.

Premier food fish, marketed fresh.



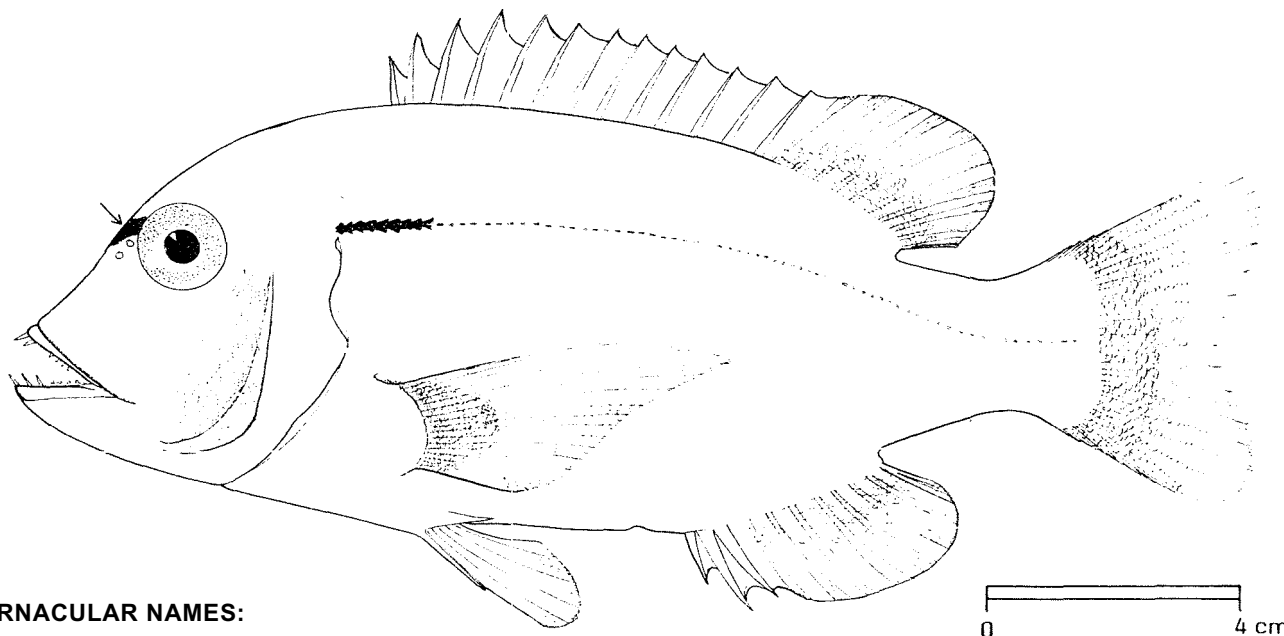
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Porcostoma dentata</i> (Gilchrist & Thompson, 1908)
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OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Dane seabream
 Fr - Spare dentu
 Sp - Sargo dentón

NATIONAL:

DISTINCTIVE CHARACTERS:

Body ovate, rather plump. Head profile straight or somewhat concave up to interorbital region, then gently rounded to dorsal fins origin; snout subconical; suborbital space deep, completely concealing the maxilla which reaches to below anterior third of eye; at front of jaw, 4 upper and 6 lower prominent, projecting canines, visible when mouth is closed; villiform teeth behind the canines; in juveniles, on each side, an outer row of strong, bluntly conical teeth, with 2 or 3 molars posteriorly, and several inner rows of granular teeth; in adults 2 to 4 upper and 2 or 3 lower rows of molars; gillrakers 11 to 13 on lower limb of first arch. Dorsal fin single, with 13 spines and 10 or 11 soft rays, soft portion of fin gently rounded; anal fin with 3 spines and 8 to 10 rays; pectoral fins reaching to above origin of anal fin; caudal fin forked, with rounded lobes. Scales small, 71 to 75 in lateral line; scalation on top of head reaching to above nostrils; preopercle flange partly scaly; soft dorsal and anal fins scaly at base.

Colour: red, lighter below, sometimes with streaks along scale rows; a dark bar joining eyes across interorbital space and a dark line along the first 8 to 12 lateral line scales; soft dorsal, anal, pectoral and pelvic fins with a golden tinge.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

The combination of characters described above, particularly the dark line along the beginning of lateral line, easily separates this species from any other sparids within its range.

SIZE:

Maximum: 36 cm, common from 20 to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Durban (Natal, South Africa) to Beira (Mozambique); stray specimens may reach the Cape of Good Hope.

Lives in middle waters, near reefs, down to 120 m.

Carnivorous.

PRESENT FISHING GROUNDS:

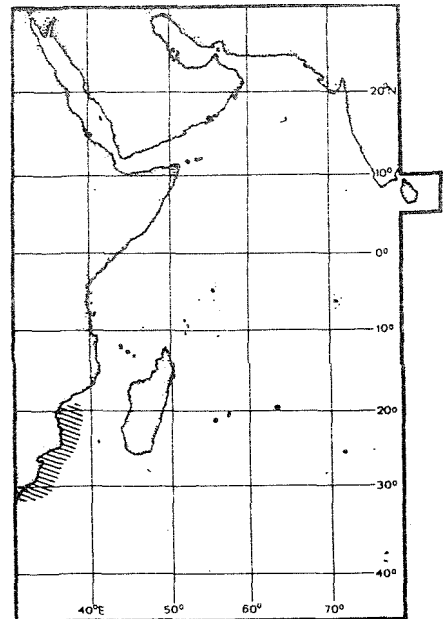
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly on lines.

Marketed fresh.



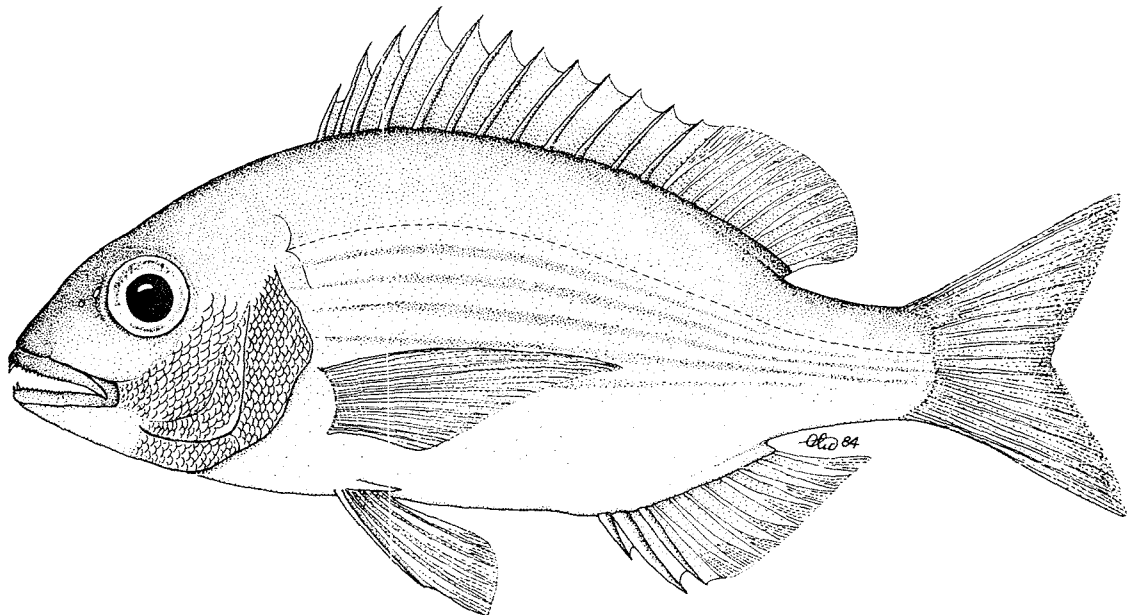
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Pterogymnus lanarius</i> (Cuvier, 1830)
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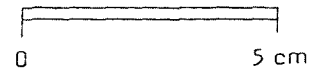
OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Panga seabream
Fr - Spare panga
Sp - Sargo panga

NATIONAL:



DISTINCTIVE CHARACTERS:

Body ovate, compressed, its depth 2.3 to 2.5 times in standard length. Head profile gently convex, eye large, its diameter greater than orbital space, except in large adults; hind margin of orbital bones undulate and free, not concealed by scales of cheek; mouth large, the maxilla reaching to below anterior margin of pupil; at front jaws, 4 upper and 6 lower enlarged canines, the outer pair in each jaw strongest, flaring outward; villiform teeth behind the canines; laterally, a series of stouter conical teeth (becoming rounded with age) and inner series of villiform teeth becoming more granular posteriorly; all lateral teeth ending posteriorly in 2 rows of molar teeth; lips strongly villose; gillrakers 11 to 13 on lower limb of first arch. Dorsal fin single, with 12 spines and 10 rays; anal fins with 3 spines (the 2nd stouter, but no longer than 3rd) and 8 rays; pectoral fin reaching to above anal fin origin; caudal fin forked, lobes rounded. Scales moderate, 56 to 60 in lateral line; scalation on, top of head reaching forward to level of nostrils; preopercle flange scaly; soft dorsal and anal fins with a low scaly basal sheath.

Colour: rose or vermillion red, slightly lighter below, with 5 or 6 faint bluish lines below lateral line along sides; fins red with bluish blotches on spinous dorsal membrane and dark bluish green basally along anal fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

The combination of characters described above, particularly the undulate margin of orbital bones, not concealed by scales of cheek, and the outwardly flaring canines, easily separates this species from any other sparid within its range.

SIZE:

Maximum: 40 cm; common from 25 to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, from South Africa to southern Mozambique; southward extending to Cape of Good Hope, where large shoals congregate in midwater, probably for breeding.

Most common between 20 and 150 m depth, never in inshore, shallow waters.

PRESENT FISHING GROUNDS:

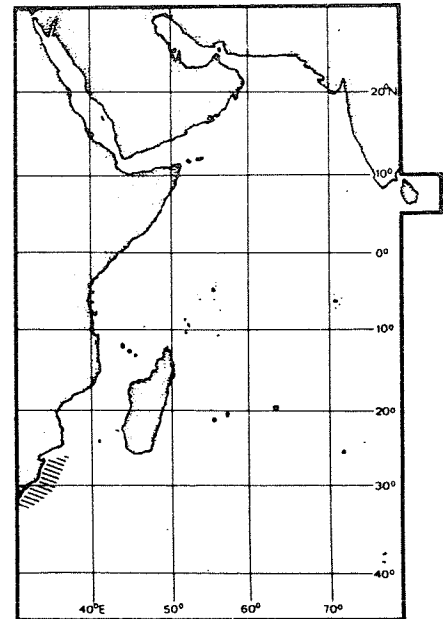
Taken throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught in more or less deep waters, by trawlers and with line gear.

Marketed fresh, flesh esteemed.

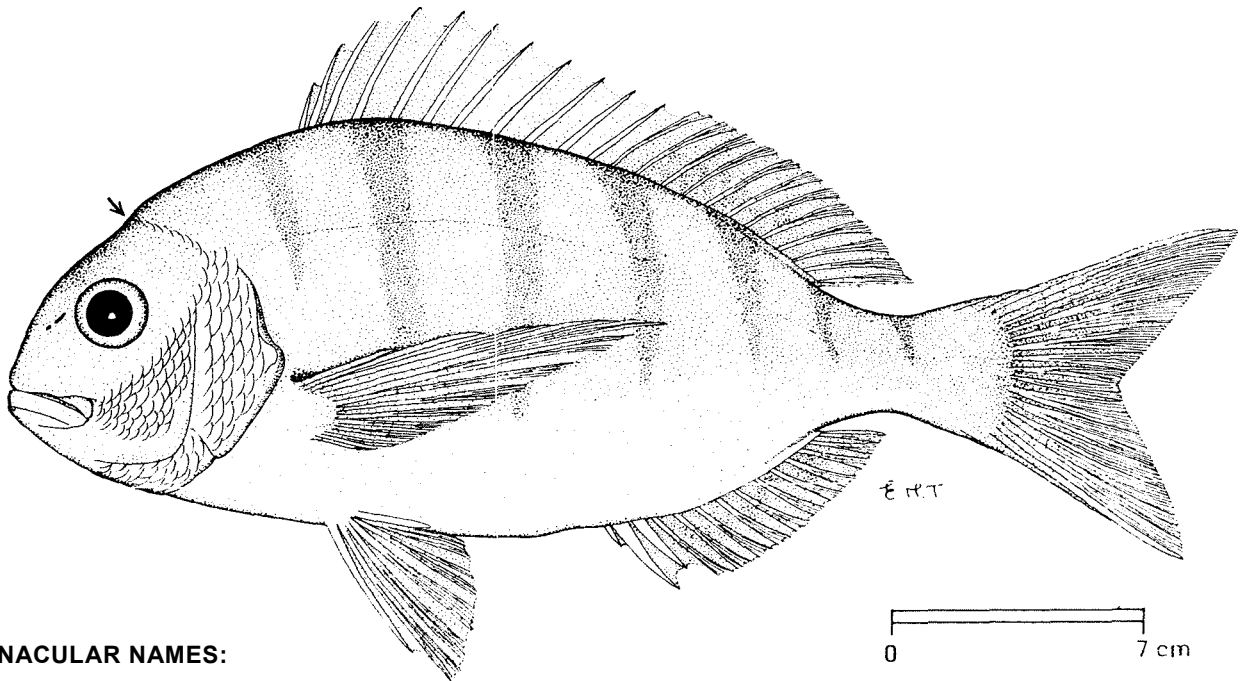


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Rhabdosargus globiceps* (Valenciennes, 1830)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - White stumpnose
Fr - Sargue australe
Sp - Pargo nato

NATIONAL:

DISTINCTIVE CHARACTERS:

Body moderately deep its depth 2.2 to 2.4 times in standard length. Head profile fairly steep, with a bulge before eyes, thence gently rounded to dorsal fins origin; eye moderate, larger than (in juveniles) or equal to (in adults) suborbital space; at front of jaws 4 to 6 upper, and 4 to 8 lower, short and stout incisiform teeth, more acute in juveniles but becoming more chisel-edged with age; 4 or 5 upper, and 3 or 4 lower series of molars, hind inner molars much enlarged; in juveniles, anterior teeth of outer row bluntly conical; gillrakers 8 to 10 or, lower limb of first arch. Dorsal fin with 11 rather slender spines and 11 to 13 soft rays; anal fin with 3 spines and 10 or 11 soft rays; pectoral fins in adults 1.2 to 1.3 times the head length, reaching to above anal fin; caudal fin forked. Scales moderate, 57 to 61 in lateral line; scalation on head reaching above hind third of eye; interorbital space naked and porous; preopercle flange naked; 5½ or 6 scale rows between lateral line and 4th dorsal spine; dorsal and anal fins with a very low basal scaly sheath.

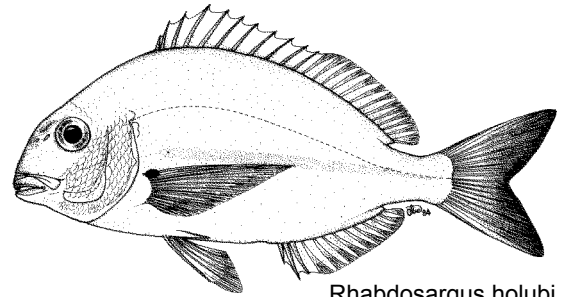
Colour: mainly silvery with 6 or 7 darker narrow, but strong, crossbars, no yellow lines or areas on body; males with bluish tint on head and between pelvics; fins dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Other Rhabdosargus species: yellow lines or yellow areas present on body and crossbars absent. Furthermore, scales present on preopercle flange and tricuspid incisors in juveniles of R. holubi.

Lithognathus mormyrus: snout elongate, teeth feeble, 14 to 17 dark crossbars (6 or 7 in R. globiceps).

Sparodon durbanensis: middle pair of anterior incisors much enlarged in both jaws.



Rhabdosargus holubi

SIZE:

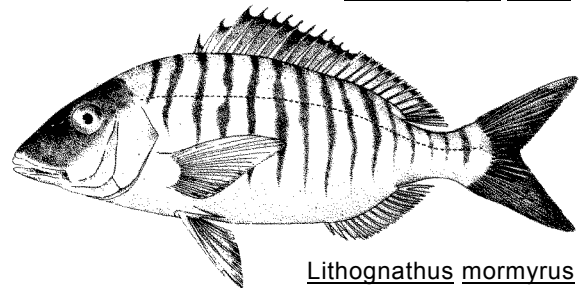
Maximum: 65 cm; common from 30 to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

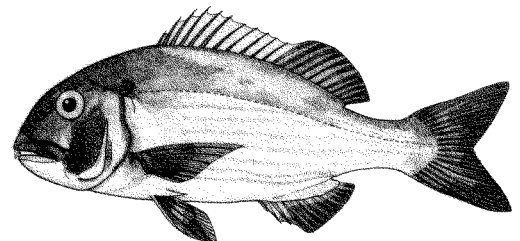
Present only in the extreme southern part of the area, off Durban (Natal, South Africa), southward extending to the Cape of Good Hope, and off the Atlantic coast (Sandwich Harbour).

Occurs on sandy bottoms, in estuaries (juveniles), down to 80 m depth (adults). Spawn throughout year at the Cape and in Atlantic Ocean.

Feeds on worms, crustaceans, molluscs (especially mussels).



Lithognathus mormyrus



Sparodon durbanensis

PRESENT FISHING GROUNDS:

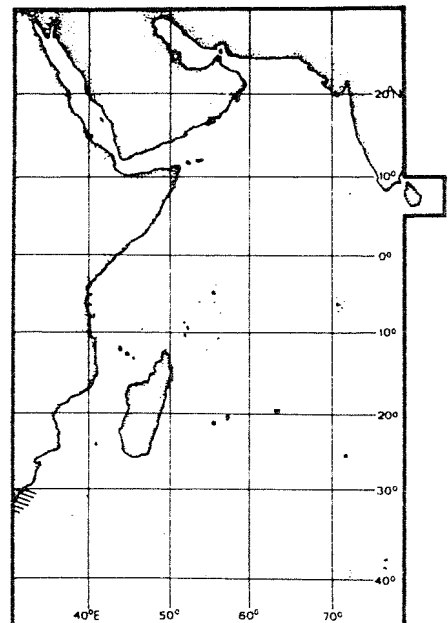
Only occasionally caught off Durban.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species, but catches seem to have declined dramatically since 1930s.

Caught with line gear, rods and sometimes trawlers from rocky shores down to 80 m depth.

Marketed fresh, excellent food fish.

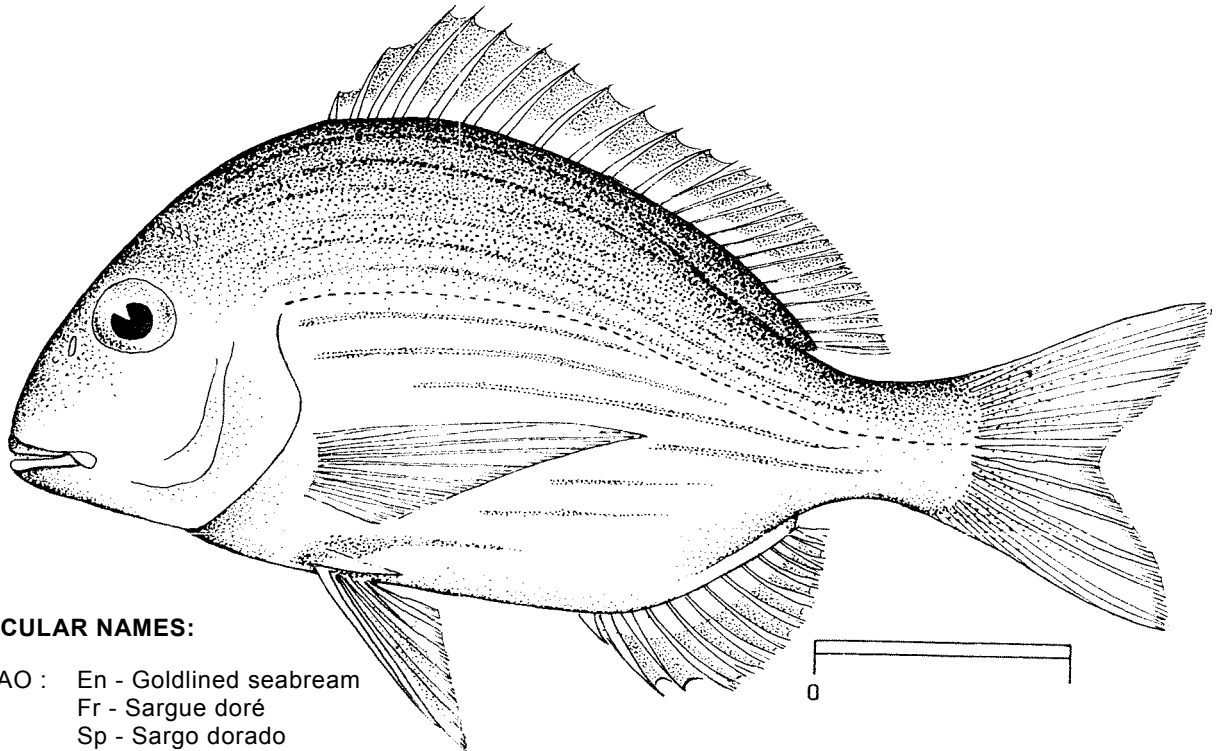


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Oceano)

Rhabdosargus sarba (Forsskål, 1775)

OTHER SCIENTIFIC NAMES STILL IN USE: Sparus sarba Forsskål, 1775

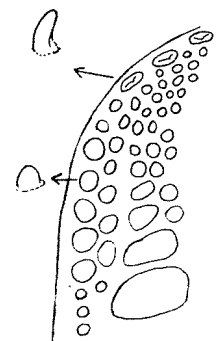
VERNACULAR NAMES:

FAO : En - Goldlined seabream
Fr - Sargue doré
Sp - Sargo dorado

NATIONAL:

DISTINCTIVE CHARACTERS:

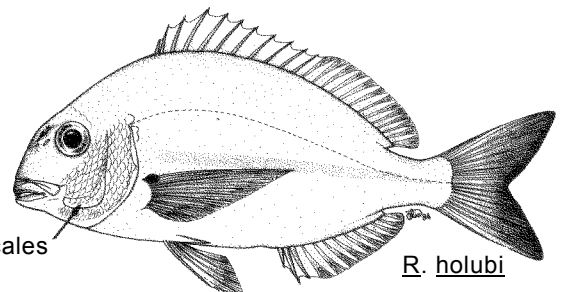
Body deep (depth about twice in standard length), compressed. Head large, its length about 3 to 3.3 times in standard length; upper profile convex, most strongly arched from snout to origin of dorsal fin; eyes moderate to small in large specimens; mouth almost horizontal, low; at front of jaws, 4 to 6 upper, and 6 to 8 lower, enlarged, compressed teeth, becoming subconical in large adults, followed by 4 or 5 rows of molar teeth in posterior part of upper jaw and, 2 to 4 rows in lower jaw, the last molar in each jaw largest; gillrakers short, few 7 to 4 on lower limb of first arch. Dorsal fin single, with 11 or 12 slender spines and 13 (rarely 12) to 15 soft rays, 3rd and 4th spines longest; anal fin with 3 spines and 11 soft rays, 2nd and 3rd spines subequal; pectoral fins long; pelvic fins not reaching anus; caudal fin forked. Scales cycloid (smooth), more than 50 in lateral line; 6 or 7 scale rows between lateral line and 4th dorsal spine; preopercle flange naked; dorsal and anal fins with a low scaly sheath; a long axillary pelvic process.

right half of
upper jaw

Colour: overall bright silver grey; each scale with a golden centre so as to form longitudinal lines on body; belly with a bright, yellow band starting at pelvic fin and flaring upward and backward; dorsal fin hyaline at base, dusky at margin; pectoral and pelvic fins dusk yellowish green; anal fin with hyaline base, yellow toward margin; lower caudal fin lobe yellow with tip and lower edge whitish.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Rhabdosargus holubi: a bright yellow band along middle of body above pectoral fin from eye to caudal fin; front incisors in young tricuspid; a few scales on preopercle flange.

a few scales
hereR. holubi

R. haffara: body rather elongate; pectoral and pelvic fins pale pink hyaline; no yellow mark above pelvic fins.

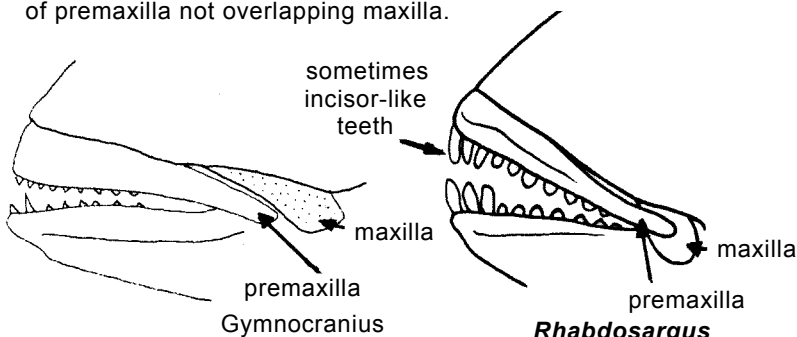
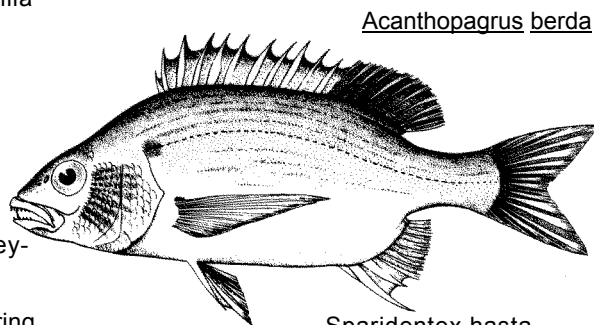
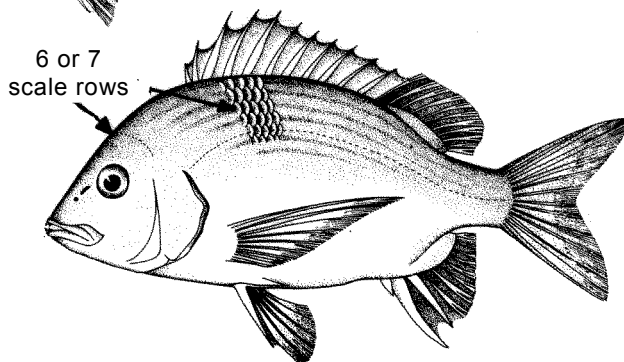
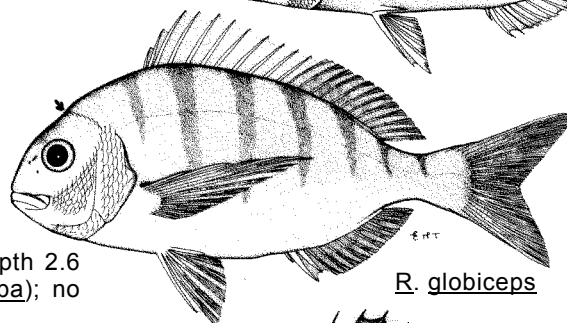
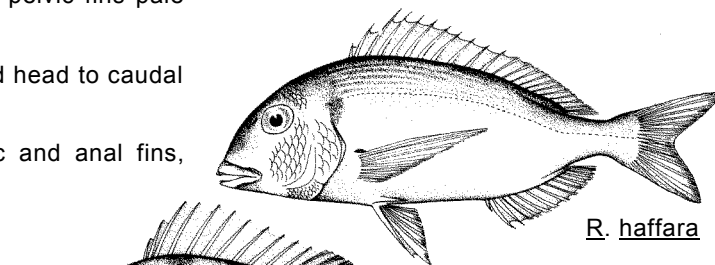
R. globiceps: 6 or 7 dark crossbars from behind head to caudal peduncle.

R. thorpei: whole lower body, including pelvic and anal fins, bright yellow.

Acanthopagrus berda and A. latus: 2nd anal spine longer and stouter than 3rd (about equal in R. sarba); dorsal spines appear alternately broad and narrow on each side (equal in R. sarba); 4 or 4½ rows of scales between lateral line and 4th dorsal spines (6 or 7 in R. sarba).

Sparidentex hasta: body more elongate, its depth 2.6 to 3 times in standard length (about twice in R. sarba); no molars, only small granular teeth.

Gymnocranius griseus (Lethrinidae): dorsal fin with 10 spines and 10 soft rays; no horizontal rows of spots but vertical bands on body and head particularly in juveniles; tip of premaxilla not overlapping maxilla.



SIZE:

Maximum: 60 cm; common to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Found throughout the area (except oceanic islands like Seychelles); also extending to Australia and the western Pacific.

A bottom-living coastal fish, to 60 m depth, sometimes entering estuaries. In the southern part of the area, spawning takes place near river mouths; after a short planktonic period, the young fish move into the estuaries, which act as nurseries, and move out into deeper waters with growth.

Feeds on bottom invertebrates, mainly molluscs.

PRESENT FISHING GROUNDS:

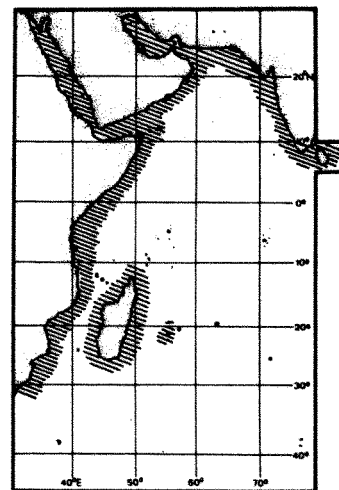
Coastal, inshore waters and estuaries throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with bottom trawls, gillnets, longlines, handlines and staketraps.

Marketed mostly fresh.



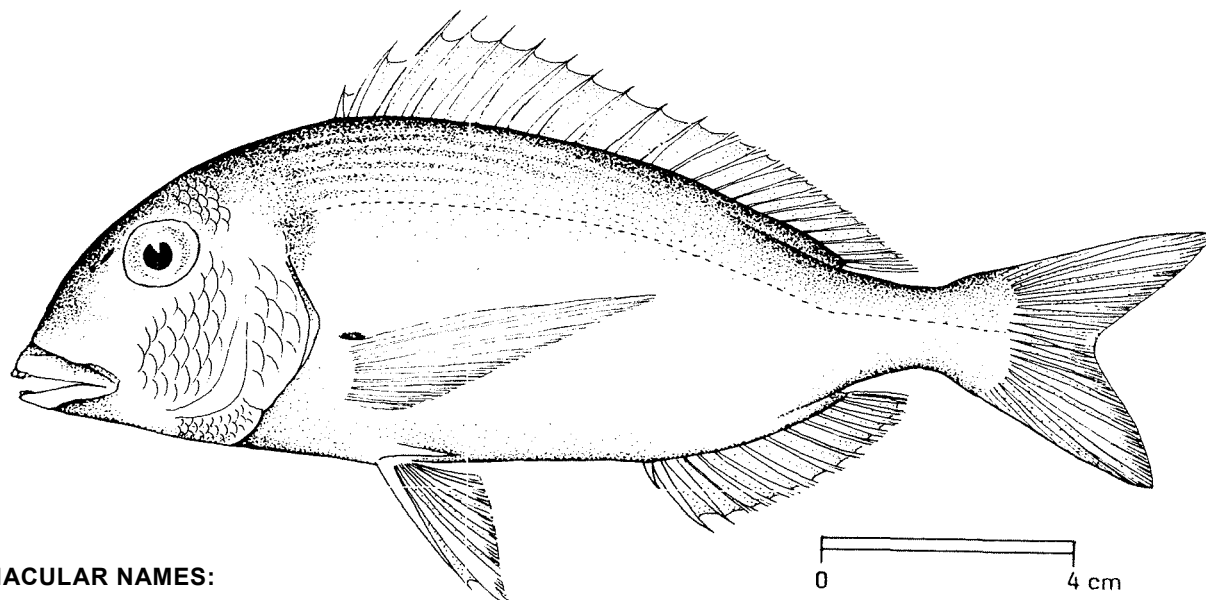
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Rhabdosargus haffara</i> (Forsskål, 1775)
--

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Haffara seabream
 Fr - Sargue haffara
 Sp - Sargo hafara

NATIONAL:

DISTINCTIVE CHARACTERS:

Body rather elongate (depth 2.5 to 3 times in standard length), compressed. Head large, its length about 3 to 3.5 times in standard length, upper profile very convex, more abruptly bent at eye level; mouth almost horizontal and low, the maxilla reaching to below anterior half of eye; eye moderate in size; at front of each jaw, 4 to 6 incisiform teeth followed by 3 to 5 series of molariform teeth, of which the inner posterior one is greatly enlarged; anterior teeth of external row bluntly conical; gillrakers short, few, 7 to 9 on lower limb of first arch. Dorsal fin single, with 11 or 12 rather slender spines and 11 to 14 soft rays; anal fin with 3 spines and 10 or 11 rays, 2nd and 3rd spines subequal; pectoral fins long, reaching almost to level of first anal spines; pelvic fins not reaching anus, with a long axillary process; caudal fin forked. Scales cycloid (smooth), 58 to 66 in lateral line; 6 scale rows between lateral line and 4th dorsal spine; scalation of head extending to above anterior half of eye; preopercle flange naked; soft dorsal and anal fins with a low scaly sheath at base.

Colour: silvery grey with golden or bluish reflections on back; a dark blotch (more or less faint) at origin of lateral line; a little dark spot at the pectoral fin axil; longitudinal dark lines appear along body after death; fins pale pink, hyaline.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Rhabdosargus sarba: body rather deep, depth about twice in standard length (2.5 to 3 times in R. haffara); golden longitudinal lines on body; belly, pectorals, pelvics and caudal fins yellowish (pale pink hyaline in R. haffara).

Acanthopagrus berda: less than 55 scales in lateral line; dorsal spines appearing alternately broad and narrow on each side (subequal and rather slender in R. haffara); 2nd anal spine longer and stouter than 3rd (subequal in R. haffara); 4 or 42 rows of scales between lateral line and 4th dorsal spine (6 in R. haffara).

Argyrops species: 1 or more elongate dorsal spines.

SIZE:

Maximum: 35 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

This species seems to be endemic of the Red Sea, and especially common in the North.

Occurs in shallow waters, at about 10 m depth, mainly around coral reefs, and over sandy or mud-sandy bottoms.

Carnivorous, feeds on bottom invertebrates (gastropods and crustaceans), mostly on sand.

PRESENT FISHING GROUNDS:

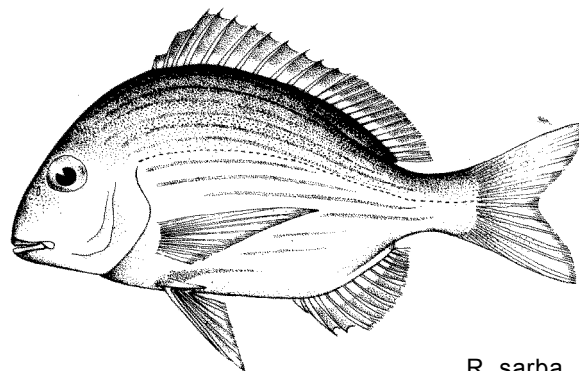
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

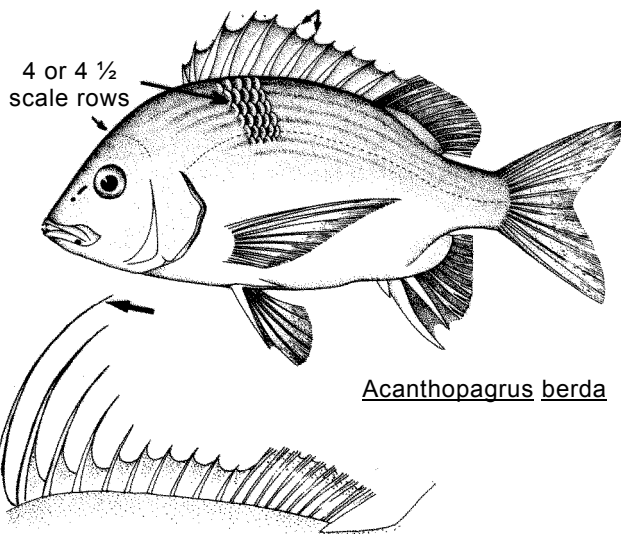
Separate statistics are not reported for this species.

One of the most commonly fished sparids in the Gulf of Aqaba and Gulf of Suez, is caught mainly with trammelnets, gillnets, beach seines and sometimes with handlines.

Consumed fresh.

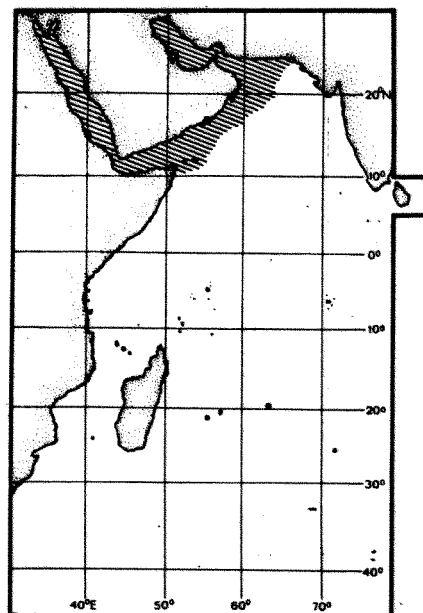


R. sarba



Acanthopagrus berda

Argyrops sp.

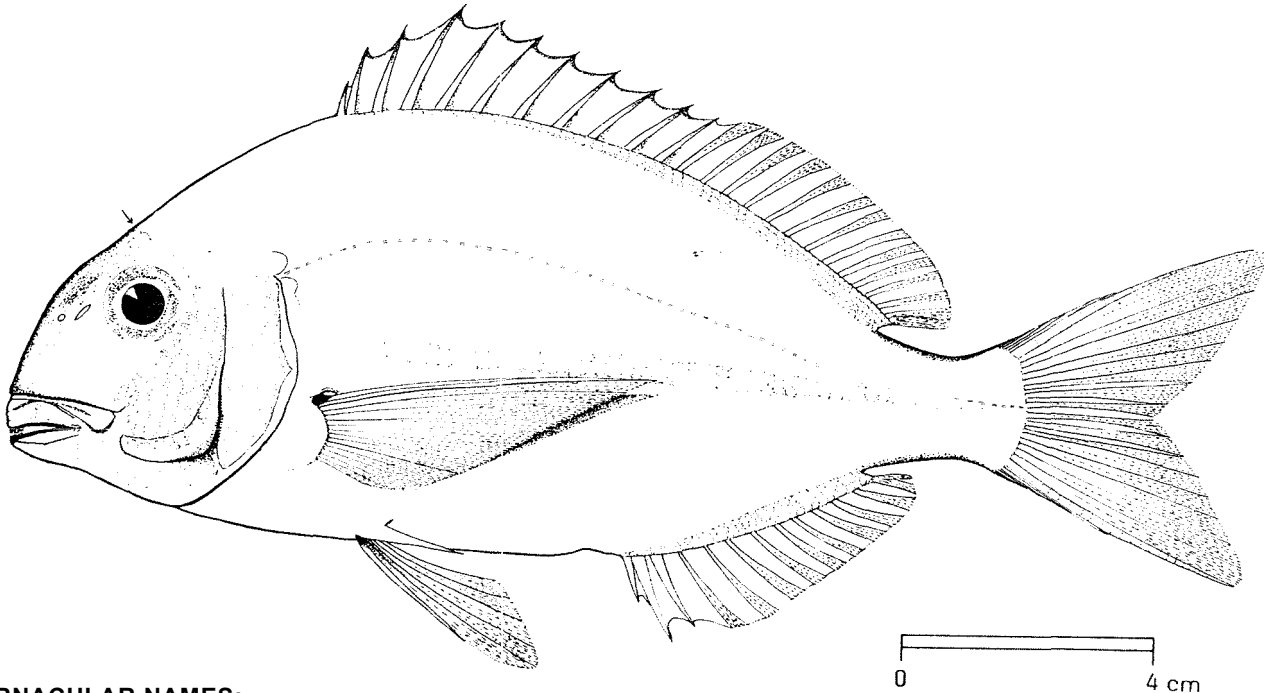


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Rhabdosarcus holubi* (Steindachner, 1881)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Cape stumpnose
Fr - Sargue du Cap
Sp - Sargo del Cabo

NATIONAL:

DISTINCTIVE CHARACTERS:

Body moderately deep, its depth 2.2 to 2.4 times in standard length. Head profile fairly steep to bulge before eye, thence, gently rounded to dorsal fin origin; eye moderate; maxilla extending to below anterior third of eye; at front of jaws, 6 upper, and 6 to 8 lower incisiform teeth, tricuspid in juveniles (becoming blunted in very large specimens), followed by 4 or 5 upper and 3 or 4 lower series of molars, the inner hind-most molar enlarged; in juveniles, anterior teeth of outer row blunty cortical; 8 or 9 short gill rakers on lower limb of first arch. Dorsal fin with 11 rather slender spines and 12 or 13 soft rays; anal fin with 3 spines and 10 or 11 soft rays; pectoral fins reaching to above anal fin; caudal fin forked. Scales moderate, 55 to 90 in lateral line; scalation of head extending to above vertical diameter of eye; preopercle flange with few scales mostly near ridge; 6 scales between lateral line and 4th dorsal spine; soft dorsal and anal fins with a scaly sheath at base.

Colour: bright silvery, darker above and with darker lines along scales, and a conspicuous yellow band along flank above pectoral fin, extending to caudal fin; fins yellowish or greenish, the dorsal with pale band basally, posterior part of caudal fin dark; a black spot in pectoral fin axil.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other Rhabdosargus species: scales absent on preopercle flange; anterior teeth never tricuspid in juveniles; no conspicuous yellow band along sides.

The conspicuous yellow band along sides distinguishes R. holubi from all other fish species in its range.

SIZE:

Maximum: 40 cm; common from 15 to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Only found in the southern part of the area, off Natal and Zululand (South Africa); southward extending to the Cape of Good Hope.

Abounds in estuaries and shallow waters (over sand and between rocks) especially between Mossel Bay and East London. Feeds on worms, crustaceans and especially on molluscs.

PRESENT FISHING GROUNDS:

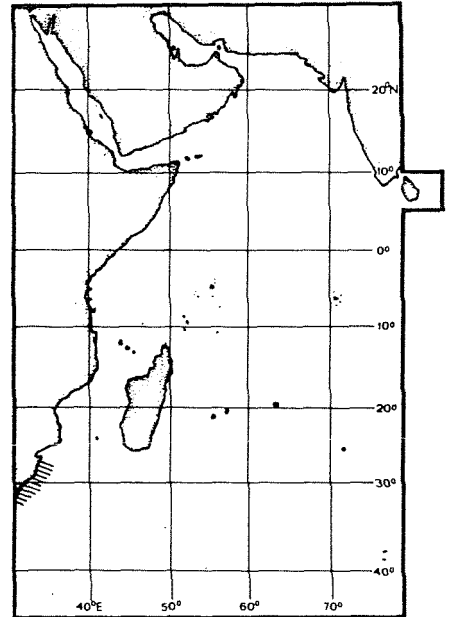
Shallow water throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with line gear and seines.

Used mainly as bait, larger specimens eaten fresh.



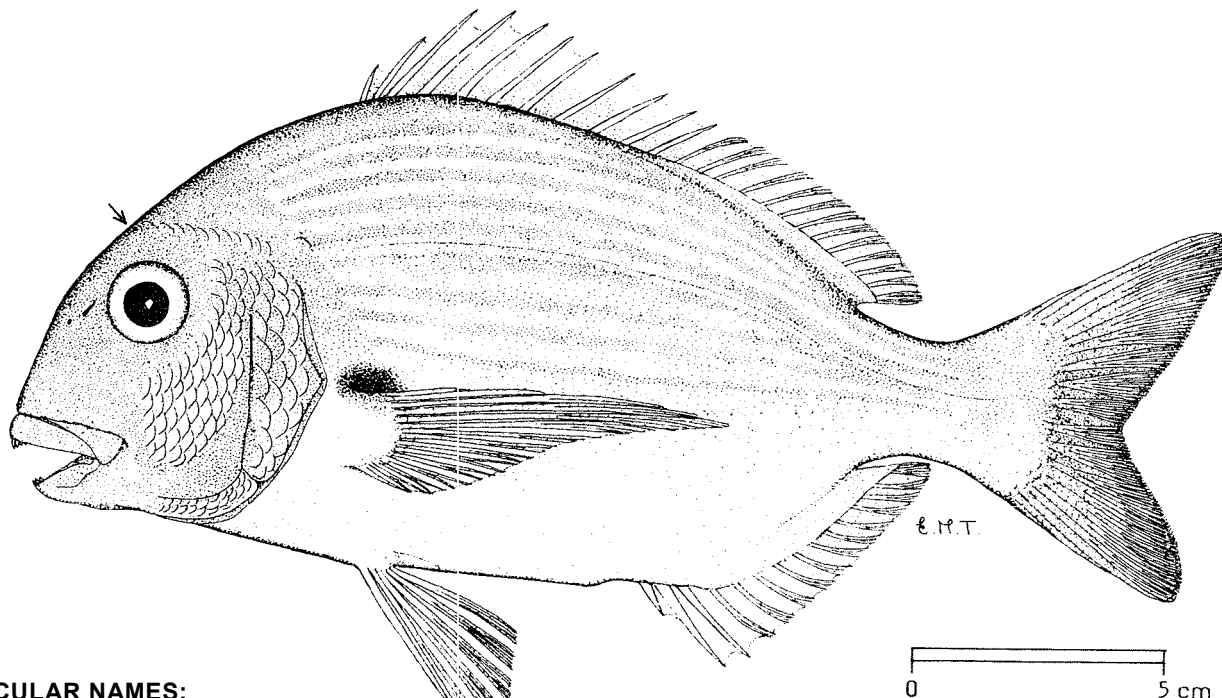
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Rhabdosargus thorpei</i> Smith. 1979

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Bigeye stumpnose
 Fr - Sargue à gros yeux
 Sp - Sargo ojigrande

NATIONAL:

DISTINCTIVE CHARACTERS:

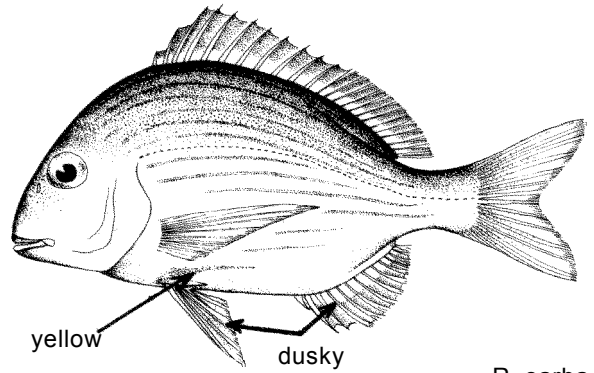
Body moderately deep, its depth 1.9 to 2.2 times in standard length (adults). Head profile well rounded from upper lip to dorsal fin origin with a slight bulge: before eyes; eye rather large; mouth subhorizontal, the maxilla extending to beyond anterior margin of pupil; at front of both jaws, 6 enlarged incisiform teeth (spatulate in juveniles) followed by 4 or 5 upper and 3 or 4 lower rows of molariform teeth, the inner hindmost enlarging with growth; in juveniles, anterior teeth of outer row bluntly conical; gillrakers 10 to 12 on lower limb of first arch. Dorsal fin with 11 fairly slender spines and 13 soft rays; anal fin with 3 spines and 12 soft rays; pectoral fins reaching to above anal rays; caudal fin moderately forked. Scales moderate, 55 to 62 in lateral line; scalation on head extending to above or beyond vertical diameter of eye; preopercle flange naked; 6½ or 7 scale rows between lateral line and 4th dorsal spine; dorsal and anal fins with a basal sheath.

Colour: body bluish silvery, with numerous yellow reflections, and yellow lines along scale rows of upper body; whole area from chest to above end of anal fin including pelvic and anal fins bright yellow; a prominent dark area round pectoral fin axils; pectoral fins bright yellow; caudal fin dusky with a darker posterior margin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

R. sarba: eye relatively smaller; yellow on ventral area confined to a conspicuous "flare" of colour up from pelvic fin and petering out before reaching above anal; pelvic and anal fins dusky; lower gillrakers 7 to 9 (10 to 12 in R. thorpei); anal rays 11 (12 in R. thorpei).

The bright yellow ventral area including pelvic, anal and pectoral fins distinguishes R. thorpei from all other similar species in its range.



R. sarba

SIZE:

Maximum: 40 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Abundant off Natal and Zululand (South Africa), reaches Madagascar and Europa Island northward. Shoals congregate off the Tugela River (Natal) and many are found in estuaries further north which probably use as nurseries.

Feeds on worms, crustaceans and particularly molluscs.

PRESENT FISHING GROUNDS:

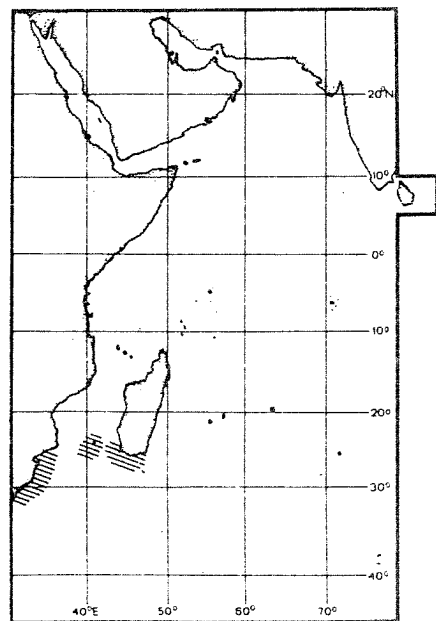
Off Natal and Zululand.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with lines and seines (when permitted).

Marketed fresh, flesh esteemed.

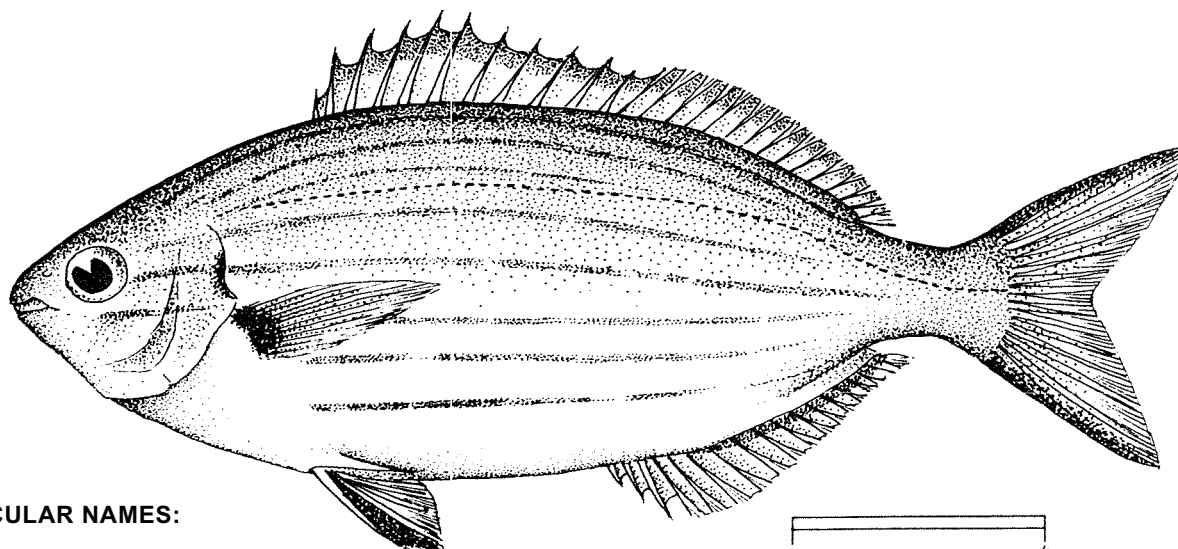


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)

Sarpa salpa (Linnaeus, 1758)

OTHER SCIENTIFIC NAMES STILL IN USE: Box salpa Linnaeus, 1758
Boops salpa (Linnaeus, 1758)

VERNACULAR NAMES:

FAO: En – Salema
Fr – Saupe
Sp - Salema

NATIONAL :

DISTINCTIVE CHARACTERS:

Body neatly oval, moderately compressed, its depth 2.75 times in standard length. Head short, its dorsal and ventral profile regularly convex; snout blunt, mouth terminal, small, the maxilla not reaching front eye margin; lips thick; a single series of incisors in each jaw, those in upper jaw notched at edges, those in lower jaw ending in a single, triangular point, all with roots exposed, well visible inside mouth; no molars; gillrakers 12 to 14 on lower limb of first arch. Dorsal fin single, with 11 (rarely 12) slender spines, and 14 to 17 soft rays, anal fin with 3 slender spines and 13 to 15 soft rays; pectoral fins short, reaching to about half way to above anal fin origin; caudal fin forked. Scales small, 70 to 80 in lateral line; interorbital space and preopercle flange naked; soft dorsal and anal fins with a deep basal scaly sheath.

Colour: body bluish silvery with 8 to 10 longitudinal golden yellow bands, some extending onto head which is silvery with golden reflections; lateral line darker; a few, faint lines along chest and belly scales; base of pectoral fin dark; margin of anal fin bluish silver; that of dorsal fin broadly gold; edges of caudal, base of anal and first ray of pelvic fins with wide golden yellow bands.

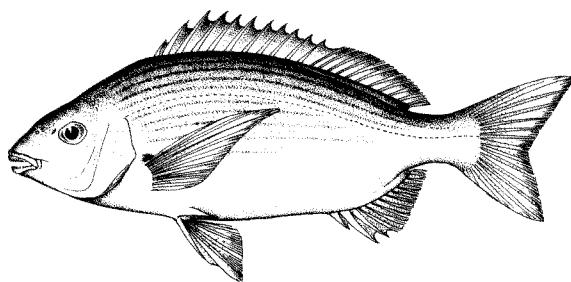
upper and lower
jaws

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

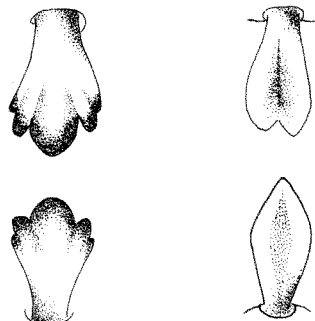
Crenidens crenidens: background duller, with dark bars along scale rows (golden yellow bands in S. salpa); 2 series of wavy-edged incisors, the outer movable, with brown edges, and small molars within (1 series of incisors, the upper notched, the lower pointed, and no molars in S. salpa).

Other species of Sparidae: 2 or more series of incisors in each jaw, or canines, or molars (a single series of incisors and no molars in S. salpa).

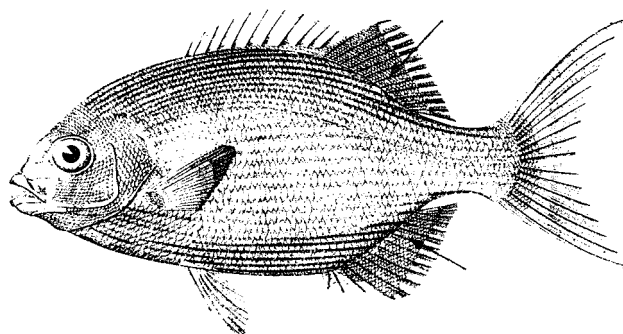
Species of Kyphosidae: soft dorsal and anal fins heavily scaled (only a basal scaly sheath in S. salpa); background dark brown (silver in S. salpa).



Crenidens crenidens crenidens



Crenidens S. salpa
upper and lower teeth



Kyphosidae

SIZE:

Maximum: 45 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, off South Africa and southern Mozambique; elsewhere, extending to the Cape of Good Hope and along the West African and southern European coasts, and into the Mediterranean Sea.

Inhabits rocky and sandy bottoms covered with seaweeds, to depth of about 70 m; when upwelling occurs, huge shoals are driven into the estuaries.

Feeds chiefly on seaweeds, but also on small crustaceans.

PRESENT FISHING GROUNDS:

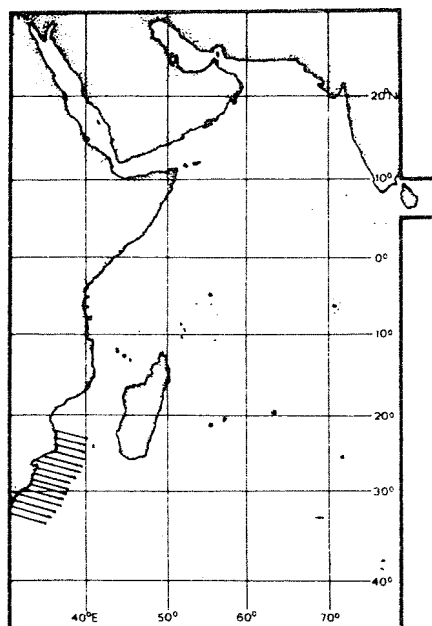
Sandy beaches and rocky outcrops throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

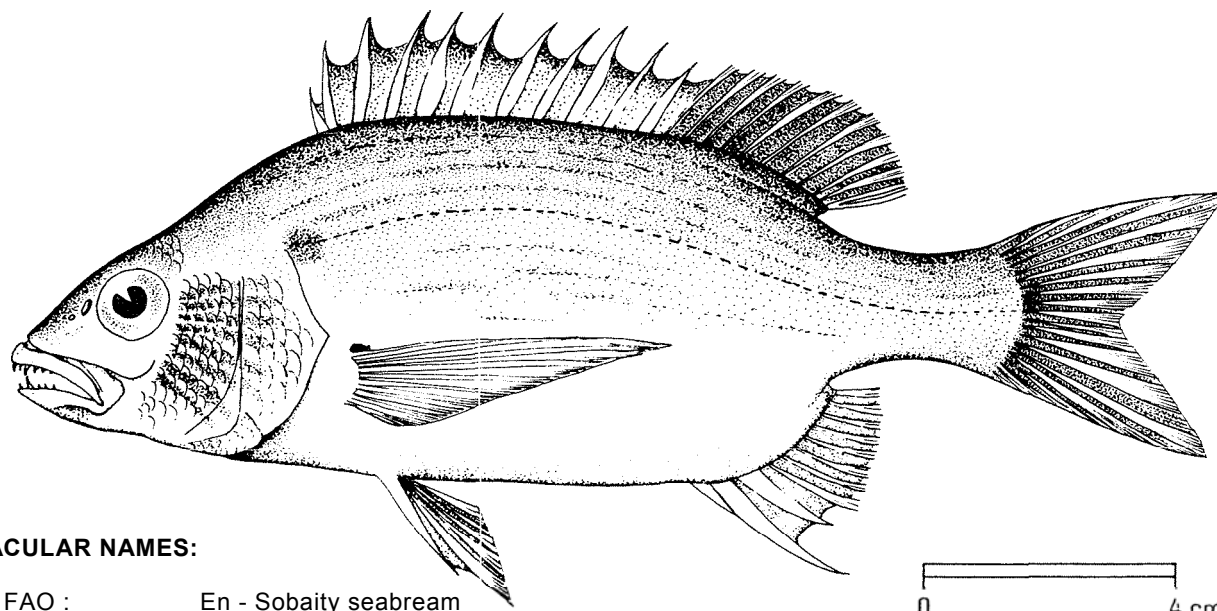
Caught chiefly with seines and on hook and line.

Only irregularly exploited, locally consumed fresh; excellent bait.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)Sparidentex hasta (Valenciennes, 1830)OTHER SCIENTIFIC NAMES STILL IN USE: Chrysophrys cuvieri Day, 1875
Acanthopagrus cuvieri (Day, 1875)

VERNACULAR NAMES:

FAO : En - Sobaity seabream
Fr - Spare sobaity
Sp - Sargo sobaity

NATIONAL

DISTINCTIVE CHARACTERS:

Body elongate, compressed, its depth about 2.5 to 3 times in standard length. Head large, slightly shorter than body depth. Head profile almost straight from tip of snout to nape, and regularly convex to origin of dorsal fin; eye moderate, its diameter less than snout length; suborbital depth shallow; posterior nostril oval; mouth large; the maxilla exposed posteriorly, ending at: mideye level; at front of each jaw, 6 enlarged, fang-like, conical teeth; gillrakers lanceolate, 9 on lower limb of first arch. Dorsal fin with 11 spines appearing alternately strong and weak on each side) and 11 or 12 rays; anal fin with 3 spines and 8 or 9 rays; pectoral fins equal to, or longer than, head; caudal fin forked. Scales moderate, 47 to 49 in lateral line; scalation on head not reaching beyond level of vertical eye diameter; preopercle flange naked; soft dorsal and anal fins with a basal scaly sheath.

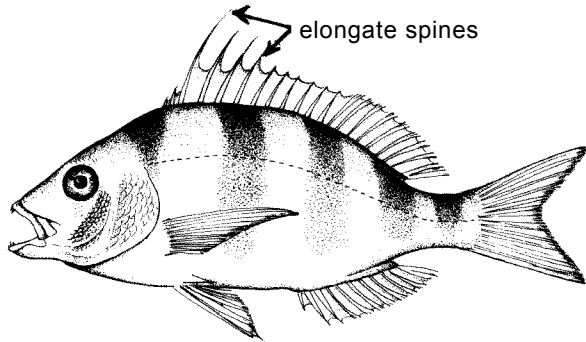
Colour: silvery, dark grey on back, paler to whitish downward; scales with dark spots forming 10 to 12 dark lines along sides of body, more conspicuous above lateral line; often dark mottlings on sides forming crossbars; a dark, diffuse blotch at origin of lateral line; a small, dark spot on the pectoral fin axils; about 8 radiating lines from eye across cheek; dorsal spines silvery, membrane with a black margin; soft dorsal and caudal fins dark grey, anal and pelvic fins grey, with a yellow tinge; pectoral fins light grey.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

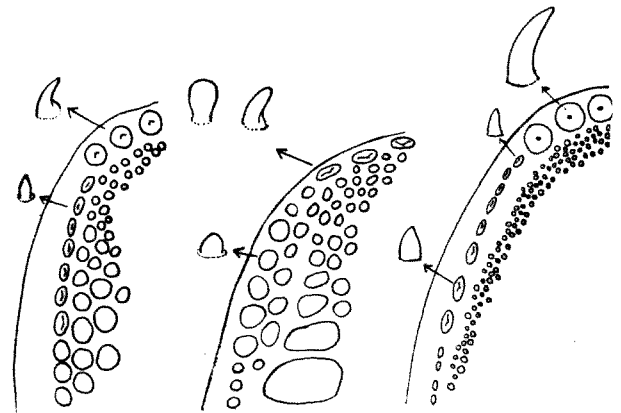
Acanthopagrus species: inner series of teeth molariform; body deeper, its depth about twice in standard length (2.5 to 3 times in S. hasta).

Rhabdosargus sarba: dorsal fin hyaline at base; inner series of teeth molariform; anal fin rays 11 (8 or 9 in S. hasta).

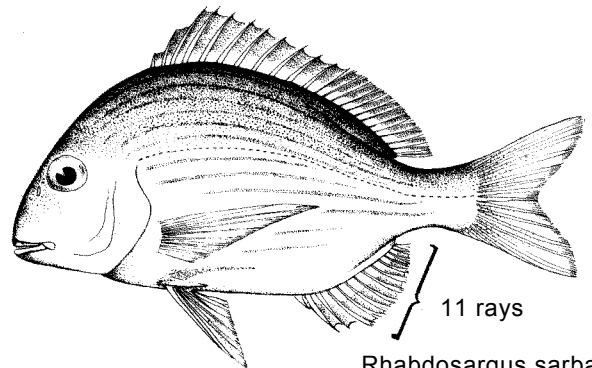
Cheimerius nufar: 3rd to 7th dorsal spines elongate (no spines elongated in S. hasta).



Cheimerius nufar



Acanthopagrus Rhabdosargus Sparidentex
right half of upper jaw



Rhabdosargus sarba

SIZE:

Maximum: 37 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

The "Gulf" and coasts of India, from shallow coastal waters to moderate depths.

Carnivorous.

PRESENT FISHING GROUNDS:

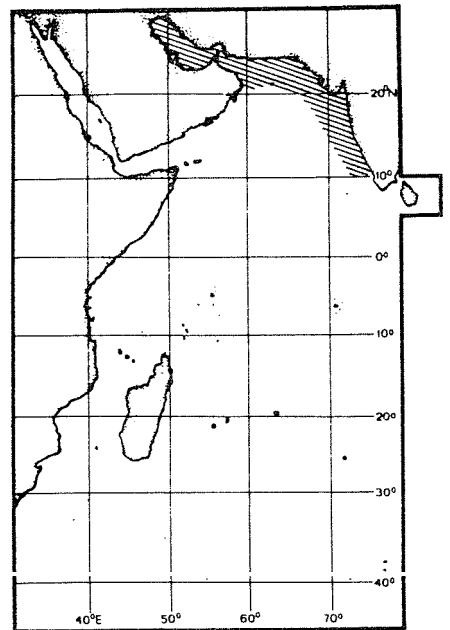
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with bottom trawls and on line gear; mainly exploited by artisanal fisheries.

Marketed fresh.

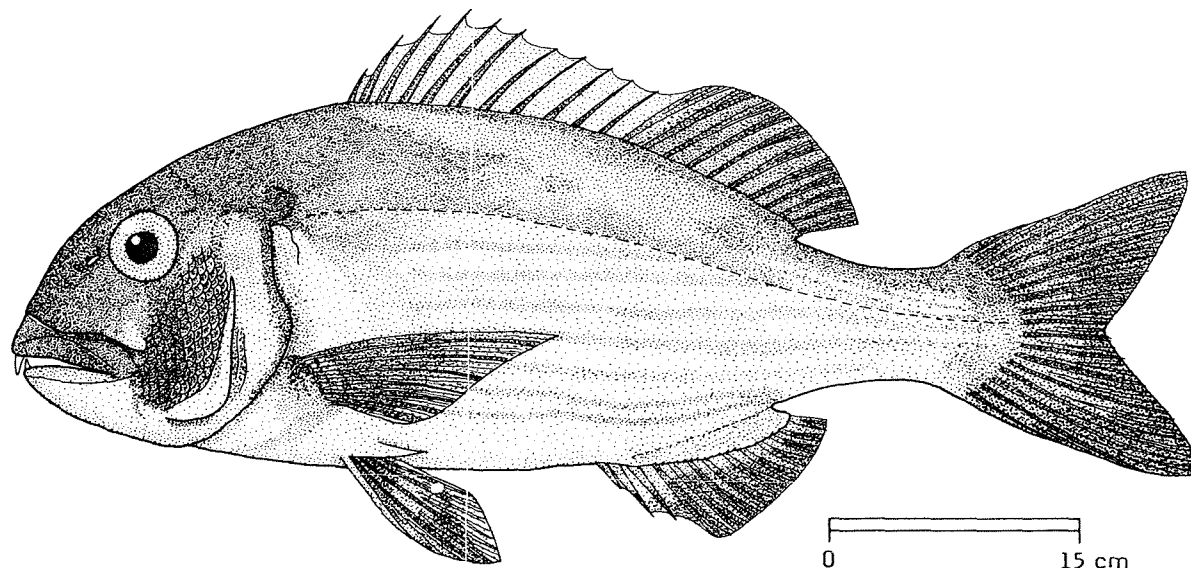


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)*Sparodon durbanensis* (Castelnau, 1861)

OTHER SCIENTIFIC NAMES STILL IN USE : None



VERNACULAR NAMES:

FAO : En - Musselcracker seabream
 Fr - Spare broyeur
 Sp - Sargo berberechero

NATIONAL:

DISTINCTIVE CHARACTERS:

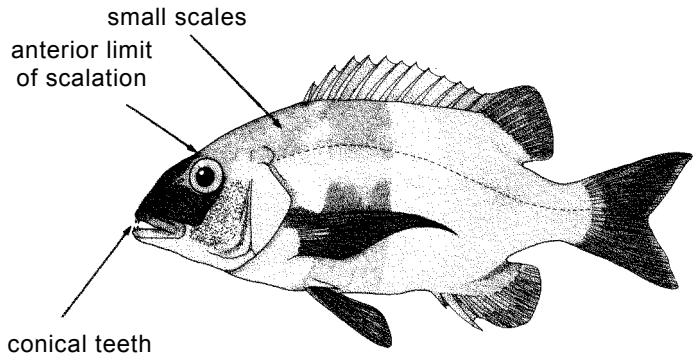
Body elongate-oval. Head large, becoming heavier with age, its profile gently convex in young, interorbital space wide; eye small in large individuals; mouth fairly large, the maxilla reaching to below middle of eye; lower jaw shorter than upper; upper lip very thick at snout tip; at front of each jaw, 4 large incisors, the middle pair particularly developed and curved; large molars in 3 or more series, the inner hinder one largest; gillrakers 7 or 8 on lower limb of first arch. Dorsal fin with 11 slender spines and 11 to 13 soft rays; anal fin with 3 spines (3rd spine longer than 2nd) and 10 soft rays; pectoral fins shorter than head, not reaching to above anal fin origin; caudal fin forked, lobes rounded in young, becoming pointed in adults. Scales moderate, 58 to 61 in lateral line; scalation on top of head not reaching to level of vertical eye diameter; preopercle flange naked; soft dorsal and anal fins scaly at base, with a vestigial sheath.

Colour: predominantly silver or silvery blue, lighter below, with chin abruptly white spreading to chest and belly; soft dorsal, anal, caudal and parts of pelvic fins dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Cymatoceps nasutus: 4 large conical teeth in upper jaw, 6 in lower, (4 incisors in each jaw S. durbanensis); scales above lateral line much smaller than those below (about equal in S. durbanensis); scalation on the top of head reaching to beyond anterior margin of eye (not reaching to middle of eye in S. durbanensis).

The middle pair of greatly enlarged incisors, and the overlapping upper jaw, easily separate this species from any other sparid occurring in the area.



SIZE:

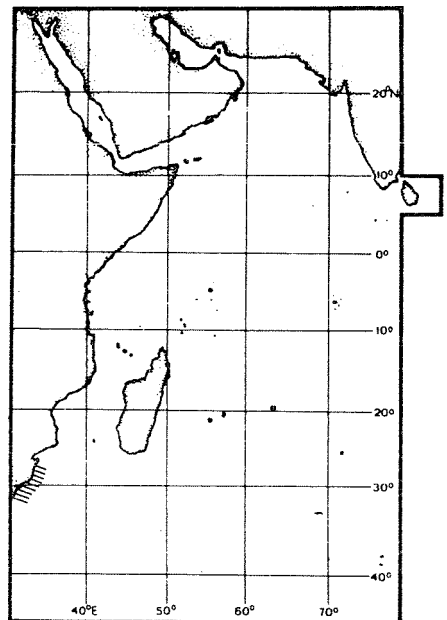
Cymatoceps nasutus

Maximum: 120 cm; common from 60 to 80 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, restricted to South Africa (Natal); southward extending to the Cape of Good Hope. Occurs in shallow coastal waters, mainly off rocky shores down to 80 m depth. Young appear in tidal pools along the southern and southeastern coasts of South Africa, from October to January.

Feeds mainly on molluscs, ground with its large powerful, molars.



PRESENT FISHING GROUNDS:

Shallow rocky areas throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with lines. A famous sport fish.

Marketed fresh; flesh esteemed.

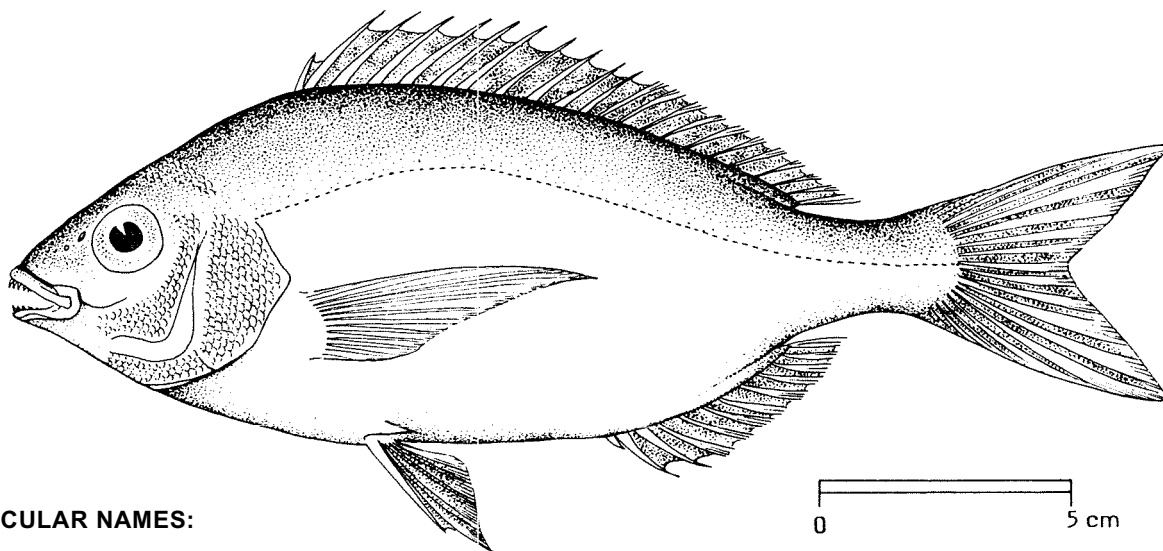
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Spondyliosorna emarginatum</i> (Cuvier, 1830)
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OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

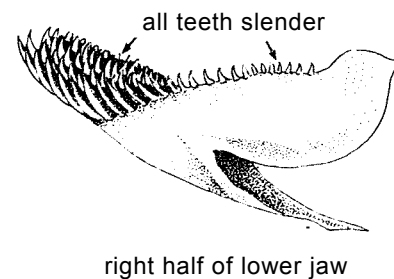
FAO : En - Steentjie seabream
 Fr - Dorade australe
 Sp - Chopa austral

NATIONAL:

DISTINCTIVE CHARACTERS:

Body moderate, its depth 2 to 2.6 times in standard length. Head profile almost straight from upper lip to dorsal fin origin, slightly convex in larger specimens; mouth small, the maxilla ending before, or just at, level of anterior eye margin; suborbital space shallow, its lower margin notched; eye moderate, about 3 to 3.5 times in head length; teeth narrow, lanceolate slender, in 4 to 6 rows in each jaw, the outer row largest; gillrakers 15 to 18 on lower limb of first arch. Dorsal fin with 11 slender spines and 11 to 13 soft rays; anal fin with 3 spines (the 3rd longest) and 10 rays; pectoral fins reaching almost to above anal fin origin; caudal fin forked. Scales very small, 80 to 92 in lateral line; preopercle flange naked; scalation on top of head extending forward to middle of eye; a low scaly sheath at base of soft dorsal and anal fins.

Colour: brownish or dull grey, scale rows above lateral line with darker lines, those below with narrow grey and yellow lines; dorsal and anal fins dusky with greenish membranes (spinous dorsal mottled dusky); caudal and pectoral fins dusky, pelvics dull golden, their inner rays light.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Sarpa salpa: pectoral fins short, reaching to about halfway above anal fin origin: a single series of incisors, the upper notched at edges (several series in S. emarginatum).

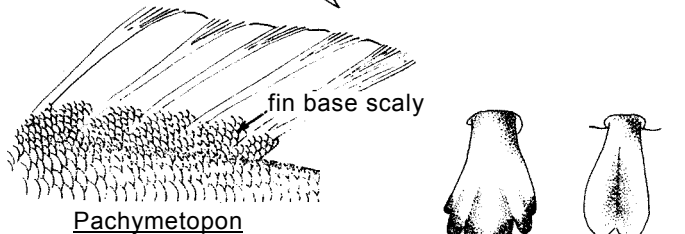
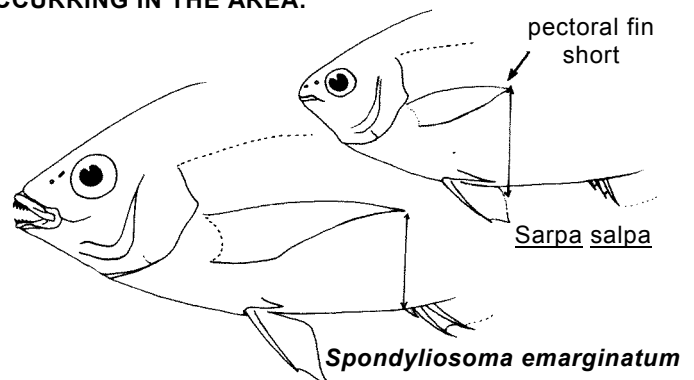
Crenidens crenidens: outer series of teeth movable, their edges crenulate and darker (teeth slender, lanceolate in S. emarginatum).

Pachymetopon species: bases of soft dorsal and anal fins scaly (a low scaly sheath in S. emarginatum),

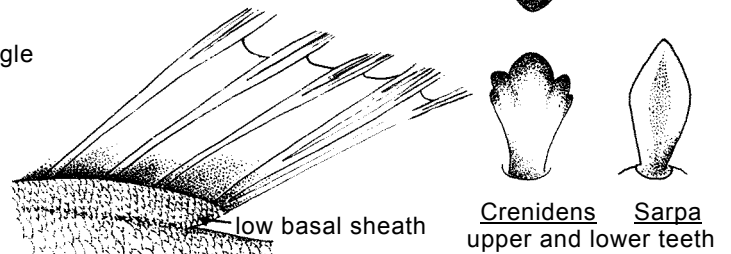
Other species of Sparidae: molariform teeth present and/or a distinct group of enlarged teeth in front of jaws.

Pomadasys olivaceus (Pomadasyidae: preopercle margin serrate; scales present between eye and mouth; dorsal fin with 12 spines and 15 to 17 rays (11 spines and 11 to 13 rays in S. emarginatum); its spinous portion greatly notched in front of soft portion; anal fin rays 11 or 12 (10 in S. emarginatum); 2nd anal spine much longer and stronger than 3rd.

Pterosomaris axillaris (Emmelichthyidae): a single row of fine teeth; anal fin rays 11 or 12.

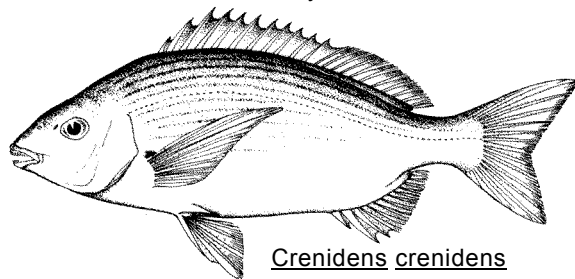


Pachymetopon



Crenidens Sarpa
upper and lower teeth

Spomlyliosoma
posterior portion of dorsal fin



Crenidens crenidens

SIZE:

Maximum: 45 cm; common from 20 to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, South Africa to Mozambique and southern coasts of Madagascar.

Inhabits offshore waters down to 60 m depth, near rocky grounds; enters estuaries where it lives among the weeds.

Feeds on algae and small crustaceans.

PRESENT FISHING GROUNDS:

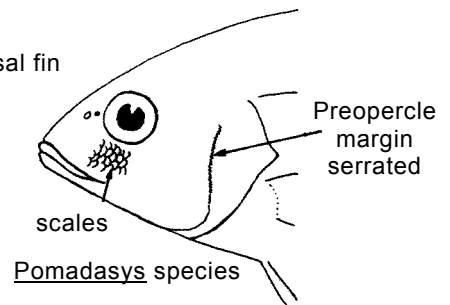
Throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

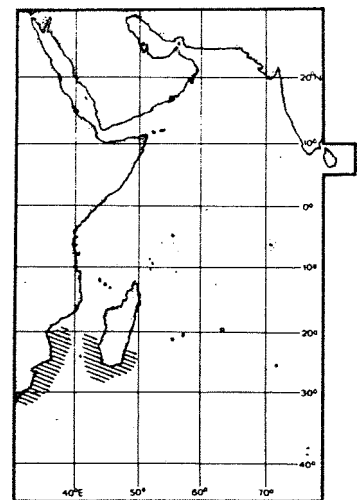
Separate statistics are not reported for this species.

Caught mainly in trawls; exploited by artisanal fisheries and nets

Used as bait.



Pomadasys species



FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

SPHYRAENIDAE

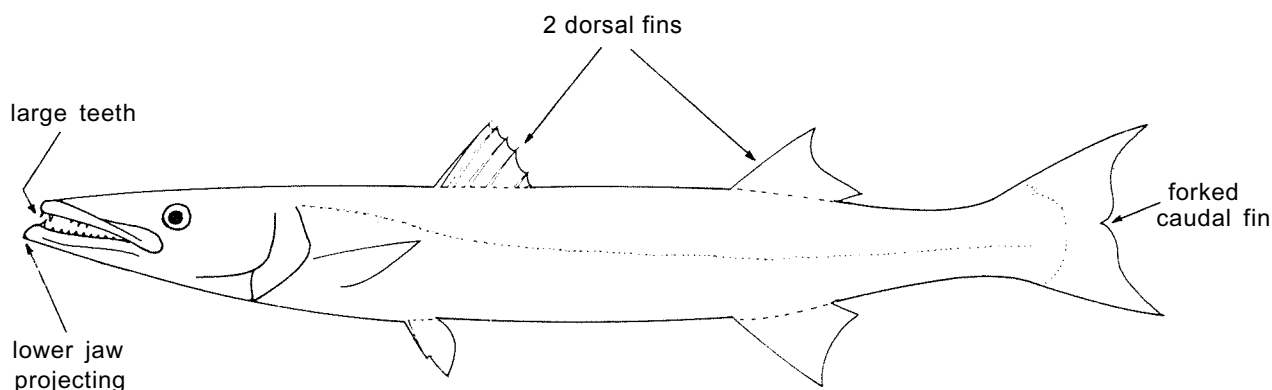
Barracudas

Body elongate, usually slightly compressed. Head large, with a long, pointed snout; mouth large, horizontal, the lower jaw projecting beyond the upper; strong canine teeth of unequal size in jaws and on palatines (roof of mouth). Two short and widely separated dorsal fins, the first with 5 fairly strong spines inserted about opposite to pelvic fins, the second (soft) dorsal about opposite to anal fin. Pectoral fins short (shorter than head). Caudal fin forked. Lateral line well developed, nearly straight; scales cycloid (smooth to touch).

Colour: usually grey to blue above, with silvery reflections, lighter to white below. Body sometimes with vertical or oblique bars or chevrons. Some species with longitudinal yellow/orange stripes or dark blotches.

Voracious predators found in tropical and warm temperate seas, mainly in coastal waters, but also in open oceans; often found in surface waters, but to depths of 100 m or more. Small species and juveniles often show schooling and gregarious behaviour; depending on the species, large adults are mostly solitary or more or less gregarious. Large solitary species are dangerous; several attacks have been reported from the Western Indian Ocean; attacks often occur in shallow murky waters. Like sharks, often a problem for artisanal fishermen; usually caught with trolling lines, also sometimes with nets. Flesh good, marketed fresh, frozen, dried, salted or smoked. Large individuals of the large species (especially *S. barracuda*) have occasionally been implicated in ciguatera fish poisoning. The catch of unspecified barracudas from the area was about 9 000 m in 1981.

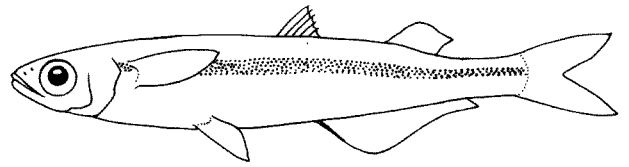
The taxonomy of the Indo-Pacific species is not satisfactory and needs revision.



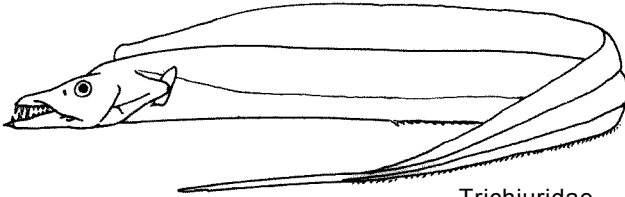
SIMILAR FAMILIES OCCURRING IN THE AREA:

Atherinidae, Mugilidae, Polynemidae: all have two widely spaced dorsal fins, but the snout is short, the mouth small, and there are no canine teeth; also, lower pectoral fin rays filamentous in Polynemidae.

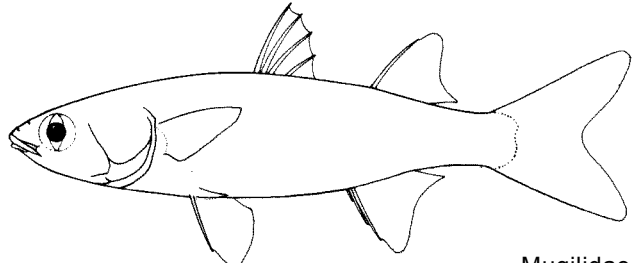
Trichiuridae, Gempylidae, etc.: may have elongate snout, large mouth and canine teeth, but never two short arid well spaced dorsal fins.



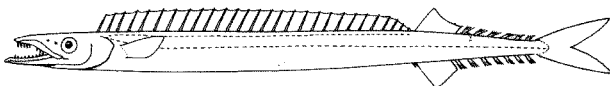
Atherinidae



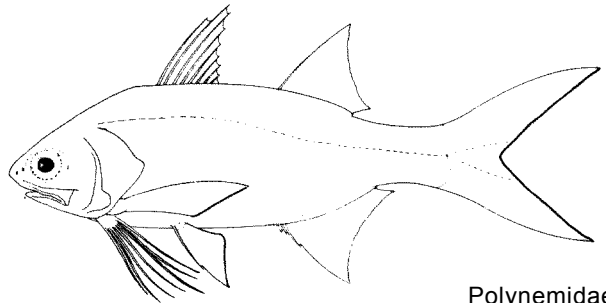
Trichiuridae



Mugilidae



Gempylidae



Polynemidae

KEY TO GENERA OCCURRING IN THE AREA:

Sphyraena only.

LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

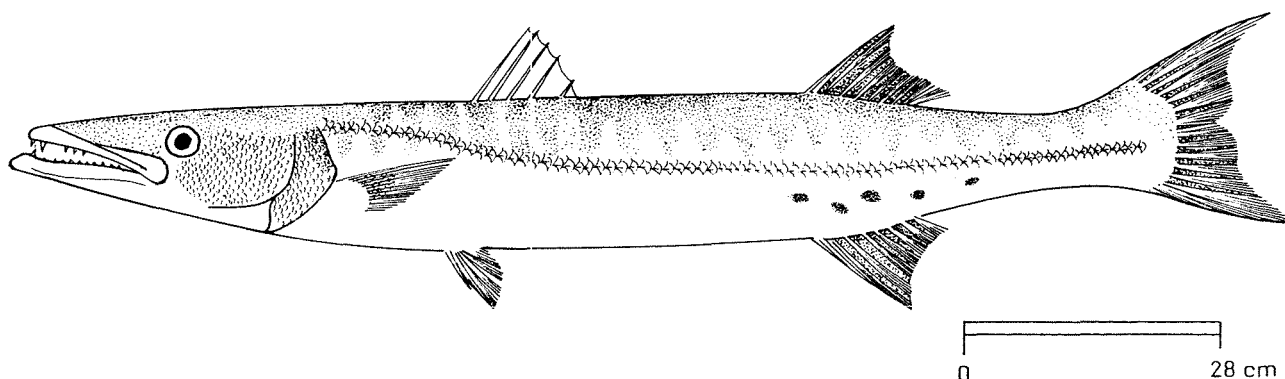
- Sphyraena acutipinnis Day, 1876
- * Sphyraena africana Gilchrist & Thompson, 1909
- Sphyraena barracuda (Walbaum, 1792) SPHY Sphy 1
- Sphyraena flavicauda Rüppell, 1835
- Sphyraena forsteri Cuvier, 1829 SPHY Sphy 2
- Sphyraena jello Cuvier, 1829 SPHY Sphy 3
- Sphyraena novaehollandiae Günther, 1860
- Sphyraena obtusata Cuvier, 1829 SPHY Sphy 4
- Sphyraena putnamiae Jordan & Seale, 1905
- Sphyraena genie Klurizinger, 1870
- **Sphyraena raghara Chandhuri, 1917

Prepared by J.M. Rose, Ichthyological Laboratory, Pont de Briques, France. Revised by P.J.P. Whitehead, Zoology Department, British Museum (Natural History), London, UK, and J.E. Randall, Bernice Bishop Museum, Honolulu, Hawaii, USA

* Possibly a synonym of S. acutipinnis fide de Sylva, D.P., 1973, J.Mar.Biol.Assoc.India, 15:83
** ?=S. idiastes Heller & Snodgrass, 1903 fide de Sylva (1973:87)

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPHYRAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Sphyraena barracuda* (Walbaum, 1792)OTHER SCIENTIFIC NAMES STILL IN USE : *Sphyraena picuda* Bloch & Schneider, 1801

VERNACULAR NAMES:

FAO : En - Great barracuda
 Fr - Barracuda
 Sp - Picuda barracuda

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and slightly compressed. Head large, with a long, pointed snout; mouth large, maxilla (upper jaw) reaching to or a little beyond anterior margin of eye, lower jaw projecting; strong, pointed, contiguous, vertical flattened teeth of unequal size in each jaw and similar teeth on roof of mouth (palatines). No gillrakers on first arch; upper and lower gill arch platelets rough, but without distinct spines. Origin of first (spinous) dorsal fin slightly behind pelvic fin origin; anterior dorsal and anal fin rays reaching beyond tips of posterior rays when fin depressed; pectoral fin tip reaching beyond pelvic fin base. Scales rather large, less than 100, usually 80 to 90 in lateral line.

Colour: deep green to steel grey above, sometimes with a purplish tinge, sides mostly silvery, becoming abruptly white on ventral surface. Small individuals with 18 to 22 oblique dark bars on back (faint to absent in adults; adults usually with several to many scattered inky blotches on hind part of body below lateral line. Second dorsal, anal and caudal fins violet to blackish with whitish tips.

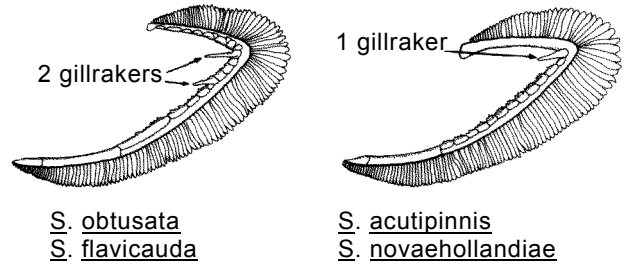
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Sphyraena obtusata, S. flavicauda: 2 gillrakers on first arch and no bars on body; also, inside of mouth bright yellow/orange in S. obtusata.

S. acutipinnis and S. novaehollandiae: 1 gillraker on first arch, no bars on body and more than 124 lateral line scales; also, first dorsal fin origin opposite pelvic fin base in S. acutipinnis.

S. forsteri: also without gillrakers, but distinct spines on lower gill arch platelets.

Other Sphyraena species: also without gillrakers on first arch, but no inky spots below lateral line on posterior part of body and more than 100 lateral line scales.



SIZE:

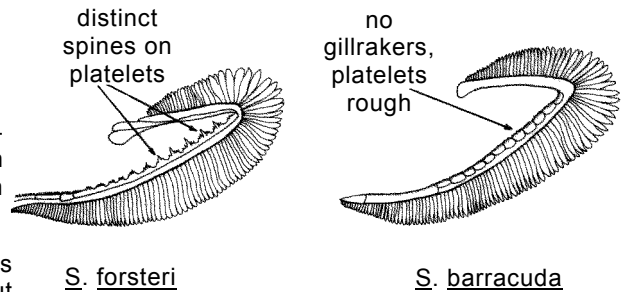
Maximum: 180 cm; common to 140 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Probably throughout the area, but previous identifications not necessarily reliable. Elsewhere, found in the Eastern Indian Ocean, Western Pacific and Eastern and Western Atlantic.

Found predominantly at or near the surface, but has been taken as deep as 100 m. Diurnal and solitary, but can be found in small schools, the adults in the open sea or around reefs, the juveniles sometimes common in mangrove swamps and estuaries.

Feeds on moderate or quite large fishes, either around reefs or near the surface, the juveniles taking small fishes (anchovies, etc.). A voracious feeder, known to attack swimmers. Nearly all attacks a result of provocation (as by spearing) or mistaken identity in musky water (a human limb might appear to the barracuda as a fish).



PRESENT FISHING GROUNDS:

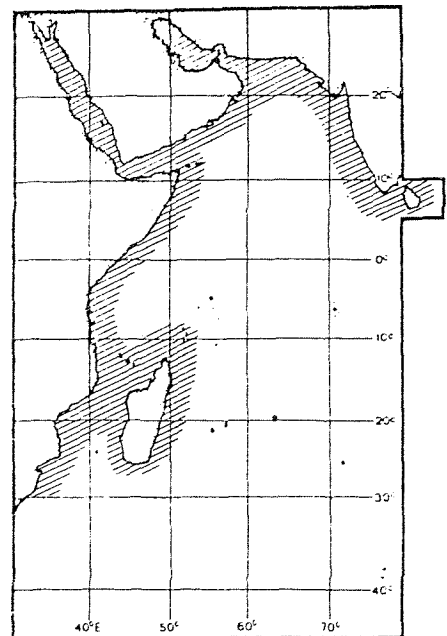
No specific fishery in the area.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION

Separate statistics are not reported for this species.

Caught mainly by trolling lines by both artisanal and sport fishermen, but also sometimes taken in nets.

Marketed fresh, frozen or dried salted. Flesh good, but cases of poisoning (ciguatera) reported in the tropical Western, Atlantic and Pacific.

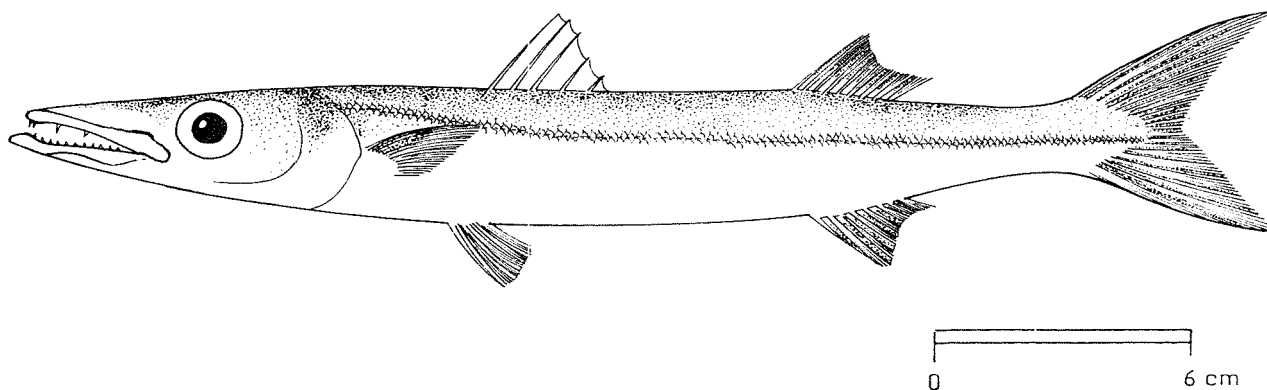


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPHYRAENIDAE

FISHING AREA 51
(W. Indian Ocean)*Sphyraena forsteri* Cuvier, 1829

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Bigeye barracuda
 Fr - Bécune de Forster
 Sp - Picuda de Forster

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and slightly compressed. Head large, with a long, pointed snout; eye very large, mouth large, maxilla (upper jaw) reaching to anterior margin of eye, lower jaw projecting; strong, pointed, flattened teeth in both jaws, large in front, smaller behind and a few triangular, flattened teeth on roof of mouth (palatines). No gillrakers on first arch; upper gill arch platelets rough, lower platelets with distinct spines. Origin of first (spinous) dorsal fin slightly behind pelvic fin origin; pectoral fin tip reaching beyond pelvic fin base. Scales moderate, more than 100, usually 105 to 115 in lateral line.

Colour: blue/black above, sides silvery, without dark bars or chevrons; a dark blotch in axil of pectoral fin. Inside of mouth dark grey. Tips of second dorsal and anal fins white.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other *Sphyraena* species: either no gillrakers or 1 or 2 gillrakers on first arch, but no distinct spines on lower gill arch platelets; also, dark bars or chevrons may be present on sides, or lateral line scales less than 100 or more than 125.

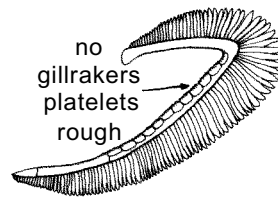
SIZE:

Maximum: 64 cm; common between 20 and 30 cm.

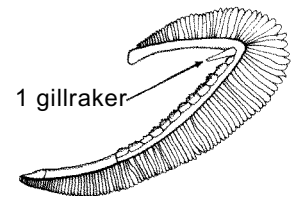
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Probably throughout the area, but previous identifications not necessarily reliable. Elsewhere, found in the Eastern Indian Ocean and Western Pacific southward to northeastern Australia.

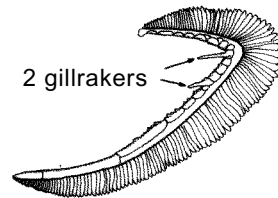
Found close to shore or over shallow banks, frequently near bottom. Mainly nocturnal and solitary. Feeds mainly on fishes, but also on penaeid shrimps and squids.



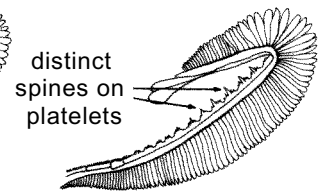
S. barracuda
S. jello



S. acutipinnis
S. novaehollandiae



S. obtusata
S. flavicauda



S. forsteri

PRESENT FISHING GROUNDS:

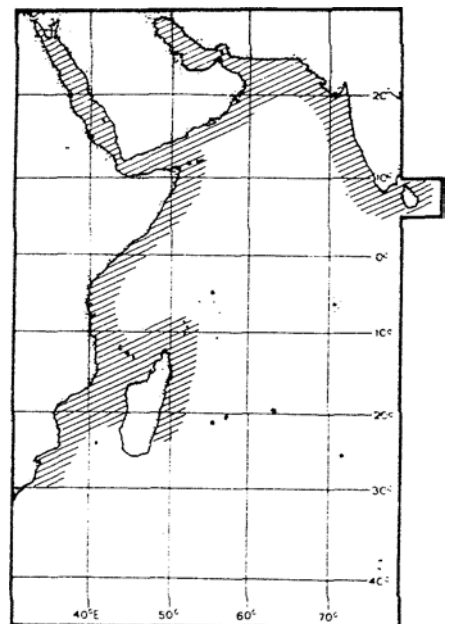
No specific fishery in the area.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Captured by trolling lines, chiefly at night.

Marketed fresh, frozen or dried salted. Flesh good; unreliable identifications hint at poisonous qualities, but this needs confirmation.

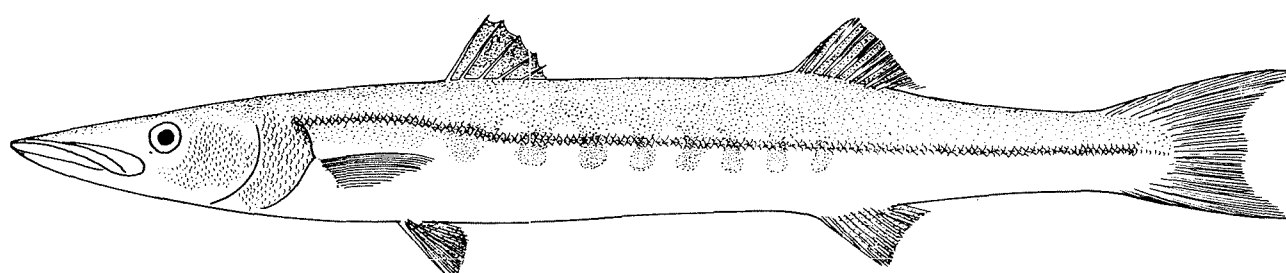


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPHYRAENIDAE

FISHING AREA 51
(W. Indian Ocean)Sphyraena jello Cuvier, 1829

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Pickhandle barracuda
 Fr - Barracuda jello
 Sp - Picuda serperitiria

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and somewhat round. Head large, with a long, pointed snout; mouth large, maxilla (upper jaw) almost reaching to anterior margin of eye, lower jaw projecting; strong, pointed, flattened teeth in both jaws, large in front, smaller behind and a few triangular, flattened teeth on roof of mouth (palatines). No gillrakers on first arch; upper and lower gill arch platelets rough, but without distinct spines. Origin of first (spinous) dorsal fin slightly behind pelvic fin origin; anterior dorsal and anal fin rays not reaching beyond tips of posterior rays when fin depressed; pectoral fin tip reaching beyond pelvic fin base. Scales small, more than 130, usually 135 to 140 in lateral line.

Colour: blue/black or brown above, sides silvery, with a dark pattern of serpentine bars reaching a little below lateral line, but no inky spots on hind part of body below lateral line (bars very distinct in young).

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

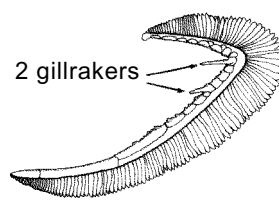
Sphvraena obtusata, S. flavicauda: 2 gillrakers on first arch and no bars on body; also, inside of mouth bright yellow/orange in S. obtusata.

S. acutipinnis and S. novaehollandiae: 1 gillraker on first arch and no bars on body; also, first dorsal fin origin opposite pelvic fin base in S. acutipinnis.

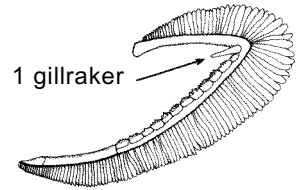
S. forsteri: also without gillrakers, but distinct spines on lower gill arch platelets.

S. barracuda: inky spots on hind part of body below lateral line and large scales (less than 100 in lateral line).

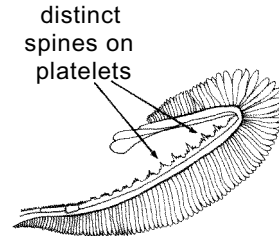
Other Sphyraena species: also without gillrakers on first arch, but dark chevrons on sides (S. bleekeri, S. putnanniae), no dark marks (S. raghava), or angled vertical bars and only 120 to 130 lateral line scales (S. genie).



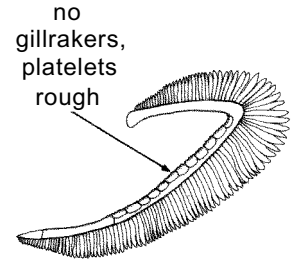
S. obtusata
S. flavicauda



S. acutipinnis
S. novaehollandiae



S. forsteri



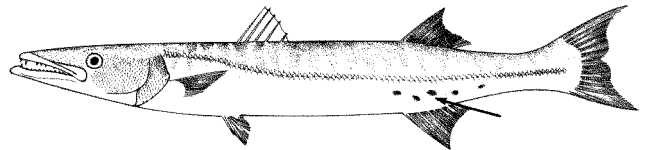
S. jello

SIZE:

Maximum: 150 cm; common between 50 and 100 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Probably throughout the area, but previous identifications not necessarily reliable (some probably refer to S. putnamiae). Elsewhere, found in the Eastern Indian Ocean and Western Pacific.



S. barracuda

Found predominantly at or near the surface. Diurnal and solitary (but the young often in small schools), usually at the edges of reefs and over shallow banks.

Feeds mainly on fishes, also squid.

PRESENT FISHING GROUNDS:

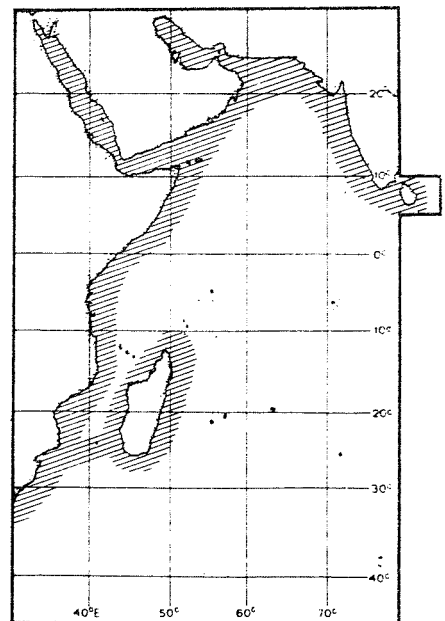
No specific fishery in the area.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Captured by trolling lines by both artisanal and sport fishermen, perhaps also in nets.

Marketed fresh, frozen or dried salted. Flesh good; unreliable identifications hint at poisonous qualities, but this needs confirmation.

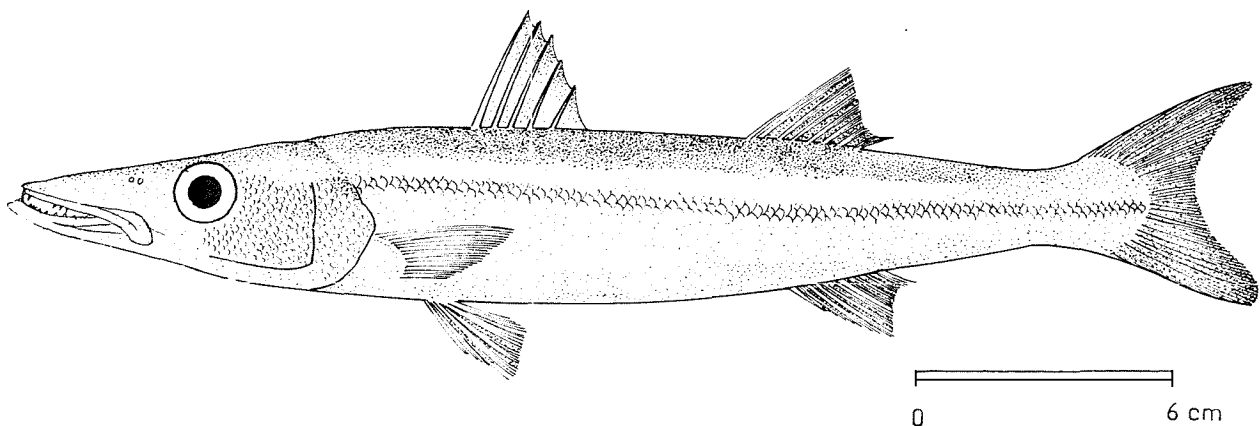


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPHYRAENIDAE

FISHING AREA 51
(W. Indian Ocean)Sphyraena obtusata Cuvier, 1829

OTHER SCIENTIFIC NAMES STILL IN USE:

Sphyraena chrysotaenia Klunzinger, 1884Sphyraenella chrysotaenia: Dutt & Seshagiri Rao, 1967

VERNACULAR NAMES:

FAO: En - Obtuse barracuda
Fr - Bécune obtuse
Sp - Picuda obtusa

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and slightly compressed. Head large, with a long, pointed snout; mouth large, maxilla (upper jaw) reaching to anterior margin of eye, lower jaw projecting; strong, pointed, flattened teeth in both jaws, large in front, smaller behind, and a few triangular, flattened teeth on roof of mouth (palatines). Two gillrakers on first arch; upper and lower gill arch platelets rough, but without distinct spines. Origin of first (spinous) dorsal fin slightly behind pelvic fin origin; pectoral fin tip reaching first dorsal fin origin. Scales large, less than 100, usually 80 to 90 in lateral line.

Colour: grey/brown with greenish tinge above, sides silvery white without dark bars or chevrons; inside of mouth bright yellow/orange. Second dorsal, anal and caudal fins yellowish.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Sphyraeria flavicauda: pectoral fin tip not reaching to level of first dorsal fins origin and height of first dorsal fins less than postorbital distance.

S. acutipinnis and S. novaehollandiae: only a single gillraker on first arch and more than 100 lateral line scales.

S. forsteri: also without gillrakers, but distinct spines on lower gill arch platelets and more than 100 lateral line scales.

Other Sphyraena species: no gillrakers, also dark chevrons on sides (S. putnamiae) and/or more than 100 lateral line scales.

SIZE:

Maximum: 40 cm; common between 20 to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Perhaps throughout the area, but previous identifications not necessarily reliable. Elsewhere, found in the Eastern Indian Ocean and Western Pacific.

Found near the surface and also just off the bottom (especially larger individuals). Diurnal and schooling (especially smaller individuals).

Feeds mainly on fishes.

PRESENT FISHING GROUNDS:

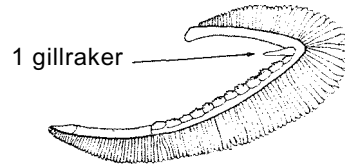
No specific fishery in the area.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

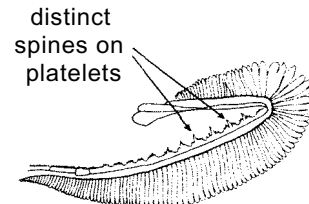
Separate statistics are not reported for this species.

Captured by trolling lines by both artisanal and sport fishermen, perhaps also in nets.

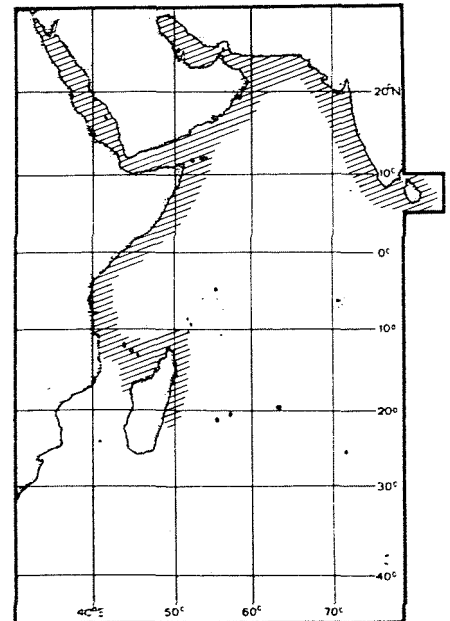
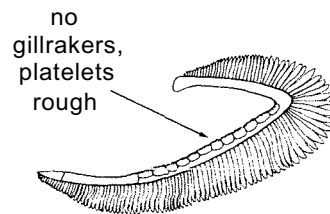
Marketed fresh, frozen or dried salted. Flesh good.



S. acutipinnis
S. novaehollandiae



S. forsteri



FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

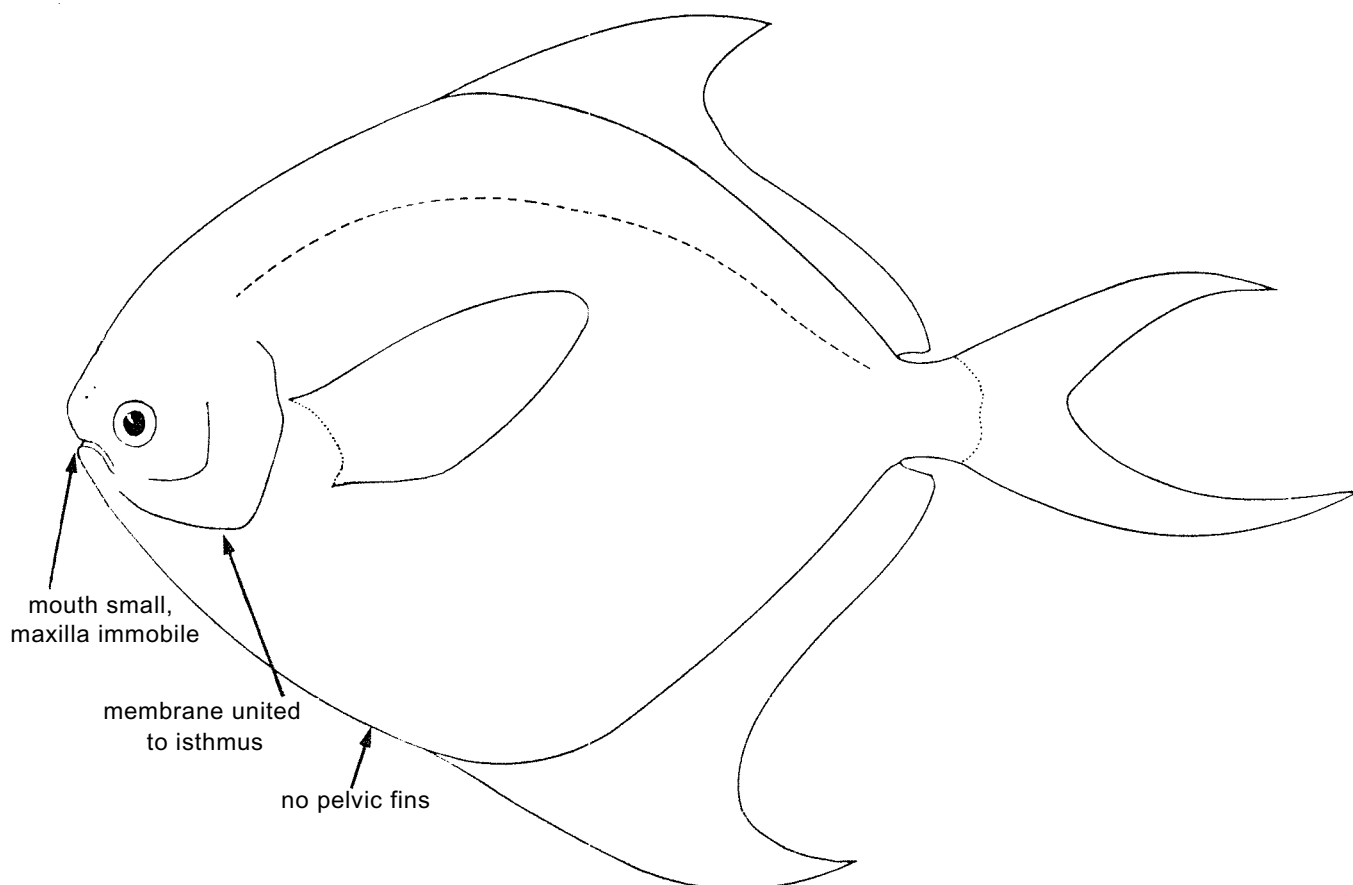
STROMATEIDAE

Butterfishes, fiatolas, silver pomfrets

Body very deep and compressed, caudal peduncle short and compressed, with no keels or scutes. Head deep and broad, snout short and blunt; eyes small, centrally located and surrounded by adipose tissue which extends forward around the large nostrils; mouth sub-terminal, small and curved downward, the maxilla scarcely reaching to below eye, and the angle of gape located before eye; premaxilla not protractile; maxilla immobile, covered with skin and united to cheek; teeth minute, uniserial and flattened, with very small cusps; gill covers very thin, gill membranes broadly united to the isthmus in all Indian Ocean species, gill opening a straight slit. Single dorsal and anal fins, long-based and slightly to deeply falcate, preceded by none or 5 to 10 flat, blade-like spines, pointed on both ends and resembling the ends of free interneurals; pectoral fins long and wing-like; no pelvic fins; caudal fin usually forked, in some species with very extended lobes. Lateral line single, high, following dorsal profile and extending onto caudal peduncle. Scales small, cycloid (smooth) very easily shed; head naked, with prominent canals visible under the thin skin.

Colour: conspicuously silvery with a bluish cast on back; gill membranes and inside of mouth dark.

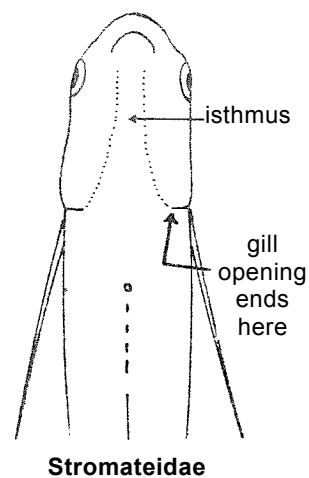
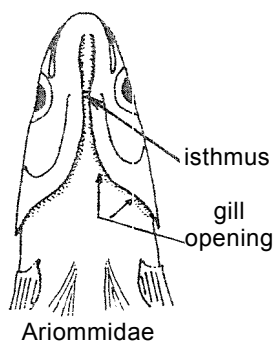
Pomfrets are schooling, pelagic, medium-sized fishes (up to about 60 cm in length) inhabiting shallow waters, generally in coastal areas, sometimes entering estuaries. Soft-bodied coelenterates and pelagic crustaceans are important in their diet. They are usually captured by trawling, and are among the finest of food fishes, and one species in the family (Pampus argenteus) is of significant commercial importance in the area.



SIMILAR FAMILIES OCCURRING IN THE AREA:

Apolectus niger (Carangidae). gill openings normal, gill membranes not broadly united to isthmus; caudal peduncle with lateral keels; colour uniform dark.

Species of Ariommidae, Nomeidae, Carangidae and other silvery compressed fishes: pelvic fins present; gill openings normal.



GENERA OCCURRING IN THE AREA:

Of the three genera in the family, only Pampus is found in the Western Indian Ocean. Stromateus occurs in the Eastern Atlantic and around southern South America and Peprilus occurs along Atlantic and Pacific coasts of the New World.

LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

Pampus argenteus (Euphrasen, 1788)

STROM Pamp 1

Pampus chinensis (Euphrasen, 1788)

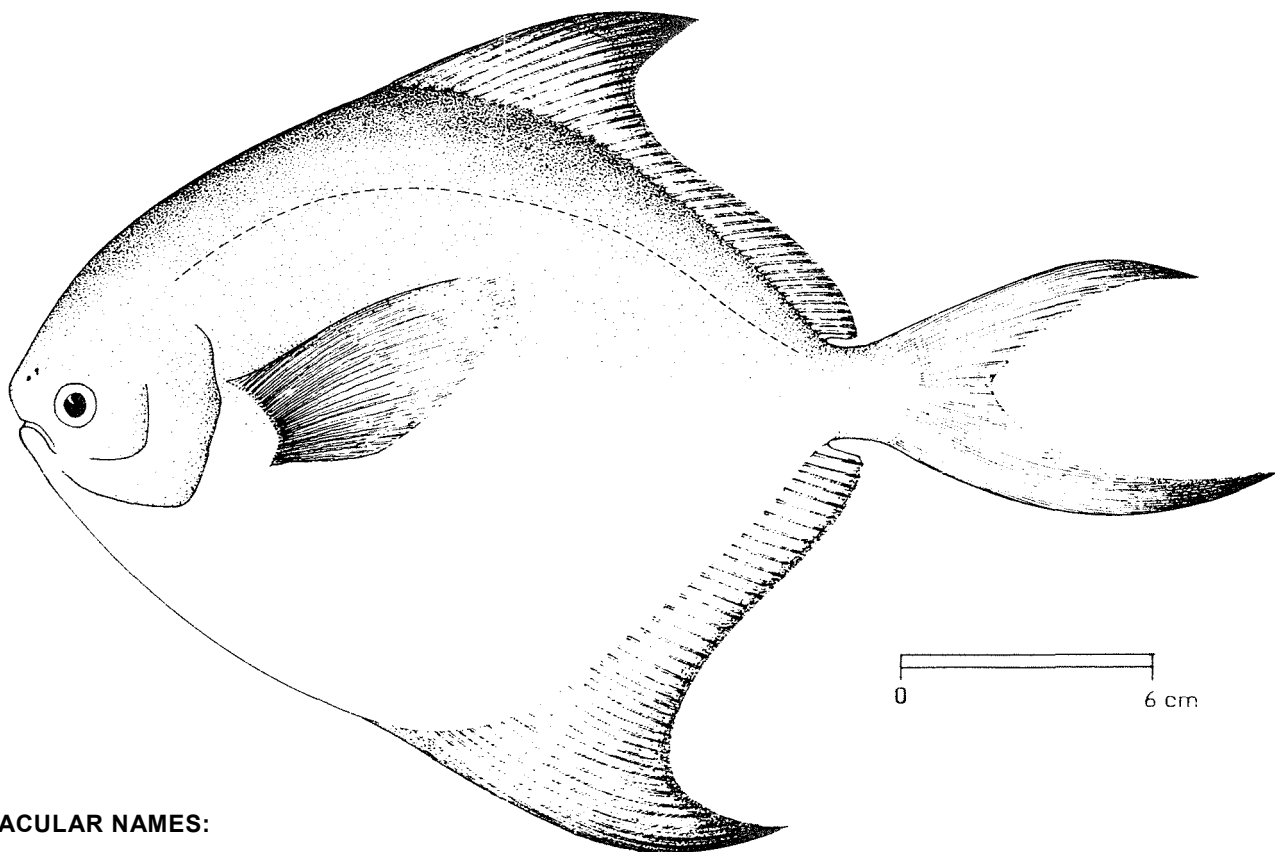
STROM Pamp 2

FAO SPECIES IDENTIFICATION SHEETS

FAMILY : STROMATEIDAE

FISHING AREA 51
(W. Indian Ocean)Pampus argenteus (Euphrasen, 1788)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Silver pomfret
 Fr - Aileron argenté
 Sp - Palometón platero

NATIONAL:

DISTINCTIVE CHARACTERS:

Body very deep, compressed but fairly thick; caudal peduncle short, deep and compressed, without keels; musculature firm. Mouth small, subterminal and curved downward; maxilla immobile, covered with skin and united to cheek; jaw teeth minute, uniserial and flattened, with a large central cusp and 2 smaller cusps; palate toothless; gill membranes broadly united to isthmus; gill opening a vertical slit covered with a flap of skin; gillrakers 2 to 3 + 8 to 10 on first arch. Dorsal and anal fins subequal in length, originating ahead of mid-body but behind pectoral fin base; preceded by 5 to 10 very low blade-like spines, pointed on both ends and resembling the ends of free interneurals; dorsal finrays 38 to 43, anal finrays 34 to 43; pectoral fins long and wing-like; pelvic fins absent; caudal fin stiff and forked, the lower lobe longer than the upper; anterior rays of median fins, especially the anal fin, and ventral lobe of caudal fin often greatly produced, decidedly falcate. Scales very small, cycloid (smooth), easily shed, and extending onto bases of all fins. Lateral line high, following dorsal profile and extending onto caudal peduncle. Skin thin, canal system clearly visible, particularly as a parallel network on the naked head and nape. Very numerous, small, slender pyloric caeca on the intestine.

Colour: silvery white on the sides and blue to grey on the back. Body covered with small black dots, especially prominent on snout, lower jaw and cheek. Fins yellowish with dark edges. Young silvery.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pampus chinensis: no spines preceding median fins; fins never deeply falcate but the fin-rays gradually and uniformly diminishing in length posteriorly. Usually a smaller fish.

The lack of pelvic fins and the gill membranes broadly united to the isthmus uniquely characterize these fishes. When these characteristics are taken into consideration, no confusions are possible.

SIZE:

Maximum: about 60 cm; common to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Present in the "Gulf" and along the coasts of India. Not found in African waters nor around offshore islands. Eastward it extends to Japan, but not to New Guinea or Australia.

Found in coastal waters at depths between 5 and 80 m. Occurs seasonally in schools over muddy bottoms, associated with prawns, and Nemipterus and Leiognathus species. Schools can be large and abundant. Spawns from late winter through the summer, with greatest intensity during the period from April to June.

Feeds on ctenophores, salps, medusae, and other zooplankton groups.

PRESENT FISHING GROUNDS:

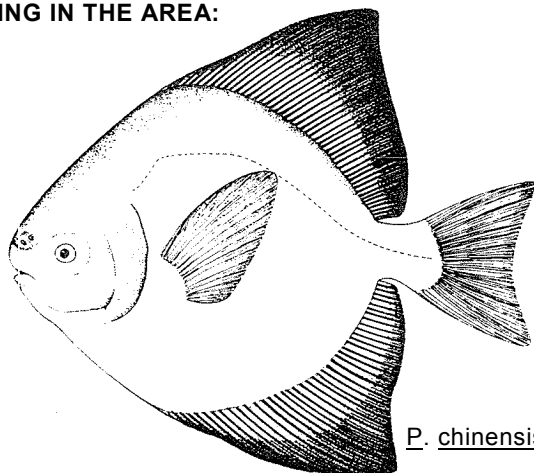
Shelf waters to 80 m depth off Bombay and between the Gulf of Cambay and the Gulf of Kutch (an especially important place), most abundant from October through December. Occurs seasonally (November to February) to the south in the Gulf of Mannar. Abundance varies from year to year.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

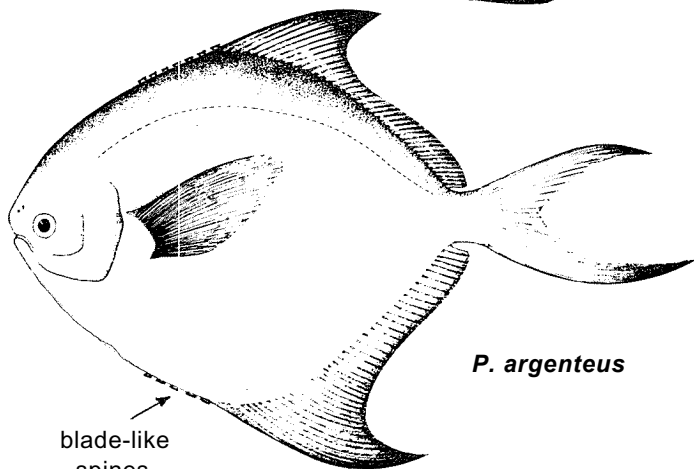
Separate statistics are not reported for this species. Approximately 10 to 25 000 t are estimated to be taken annually in northwestern India.

Caught with bottom trawls and occasionally with gillnets.

Marketed fresh; also shipped frozen to the interior.

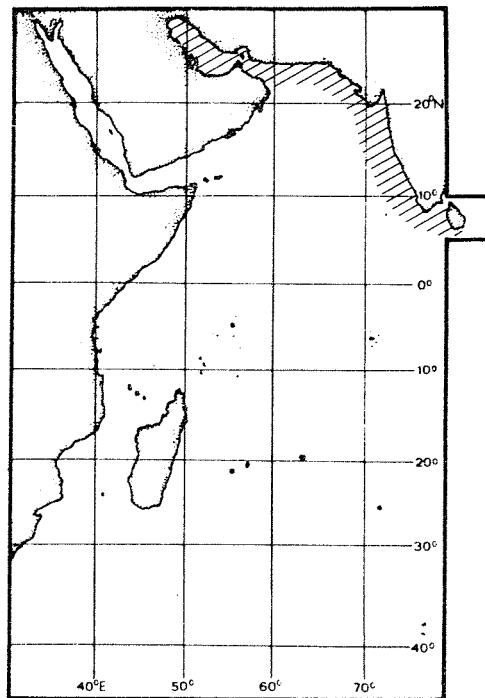


P. chinensis



P. argenteus

blade-like spines

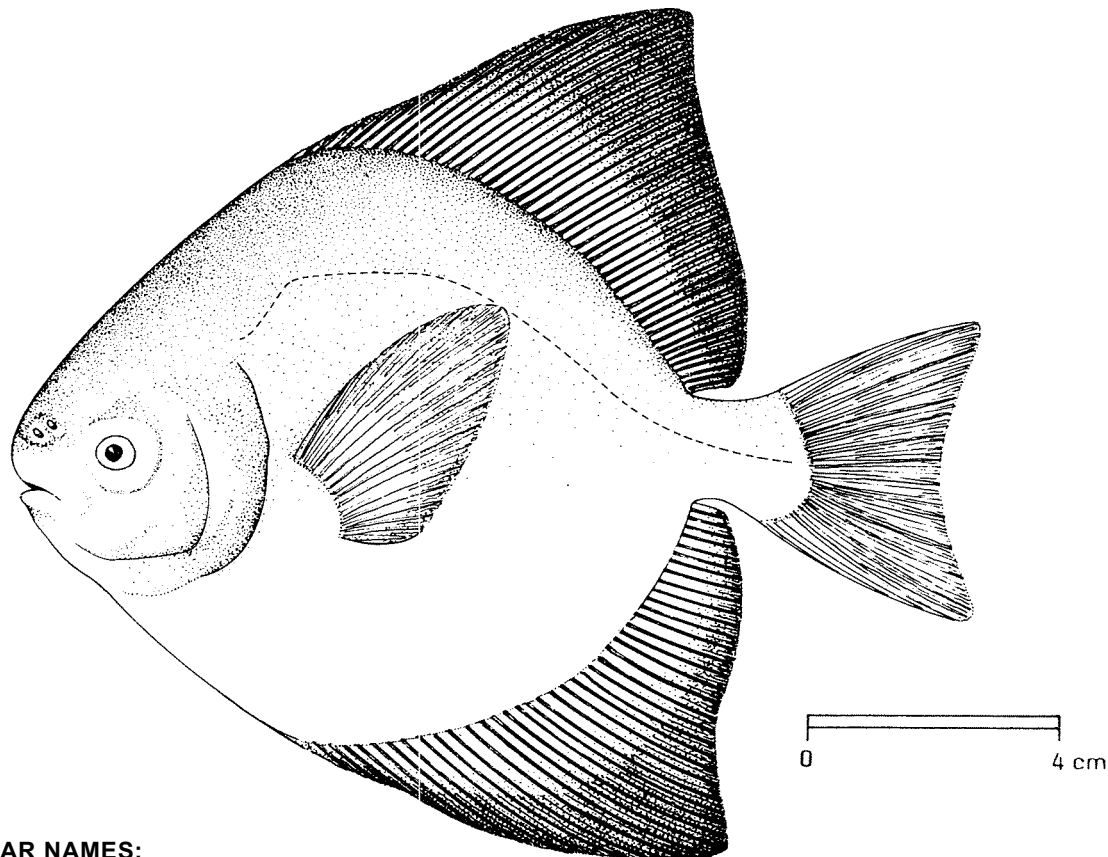


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: STROMATEIDAE

FISHING AREA 51
(W. Indian Ocean)Pampus chinensis (Euphrasen, 1788)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Chinese silver pomfret (= Chinese pomfret, Fishing Areas 57/71, 1974)
Fr - Aileron chinois
Sp - Palometón chino

NATIONAL:

DISTINCTIVE CHARACTERS:

Body very deep, compressed; caudal peduncle very short, deep and compressed, without keels; musculature firm. Mouth small, curved downward; maxilla immobile covered with skin and united to cheek; jaw teeth minute, uniserial and flattened, with a large central cusp and 2 smaller cusps; palate toothless; snout obtuse; gill membranes broadly united to isthmus; gill opening a straight vertical slit covered with a flap of skin. Dorsal and anal fins subequal in length, originating at level of or behind pectoral fin bases, no spines ahead of fins; dorsal finrays 43 to 50, anal finrays 39 to 42; pectoral fins broad; pelvic fins absent; caudal fin broad and only slightly forked; rays of median fins increasing and then diminishing gradually in length to produce an approximately vertical margin at posterior border of the fins, never falcate. Scales small, cycloid (smooth), easily shed and extending onto bases of all fins. Lateral line high, following dorsal profile and extending onto caudal peduncle. Skin thin.

Colour: grey to brown on the back, silvery white on sides; small black dots cover entire body; fins yellowish to dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pampus argenteus: 5 to 10 flat blade-like spines preceding the median fins; fins falcate. Usually a larger fish.

The lack of pelvic fins and the gill membranes broadly united to the isthmus uniquely characterize these fishes. When these characteristics are taken into consideration, no confusions are possible.

SIZE:

Maximum: about 40 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Coastal waters of India and eastward to China, but not to New Guinea or Australia.

Occurs seasonally singly or in small schools over muddy bottoms; may enter estuaries.

Feeds on ctenophores, salps, medusae, and other zooplankton groups.

PRESENT FISHING GROUNDS:

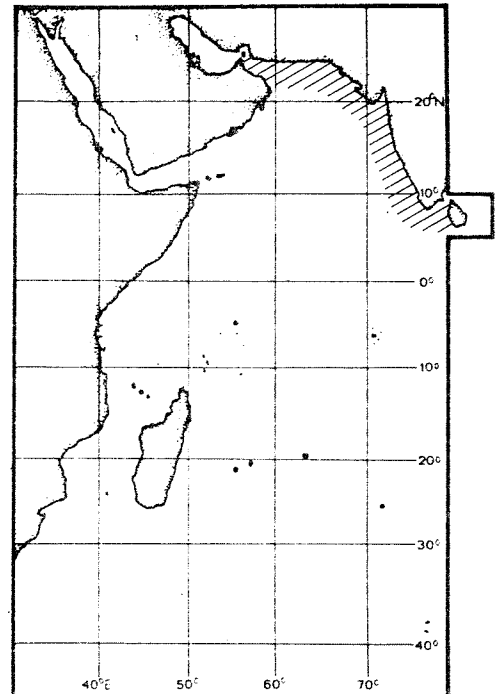
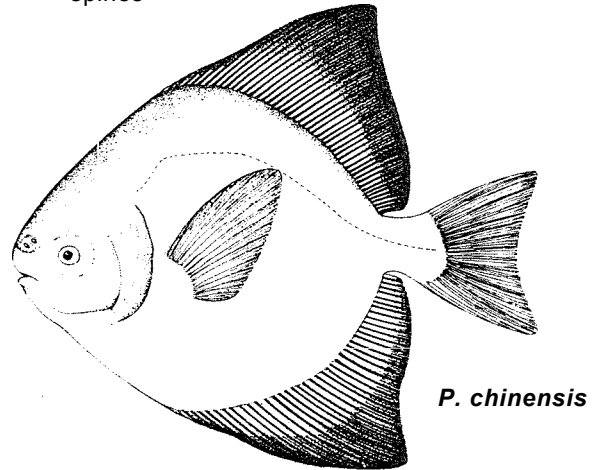
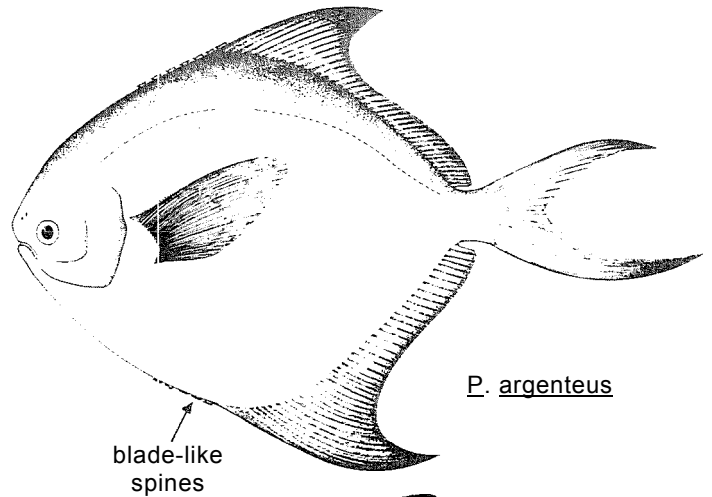
Shelf waters to 80 m off Bombay and between the Gulf of Cambay and the Gulf of Kutch. Taken in Kerala from June to September. Abundance varies from year to year, but never present in great numbers.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species; its importance is insignificant in comparison to that of the other silver pomfret, P. argenteus, which makes up the bulk of the catch.

Taken with bottom trawls and occasionally with gillnets.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

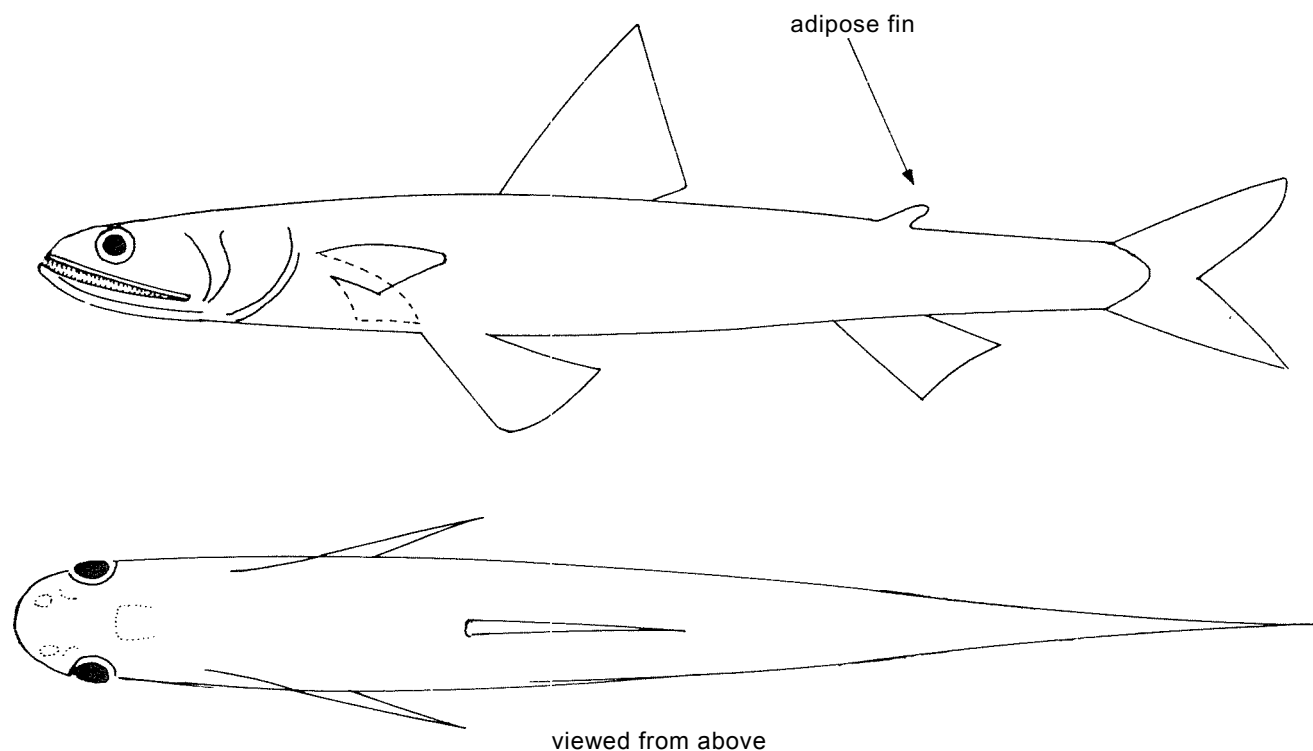
SYNODONTIDAE

Lizardfishes

Body elongate, usually cylindrical and with adipose fin. Mouth large and terminal, with rows of numerous small, slender and pointed teeth visible even when mouth is closed; teeth also on palate (roof of mouth) and tongue, those on palate in 1 or 2 bands.

Colour: green/brown on back, lighter on flanks, with dark blotches or bars down flanks or on fins in certain species.

Bottom-dwelling fishes, found on open flats or around reefs, down to more than 500 m depth. They lie motionless in wait of passing prey, which they seize with rapid darting motions; most species are fish eaters. Their flesh is said to be of good quality and flavour, though bony. The reported catch of lizardfishes in Fishing Area 51 totalled about 9 700 tons in 1981.

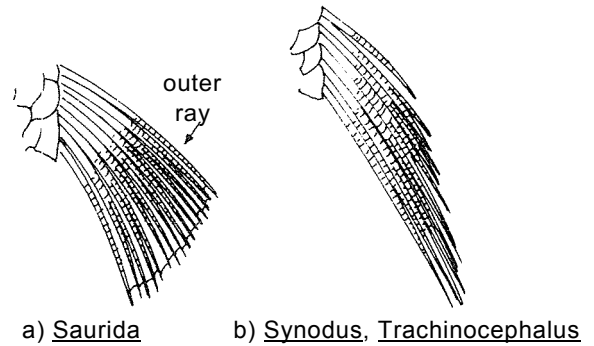
**SIMILAR FAMILIES OCCURRING IN THE AREA:**

All other families. lack the combination of an adipose fin, a robust body, and a lizard-like head with a large mouth having numerous pointed teeth visible even when mouth is closed.

KEY TO GENERA OCCURRING IN THE AREA:

1a. Nine pelvic fin rays, inner barely longer than outer (Fig.1a); palatine teeth (on roof of mouth) in 2 pairs of bands (Fig.2a) Saurida

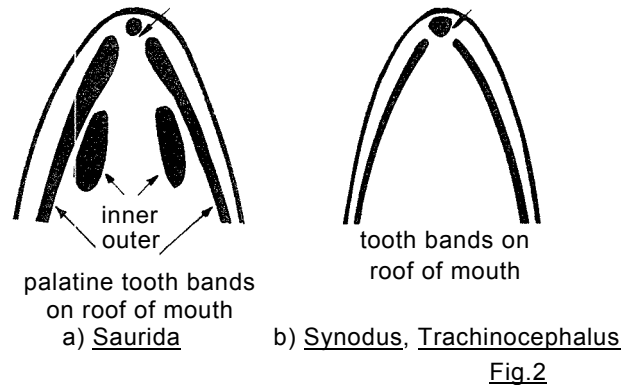
1b. Eight pelvic fin rays, inner much longer than outer (Fig.1b); palatine teeth in 1 pair of bands (Fig.2b)



pelvic fin Fig.1

2a. Eye opposite about midpoint of upper jaw (Fig.3a); head depressed; anal fin base shorter than dorsal fin base (Fig.4a) Synodus

2b. Eye nearer to anterior end of upper jaw (Fig.3b); head not depressed; anal fin base longer than dorsal fin base (Fig.4b) Trachinocephalus



palatine tooth bands on roof of mouth
a) Saurida

b) Synodus, Trachinocephalus
Fig.2

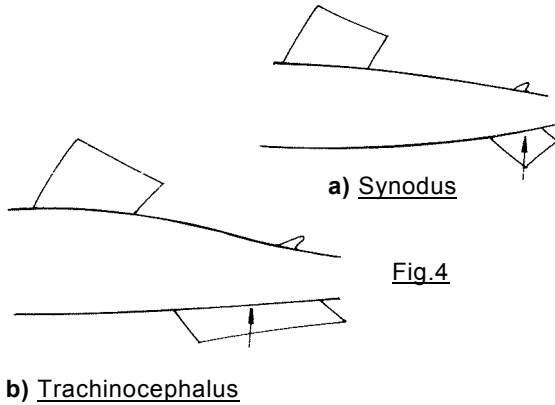
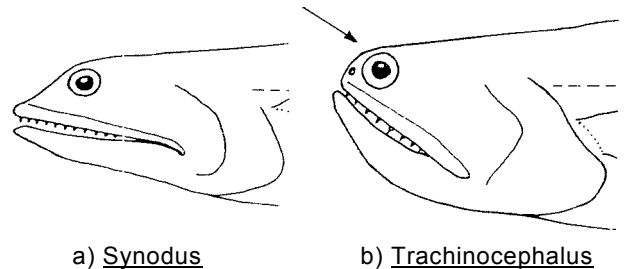


Fig.4

b) Trachinocephalus



a) Synodus

b) Trachinocephalus

Fig.3

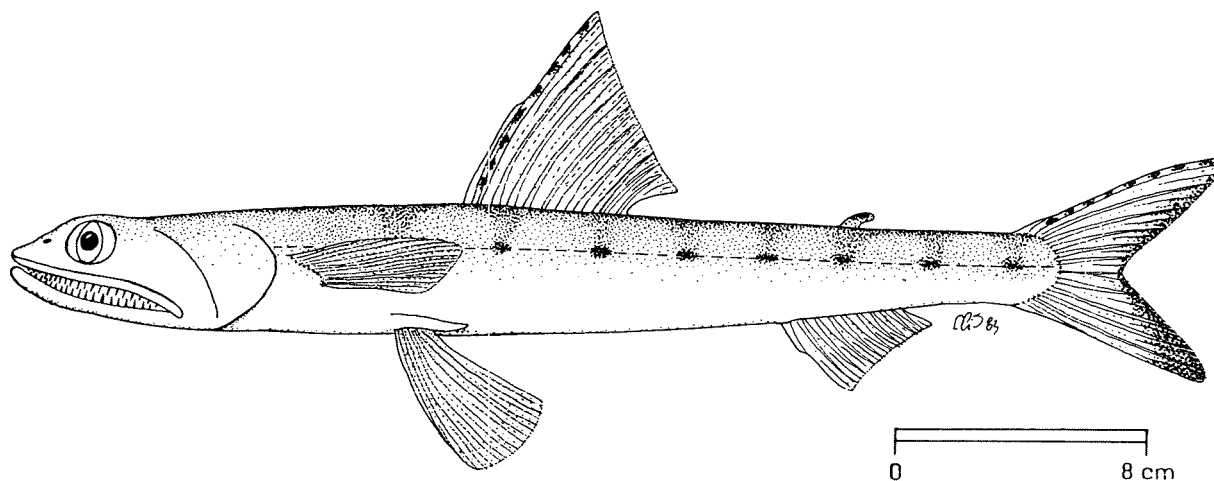
LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

<u>Saurida gracilis</u> (Quoy and Gaimard, 1824)	SYNOD Sauri 7
<u>Saurida longimanus</u> Norman, 1939	SYNOD Sauri 8
<u>Saurida nebulosa</u> Valenciennes in Cuv. & Val., 1849	SYNOD Sauri 9
<u>Saurida tumbil</u> (Bloch, 1795)	SYNOD Sauri 2
<u>Saurida undosquamis</u> (Richardson, 1848)	SYNOD Sauri 1
<u>Synodus binotatus</u> Schultz, 1953	SYNOD Synod 3
<u>Synodus englemani</u> Schultz, 1953	SYNOD Synod 4
<u>Synodus hoshinonis</u> Tanaka, 1917	SYNOD Synod 5
<u>Synodus indicus</u> (Day, 1873)	SYNOD Synod 6
<u>Synodus jaculum</u> Russell & Cressey, 1979	SYNOD Synod 7
<u>Synodus macrops</u> Tanaka, 1917	SYNOD Synod 8
<u>Synodus sageneus</u> Waite, 1905	SYNOD Synod 9
<u>Synodus variegatus</u> (Lacepède, 1803)	SYNOD Synod 10
<u>Trachinocephalus myops</u> (Forster, 1801)	SYNOD Trach 1

FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SYNODONTIDAE

FISHING AREA 51
(W. Indian Ocean)*Saurida undosquamis* (Richardson, 1848)OTHER SCIENTIFIC NAMES STILL IN USE: *Saurida grandisquamis* Günther, 1864

VERNACULAR NAMES:

FAO: En - Brushtooth lizardfish
Fr - Anoli à grandes écailles
Sp - Layarto escamoso

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and tubular; head and caudal peduncle somewhat depressed. Several rows of teeth visible on both jaws even when mouth is closed; 2 series of teeth present on palate (roof of mouth); outer series in 2 rows anteriorly; vomer usually toothless. Dorsal fin rays usually 12 (11 or 12), longest dorsal ray about 3½ times as long as last ray; pectoral fin rays 14 or 15, longest pectoral ray nearly as long as longest pelvic ray and extending to about dorsal fin origin; pelvic fin rays subequal in length; pectoral fins long and pointed. Lateral line scales about 45 to 52; 3½ to 4½ scale rows above lateral line.

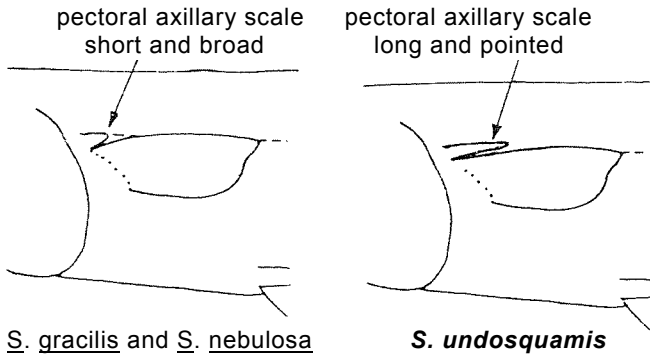
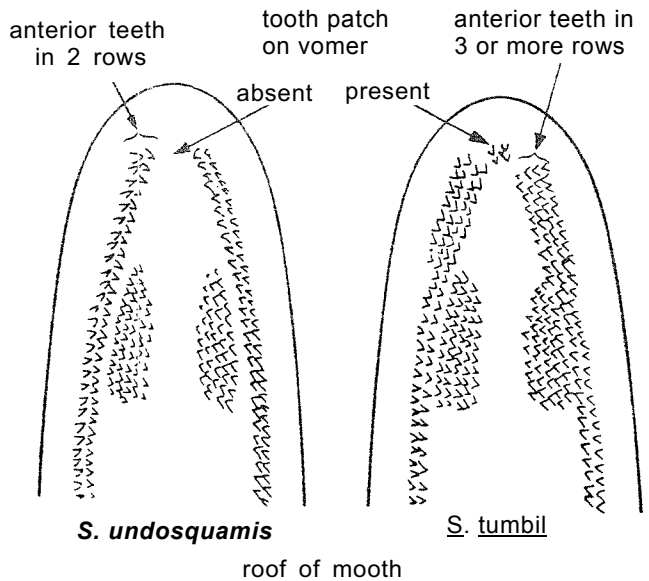
Colour: back and sides brown, belly pale or silvery. Eight to 10 bars often visible along lateral line. Distal parts of dorsal, pectoral and particularly caudal fin dusky. Second dorsal fin ray and upper caudal fin ray with a series of about 8 dark spots; fins otherwise without markings.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Sauryda tumbil: no dark spots on second dorsal ray and upper caudal ray; outer palatine teeth in 3 or 4 rows anteriorly (2 rows in S. undosquamis); a small patch of teeth present on vomer; pectoral fin about 2/3 as long as pelvic fin, not extending as far as dorsal fin origin.

S. gracilis and S. nebulosa: pectoral axillary scale short and broad; spots present on all fins; 13 or fewer pectoral fin rays (14 or 15 in S. undosquamis); longest dorsal ray less than 3 times as long as last ray.

S. longimanus: pectoral fin very long, extending to about middle of dorsal fin base.



SIZE:

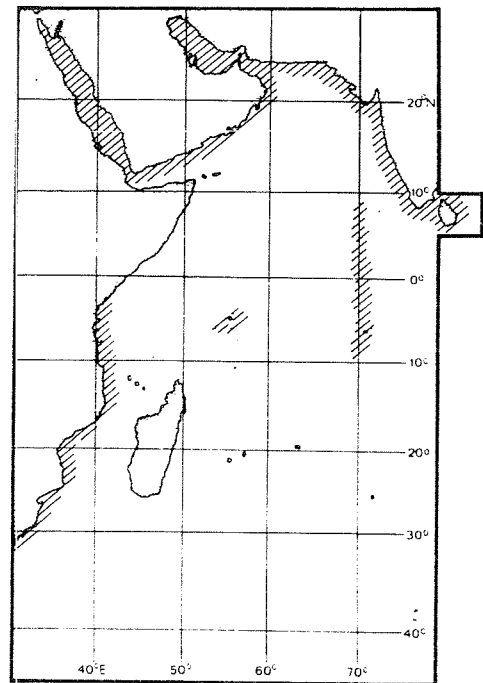
Maximum: exceeds 45 cm total length.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, known from East Africa (excluding Kenya and Somalia), the Red Sea, the "Gulf", Pakistan, India, Sri Lanka, the Seychelles, the Maldives and Chagos Islands. Elsewhere, in the Eastern Indian Ocean, Malay Archipelago, Australia, China Sea, Japan and Korea. Not known from the Central or Eastern Pacific. Has recently invaded the Eastern Mediterranean through the Suez Canal and is an important food fish in the Levant Basin.

Found on muddy bottoms from 20 to at least 200 m depth, often slightly deeper than S. tumbil.

Mainly piscivorous, but feeds also on crustaceans and other invertebrates.



PRESENT FISHING GROUNDS:

Muddy bottoms of the continental shelf.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught primarily with bottom trawls.

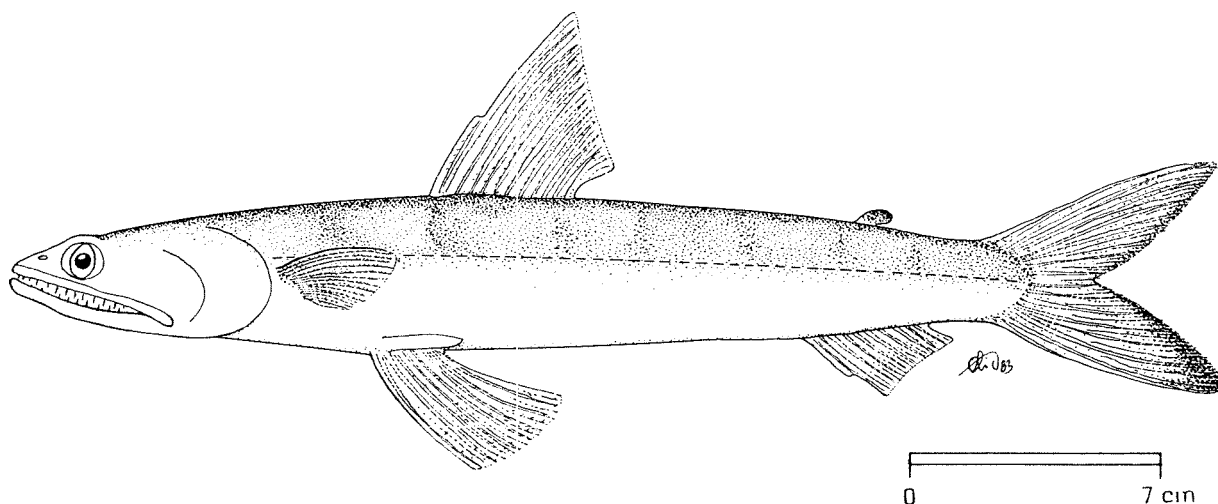
Marketed fresh and pried salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SYNODONTIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Saurida tumbil</i> (Bloch, 1745)

OTHER SCIENTIFIC NAMES STILL IN USE : *Saurida argyrophanes* (Richardson, 1846)

VERNACULAR NAMES:

FAO : En - Greater lizardfish
 Fr - Anoli tumbil
 bp - Lagarto tumbil

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and tubular; head and caudal peduncle somewhat depressed. Several rows of teeth visible in both jaws even when mouth is closed; 2 series of teeth on palate (roof of mouth), outer series in 3 or 4 rows anteriorly; a small patch of teeth present on vomer. Dorsal fin rays usually 12 (11 to 13), longest ray about 4 times as long as last ray; pectoral fin rays 14 or 15, longest ray reaching to about pelvic insertion. Pelvic rays subequal in length. Pectoral axillary scale long and pointed. Lateral line scales about 50 to 56; $4\frac{1}{2}$ to $5\frac{1}{2}$ scale rows above lateral line.

Colour: back and sides brown, belly pale or silvery. Eight to 10 faint bars occasionally visible along lateral line. Distal parts of dorsal, pectoral and particularly caudal fins dusky; otherwise, no markings fins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

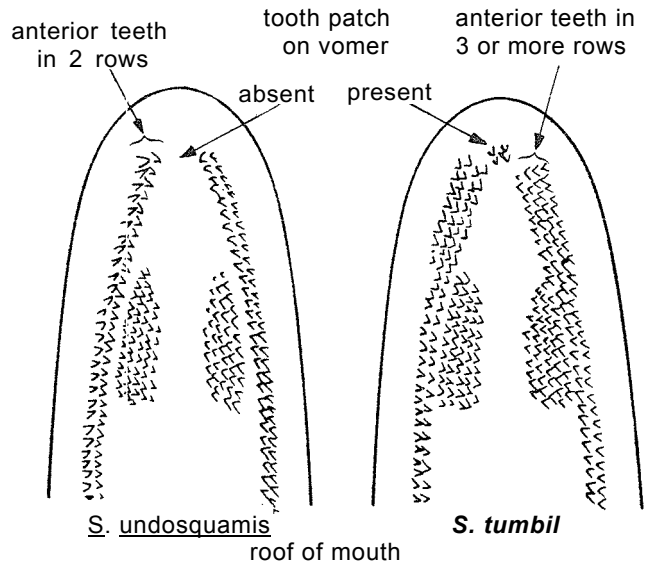
Saurida undosquamis: about 8 dark spots on 2nd dorsal fin ray and upper caudal ray; outer palatine teeth in 2 rows anteriorly (3 or 4 in S. tumbil); vomer usually toothless; pectoral fin nearly as long as pelvic fin and reaching to about dorsal fin origin.

S. gracilis and S. nebulosa: pectoral axillary scale short and broad; spots present on all fins; 13 or fewer pectoral fin rays (14 or 15 in S. tumbil); longest dorsal ray less than 4 times as long as last ray 4 times in S. tumbil).

S. longimanus: pectoral fin very long, extending to about middle of dorsal fin base.

SIZE:

Maximum: exceeds 40 cm total length.

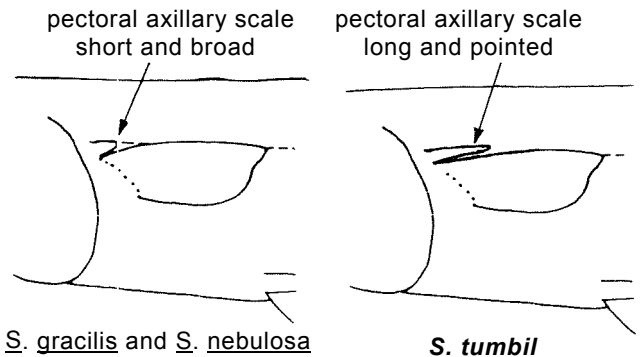


GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, known from the east coast of Africa (excluding Kenya and Somalia), Madagascar, the Red Sea, the "Gulf", Pakistan, India and Sri Lanka. Elsewhere, in the Eastern Indian Ocean, Malay Archipelago, East Indies, Australia and China Sea; not known from the Central or Eastern Pacific.

Commonly found on muddy bottoms between 20 and 60 m depth, but may enter shallower waters.

Mainly piscivorous, but also feeds on crustaceans and squid.



PRESENT FISHING GROUNDS:

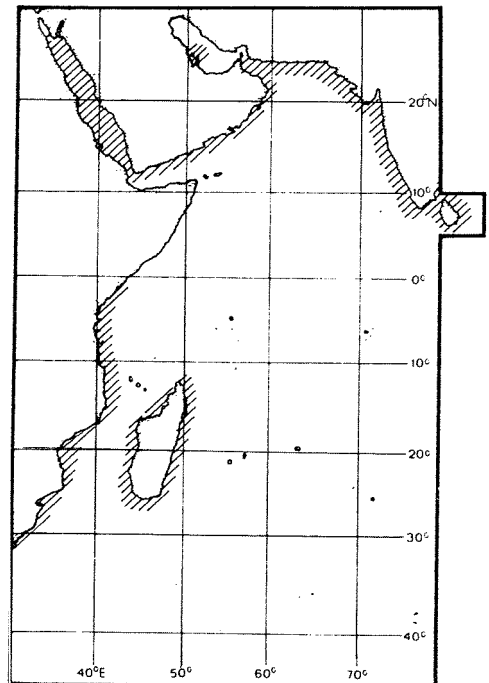
Shallow muddy bottoms of the continental shelf.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught primarily with bottom trawls.

Marketed fresh.

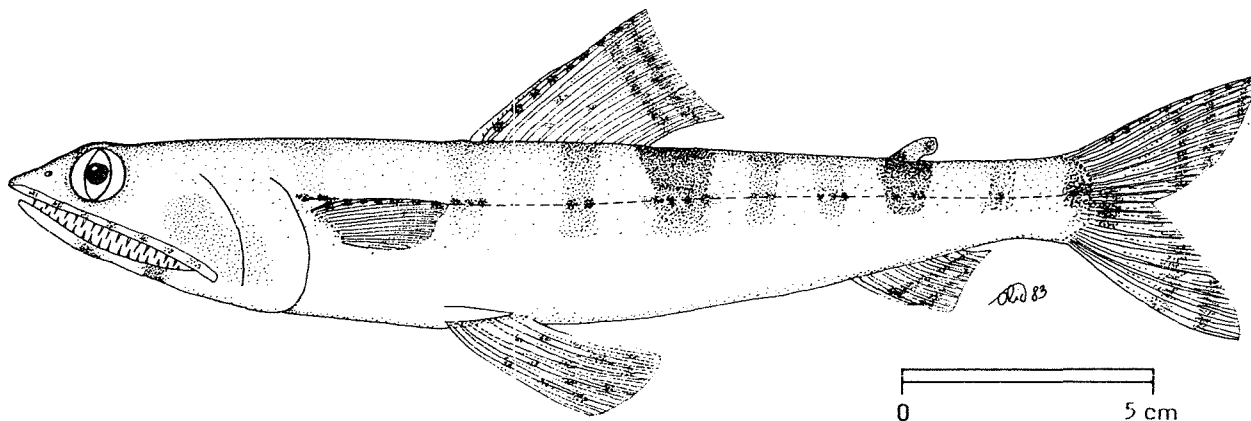


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SYNODONTIDAE

FISHING AREA 51
(W. Indian Ocean)*Saurida gracilis* (Quay & Gaimard, 1824)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Gracile lizarafish
 Fr - Anoli grêle
 Sp - Lagarto grácil

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and tubular; head and caudal peduncle somewhat depressed. Several rows of teeth visible in both jaws even when mouth is closed; 2 series of teeth on palate (roof of mouth); outer series in 1 or 2 rows anteriorly, inner series in about 3 or 4 rows; teeth sometimes resented on vomer. Dorsal fin rays 11 (rarely 10 or 12), longest ray less than 3 times as long as last ray; pectoral fin rays 13 (rarely 12 or 14), longest ray 12% or more of standard length and extending as far as 1st to 3rd predorsal scale row; pelvic fin rays subequal in length. Pectoral axillary scale short and broad. Lateral line scales 46 to 52; $3\frac{1}{2}$ scale rows above lateral line.

Colour: ground colour, white or pale yellow, mottled with dark brown and black on back and sides. A series of 8 to 10 blotches along lateral line and darker crossbars on back, particularly at base of caudal fin, around adipose fin and behind dorsal fin. All fins with dark bars and spots; caudal fin with a broad, vertical, pale yellow band near base.

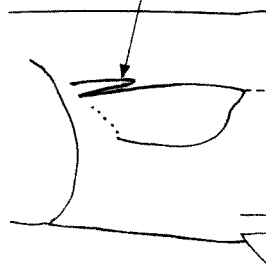
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Saurida nebulosa: pectoral fin shorter, less than 12% of standard length, with only 12 rays (usually 13 in S. gracilis), and extending posteriorly only as far as 3rd to 6th predorsal scale row (extending to 1st to 3rd predorsal scale row in S. gracilis); inner palatine teeth in 2 distinct rows (3 or 4 in S. gracilis); no vomerine teeth; dorsal fin rays often 10 (usually 11 in S. gracilis).

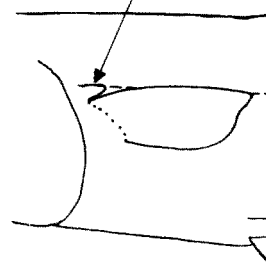
S. tumbil and S. undosquamis: no spots on fins (except 2nd dorsal ray and upper caudal ray in S. undosquamis); pectoral axillary scale long, pointed; pectoral fin rays 14 or 15; longest dorsal ray more than 3 times as long as last ray (less than 3 times in S. gracilis).

S. longimanus: pectoral fin very long, extending to about middle of dorsal fin base.

pectoral axillary scale long and pointed



pectoral axillary scale short and broad



Saurida tumbil, S. undosquamis and S. longimanus

S. gracilis

SIZE:

Maximum: about 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread in the area, but not recorded from the Gulf of Aden, the "Gulf", Pakistan, India and Sri Lanka. Elsewhere, found in the Eastern Indian Ocean and in the Pacific Ocean to Hawaii.

A common shallow water form, usually found in sandy areas adjacent to coral or on the fringes of patch reefs.

Mainly piscivorous, often active at night.

PRESENT FISHING GROUNDS:

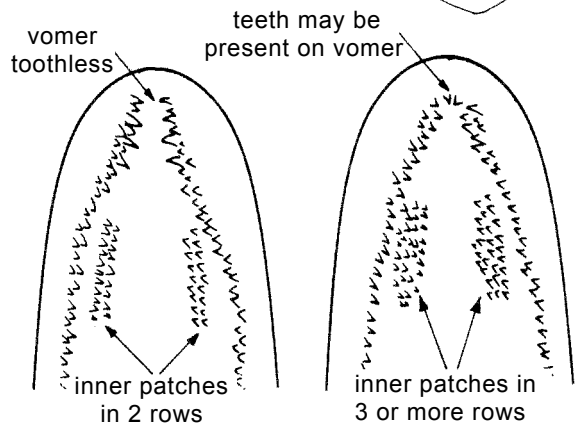
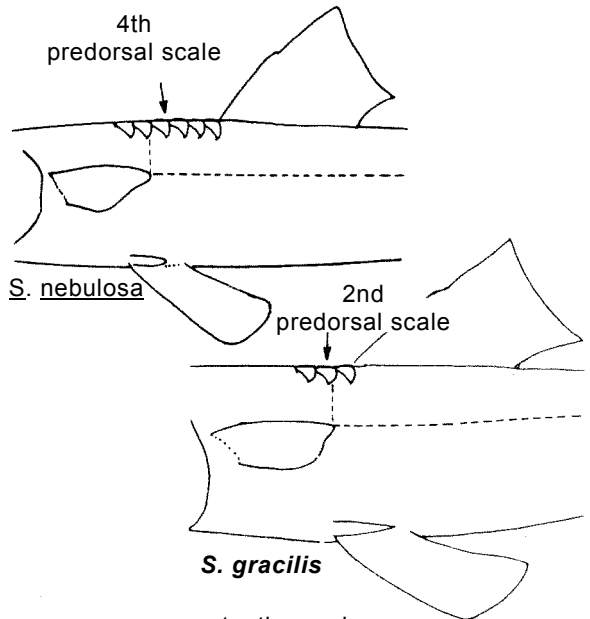
Shallow waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

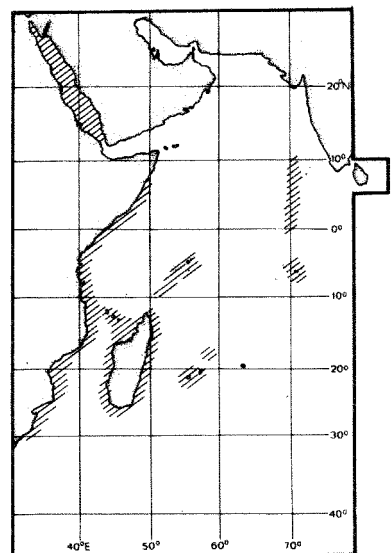
Caught with artisanal gear.

Marketed fresh.



S. nebulosa

S. gracilis



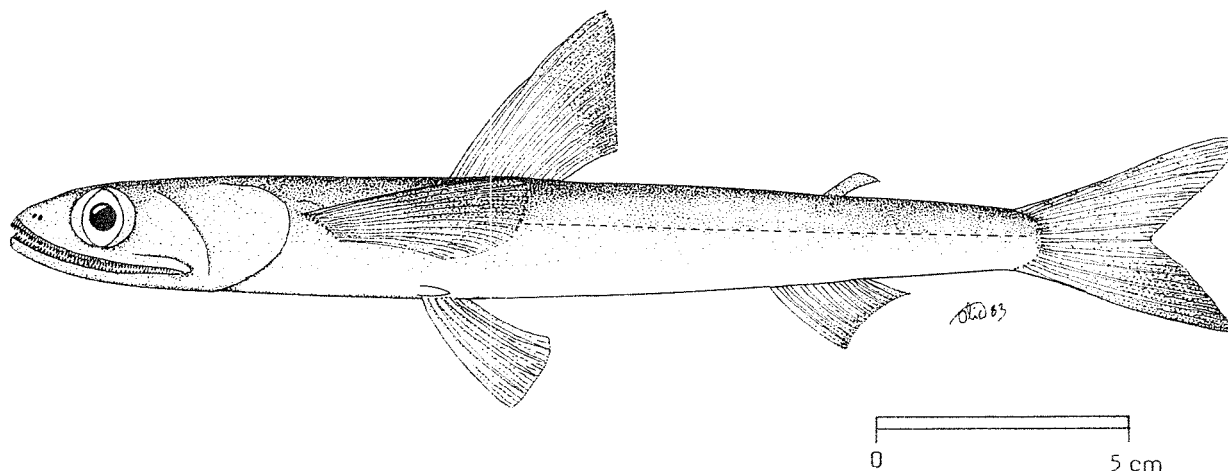
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SYNODONTIDAE

FISHING AREA 51
(W. Indian Ocean)

Saurida longimanus Norman, 1939

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

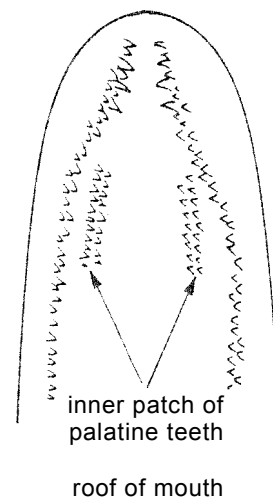
- FAO : En - Longfin lizarufish
 Fr - Anoli aile longue
 Sp - Lagarto aletón

NATIONAL :

DISTINCTIVE CHARACTERS:

Body elongate and tubular. Several rows of teeth visible in both jaws even when mouth is closed; 2 series of teeth on palatine (roof of mouth); outer series in 2 rows anteriorly, inner series well separated from outer and in 2 or 3 narrow rows; vomer toothless. Dorsal fin rays 11 or 12, longest ray more than 3 times as long as last rte; pectoral fin very long, extending to about middle of dorsal fin base; pectoral fin rays 14. Lateral line scales 45 to 52. Pelvic rays subequal in length. Pectoral axillary scale long and pointed.

Colour: brownish above, silvery white below. Upper half of pectoral fin and distal parts of dorsal fin and lower caudal lobe dusky. Sometimes a faint series of dark spots on upper caudal fin ray; fins otherwise without markings.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

All the other Saurida species have shorter pectoral fins, extending at most to about level of dorsal fin origin. In addition, S. tumbil and S. undosquamis have wide inner bands of palatine teeth; S. gracilis and S. nebulosa have spots on all fins and a short, broad pectoral axillary scale.

SIZE:

Maximum: reaches at least 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Presently known from the Gulf of Oman and the Arabian Sea, where it is caught between 100 and 200 m depth.

PRESENT FISHING GROUNDS:

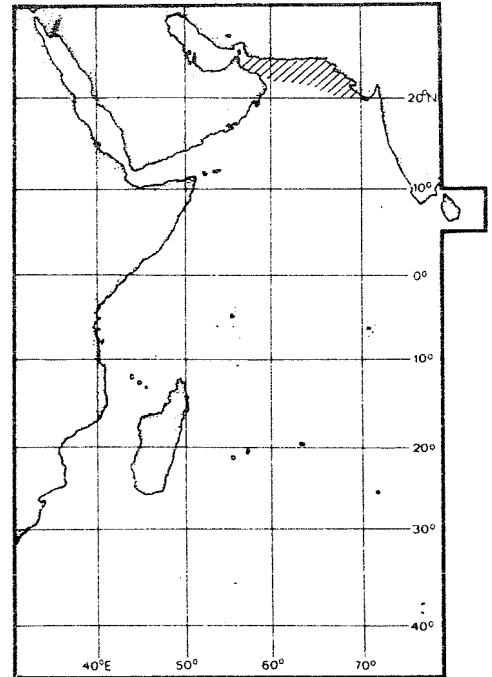
Deeper shelf waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

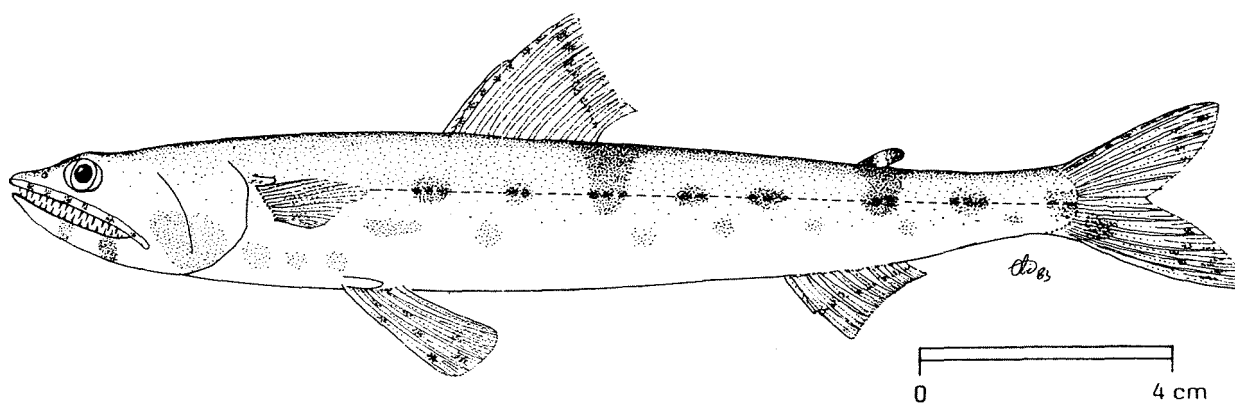
Caught mainly with trawls.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SYNODONTIDAE

FISHING AREA 51
(W. Indian Ocean)*Saurida nebulosa* Valenciennes in Cuv. & Val., 1849OTHER SCIENTIFIC NAMES STILL IN USE: often wrongly identified as *Saurida gracilis* (Quoy & Gaimard, 1824)

VERNACULAR NAMES:

FAO: En - Clouded lizardfish
Fr - Anoli nuageux
Sp - Lagarto nubifero

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and tubular; head and caudal peduncle somewhat depressed. Several rows of teeth visible on both jaws even when mouth is closed; 2 series of teeth on palate (roof of mouth), outer series in 1 or 2 rows anteriorly, inner series in 2 distinct rows; vomer toothless. Dorsal fin rays 10 or 11; longest ray less than 3 times as long as last ray; pectoral fin rays 12 (rarely 11 or 13), longest ray less than 12% of standard length and extending posteriorly only as far as 3rd to 6th predorsal scale row. Pelvic rays subequal in length. Lateral line scales 46 to 52; $3\frac{1}{2}$ scale rows above lateral line.

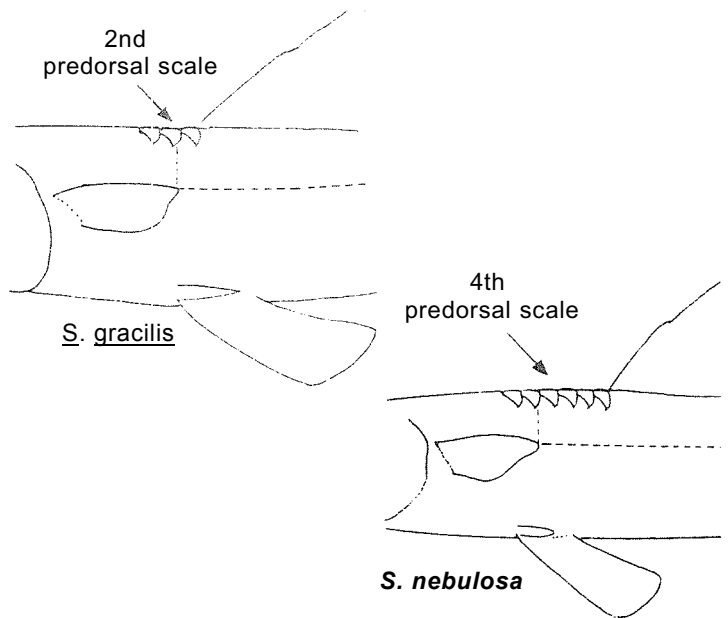
Colour: ground colour white or silvery, mottled on back and sides with yellowish or greenish brown. A series of darker spots at intervals along lateral line and darker crossbands on back at base of caudal fin, around adipose fin and behind dorsal fin; all fins with dark spots or flecks, often faint on pelvic and anal fins; caudal fin with a broad, vertical, pale band near base.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Saurida gracilis: pectoral fin longer, 12% or more of standard length (less than 12% in S. nebulosa), with 13 rays; (usually 12 in S. nebulosa), and extending posteriorly) at least to 3rd predorsal scale row (3rd to 6th in S. nebulosa); inner palatine teeth in about 3 indistinct rows (2 in S. nebulosa); teeth may be present on vomer.

S. tumbil and S. undosquamis: no spots on fins (except 2nd dorsal ray and upper caudal ray in S. undosquamis); pectoral axillary scale long, pointed; pectoral fin rays 14 or 15 (usually 12 in S. nebulosa); longest dorsal ray more than 3 times as long as last ray (less than 3 times in S. nebulosa).

S. longimanus: pectoral fin very long, extending to about middle of dorsal fin base.



SIZE:

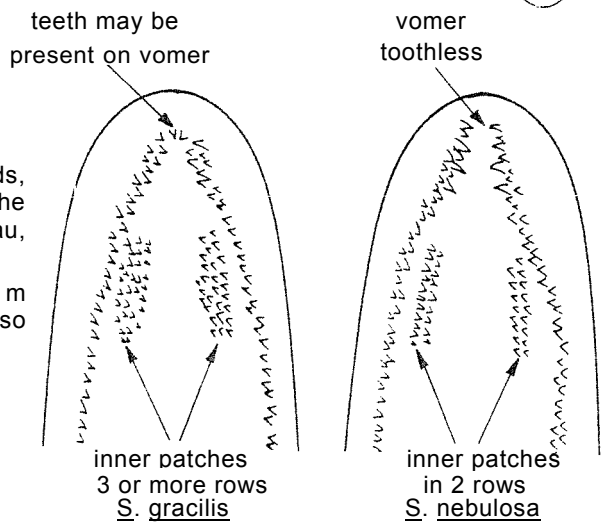
Maximum: a relatively small species, apparently not exceeding 20 cm total length.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, known from Mauritius and Aldabra Islands, and from southern India. Elsewhere, from Thailand to the Philippines, Australia, New Guinea, Okinawa, Guam, Palau, Tahiti and Hawaii.

Generally found in very shallow waters (less than 5 m depth), particularly over muddy bottoms near mangroves; also enters brackish waters, near streams and river mouths.

Mainly piscivorous.



PRESENT FISHING GROUNDS:

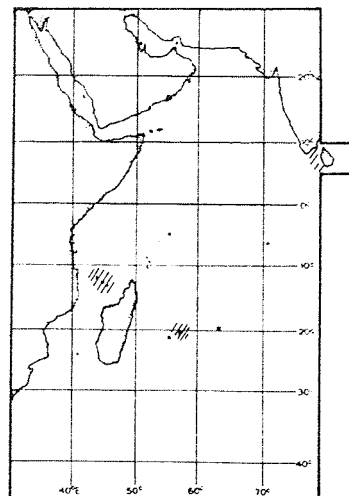
Shallow waters over muddy bottoms.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with artisanal gear.

Marketed fresh.



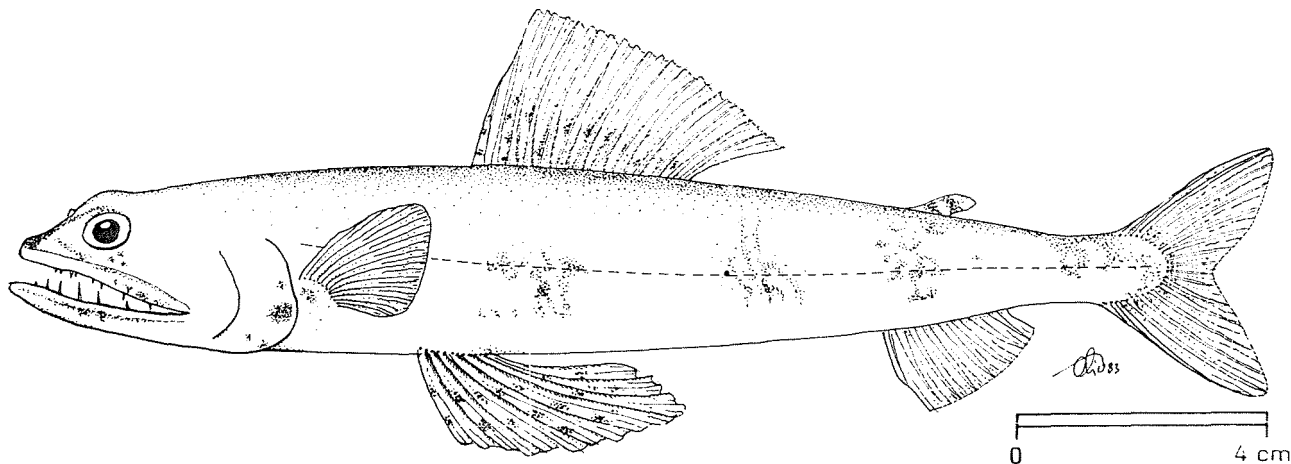
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SYNODONTIDAE

FISHING AREA 51
(W. Indian Ocean)

Synodus binotatus Schultz, 1953

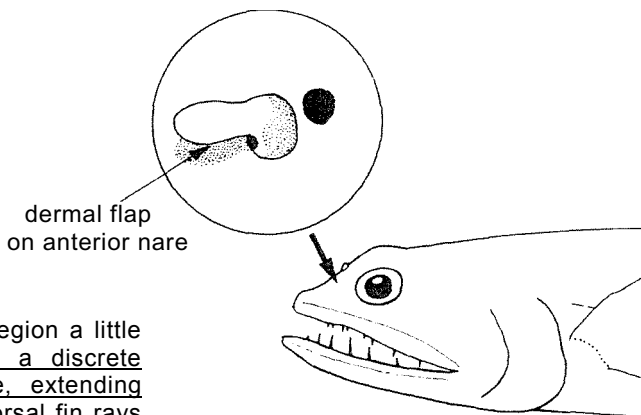
OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

- FAO : En - Two-spot lizard fish
- Fr - Anoli à deux taches
- Sp - Lagarto dos manchas

NATIONAL:

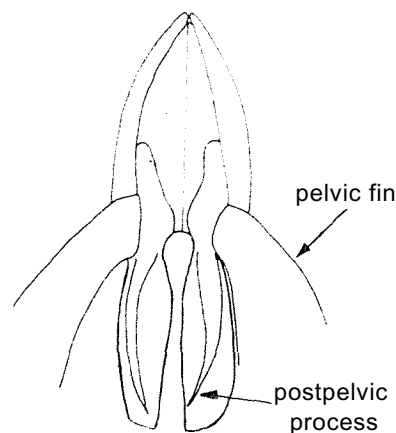


dermal flap on anterior nares

DISTINCTIVE CHARACTERS:

Body tubular, head somewhat depressed, caudal region a little compressed. Anterior palatine teeth long and forming a discrete group. Dermal flap on anterior nares large, spatulate, extending well beyond edge of nares when depressed anteriorly. Dorsal fin rays 12 to 14 (average 12.9). Anal fin rays 8 to 10 (average 8.9); procurrent caudal rays 27 to 33 (average 30.2). Posterior pelvic process wide. Large cycloid scales on body extending onto cheeks and operculum; scales above lateral line 3.5. Total vertebrae 51 to 55, average 53.1.

Colour: 2 conspicuous pigment spots on snout. A series of 4 dark brown dorsal saddle-like bands on tan background. All fins barred. Peritoneum pale, with 0 to 3 dark spots.



pelvic fin

postpelvic process

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Synodus englemani, S. jaculum and S. variegatus: 5.5 scales above lateral line (3.5 in S. binotatus). Furthermore, dermal flap on anterior nares short and tubular in S. englemani; a conspicuous dark pigmented area on caudal peduncle in S. jaculum and 4 to 6 spots on snout in S. variegatus (only 2 in S. binotatus).

S. hoshinonis: a conspicuous black area on upper distal corner of operculum.

S. indicus: 2 small pigment spots at upper distal corner of operculum; 9 to 11 peritoneal spots (0 to 3 in S. binotatus).

S. macrops: posterior pelvic process narrow; 3 X-shaped pigmented areas laterally; peritoneum grey to black.

S. sageneus: anal fin ray 14 or 15 (8 to 10 in S. binotatus); 4.5 scales above lateral line.

SIZE:

Maximum: 17 cm; common to 10 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, known from north Madagascar, Comores, Somalia, Gulf of Aden, Chagos, Maldives and Laccadive Islands, southern India and Sri Lanka. Elsewhere, the Eastern Indian Ocean and throughout the Western Pacific to Hawaii.

A common shallow water species, usually found at depths less than 10 m.

PRESENT FISHING GROUNDS:

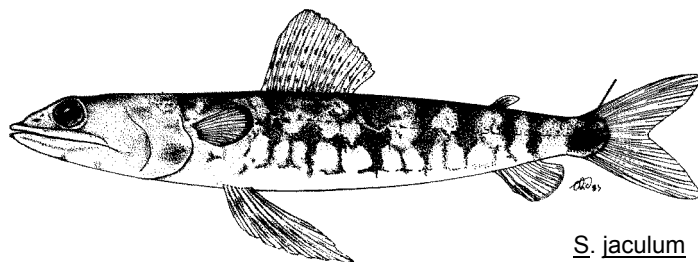
Shallow waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

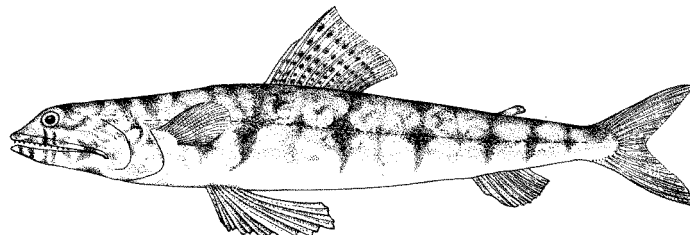
Separate statistics are not reported for this species.

Caught with artisanal gear.

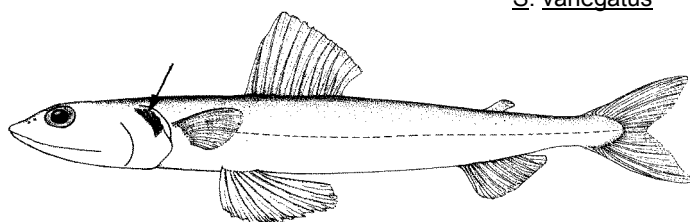
Marketed fresh or dried salted.



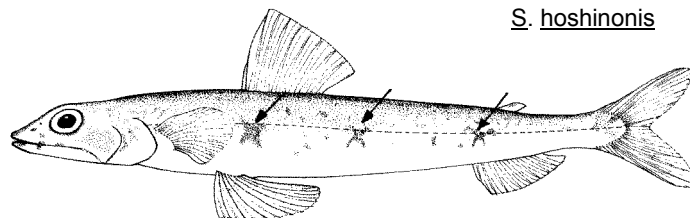
S. jaculum



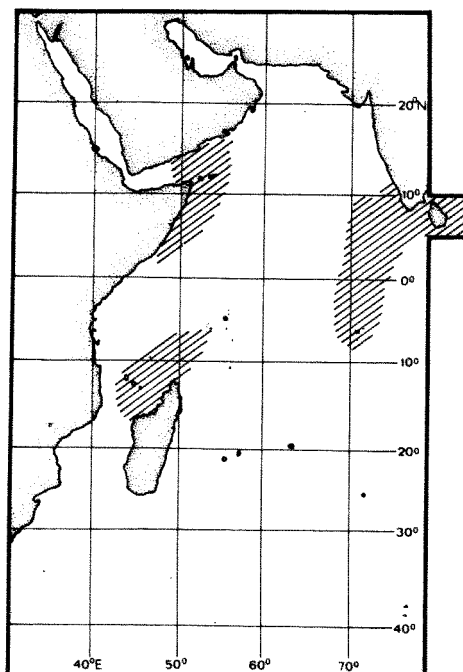
S. variegatus



S. hoshinonis



S. macrops



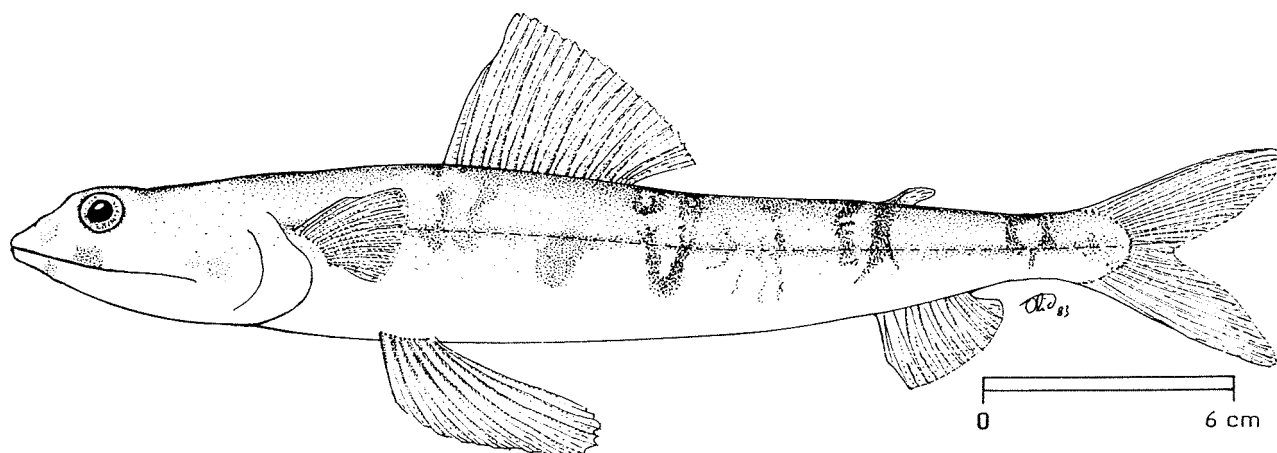
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SYNODONTIDAE

FISHING AREA 51
(W. Indian Ocean)

Synodus englemani Schultz, 1953

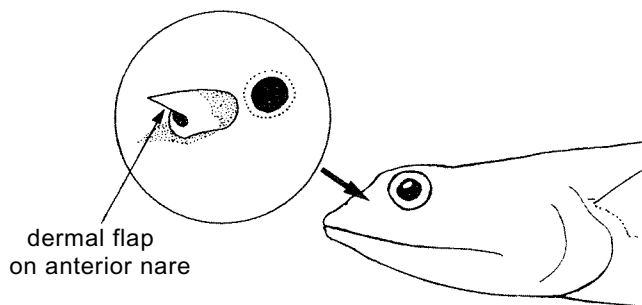
OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

- FAO : En - Engleman's lizardfish
- Fr - Anoli d'Engleman
- Sp - Lagarto de Engleman

NATIONAL

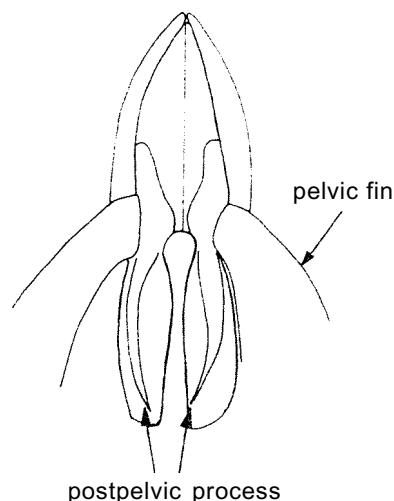


dermal flap on anterior nare

DISTINCTIVE CHARACTERS:

Body tubular, head somewhat depressed, caudal region a little compressed. Anterior palatine teeth long and forming a discrete group; dermal flap on anterior nares short, tubular. Dorsal fin rays 12 or 13 (average 12.7); anal fin rays 8 to 10 (average 8.9); procurrent caudal rays 28 to 37 (average 32.2). Posterior pelvic process wide. Large cycloid scales on body, extending onto cheeks and operculum; scales above lateral line 5.5. Total vertebrae 59 to 62, average 60.3.

Colour: background tan; a series of 8 or 9 dark brown, saddle-like bars, widest dorsally; frequently a dark band along lateral line. Peritoneum pale; internal peritoneal spots 7 to 10, average 8.2 (visible externally in larvae, persist in adult on wall of peritoneum).

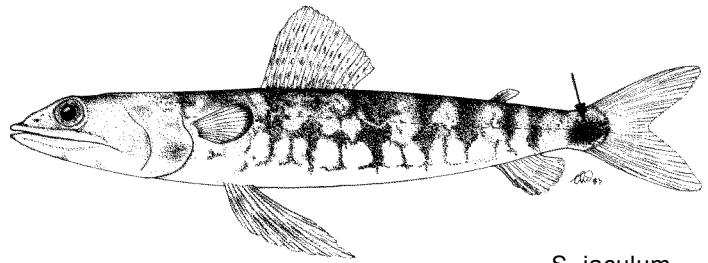


DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Synodus jaculum: a conspicuous dark pigment area on caudal peduncle; peritoneal spots 11 to 13 (7 to 10 in S. englemani).

S. variegatus: dermal flap on anterior nares long, flagellum extending well beyond edge of nares when depressed anteriorly; peritoneal spots 10 to 12.

All other Synodus species have less than 5.5 scales above lateral line.



S. jaculum

SIZE:

maximum: 30 cm; common to 15 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout the Indo-West Pacific to Hawaii (not recorded from the "Gulf" and from Pakistan).

Common in depths of 5 to 40 m, rarely deeper. Often captured with S. variegatus especially in shallower waters.

PRESENT FISHING GROUNDS:

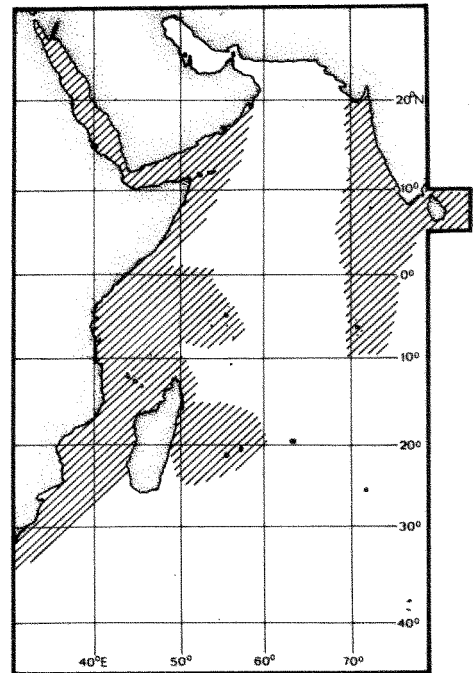
Shallow shelf waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with artisanal gear.

Marketed fresh or dried salted.



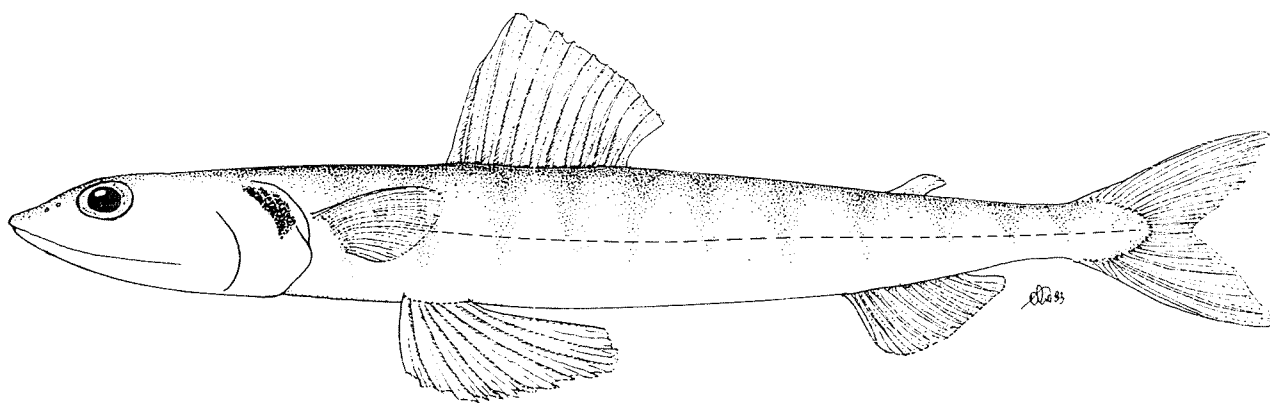
FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SYNODONTIDAE

FISHING AREA 51
(W. Indian Ocean)

Synodus hoshinonis Tanaka, 1917

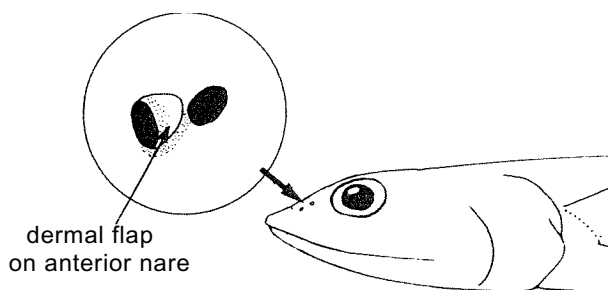
OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

- FAO : En - Blackear lizardfish
- Fr - Anoli oreille noire
- Sp - Lagarto orejas negras

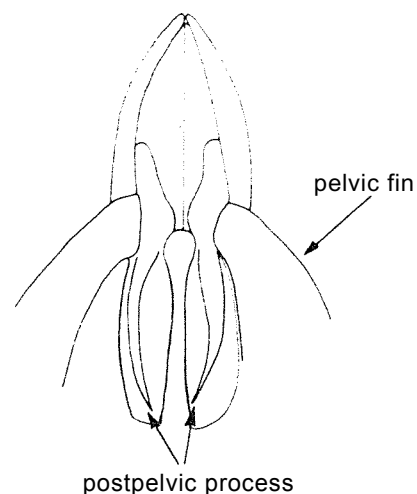
NATIONAL:



DISTINCTIVE CHARACTERS:

Body tubular, head somewhat depressed, caudal region a little compressed. Anterior palatine teeth long, forming a discrete group; dermal flap on anterior nares short, rounded, not extending beyond margin of nares when depressed anteriorly. Dorsal fin rays 12 to 14 (average 13). Anal fin rays 8 to 10 (average 9.6); procurrent caudal rays 25 to 29 (average 27.1). Posterior pelvic process wide. Large cycloid scales on body extending onto cheeks and operculum; scales above lateral line 3.5. Total vertebrae 54 to 56 (average 54.7).

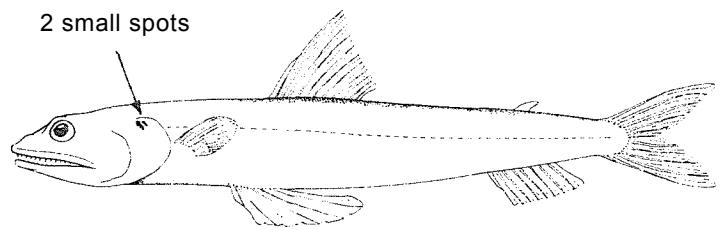
Colour: background tan; a conspicuous black pigmented area on upper distal corner of operculum. Alternating light and dark brown saddle-like patches laterally. Fins pale, unbarred. Peritoneum pale; peritoneal spots 12 or 13 (average 12.3).



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

The conspicuous black pigmented area on upper distal corner of operculum readily distinguishes this species from all other lizard fishes occurring in the area.

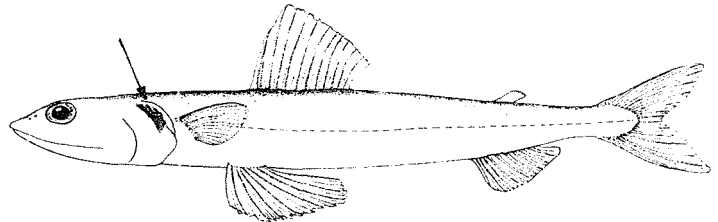
Synodus indicus: also have some pigment on the upper corner of operculum, but in the form of 2 small spots. It can be further distinguished by the presence of a long, triangular dermal flap on the anterior nares.



S. indicus

SIZE:

Maximum: 20 cm; common to 12 cm.



S. hoshinonis

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, known from the Red Sea and the Mozambique Channel. Elsewhere in the Andaman Sea and Western Pacific (not known east of Australia).

Depth of capture records indicate a preference for moderately deep water (60 to 96 m).

PRESENT FISHING GROUNDS:

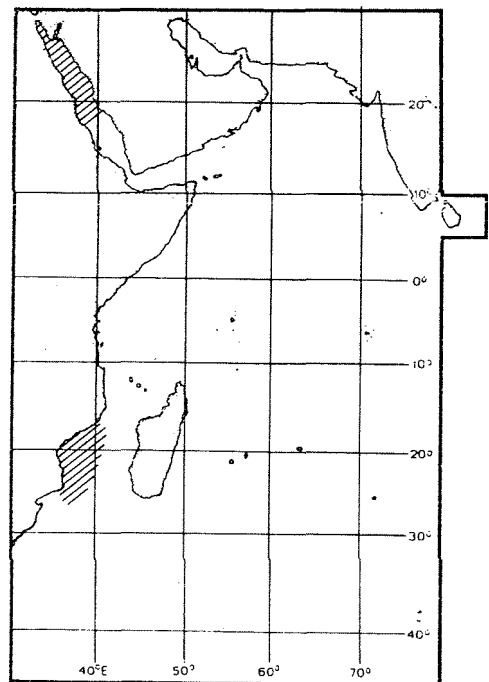
Shelf waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION

Separate statistics are not reported for this species.

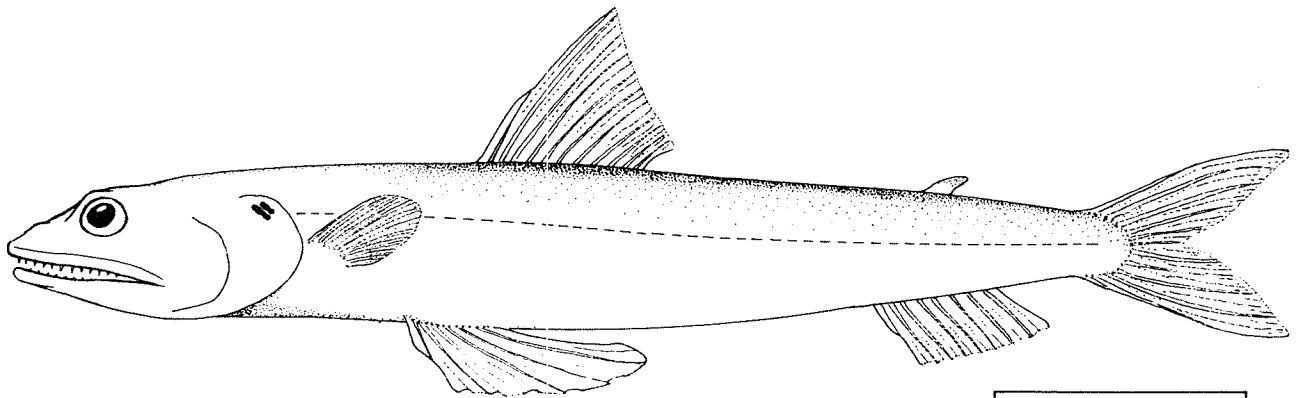
Caught with trawls.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SYNODONTIDAE

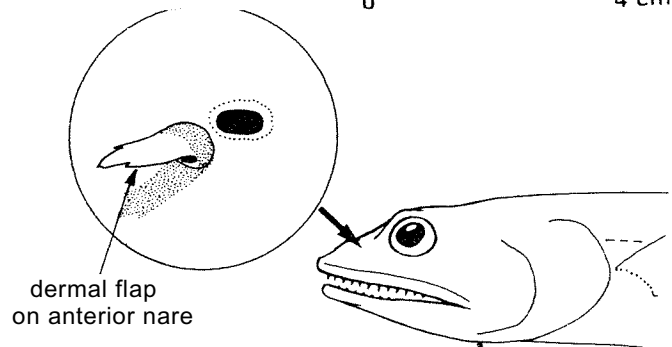
FISHING AREA 51
(W. Indian Ocean)*Synodus indicus* (Day, 1873)OTHER SCIENTIFIC NAMES STILL IN USE: *Synodus dietrichi* Kotthaus, 1967

0 4 cm

VERNACULAR NAMES:

FAO : to - Indian lizardfish
Fr - Anoli indien
Sp - Lagarto indico

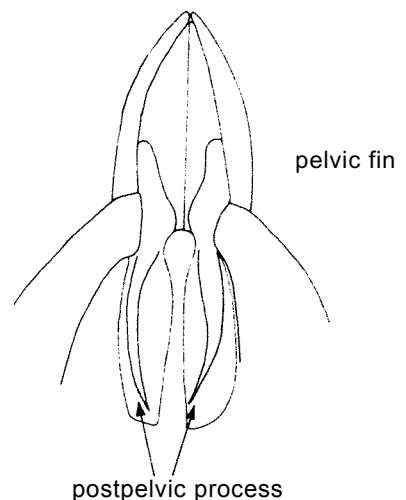
NATIONAL:



DISTINCTIVE CHARACTERS:

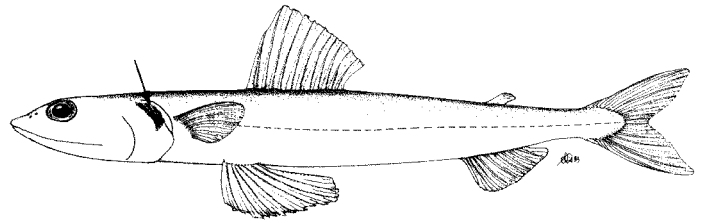
Body tubular, head somewhat depressed, caudal region a little compressed. Anterior palatine teeth short, not forming a discrete group; dermal flap on anterior nares long, triangular, often notched distally. Dorsal fin rays 11 to 13 (average 11.9); anal fin rays 8 to 11 (average 9.4); procurrent caudal rays 27 to 32 (average 28.7). Posterior pelvic process wide. Peritoneum pale. Large cycloid scales on body, extending onto cheeks and operculum; scales above lateral line 3.5. Total vertebrae 52 to 58 (average 55.9).

Colour: 2 small pigment spots at upper distal corner of operculum. Peritoneum pale; peritoneal spots 9 to 11, average 10.4 (visible externally in larvae, present in adult on wall of peritoneum).



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

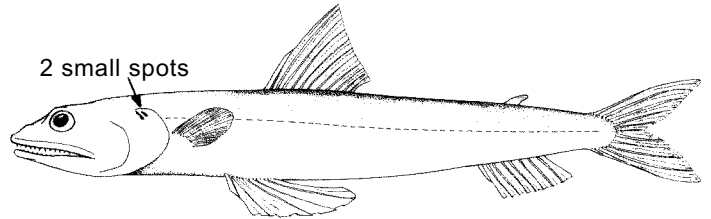
No other lizardfish occurring in the area, has the 2 pigment spots on upper corner of operculum. Synodus hoshinonis has a very prominent dark area at upper corner of operculum. It can be further distinguished by the very short and rounded flaps on anterior nares and by having 12 or 13 peritoneal spots (9 to 11 in S. indicus).



S. hoshinonis

SIZE:

Maximum: 20 cm; common to 12 cm.



S. indicus

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, known from the southern Red Sea, Gulf of Aden, the Mozambique Channel, southern India and Sri Lanka. Elsewhere, a single specimen known from the Philippines.

Usually found between 20 and 100 m depth.

PRESENT FISHING GROUNDS:

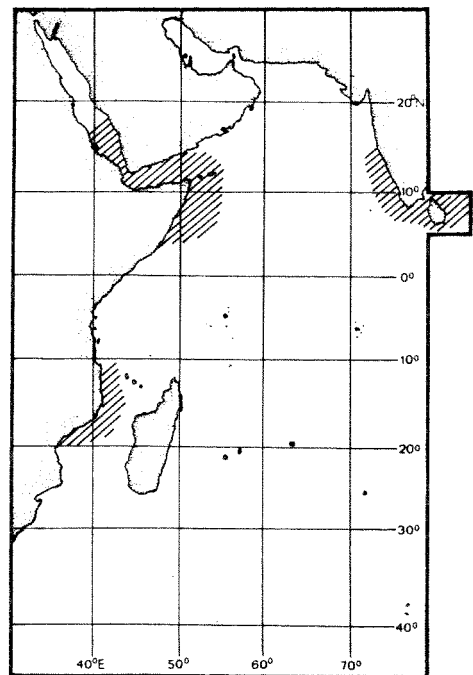
Shelf waters throughout its range.

CATCHES FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with trawls.

Marketed fresh and dried salted.

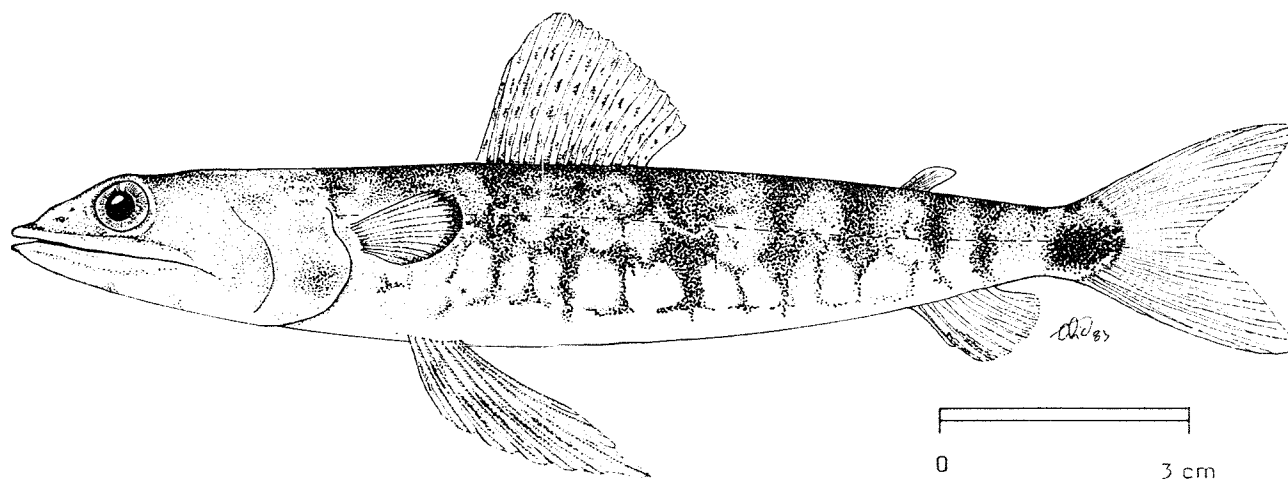


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : SYNODONTIDAE

FISHING AREA 51
(W. Indian Ocean)*Synodus jaculum* Russell & Cressey, 1979

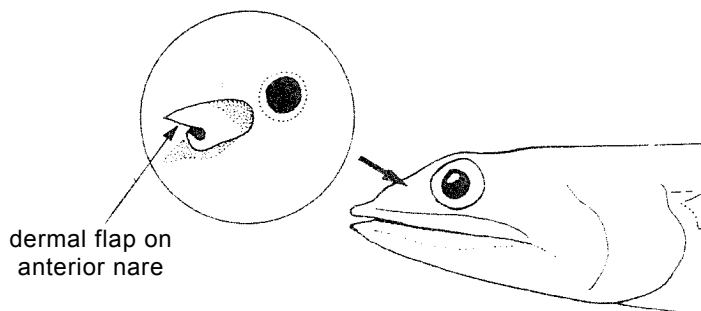
OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : to - Lighthouse lizardfish
 Fr - Anoli phare
 Sp - Lagarto faro

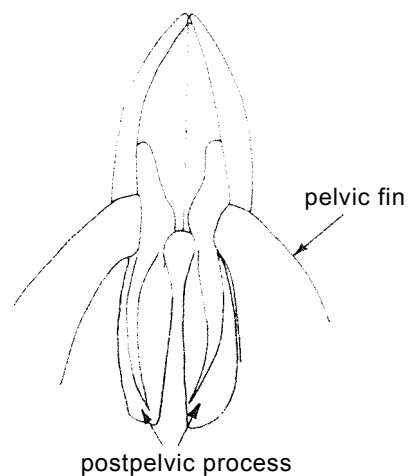
NATIONAL:



DISTINCTIVE CHARACTERS:

Body tubular, head somewhat depressed, caudal region a little compressed. Anterior palatine teeth long and forming a discrete group; dermal flap on anterior nare short tubular. Dorsal fin rays 11 to 13 (average 12.4); anal fin rays 8 to 10 (average 9.2); procurrent caudal rays 28 to 33 (average 30.3). Posterior pelvic process wide. Large cycloid scales on body extending onto cheeks and operculum; scales above lateral line 5.5. Total vertebrae 59 to 62 (average 60.9).

Colour: background tan; a series of 8 or 9 dark brown, saddle-like bars, widest dorsally. A conspicuous dark pigment area on caudal peduncle. Peritoneum pale; peritoneal spots 11 to 13 (average 11).



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Synodus englemani: peritoneal spots 7 to 10 (11 to 13 in S. jaculum). No conspicuous pigment on caudal peduncle.

S. variegatus: peritoneal spots 10 to 12; no conspicuous pigment on caudal peduncle; dermal flap on anterior nares with flagellum extending well beyond border of nares when depressed anteriorly.

All other Synodus species have less than 5.5 scales above lateral line.

SIZE:

Maximum: 14 cm; common to 10 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

North Central Indian Ocean to Western Pacific.

Recorded in shallow waters, down to 88 m depth. Frequently caught with S. variegatus and S. englemani.

PRESENT FISHING GROUNDS:

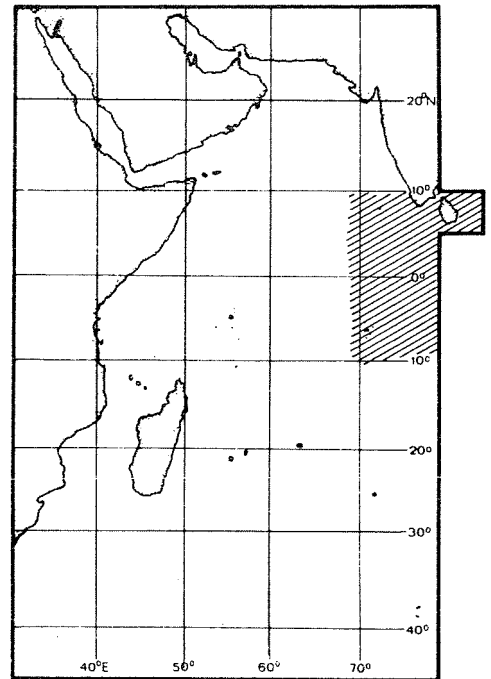
Shallow shelf waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with artisanal gear and trawls.

Marketed fresh and dried salted.



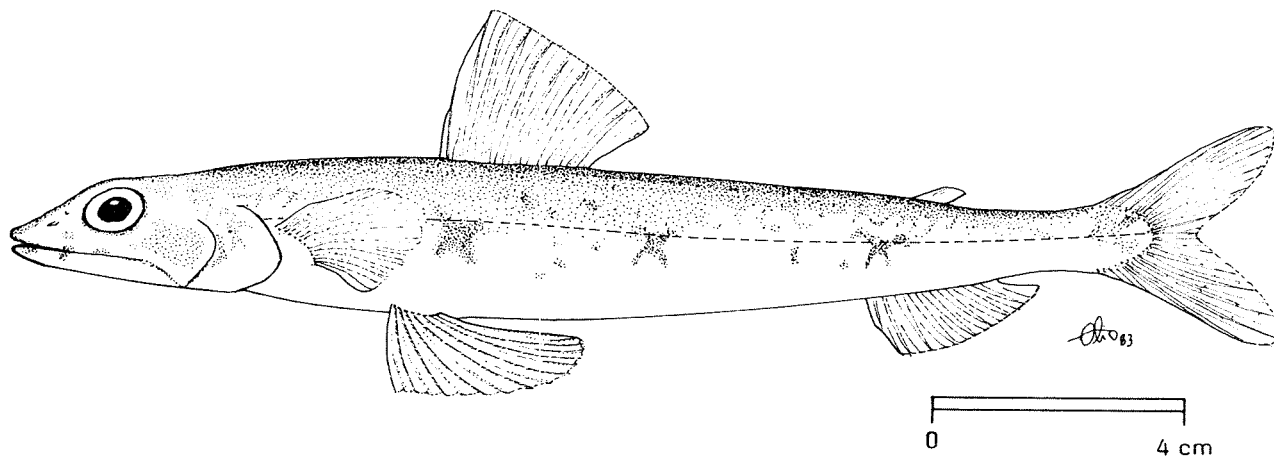
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SYNODONTIDAE

FISHING AREA 51
(W. Indian Ocean)

Synodus macrops Tanaka, 1917

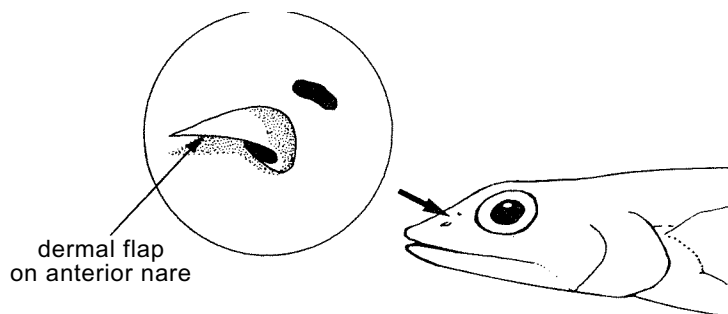
OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Triplecross lizardfish
Fr - Anoli croix
Sp - Lagarto de cruces

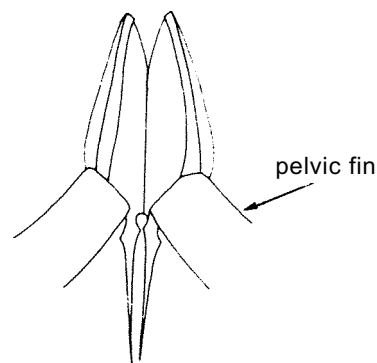
NATIONAL:



DISTINCTIVE CHARACTERS:

Body tubular, head somewhat depressed, caudal region a little compressed. Anterior palatine teeth short, not forming a discrete group; dermal flap on anterior nares long, triangular, extending well beyond nares when depressed anteriorly. Dorsal fin rays 11 or 12 average 11.8; anal fin rays 10 or 11 (average 10.4); procurrent caudal rays 20 to 27 (average 23.1). Posterior pelvic process narrow. Large cycloid scales on body extending onto cheeks and operculum; scales above lateral line 3.5. Total vertebrae 50 to 55 (average 53.4).

Colour: body tan, darker on back than on belly; 3 X-shaped pigmented areas on sides. Peritoneum grey to black; peritoneal spots 5 or 6, average 5.7 (difficult to see in specimens with a very dark peritoneum).



postpelvic process

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

This species can be distinguished from all other known species of *Synodus* in the area, by the narrow posterior pelvic process, the dark peritoneum and the 3 X-shaped pigmented areas on sides of body.

SIZE:

Maximum: 18 cm; common to 10 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, known from the Northern Indian Ocean (including the Red Sea). Elsewhere, in the Western Pacific (not recorded east of 165°E).

This species seems to prefer deeper waters, from 35 to 150 m (more than half depth of capture records over 75 m).

PRESENT FISHING GROUNDS:

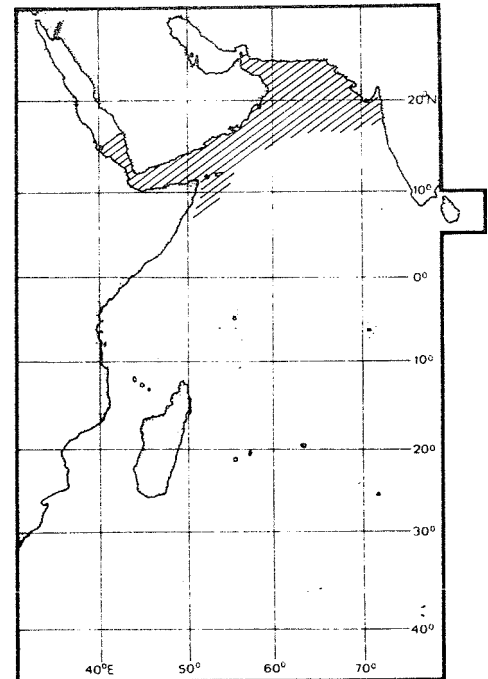
Deeper shelf waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

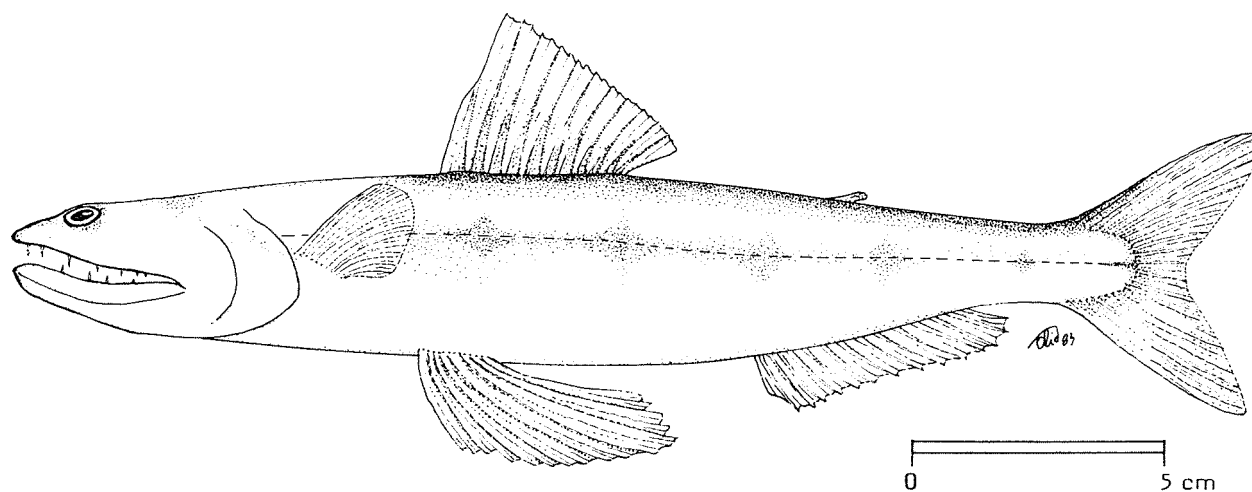
Caught with trawls.

Marketed fresh and dried salted.



FAO SPECIES IDENTIFICATION SHEETS

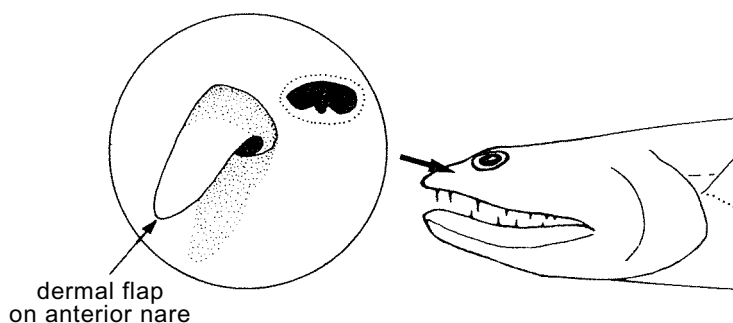
FAMILY: SYNODONTIDAE

FISHING AREA 51
(W. Indian Ocean)*Synodus sageneus* Waite, 1905OTHER SCIENTIFIC NAMES STILL IN USE: *Xystodus banfieldi* Ogilby, 1910

VERNACULAR NAMES:

FAO : En - Speartoothed grinner
Fr - Anoli poignard
Sp - Lagarto espadachín

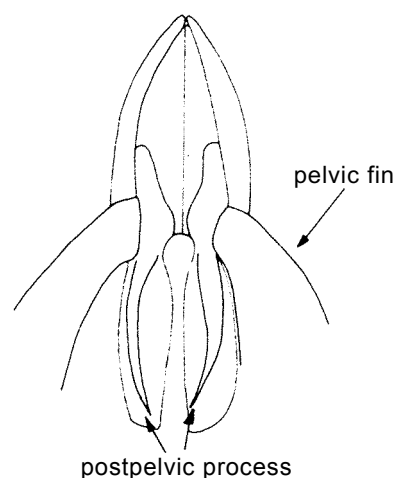
NATIONAL:



DISTINCTIVE CHARACTERS:

Body tubular, head somewhat depressed, caudal region a little compressed. Anterior palatine teeth not long and not forming a discrete group; dermal flap on anterior nares long, broad, extending well beyond margin of nares when depressed anteriorly. Dorsal fin rays 12 or 13 (average 12.5); anal fin rays 14 or 15 (average 14.5); anal fin base toner than dorsal fin base; procurrent caudal rays 25 to 27 average 25.6). Posterior pelvic process wide. Large cycloid scales on body extending onto cheeks and operculum; scales above lateral line 4.5. Total vertebrae 50 to 54 (average 53.1).

Colour: dorsal surface darker than ventral; Holotype described as "yellow above and silvery beneath"; faint diamond-shaped pigment areas laterally. Peritoneum pale; peritoneal spots 5 or 6 (average 5.3).



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

This species can be easily distinguished from all other Synodus species occurring in the area for having the anal fin base longer than the dorsal fin base.

SIZE:

Maximum: 24 cm; common to 14 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

An uncommon species, known only from Sri Lanka, Australia and New Guinea.

Depth of capture records indicate it to be in relatively shallow waters, down to about 30 m depth.

PRESENT FISHING GROUNDS:

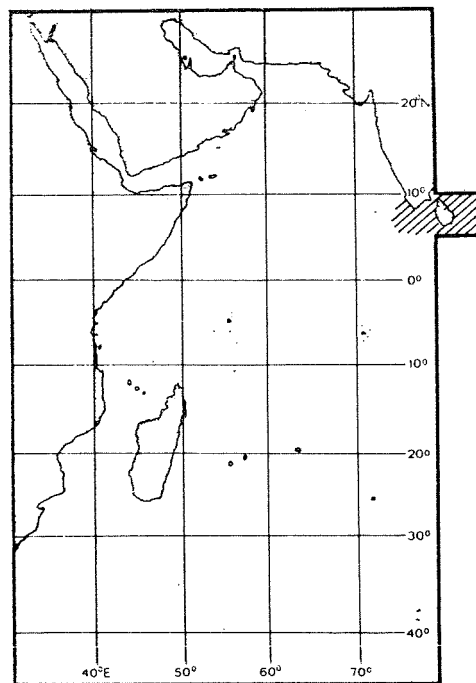
Shallow shelf waters.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with artisanal gear.

Marketed fresh or dried salted.



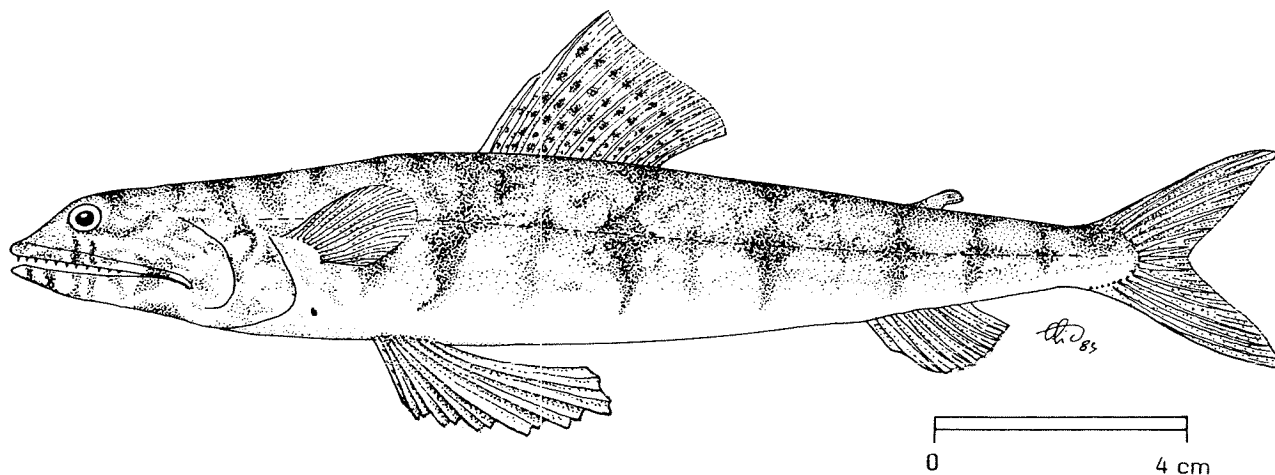
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SYNODONTIDAE

FISHING AREA 51
(W. Indian Ocean)

Synodus variegatus (Lacepède, 1803)

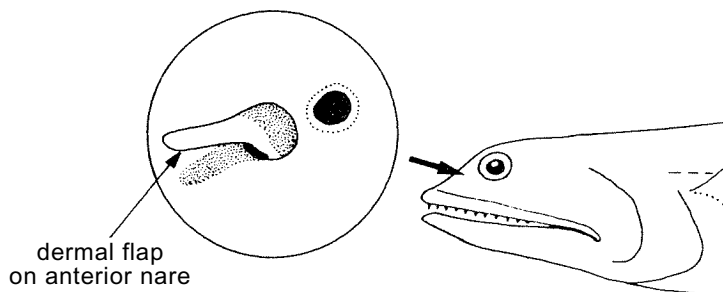
OTHER SCIENTIFIC NAMES STILL IN USE: Synodus varius Steindacher, 1901
Synodus dermatogenys Fowler, 1912
Synodus haulti McCulloch, 1921



VERNACULAR NAMES:

FAO : En - Variegated lizardfish
Fr - Anolie bigarré
Sp - Lagarto jaspeado

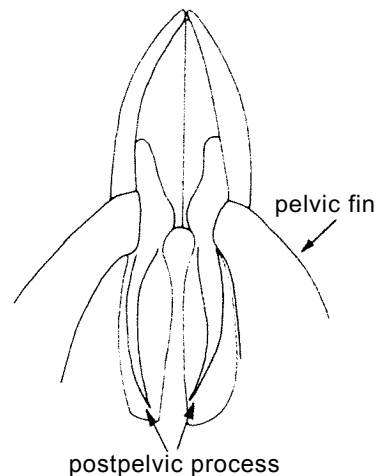
NATIONAL:



DISTINCTIVE CHARACTERS:

Body tubular, head somewhat depressed, caudal region a little compressed. Anterior palatine teeth long and forming a discrete group; dermal flap on anterior nares with long flagellum extending well beyond edge of nares when depressed anteriorly. Dorsal fin rays 10 to 13 (average 11.6); anal fin rays 8 to 10 (average 8.4); procurrent caudal rays 26 to 34 (average 29.7); posterior pelvic process wide. Peritoneal spots 10 to 12 (average 11.1). Large cycloid scales on body extending onto cheeks and operculum; scales above lateral line 5.5. Total vertebrae 55 to 60 (average 57.9, no Indian Ocean specimens over 59).

Colour: background tan; a series of 8 or 9 dark brown, saddle-like bars, widest dorsally. Peritoneum pale; peritoneal spots 10 to 11, average 11.1 (externally visible in larvae, persist anteriorly in adult).

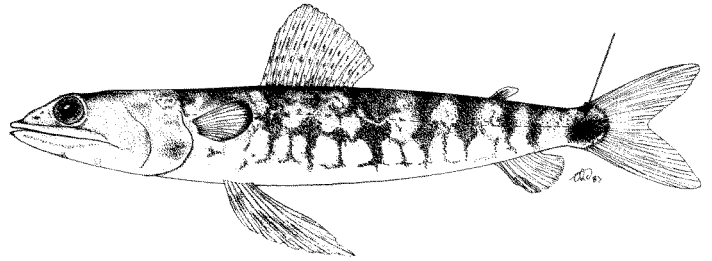


DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Synodus englemani: flap of anterior nares short, tubular; peritoneal spots 7 to 10 (10 to 12 in S. variegatus).

S. jaculum: flap of anterior nares short, tubular, peritoneal spots 11 to 13; a conspicuous dark pigment area on caudal peduncle.

All other Synodus species occurring in the area have less than 5.5 scales above lateral line.



S. jaculum

SIZE:

Maximum: 20 cm; common to 14 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Widespread in the area, but not recorded from the "Gulf", Pakistan and southwest Madagascar. Elsewhere, in the Eastern Indian Ocean and Western Pacific to Hawaii.

Usually found in very shallow waters to 5 m depth, never deeper than 20 m.

PRESENT FISHING GROUNDS:

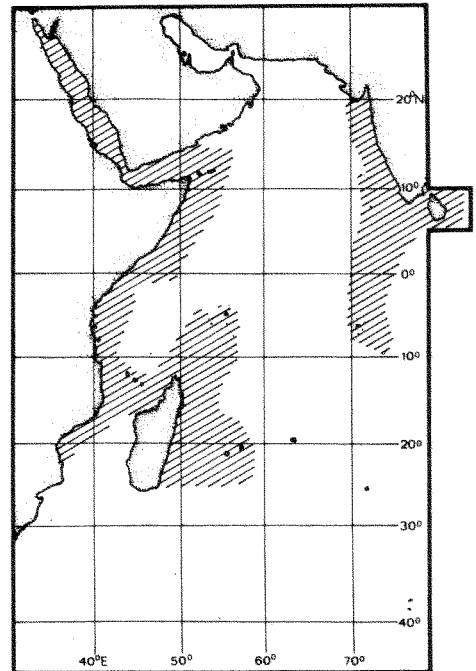
Very shallow waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

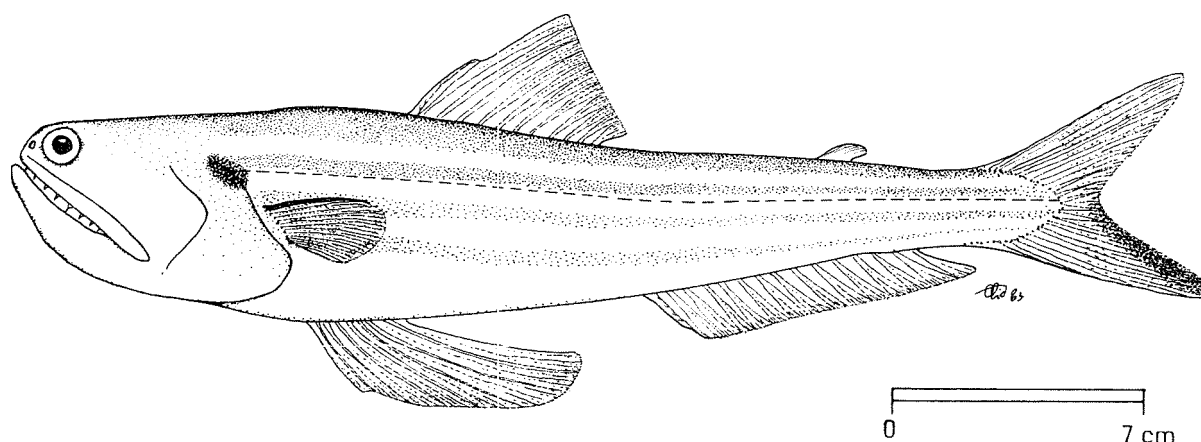
Caught with artisanal gear.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SYNODONTIDAE

FISHING AREA 51
(W. Indian Ocean)Trachinocephalus myops (Forster, 1801)OTHER SCIENTIFIC NAMES STILL IN USE: Trachinocephalus hypozona (Ogilby, 1897)

VERNACULAR NAMES:

FAO : En - Bluntnose lizardfish
 Fr - Anoli serpent
 Sp - Lagarto nato

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and tubular. Mouth very oblique; snout short; eyes small and set far forward near tip of upper jaw; a single row of teeth on upper jaw visible even when mouth is closed; band of teeth on palatine (roof of mouth). Anal fin rays 14 or 15; anal fin base much longer than dorsal fin base; pelvic fin rays 8, inner rays much longer than outer rays.

Colour: a series of longitudinal stripes, alternating blue and yellow, cover back and sides; belly pale yellow or gold. A large, dark, oblique spot at upper corner of gill cover. Distal parts of dorsal and caudal fins dusky; other fins pale yellowish.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

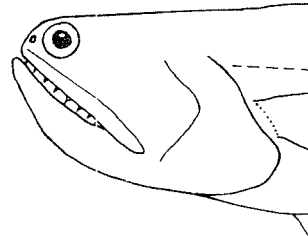
Synodus species: all Western Indian Ocean Synodus species have eyes about midway along length of upper jaw and have a much less oblique mouth. All Synodus species, except S. sageneus, have the anal fin base shorter than the dorsal fin base and have 11 or fewer anal fin rays (14 or 15 in T. myops).

Saurida species: several rows of teeth visible in both jaws even when mouth is closed (a single band visible in T. myops); 2 bands of teeth on palate (a single band in T. myops); pelvic fin rays 8, subequal in length.



Synodus

Saurida



Trachinocephalus

SIZE:

Maximum: reported to reach 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, found from southern Mozambique to Tanzania, southeast Madagascar, in the "Gulf", Pakistan, India and Sri Lanka. Worldwide in tropical and warm temperate waters, with the exception of the Eastern Pacific.

Found on sandy bottoms from the littoral zone to at least 100 m.

Carnivorous, presumably mainly piscivorous.

PRESENT FISHING GROUNDS:

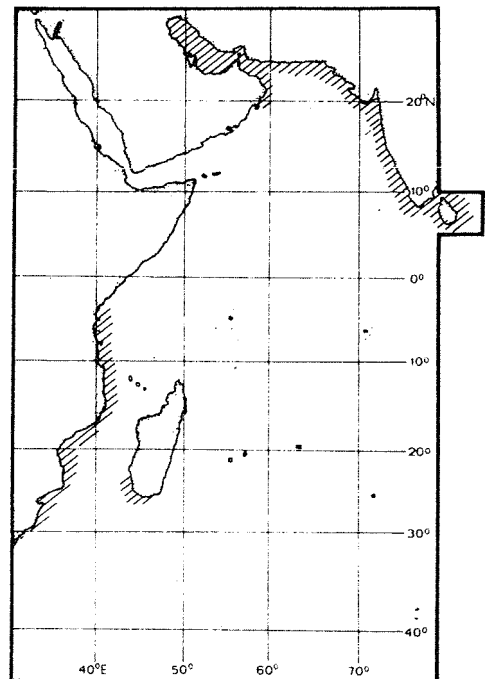
Shelf waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with trawls.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

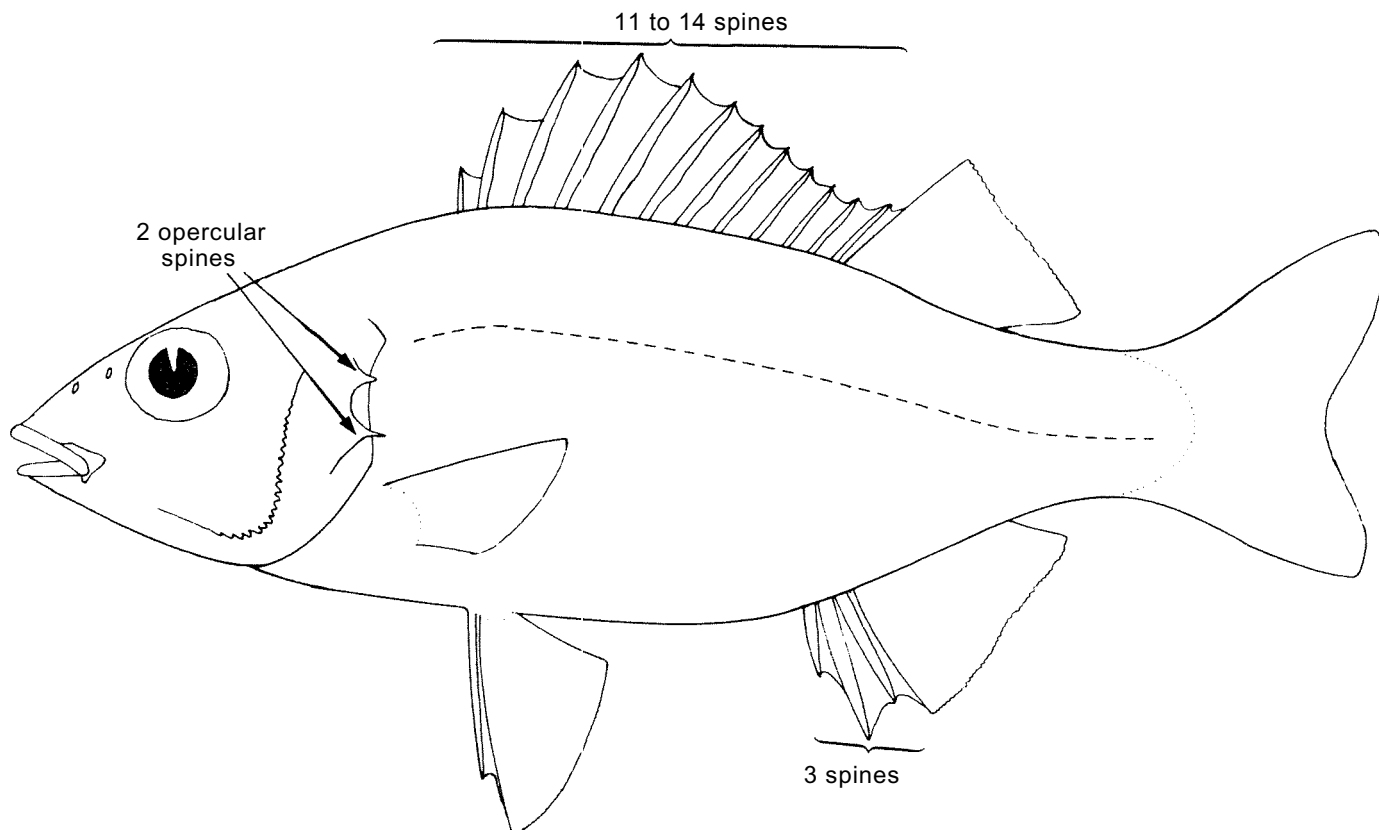
TERAPONIDAE

Terapon-perches, terapons

Small to medium-sized perch-like fishes with an oblong to oblong-ovate body, moderately compressed. Mouth moderate, protractile, with gape usually oblique; jaws equal, the upper not reaching beyond centre of orbit; jaw teeth usually in villiform bands (reduced to 2 or 3 rows in some freshwater species), with the outer row enlarged; shape of jaw teeth conical, flattened or tricuspidate; teeth also present on vomer and palatines in juveniles of most species, lacking in adults of most species; preopercle serrate, serrations more prominent in juveniles; lacrimal bone (first infraorbital) serrate, serrations reduced with age in some species; opercle with 2 spines, the lower one larger and stronger; post-temporal bone exposed in some species, its posterior margin serrate. Dorsal fin single, arched, with 11 to 14 spines and 8 to 14 soft rays, 4th to 7th dorsal fin spines longest, those following decreasing in length to penultimate spine, which is much shorter than the last spine in some species, this resulting in a notched spinous dorsal fin; anal fin with 3 strong spines and 7 to 12 soft rays; pelvic fin base located behind vertical line through base of pectoral fin; caudal fin usually emarginate (rounded or truncate in some freshwater species). Lateral line single and complete. Scales adherent, finely ctenoid (rough to touch).

Colour: body tan or light grey; most marine species with 3 or more longitudinal body stripes.

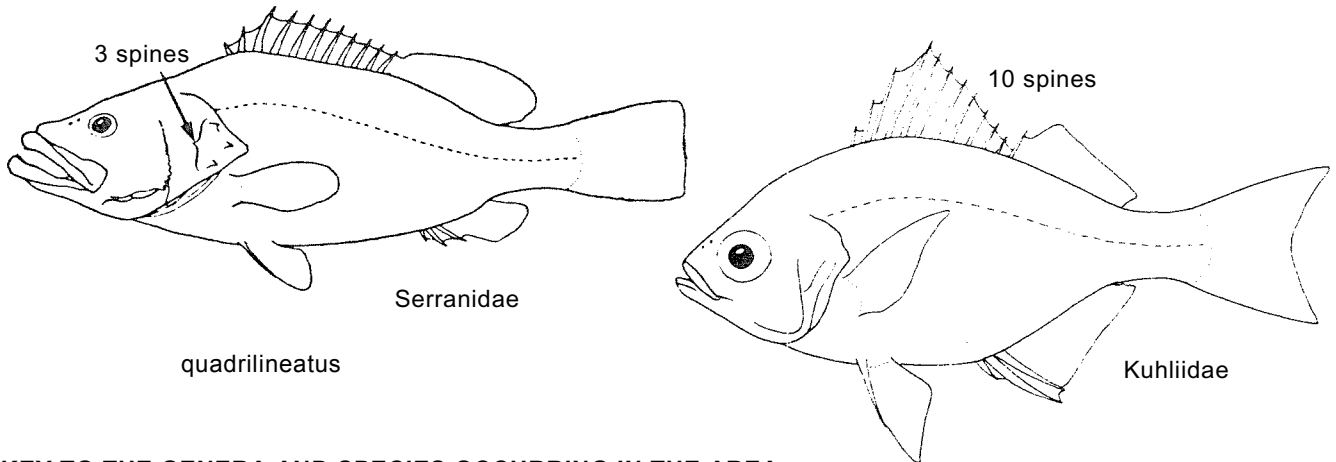
Terapons inhabit inshore marine and brackish waters and some species also enter freshwaters. They are good foodfishes entering the catches by artisanal and other inshore fisheries, but none of the species is important enough to support a special fishery.



SIMILAR FAMILIES OCCURRING IN THE AREA :

Serranidae. mouth large, with upper jaw usually reaching posteriorly to vertical through rear margin of orbit; 3 spines on opercle (2 in Teraponidae); caudal fin usually rounded.

Kuhliidae: 10 dorsal fin spines* (11 to 14 in Teraponidae).



KEY TO THE GENERA AND SPECIES OCCURRING IN THE AREA:

1 a. Post-temporal bone covered with skin and scales, not expanded posteriorly, its posterior edge not serrate (Fig. 1a) Pelates quadrilineatus

1 b. Post-temporal bone expanded, exposed and serrate posteriorly, its skin and scale covering reduced (Fig. 1b)

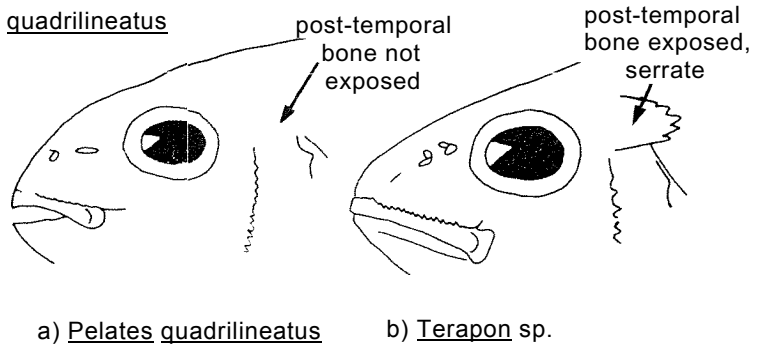


Fig. 1

2 a. Lower opercular spine greatly developed, extending beyond edge of opercular lobe (Fig. 2a); lobes of caudal fin with oblique brown or black stripes; spinous dorsal fin with a large black blotch on membranes between middle spines; 2nd anal fin spine subequal to 3rd spine; longitudinal body stripes present throughout life (Figs 3,4)

3 a. Forty-six to 56 pored lateral line scales to hypural joint; 6 to 8 rows of scales above lateral line to base of dorsal fin sheath Terapon theraps

3 b. Seventy or more pored lateral line scales to hypural joint; 10 to 17 rows of scales above lateral line to base of dorsal fin sheath

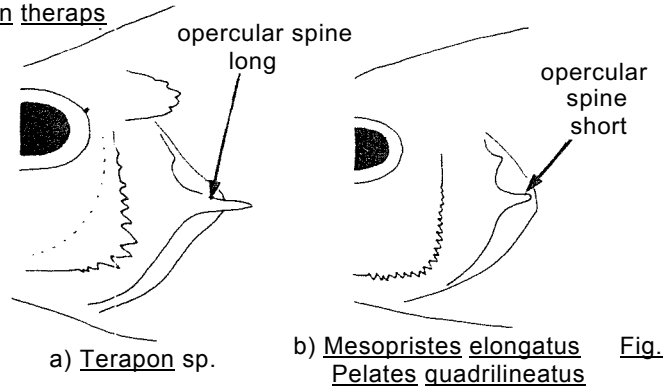


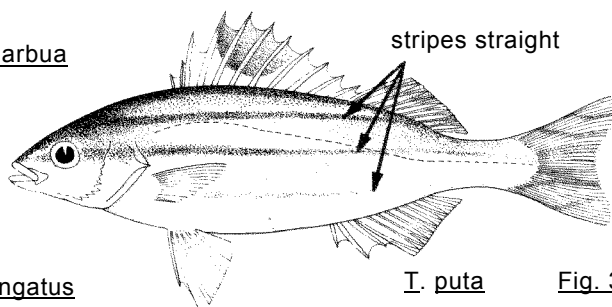
Fig. 2

*Applicable to Western Indian Ocean representatives only

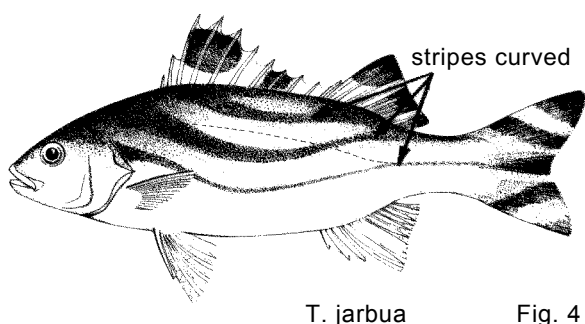
4 a. Two to 4 straight longitudinal stripes along side of body (Fig. 3); 18 to 24 gillrakers on lower limb of first gill arch ... Terapon puta

4 b. Three downwardly curved longitudinal stripes along side of body (Fig. 4); 12 to 15 gillrakers on lower limb of first gill arch Terapon jarbua

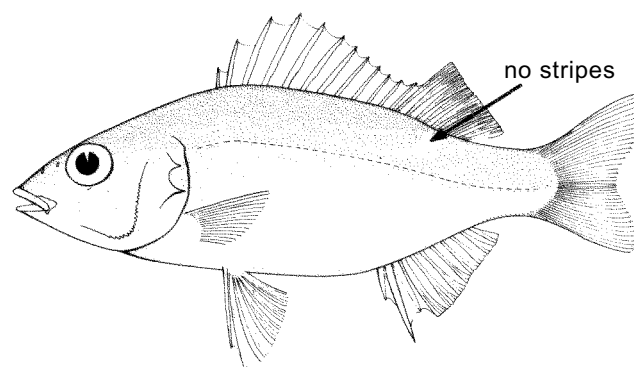
2 b. Lower opercular spine moderate, not extending beyond edge of opercular lobe (Fig. 2b); caudal fin lobes lacking oblique stripes; spinous dorsal fin without a large black blotch on middle portion; 2nd anal fin spine stronger and longer than 3rd spine (Fig. 5); longitudinal body stripes present only in juveniles Mesopristes elongatus



T. puta Fig. 3



T. jarbua Fig. 4



Mesopristes elongatus Fig. 5

LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

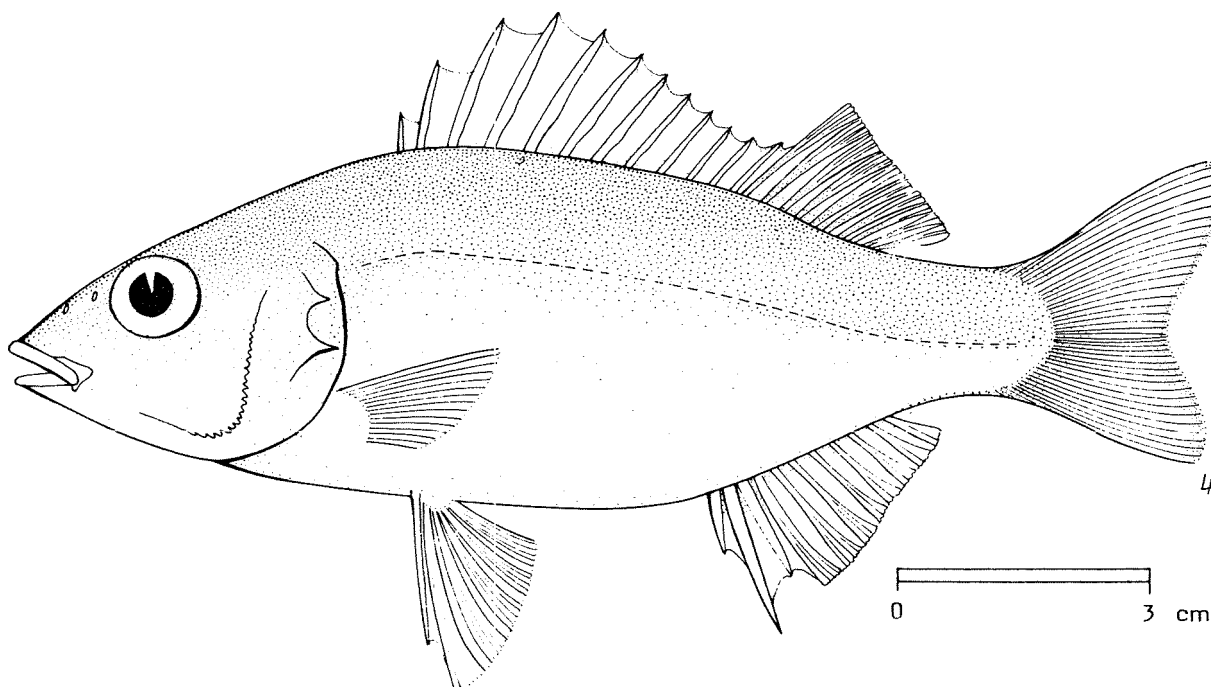
<u>Mesopristes elongatus</u> (Guichenot, 1866)	TER Meso 1
<u>Pelates quadrilineatus</u> (Bloch, 1790)	TER Pela 2
<u>Terapon arbua</u> (Forsskål, 1775)	TER Ter 1
<u>Terapon puta</u> Cuvier, 1829)	TER Ter 3
<u>Terapon theraps</u> (Cuvier, 1829)	TER Ter 2

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TERAPONIDAE

FISHING AREA 51
(W. Indian Ocean)*Mesopristes elongatus* (Guichenot, 1866)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Plain terapon
 Fr - Violon franc
 Sp - Baraonga

NATIONAL:

DISTINCTIVE CHARACTERS:

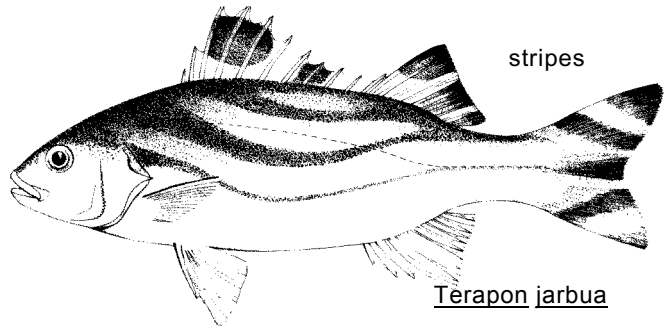
A moderately small species. Body oblong, compressed. Jaws equal, gape oblique; posterior edge of upper jaw extending to vertical through posterior nostril; teeth in villiform bands, outer row enlarged; vomer and palatines (on roof of mouth) toothless; preopercle serrate, serrations largest at angle; lower opercular spine stronger and longer than upper, but not extending beyond edge of opercular lobe; post-temporal bone expanded, exposed and serrate posteriorly; cleithrum serrate posteriorly; gillrakers on first gill arch: 7 or 8 on upper limb and 15 to 17 on lower limb. Dorsal fin with 11 or 12 spines and 10 or 11 soft rays, the spinous part of fin arched, the 4th or 5th spine longest, and the last two spines of approximately same length; anal fin with 3 spines and 7 or 8 soft rays, the 2nd spine longest and as long as longest anal ray. Pored scales in lateral line 48 to 50; 9 or 10 scale rows above lateral line and 20 to 24 rows below it.

Colour: dorsal portion of body dark grey to black in adults, ventral portion of body light grey. Juveniles with 3 brown longitudinal body stripes. Spinous part of dorsal fin clear, slightly dusky on edge; caudal fin lobes clear, dusky on edges.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Terapon species: lower opercular spine greatly developed, extending beyond edge of opercular lobe; lobes of caudal fin with oblique stripes, and longitudinal stripes on body in adults. Spinous part of dorsal fin with a large black blotch; 2nd anal fin spine subequal to 3rd (2nd longer than 3rd in M. elongatus).

Pelate quadrilineatus: post-temporal bone covered with skin and scales, 1 not expanded posteriorly, its posterior edge without serrations.



SIZE:

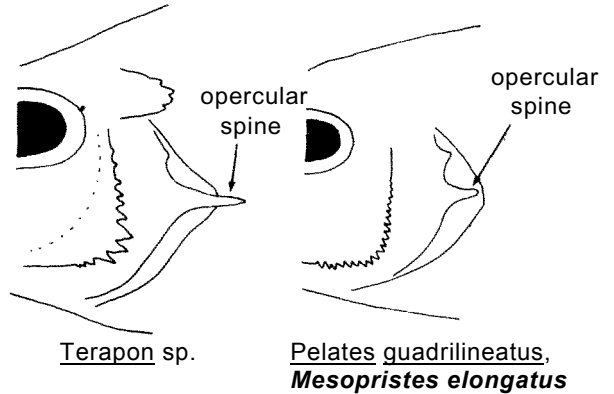
Maximum: 18 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Brackish and freshwaters of Madagascar.

PRESENT FISHING GROUNDS:

No reliable records available, probably confused with other species.

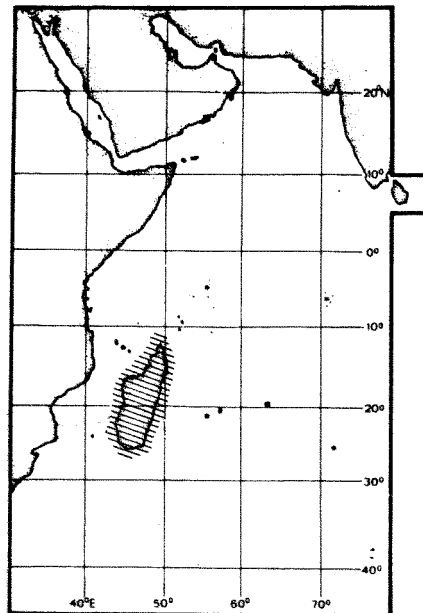
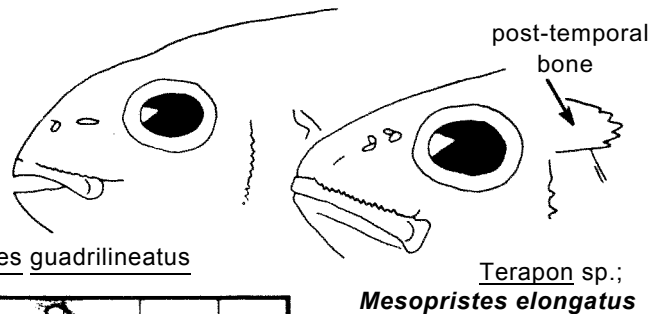


CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with all types of inshore gear.

Probably marketed fresh.

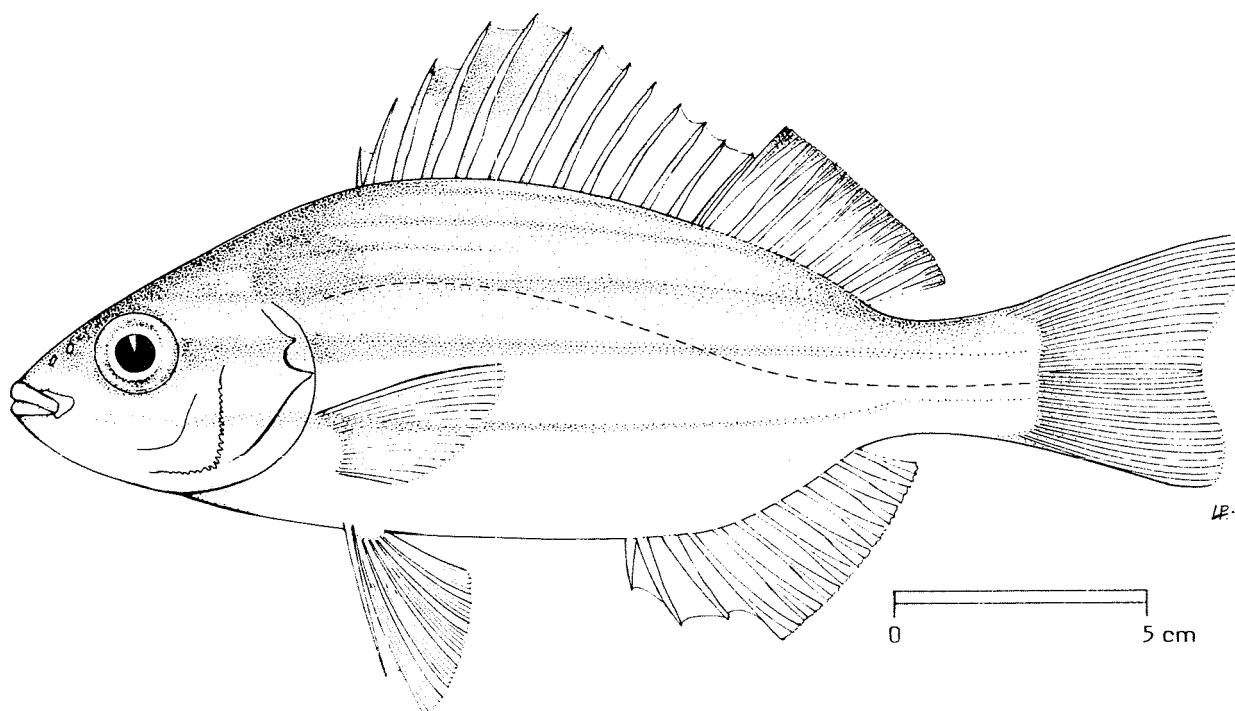


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : TERAPONIDAE

FISHING AREA 51
(W. Indian Ocean)*Pelates quadrilineatus* (Bloch, 1790)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Fourlined terapon
Fr - Violon crépuscule
Sp - baraonga aurora

NATIONAL:

DISTINCTIVE CHARACTERS:

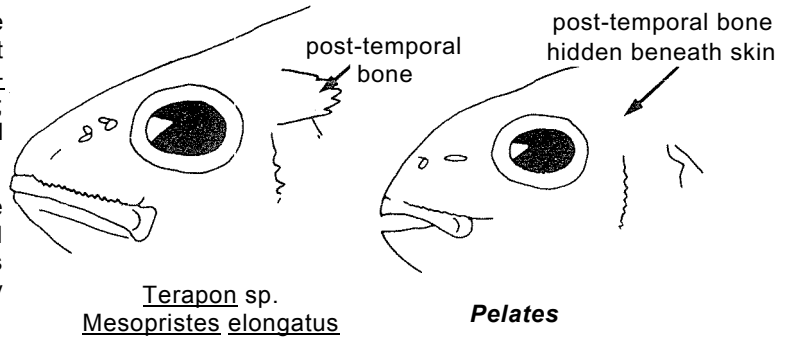
A moderately small species, body oblong, compressed. Jaws equal, gape oblique; posterior edge of upper jaw extending to vertical through posterior nostril; teeth brown-tipped, two rows in lower jaw and 3 rows or a band in upper jaw; vomer and palatines (on roof of mouth) toothless; preopercle serrate, serrations larger along vertical border, particularly in adults; lower opercular spine stronger and longer, but not extending beyond edge of opercular lobe; post-temporal bone not expanded or exposed, covered with skin and scales; gillrakers on first gill arch: 16 to 18 on upper limb and 22 to 27 on lower limb. Dorsal fin with 12 or 13 spines and 9 to 11 soft rays, the spinous part of fin arched, the 5th to 7th spines longest, and the last two spines of approximately same length; anal fin with 3 spines and 9 or 10 soft rays; the 2nd anal spine subequal to the 3rd and shorter than longest anal rays. Pored scales in lateral line 66 to 75; 9 to 11 rows of scales above lateral line and 19 to 23 below it.

Colour: dorsal portions of body silvery-grey, ventral part of body silvery-white; 4 to 6 narrow, dark brown or black horizontal stripes on body, the middle stripe extending onto caudal fin base. Juveniles in addition have 6 or 7 greyish vertical bars. Spinous part of dorsal fin with a black blotch dorsally on membranes between 3rd to 7th dorsal fin spines; a blotch of variable intensity on side of body posterior to nape. Mouth and gill cavity red in life.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Terapon species: post-temporal bone expanded, exposed and serrate posteriorly (not expanded and covered by scales in P. quadrilineatus); caudal fin lobes with transverse stripes; lower opercular spine extending distinctly beyond edge of opercular lobe.

Mesopristes elongatus: post-temporal bone expanded, exposed and serrate posteriorly; 2nd anal fin spine distinctly longer than 3rd (spines subequal in P. quadrilineatus). No stripes on body in adults.



SIZE:

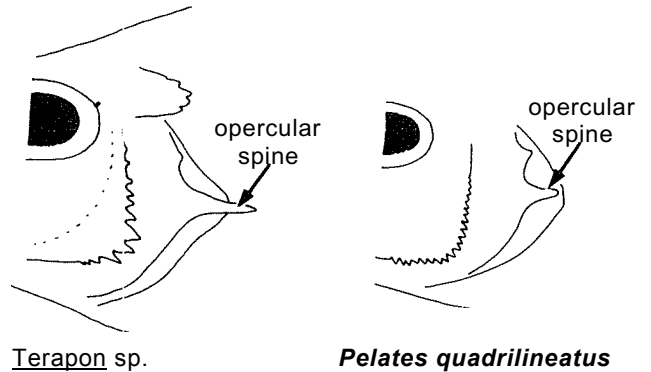
Maximum: 30 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Along the coasts of East Africa north of Natal, Madagascar, Red Sea, Arabian Peninsula, the "Gulf" and India.

Found in inshore waters, sometimes in brackish waters.

Feeds on, small, fishes and invertebrates.



PRESENT FISHING GROUNDS:

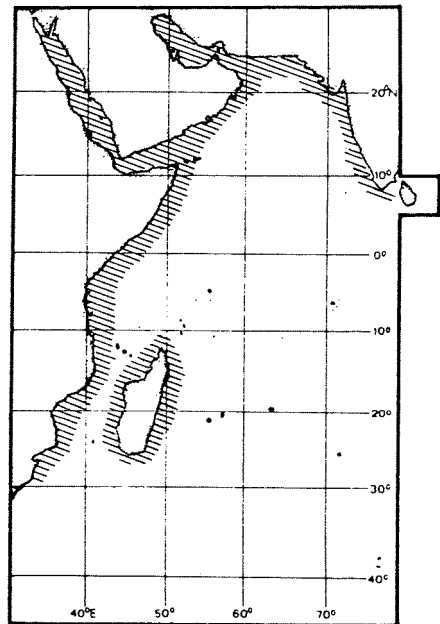
Throughout its range; no special fishery.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with all types of inshore fishing gear, including gillnets, traps, handlines and bottom trawls.

Marketed fresh and dried salted.

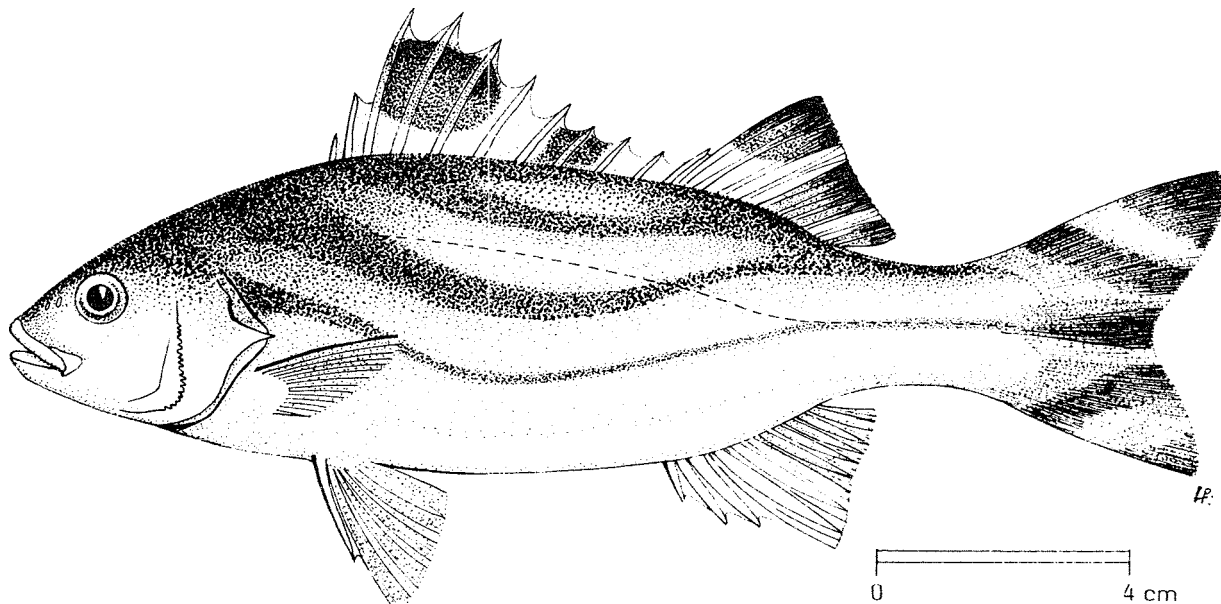


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TERAPONIDAE

FISHING AREA 51
(W. Indian Ocean)

<i>Terapon jarbua</i> (Forsskål, 1775)
--

OTHER SCIENTIFIC NAMES STILL IN USE : *Holocentrus servus* Bloch, 1790

VERNACULAR NAMES:

FAO: En - Jarbua terapon
 Fr - Violon jarbua
 Sp - Baraongajarbúa

NATIONAL:

DISTINCTIVE CHARACTERS:

A moderate-sized species. Body oblong compressed. Jaws equal, gape slightly oblique; rear end of upper jaw reaching to vertical through middle of orbit in adults; teeth conical, slightly recurved, in villiform bands, the outer row much enlarged; vomer and palatines (on roof of mouth) with teeth in juveniles, often toothless in adults; preopercle strongly serrate, particularly at angle; lower opercular spine very long and strong, extending distinctly beyond edge of opercular lobe; post-temporal bone expanded, exposed and serrate posteriorly; cleithrum serrate posteriorly; gillrakers on first gill arch: 6 to 8 on upper limb and 12 to 15 on lower limb. Dorsal fin with 11 or 12 spines and 9 to 11 soft rays, the spinous part of the fin strongly arched and deeply notched; the first spine very short, the 4th to 6th spines longest, and the penultimate spine about one-half the length of the ultimate; margin of soft portion of dorsal fin straight or emarginate; anal fin with 3 spines and 7 to 10 soft rays, the 2nd anal fin spine subequal to 3rd spine and shorter than longest anal rays; margin of soft part of anal fin concave; caudal fin emarginate. Pored scales in lateral line 75 to 100; 13 to 17 rows of scales above lateral line and 19 to 24 rows below it.

Colour: body silvery-greyish or tan dorsally and silvery white ventrally; 3 or 4 dark brown or black, downwardly curved longitudinal stripes on body. Spinous part of dorsal fin with a blackish band on upper portions of fin membranes between 3rd to 6th spines; soft part of dorsal fin with membranes between first 3 rays tipped with black and membranes between 5th to 7th rays entirely black; caudal fin with median rays pigmented; both caudal lobes with dark tips and a transverse band.

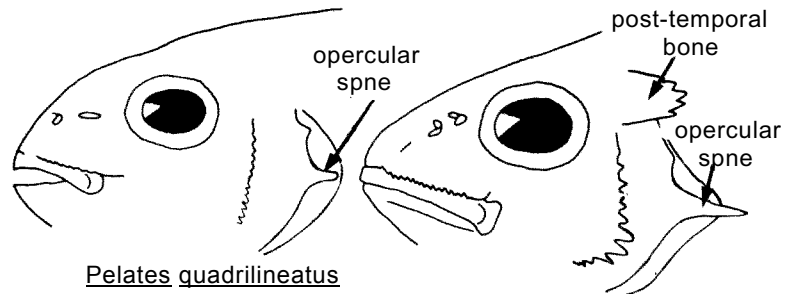
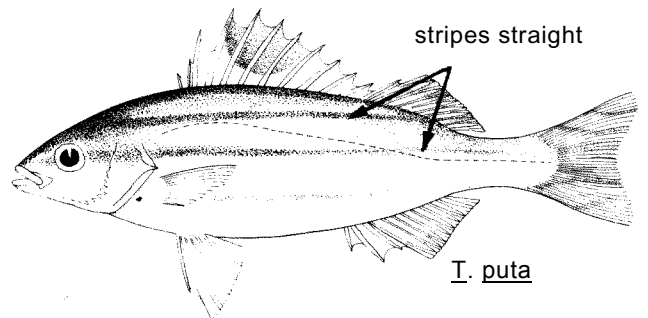
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Terapon theraps: longitudinal body stripes straight; 46 to 56 pored lateral line scales to hypural joint on base of caudal fin (75 to 100 in T. jarbua); 6 to 8 rows of scales above lateral line to base of dorsal fin sheath (13 to 17 rows in T. jarbua).

T. puta: longitudinal body stripes straight; 18 to 24 gillrakers on lower limb of first gill arch (12 to 15 in T. jarbua).

Pelates quadrilineatus: post-temporal bone covered with skin and scales, not expanded or serrate posteriorly; caudal fin lobes plain; lower opercular spine not extending beyond edge of opercular lobe.

Mesopristes elongatus: caudal fin lobes plain and no stripes on body in adults; lower opercular spine not extending beyond edge of opercular lobe; spinous part of dorsal fin plain; 2nd anal fin spine much longer than 3rd (spines subequal in T. jarbua).



SIZE:

Maximum: 30 cm; common to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Along the coast of East Africa, Madagascar, Red Sea, Arabian Peninsula, the "Gulf" and India; also widely distributed in the Eastern Indian Ocean, and the Western Pacific, northward up to Japan.

Found in inshore waters, often occurring in brackish and freshwaters.

Feeds on fishes and invertebrates; commonly a scale-eater.

PRESENT FISHING GROUNDS:

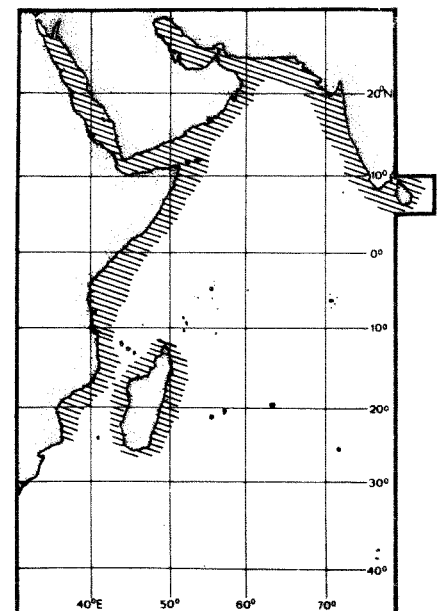
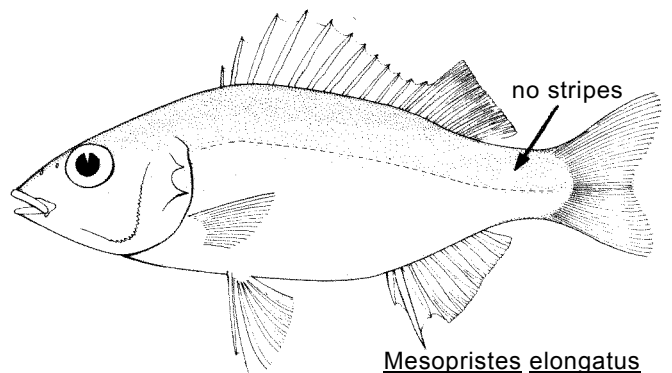
Throughout its range; no special fishery.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

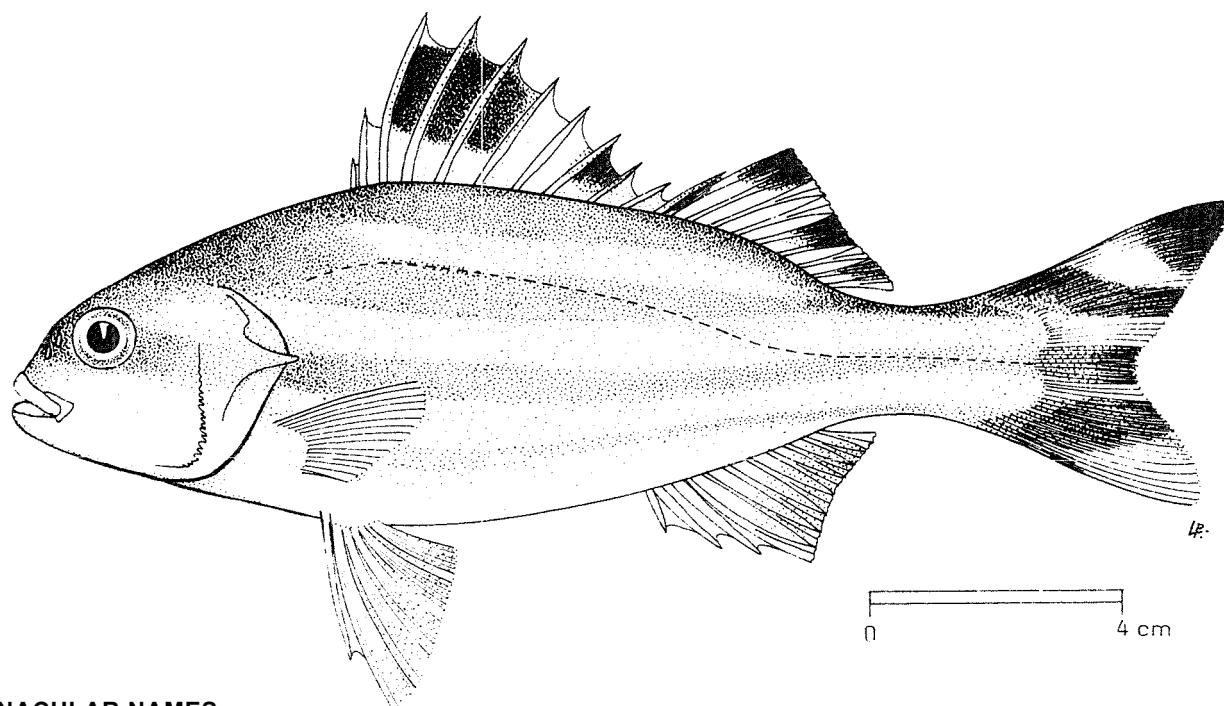
Caught with all types of inshore fishing gear, including gillnets, traps, handlines and bottom trawls.

Marketed fresh and dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TERAPONIDAE

FISHING AREA 51
(W. Indian Ocean)Terapon theraps (Cuvier, 1829)OTHER SCIENTIFIC NAMES STILL IN USE : Eutherapon theraps: Whitley, 1943

VEERNACULAR NAMES:

FAO : En - Largescaled terapon
Fr - Violon tigre
Sp - Baraonga tigre

NATIONAL :

DISTINCTIVE CHARACTERS:

A moderate-sized species. Body oblong, compressed. Jaws equal, gape slightly oblique; rear of upper jaw reaching to vertical through anterior margin of eye in juveniles, falling short with age; teeth conical, in villiform bands, the outer row much enlarged; vomer and palatines (on roof of mouth) toothless; preopercle serrate, the serrations largest at angle, particularly in adults; lower opercular spine very long and strong, extending distinctly beyond edge of opercular bone; post-temporal bone expanded, exposed and serrate posteriorly; gillrakers on first gill arch: 6 to 8 on upper limb and 14 to 17 on lower limb. Dorsal fin with 11 or 12 spines and 9 to 11 soft rays, spinous part of fin strongly arched and deeply notched; the 3rd to 6th dorsal spines longest, and the penultimate spine about one-half the length of the ultimate; margin of soft portion of dorsal fin emarginate; anal fin with 3 spines and 7 to 9 soft rays, the 3rd anal spine longest but shorter than longest anal ray; margin of soft part of anal fin angular, with a straight border; caudal fin emarginate with rounded lobes. Pored lateral line scales 46 to 56; 6 to 8 rows of scales above lateral line and 14 to 16 rows below it.

Colour body dusky dorsally, silvery-white ventrally; 4 dark brown horizontal stripes on body; juveniles also have 6 or 7 vertical bars. Spinous part of dorsal fin with a black blotch on fin membranes between 3rd and 7th spines; soft part of dorsal fin with a dark band along upper portions of anterior rays and a horizontal band on posterior rays; soft part of anal fin with a horizontal black band; each caudal lobe with 1 transverse stripe, upper lobe with black tip.

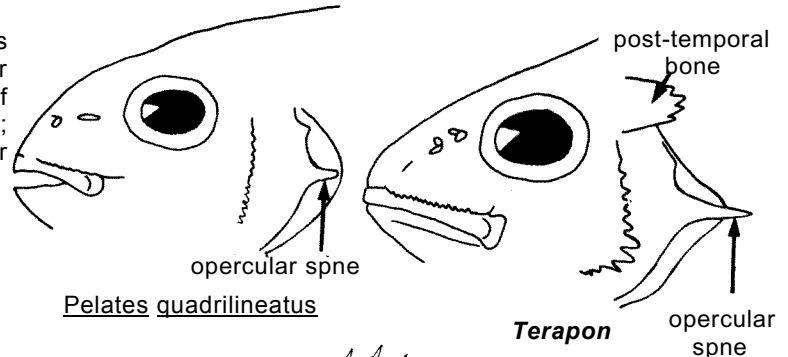
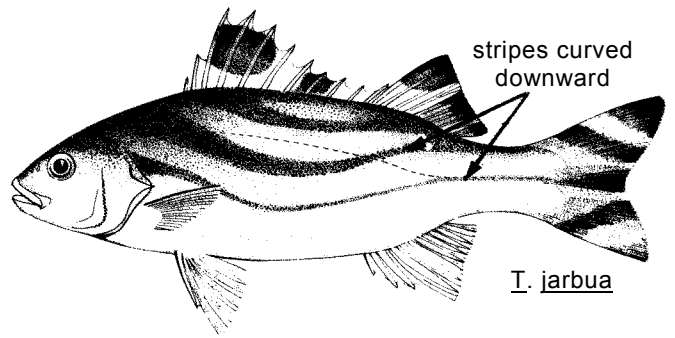
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Terapon jarbua: longitudinal body stripes downwardly curved; 75 to 100 pored lateral line scales (46 to 56 in T. theraps); 13 to 17 rows of scales above lateral line (6 to 8 in T. theraps).

T. puta: 70 to 85 pored lateral line scales; 10 to 13 rows of scales above lateral line.

Pelates quadrilineatus: post-temporal bone covered with skin and scales, not expanded or serrate posteriorly; caudal fin lobes plain; lower opercular spine not extending beyond edge of opercular lobe.

Mesopristes elongatus: caudal fin lobes plain and no stripes on body in adults; lower opercular spine not extending beyond edge of opercular lobe; spinous part of dorsal fin plain; 2nd anal fin spine much longer than 3rd (shorter than 3rd in T. theraps).



SIZE:

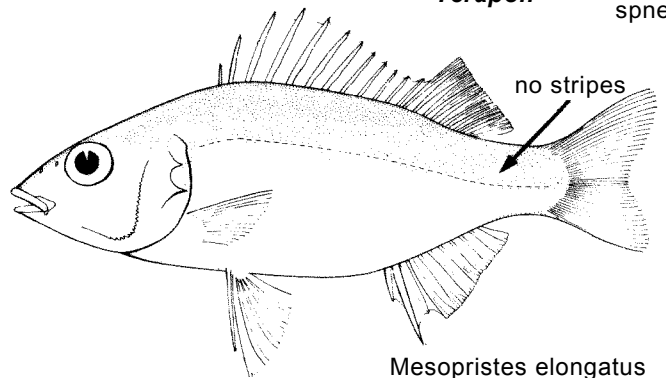
Maximum: 30 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Along the coasts of East Africa, Madagascar, Seychelles, Red Sea, Arabian Peninsula, the "Gulf", India and Andaman Islands. Also, wide-spread in the Eastern Indian Ocean and the Western Pacific.

Found in inshore areas, sometimes in brackish waters.

Feeds on invertebrates and fish.



PRESENT FISHING GROUNDS:

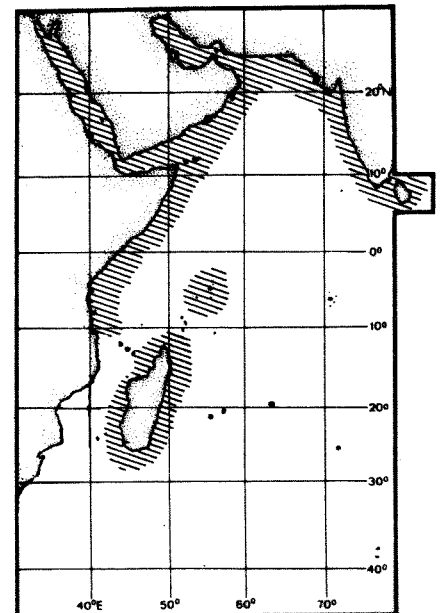
Throughout its range; no special fishery.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

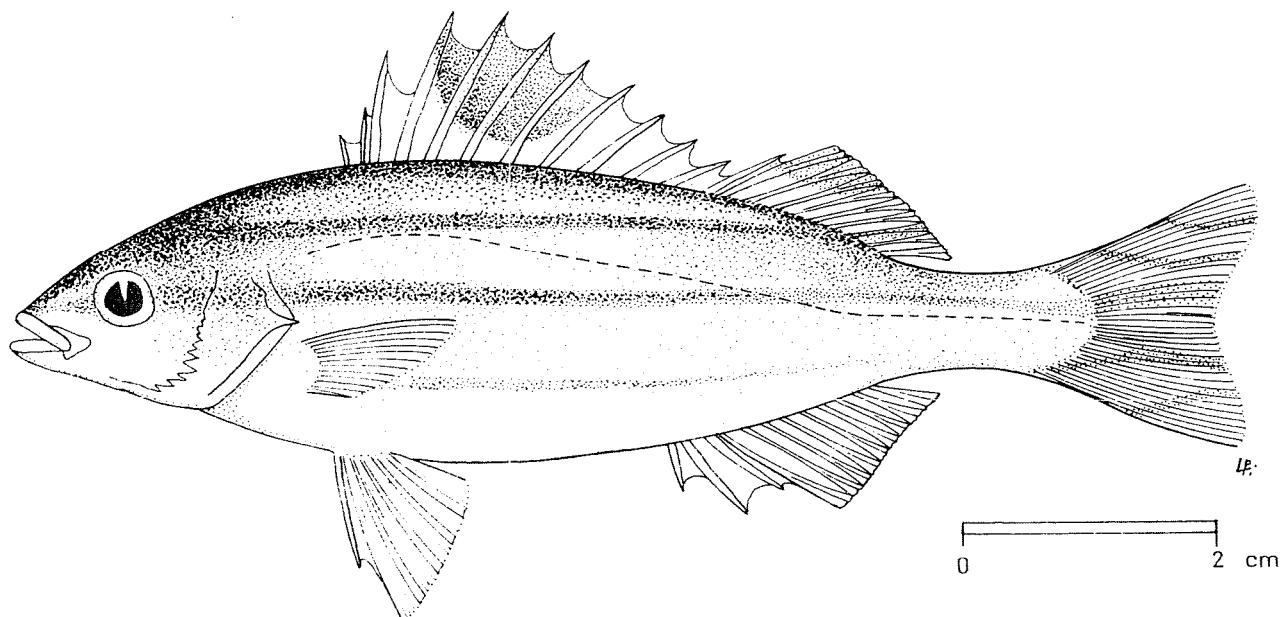
Caught with all types of inshore fishing gear, including gillnets, traps, handlines and bottom trawls.

Marketed fresh and dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY : TERAPONIDAE

FISHING AREA 51
(W. Indian Ocean)Terapon puta (Cuvier, 1829)OTHER SCIENTIFIC NAMES STILL IN USE: Authistes puta Whitley, 1943

VERNACULAR NAMES:

FAO: En - Smallscaled terapon
Fr - Violon grogneur
Sp - baraonga ronco

NATIONAL:

DISTINCTIVE CHARACTERS:

A small-sized species. Body somewhat elongate, compressed. Jaws equal, gape horizontal; rear of upper jaw reaching to vertical through posterior nostril; teeth conical, strong, in villiform bands, outer row enlarged; vomer and palatines (on roof of mouth) toothless; preopercle strongly serrate, with large spines at angle; lower opercular spine very long and strong, extending distinctly beyond edge of opercular bone; post-temporal bone expanded, exposed and serrate posteriorly; cleithrum serrate posteriorly; gillrakers on first gill arch: 7 to 9 on upper limb and 18 to 24 on lower limb. Dorsal fin with 11 or 12 spines and 9 to 11 soft rays; the spinous part of the fin strongly arched and deeply notched; the 5th or 6th spines longest and the penultimate spine about half the length of the ultimate; margin of soft part of dorsal fin straight or emarginate; anal fin with 3 spines and 8 or 9 soft rays, the 2nd anal fin spine shorter than the 3rd spine and longest anal rays; margin of soft part of anal fin emarginate; caudal fin emarginate. Pored lateral line scales 70 to 85; 10 to 13 rows of scales above lateral line and 22 to 24 rows below it.

Colour: body light grey or brown dorsally, tan or silvery-white ventrally; 4 straight, narrow, dark brown longitudinal stripes on body; juveniles also have 6 or 7 light grey vertical bars. Spinous part of dorsal fin with a blackish blotch dorsally on membranes between 3rd or 4th and 7th or 8th spines; soft part of dorsal fin with a black blotch along top of anterior rays; caudal fin with median rays pigmented; both caudal lobes with dark tips and a transverse band.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Terapon jarbua: longitudinal body stripes downwardly curved; 12 to 15 gillrakers on lower limb of first gill arch (18 to 24 in T. puta).

Terapon theraps: 46 to 56 pored lateral line scales (70 to 85 in T. puta); 6 to 8 rows of scales above lateral line (10 to 13 in T. puta).

Pelates quadrilineatus: post-temporal bone covered by skin and scales, not expanded or serrate posteriorly; caudal fin lobes plain; lower opercular spine not extending beyond edge of opercular lobe.

Mesopristes elongatus: caudal fin lobes plain and no stripes on body in adults; lower opercular spine not extending beyond edge of opercular lobe; spinous part of dorsal fin plain; 2nd anal fin spine much longer than 3rd (shorter than 3rd in T. puta).

SIZE:

Maximum: 15 cm; common to 12 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Along coasts of East Africa from Tanzania northward, Red Sea, Arabian Peninsula, the "Gulf" and India. Also in the Eastern Indian Ocean and the South China Sea.

Found in inshore waters, sometimes in brackish and freshwaters.

Feeds on fishes and invertebrates.

PRESENT FISHING GROUNDS:

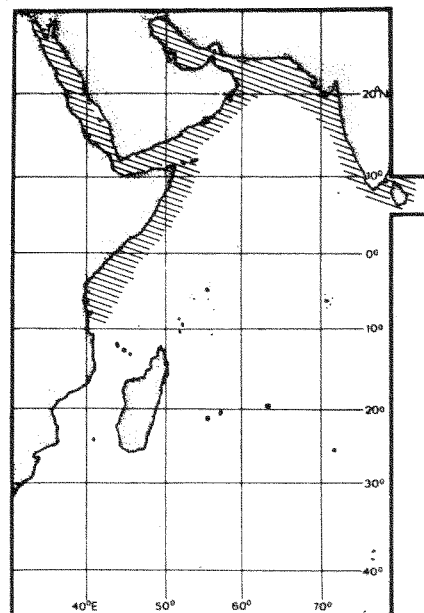
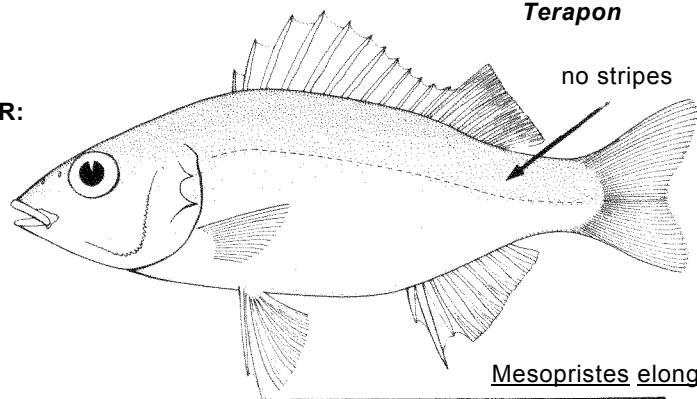
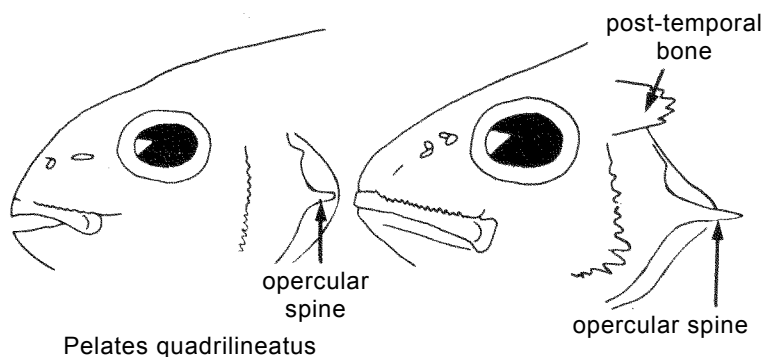
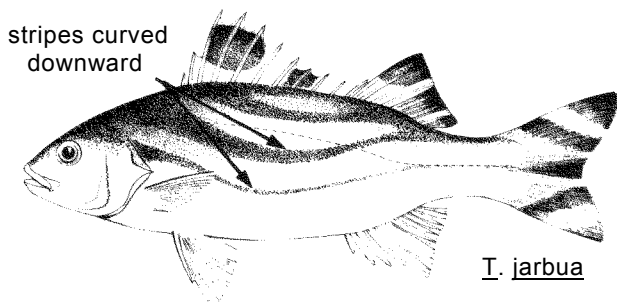
Throughout its range; no special fishery.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with all types of inshore fishing gear, including gillnets, traps, handlines and bottom trawls.

Marketed fresh and dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

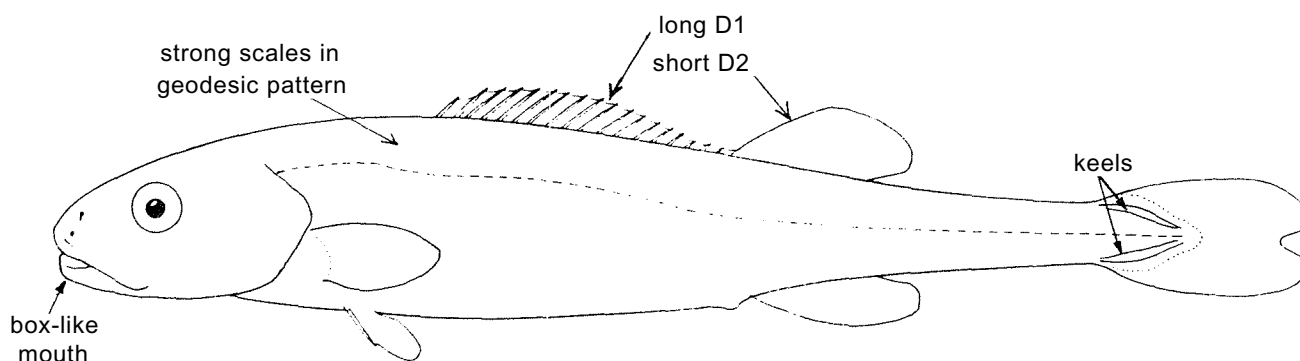
TETRAGONURIDAE

Squaretails

Body very elongate, cylindrical; caudal peduncle, very long and thick, square in cross-section, with modified scales forming 2 lateral keels on each side near base of caudal fin. Head long and somewhat broad, snout long and blunt; eyes large, without adipose tissue and with a series of grooves on posterior rim; mouth fairly large, maxilla extending to below eye; premaxilla not protractile; only the ventral border of maxilla visible below large lacrimal bone, lower jaw appears to shut within upper; teeth small, pointed and recurved in upper jaw; large, flattened and knife-like in lower jaw; opercles fleshy. Two dorsal fins, the first originating over tip of pectoral fin, with 10 to 20 short spines which fold into a groove, the second with a much shorter base, with 10 to 17 rays; a single anal fin, similar to the second dorsal; pectoral fins small and rounded; pelvics very small, inserted behind pectoral fin bases and anterior to origin of first dorsal; caudal fin with 2 rounded lobes, not strongly forked. Lateral line without pored scales, slightly arched anteriorly, then descending to run along mid-line of sides and ending on caudal peduncle. Scales moderate in size, with heavy keels, very adherent and following a geodesic pattern around the body; top of head and snout naked, with small pores.

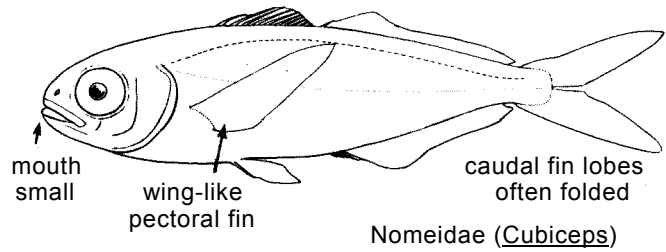
Colour: adults uniformly brown, ranging from tan to almost black, the young often greyish.

Squaretails are rather small-sized oceanic epi- or mesopelagic fishes (up to about 30 cm in length), almost never seen inshore. They feed on soft-bodied pelagic invertebrates, and the young commonly occur in association with salps, even living within them. There are reports that the flesh may be poisonous, and they can in no case be considered to have fishery potential. Squaretails do figure in the diets of large oceanic fishes.



SIMILAR FAMILIES OCCURRING IN THE AREA :

Nomeidae: body compressed, generally with elongate pectoral fins; mouth small; scales thin, small, and easily shed; no keels on caudal peduncle; caudal fin lobes often folded.



GENERA OCCURRING IN THE AREA:

A single genus, Tetragonurus.

LIST OF SPECIES OCCURRING IN THE AREA:

Tetragonurus atlanticus Lowe, 1839

Tetragonurus pacificus Abe, 1953

Prepared by R.L. Haedrich, Memorial University of Newfoundland, St. John's, Newfoundland, Canada

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

TETRAODONTIDAE

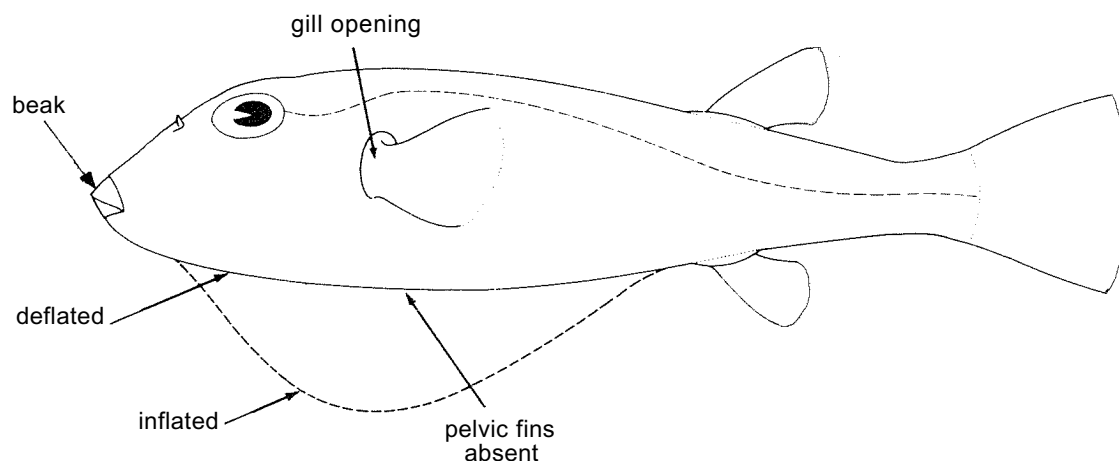
(including Canthigasteridae)

Pufferfishes, blowfishes, tobies

Small to moderate-sized fishes (up to 75 cm in length) with a heavy, blunt body capable of rapid inflation by intake of water (or air). Head large and blunt, jaws modified to form a beak of 4 heavy, powerful teeth, 2 above and 2 below; gill openings simple slits anterior to pectoral fins; eyes located high on head. Pelvic fins absent; dorsal and anal fins located far posteriorly, containing no spines, but 7 to 15 soft rays; caudal fin truncate, rounded, or emarginate to somewhat lunate. Lateral lines, when present often indistinct, forming an interconnecting pattern on the sides of head and body, but quite distinct in some genera, e.g., Fugu and Torquigener. Typical scales absent, but numerous small spiny prickles often present on back and/or belly, sometimes on sides.

Colour: most species are mottled and variegated on back and sides, sometimes with spots of various sizes and colours, while others are of plain coloration.

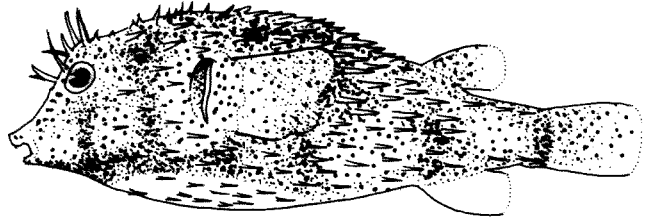
Pufferfishes are inhabitants of tropical and temperate seas, most frequent in shallow inshore waters, sometimes entering brackish and fresh waters, but a few species are pelagic. Usually found alone, although some species school together, especially for mating purposes. They have the ability to inflate themselves with either air or water as a deterrent to predators. In addition, the viscera and skin of most species are poisonous, some more than others. However, the effect of this poison on other marine animals is not fully understood, whereas its toxicity to terrestrial animals is well known. Careful preparation is required to render pufferfish flesh safe to eat (removal of skin and viscera) and the resultant product is considered a delicacy in some countries (e.g., Fugu in Japan). Nevertheless, many deaths still occur each year from the consumption of these fishes.



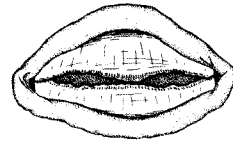
SIMILAR FAMILIES OCCURRING IN THE AREA:

Diodontidae: strong elongate spines cover head and body; a single tooth in each of the upper and lower jaws (2 teeth in each jaw in Tetraodontidae).

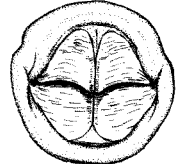
Monacanthidae: spinous dorsal fin present, usually consisting of one strong spine with a second much smaller spine at its rear base.



Diodontidae

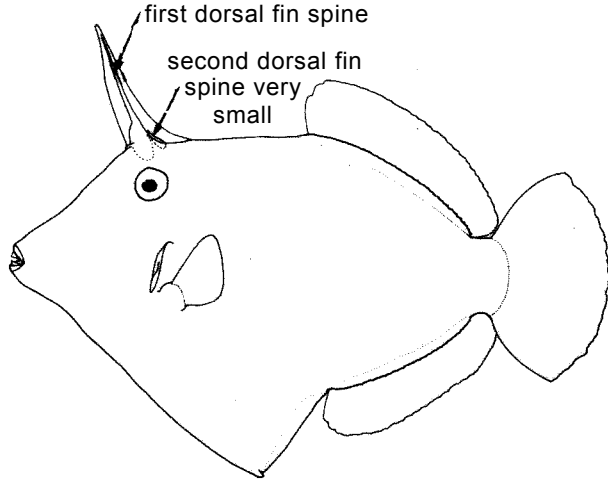


Diodontidae

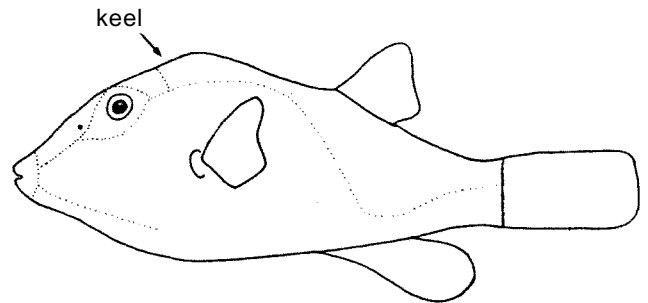


Tetraodontidae

tooth plates



Monacanthidae

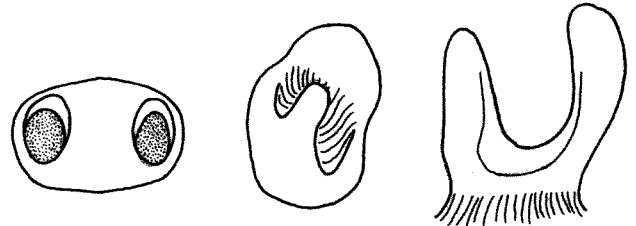


Canthigaster Fig.1

KEY TO GENERA OCCURRING IN THE AREA:

1a. Nostrils minute, rarely visible without aid of magnification; dorsal surface posterior to eyes distinctly keeled (Fig.1) Canthigaster

1b. Nostrils easily visible without magnification; dorsal surface posterior to eyes more or less smooth, without a distinct keel



a) Lagocephalus

b) Chelonodon

c) Arothron

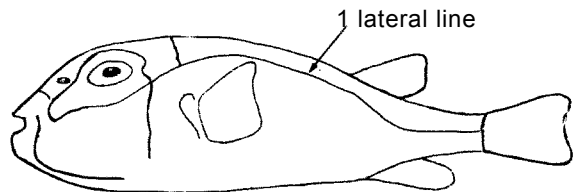
nostril

Fig.2

2a. Nostril an upright sac with 2 openings (Fig.2a)

3a. A single lateral line on side of body (Fig.3) Sphoeroides

3b. Two lateral lines on side of body (Figs 4 and 5)



Sphoeroides Fig.3

4a. Caudal fin lunate to emarginate (Fig.4) Lagocephalus

4b. Caudal fin rounded or truncate (Fig.5)

5a. bony interorbital region broad

6a. No raised skinfold along lower side of body, or if present, mouth antero-dorsally positioned Amolrhynchotes

6b. A raised skinfold along lower side of body; mouth anteriorly positioned Fugu

5b. bony interorbital region narrow ..Torquigener

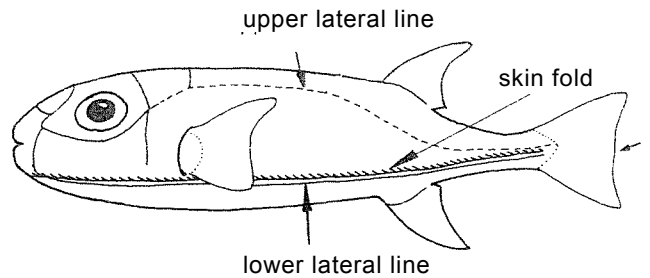
2b. Nostril either an upraised cup with 2 fleshy lobes (Fig.2b) or a solid bifid tentacle (Fig.2c)

7a. A single lateral line on side of body (Fig.7) Arothron

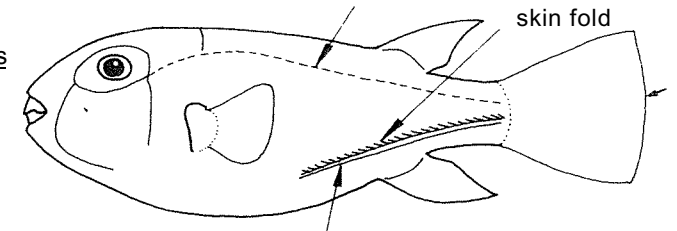
7b. Two lateral lines, the upper joining the lower in the region above or behind the anal fin (Fig.8)

8a. back and belly with spines Chelonodon

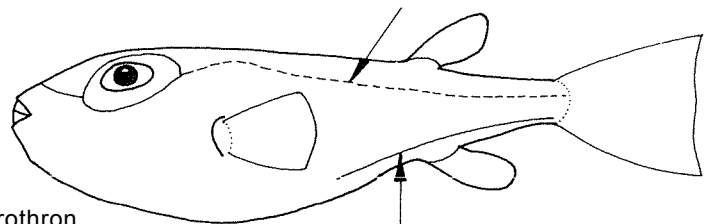
8b. belly only with spines Chelonodontops



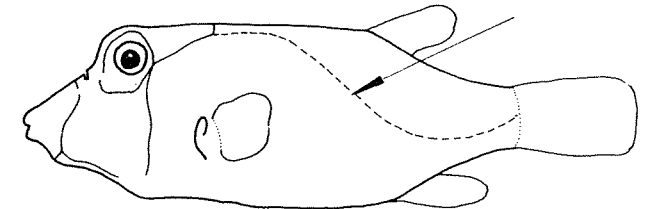
Lagocephalus Fig.4



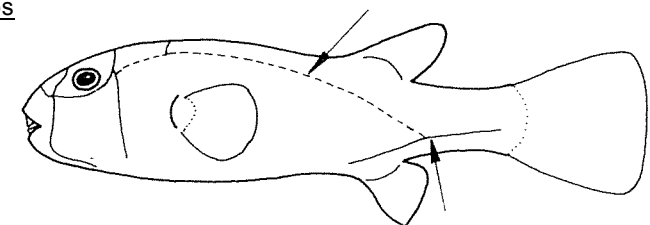
Torquigener Fig.5



Amblyrhynchotes Fig.6



Arothron Fig.7



Chelonodon Fig.8

LIST OF SPECIES OCCURRING IN THE AREA:

- Amblyrhynchotes honckenii (Bloch, 1796)
Amblyrhynchotes spinosissimus (Regan, 1908)
- Arothron hispidus (Lacepède, 1802)
Arothron immaculatus (Bloch & Schneider, 1801)
Arothron inconditus Smith, 1958
Arothron leopardus (Day, 1878)
Arothron mapp (Lesson, 1830)
Arothron meleagris (Lacepède, 1798)
Arothron nigropunctatus (Bloch & Schneider, 1801)
Arothron stellatus Bloch & Schneider, 1801
- Canthigaster amboinensis (Bleeker, 1865)
Canthigaster bennetti (Bleeker, 1854)
Canthigaster coronata (Vaillant & Sauvage, 1875)
Canthigaster janthinuroptera (Bleeker, 1855)
Canthigaster margaritata (Rüppell, 1828)
Canthigaster natalensis (Günther, 1870)
Canthigaster pygmaea Allen & Randall, 1977
Canthigaster rivulata (Schlegel, 1850)
Canthigaster smithae Allen & Randall, 1977
Canthigaster solandri (Richardson, 1844)
Canthigaster tyleri Allen & Randall, 1977
Canthigaster valentini (Bleeker, 1853)
- Chelonodon fluviatilis (Buchanan, 1822)
Chelonodon laticeps Smith, 1947
Chelonodon patoca (Buchanan, 1822)
- Chelonodontops pulchellus Smith, 1958
- Fugu oblongus (Bloch, 1786)
- Lagocephalus inermis (Temminck & Schlegel, 1844)
Lagocephalus lagocephalus Linnaeus, 1758
Lagocephalus lunaris (Bloch & Schneider, 1801)
Lagocephalus sceleratus (Gmelin, 1789)
Lagocephalus spadiceus (Richardson, 1844)
- Sphoeroides pachygaster (Müller & Troschel, 1848)
Sphoeroides pleurospilus (Regan, 1919)
- Torquigener hypselogeneion (Bleeker, 1852)

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

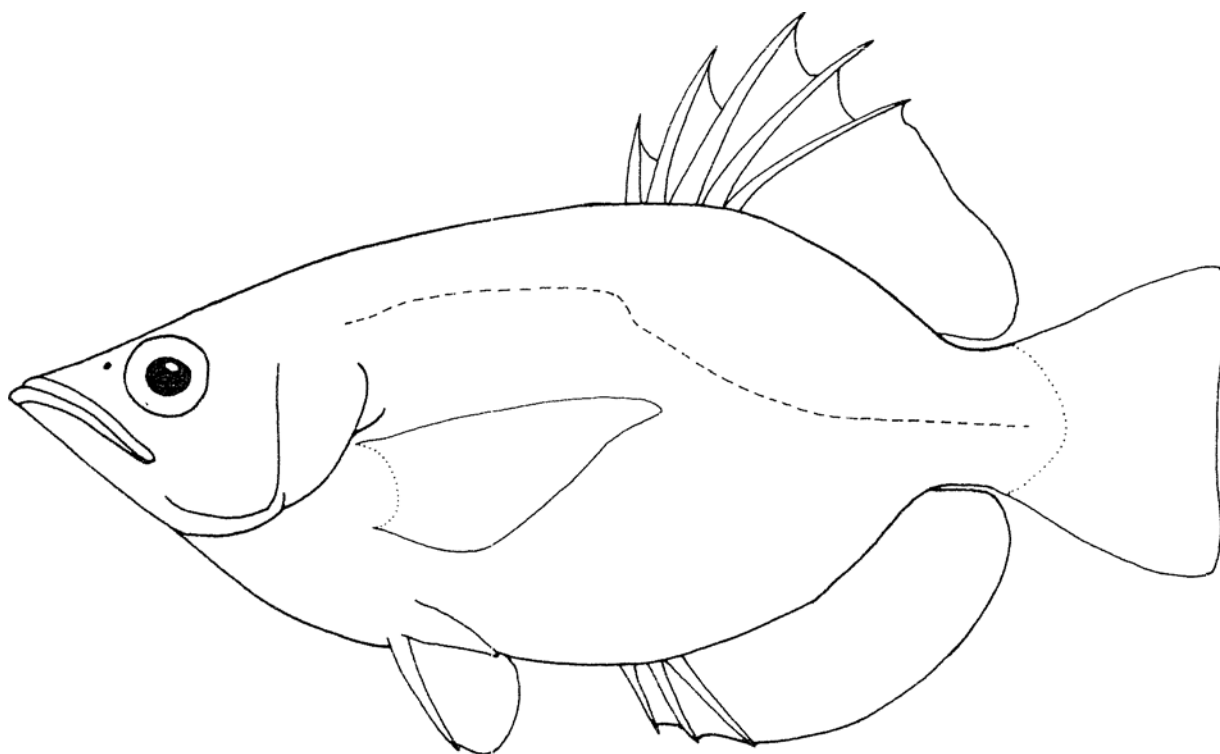
TOXOTIDAE

Archerfishes, riflefishes

Body laterally compressed. Eye large; mouth moderate in size. A single dorsal fin with 4 or 5 spines and 12 to 14 rays; anal fin with 3 spines and 15 to 17 rays. Head and body covered with small to moderate scales.

Colour: usually whitish or silvery with several dark spots or bars on sides.

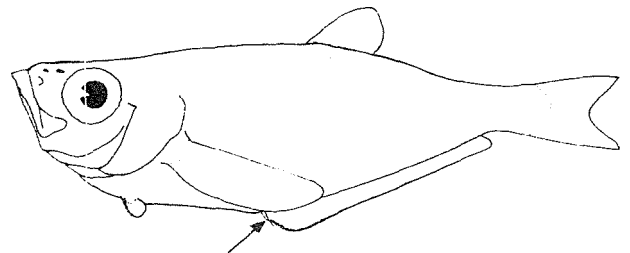
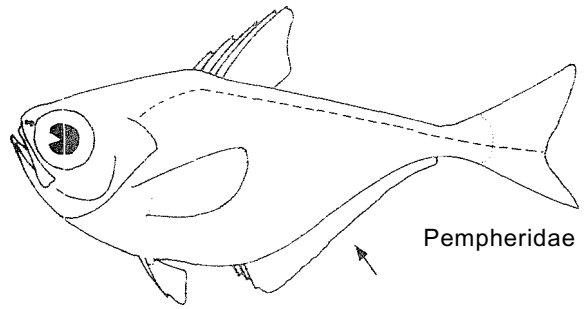
Relatively small fishes living individually or in small groups in brackish (sometimes only slightly) water or in freshwater streams. They are frequently seen near the surface and are renowned for their ability to knock down insects from overhanging vegetation with a jet of water squirted from the mouth.



SIMILAR FAMILIES OCCURRING IN THE AREA:

Pempheridae: dorsal fin relatively short, placed above pectoral fin; anal fin long, usually with more than 30 rays (17 or less in Toxotidae).

Bathyclupeidae: dorsal fin spines absents anal fin long with a single spine and more than 20 rays; body elongate (depth 3 or 4 times in standard length); fragile fishes with deciduous scales living in deep water.



KEY TO GENERA OCCURRING IN THE AREA:

Toxotes only.

LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

Toxotes chatareus (Hamilton-Buchanan, 1822)

TOX Tox 1

Toxotes jaculator (Pallas, 1766)

TOX Tox 2

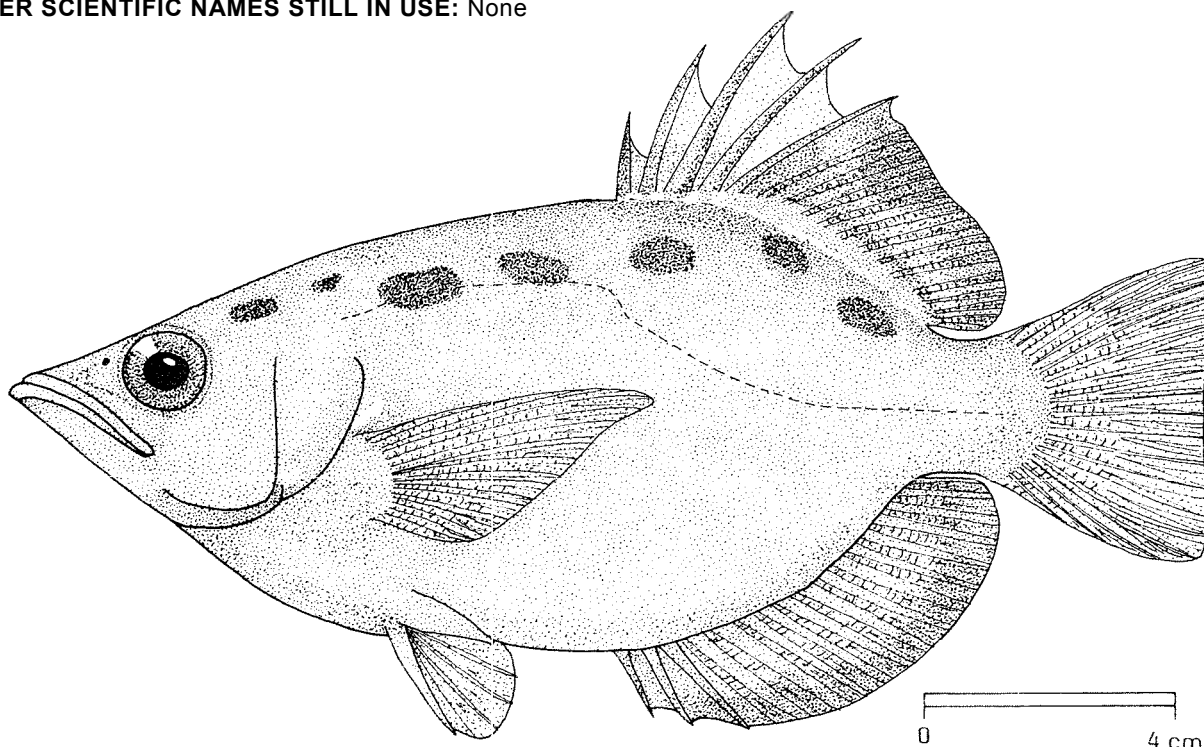
Prepared by G.R. Allen, Western Australian Museum, Perth, Australia

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TOXOTIDAE

FISHING AREA 51
(W. Indian Ocean)Toxotes chatareus (Harnilton-Buchanan, 1822)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Spotted archerfish
 Fr - Poisson archer tacheté
 Sp - Arquero manchado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body oblong, compressed; head flattened on dorsal surface; dorsal fin spines 5; lateral line scales 30 to 36.

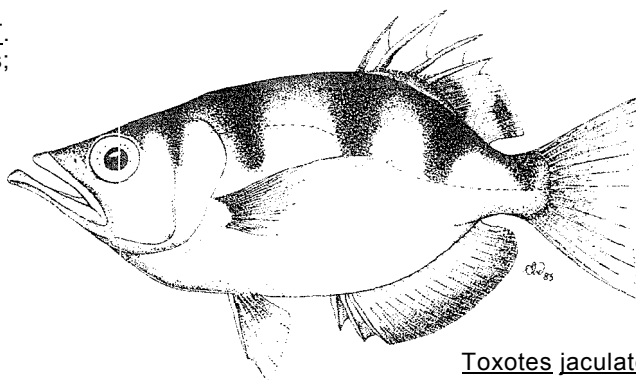
Colour: body generally pale (grey to silvery); a series of 5 to 7 black blotches on upper sides; dorsal and anal fins dusky to blackish; pectorals, pelvics and caudal fin slightly dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA :

Toxotes jaculator: 4 dorsal fin spines (5 in I. chatareus) a series of 4 or 5 black bars on upper sides; lateral line scales 26 to 30 (30 to 36 in I. chatareus).

SIZE:

Maximum: 30 cm; common to 20 cm.



Toxotes jaculator

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known in the area only from Sri Lanka and India; also ranges eastward to New Guinea and northern Australia.

Primarily an inhabitant of brackish mangrove estuaries, but also penetrates freshwater rivers and small streams.

Feeds at the surface during the day on floating debris which includes insects and vegetable matter.

PRESENT FISHING GROUNDS:

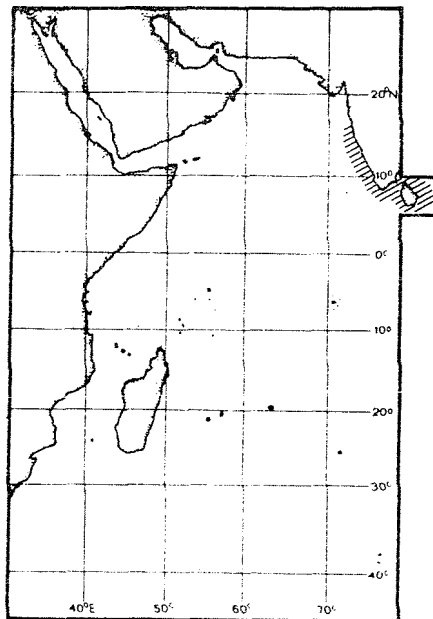
Mangrove estuaries, throughout the year.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species, but it is common in certain markets.

Caught mainly with seine nets, but also readily taken by hook and line.

Marketed mostly fresh.

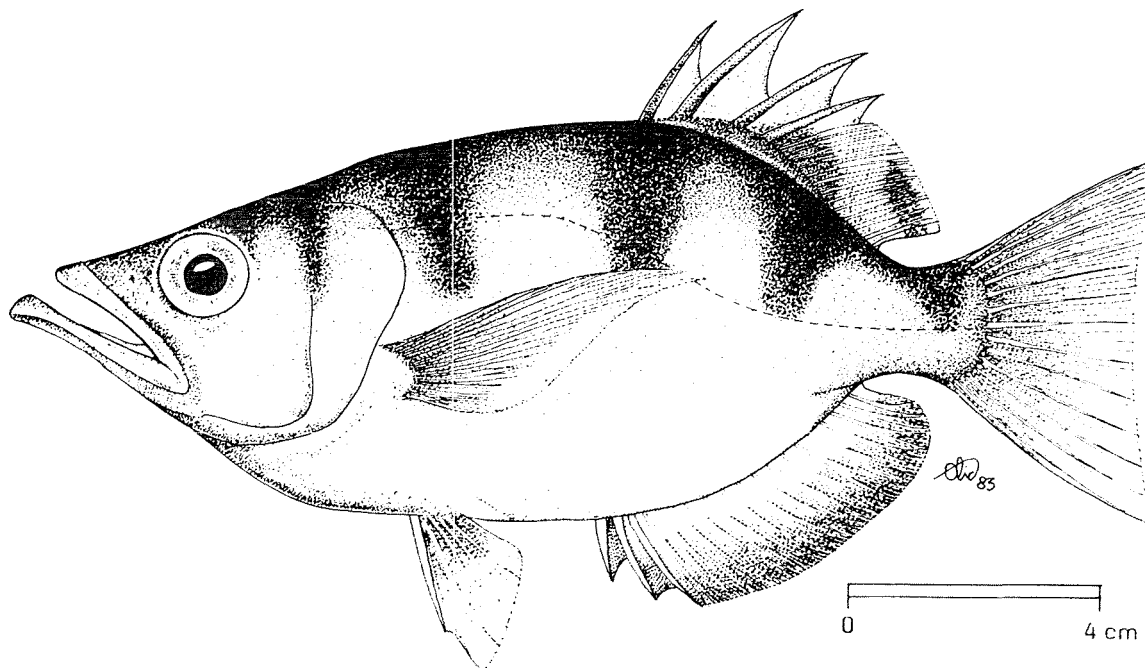


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TOXOTIDAE

FISHING AREA 51
(W. Indian Ocean)*Toxotes jaculator* (Pallas, 1766)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Banded archerfish
 Fr - Poisson archer sellé
 Sr - Arquera ensillado

NATIONAL:

DISTINCTIVE CHARACTERS:

Body oblong, compressed; head flattened on dorsal surface; dorsal fin spines 4; lateral line scales 26 to 30.

Colour: body generally pale; a series of 4 or 5 black blotches on upper sides; dorsal and anal fins dusky to blackish; pectorals, pelvics and caudal fin usually pale.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Toxotes chatareus: 5 dorsal fin spines (4 in T. jaculator); a series of 5 to 7 black blotches on upper sides; lateral line scales 30 to 36 (26 to 30 in T. jaculator).

SIZE:

Maximum: 30 cm; common to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Known in the area only from India; also ranges eastward to Australia, the New Hebrides and Solomon Islands, and northward to the Philippines.

Primarily an inhabitant of brackish mangrove estuaries, but also penetrates freshwater rivers and small streams.

Feeds at the surface during the day on floating debris which includes insects and vegetable matter.

PRESENT FISHING GROUNDS:

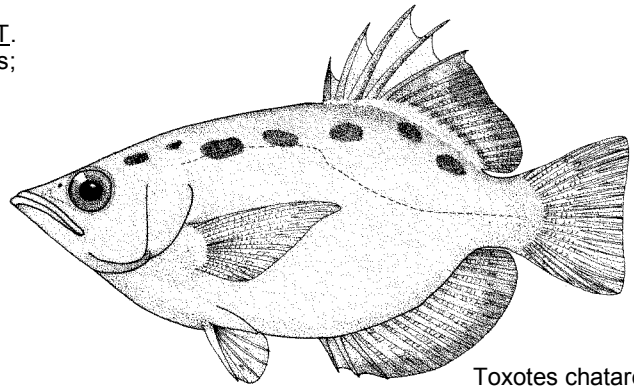
Mangrove estuaries, throughout the year.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

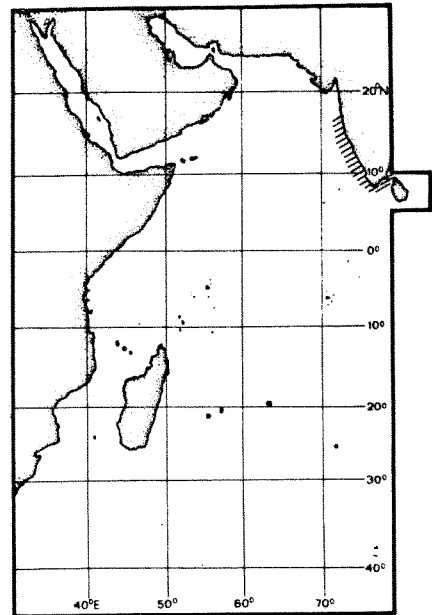
Separate statistics are not reported for this species, but it is common in certain markets.

Caught mainly with seine nets, but also readily taken by hook and line.

Marketed mostly fresh.



Toxotes chatareus



FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

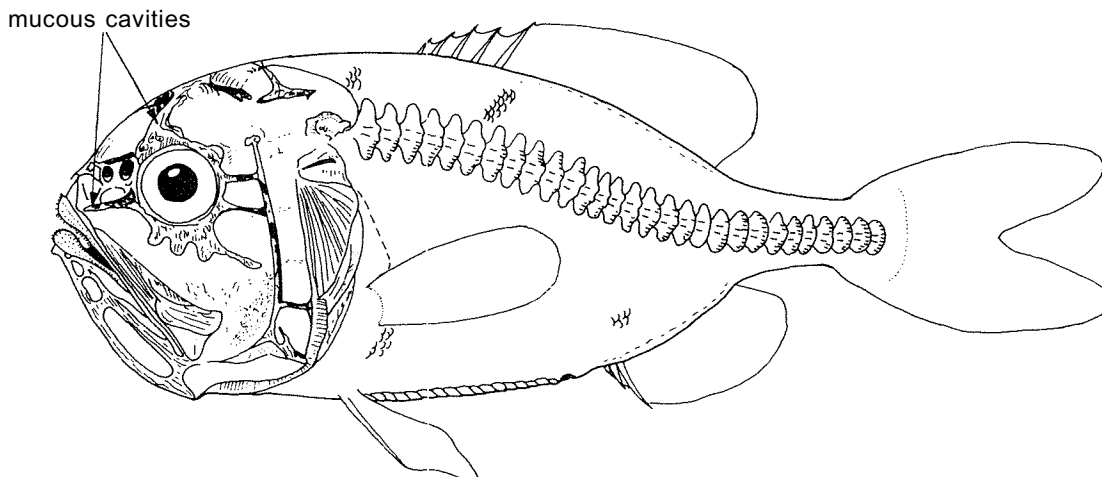
TRACHICHTHYIDAE

Slimeheads

Body oval, compressed. Head with large, skin-covered mucous cavities, the walls between these cavities often with serrated crests; preopercle and opercle spines usually present; only one supramaxilla; jaws with bands of minute teeth. Dorsal fin with 3 to 8 striated or ridged spines and 10 to 19 soft rays, its base about twice the length of anal fin base; anal fin with 2 or 3 spines and 8 to 12 soft rays. Lateral-line scales more or less enlarged; scales along midventral part of belly enclaved, forming a row of well-developed scutes in most species.

Colour: generally reddish pink or dusky silver.

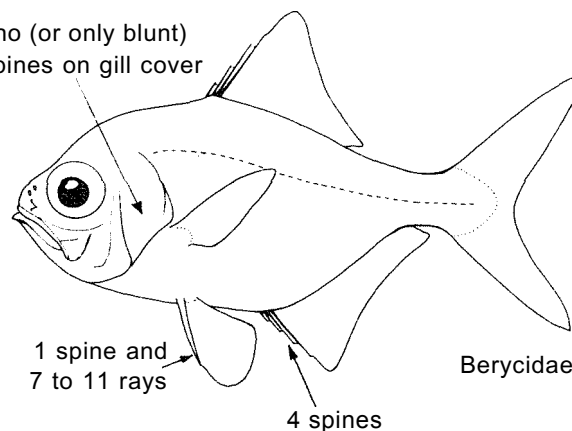
Medium-sized fishes (to about 60 cm total length) occurring near the bottom in depths of 100 to 1 000 m (mostly between 250 and 600 m). Many species of slimeheads are cosmopolitan in distribution and some are reported to be rather abundant in certain areas. They are caught with bottom and pelagic trawls as well as with longlines, and are marketed fresh or made into fishmeal and oil by offshore fishing fleets. In view of their local abundance and the current trend toward development of deepwater trawl fisheries, the slimeheads are of potential commercial importance.



SIMILAR FAMILIES OCCURRING IN THE AREA:

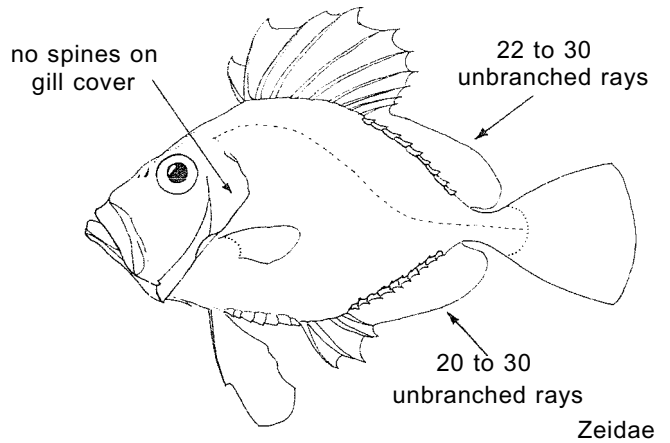
Berycidae: no prominent spines on opercle or preopercle; 2 supramaxillae (one in Trachichthyidae); dorsal fin spines closely set; anal fin spines 4 (2 or 3 in Trachichthyidae); pelvic fin with 7 to 12 soft-rays (5 or 6 in Trachichthyidae).

no (or only blunt)
spines on gill cover



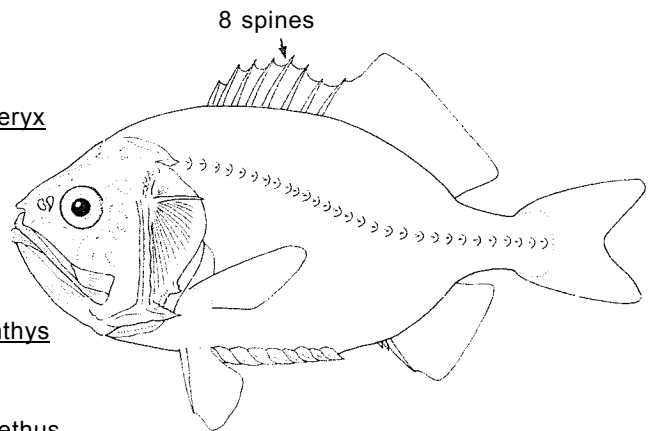
Berycidae

Zeidae: no spines on opercle or preopercle; dorsal fin with 22 to 30 unbranched soft-rays; anal fin soft rays 20 to 30 (dorsal soft rays 12 to 19, anal fin soft rays 8 to 12 in Trachichthyidae).

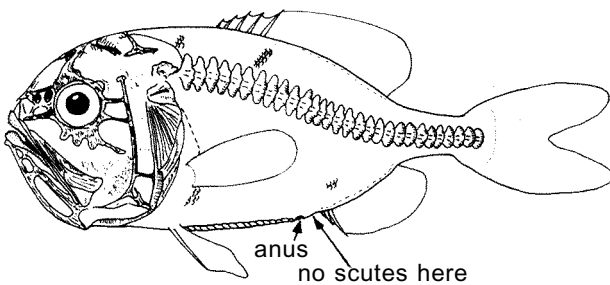


KEY TO GENERA OCCURRING IN THE AREA*:

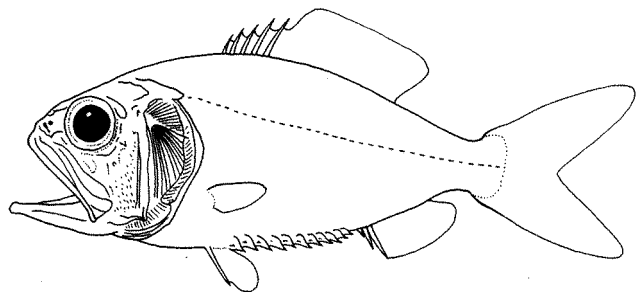
- 1a. Dorsal fin spines 8; spinous dorsal fin base longer than anal fin base (Fig.1) Gephyroberyx
- 1b. Dorsal fin spines 4 to 7; spinous dorsal fin base shorter than anal fin base
 - 2a. Anus between pelvic fin bases; a row of scutes from anus to anal fin (Fig.2).... Paratrachichthys
 - 2b. Anus immediately before anal fin; no scutes between anus and anal fin (Fig.3) . Hoplostethus



Gephyroberyx Fig.1



Hoplostethus Fig.3



Paratrachichthys Fig.2

*Trachichthodes spinosus (Gilchrist, 1903), a South African species, was assigned to the Trachichthyidae by Smith (The Sea Fishes of Southern Africa, 1949); but this species is properly placed in the Berycidae

KEY TO SPECIES OF Hoplostethus OCCURRING IN THE AREA:

- 1a. Dorsal fin soft rays 16 to 19; anal fin soft rays 10 to 12; (soutes along the ventral midline of belly very small or absent) H. atlanticus
- 1b. Dorsal fin, soft rays 12 to 16; anal fin, soft rays 8 to 10
 - 2a. Pectoral fin rays 14 to 16; 8 to 12 well-developed soutes on belly H. mediterraneus
 - 2b. Pectoral fin rays 16 to 20; 13 to 18 small soutes on belly
 - 3a. Greatest body depth 50 to 57% of standard length; length of longest gillraker 19 to 30% of head length H. melanopus
 - 3b. Greatest body depth 47% of standard length; longest gillraker 9.7% of head length H. tenebricus*

LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

Gephyroberyx darwini (Johnson, 1866)

Hoplostethus atlanticus Collett, 1889 (= H. gilchristi Smith, 1935)

Hoplostethus mediterraneus Cuvier, 1829

Hoplostethus melanopus (Weber, 1913) (= H. natalensis Kotlyar, 1978) *

* Hoplostethus tenebricus Kotlyar, 1980

Paratrachichthys sajademalensis Kotlyar, 1979

Prepared by P.C. Heemstra, J.F.B. Smith Institute of Ichthyology, Grahamstown, South Africa

*A doubtful species known from only 1 specimen from off southern Mozambique

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

TRACHIPTERIDAE

Ribbonfishes

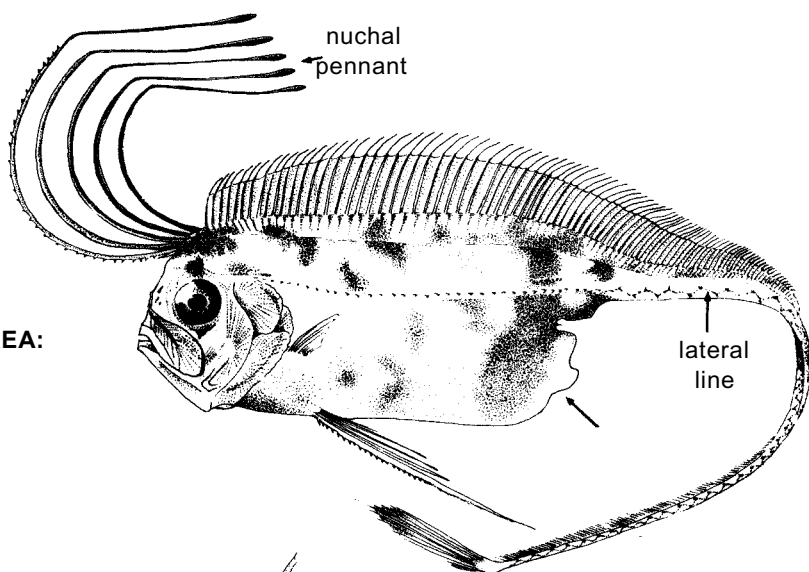
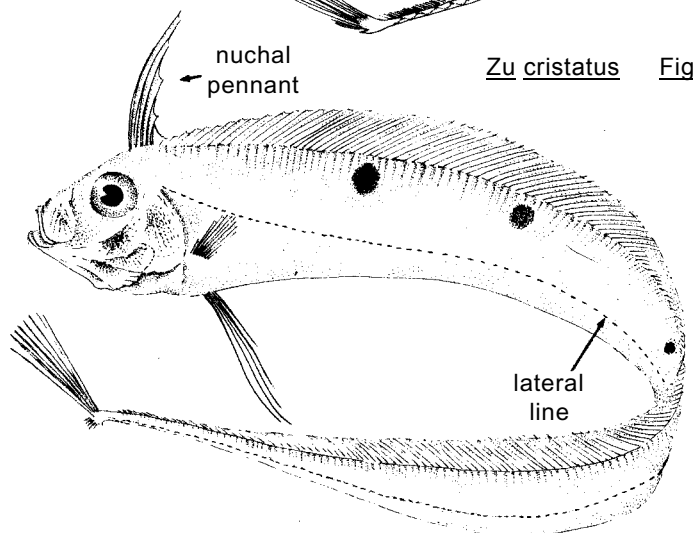
Body more or less elongate, ribbon-like and strongly compressed with anus located at about middle of body length. Head short; mouth small protrusible, more or less vertical; a few small pointed teeth in both jaws; teeth also present on vomer (roof of mouth). Dorsal fin originating above or slightly posterior to eye and extending nearly to caudal fin origin, its anterior rays more or less detached and elongate, forming a nuchal pennant; anal fin absent; caudal fin either horizontal or with two lobes, the upper perpendicularly upturned, the lower rudimentary; pectoral fins short, inserted horizontally; pelvic fins inserted on ventral midline of body, with 3 to 9 rays markedly elongate in the young; rays in nuchal pennant, pelvic fins and lower lobe of caudal fin tending to become reduced and to disappear completely with age. Skin rather uniformly covered with bony tubercles in adults (these tubercles sometimes arranged in subvertical bands). Lateral line consisting of bony plates, each armed with a spine and gradually descending toward midventral profile and terminating either at base of caudal fin or extending unto lower caudal fin lobe. These fishes undergo considerable changes in shape of body and fins during growth.

Colour: bright silver, with or without dark transverse bands or spots; fins red or yellow in life.

Mesopelagic fishes, rather common in all temperate and tropical seas; only occasionally taken in offshore fisheries, but often found floating dead on the surface or thrown on the shore after gales.

KEY TO GENERA OCCURRING IN THE AREA:

- 1 a. Deciduous cycloid scales present on body. Ventral body profile scalloped before anus where body is constricted to form an elongate slender tail; lateral line wavy on tail; dorsal finrays 135 to 145; colour pattern of dark vertical bars or blotches (Fig.1) Zu
- 1 b. Body scaleless. Ventral profile without marked constriction at anus, lateral line straight on tail; dorsal finrays 160 or more; colour pattern uniform, polka-dotted or a few large dark spots or longitudinal lines (Fig.2) Trachipterus

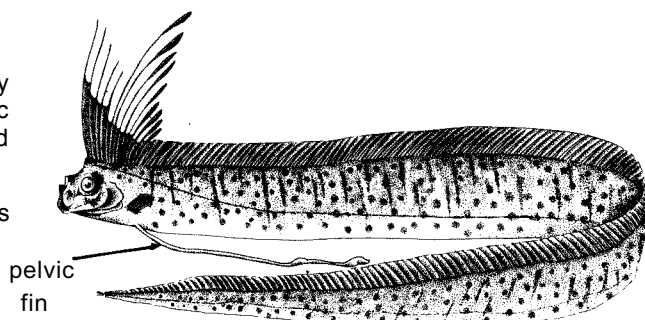
Zu cristatus Fig.1Trachipterus trachipterus Fig.2

* Excluding Desmodema, a rare form not yet recorded from the area

SIMILAR FAMILIES OCCURRING IN THE AREA:

Regalecidae: lateral line plates smooth; bony tubercles arranged in longitudinal bands or ridges; pelvic fins modified into a long filamentous ray; anus situated anterior to midpoint of body.

Lophotidae: anal fin located near caudal fin; anus near to posterior end of body; skin smooth.



Regalecidae (Regalecus)

LIST OF SPECIES OCCURRING IN THE AREA:

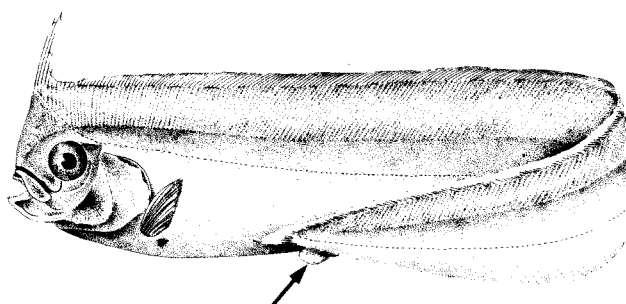
*Desmodema polysticta (Ogilby, 1897)

Trachipterus nigrifons Smith, 1956

Trachipterus trachipterus (Gmelin, 1789)

Trachipterus woodi Smith, 1953

Zu cristatus (Bonnelli, 1820)



Lophotidae (Lophotes)

Prepared by M.L. Bauchot, Muséum National d'Histoire Naturelle, Ichtyologie générale et appliquée, Paris, France

* So far only recorded from the Pacific and Atlantic Oceans, but probably circumtropical and occurring in the Indian Ocean

** Doubtful species, possibly a juvenile

FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

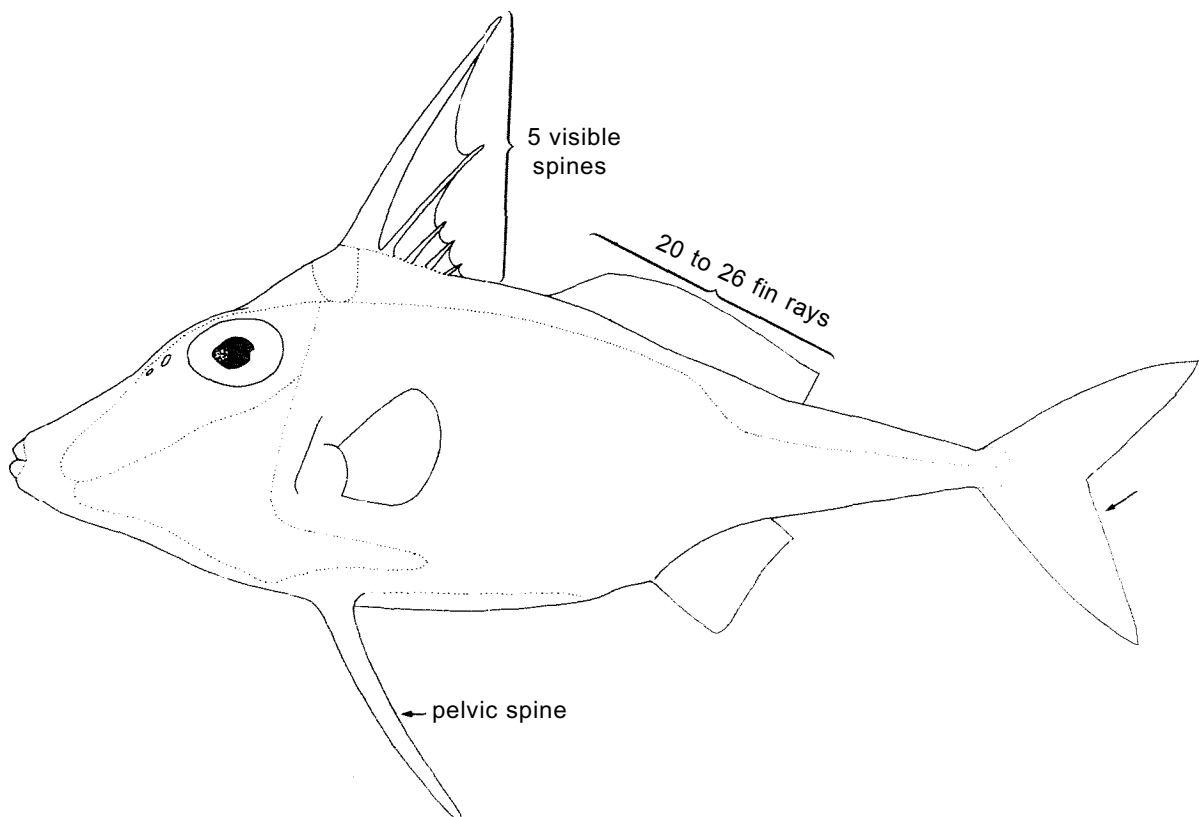
TRIACANTHIDAE

Tripodfishes,triplespines

Small fishes, up to 30 cm in length, with deep compressed bodies; skin moderately thick with numerous scales not individually easily discernible to the unaided eye, each scale bearing upright spinules and having a rough, shagreen-like appearance. Gill opening a relatively short vertical slit in front of pectoral fin base; mouth small and usually terminal; teeth in an outer series of about 10 heavy incisors in each jaw, internal to which are several molariform teeth, usually 4 in upper jaw and 2 in lower jaw. Dorsal fin spines 6 (usually only 5 visible, the 6th being a rudiment), dorsal fin rays 20 to 26, anal fin rays 13 to 22; caudal fin deeply forked and caudal peduncle distinctly tapered; pelvic fin represented by a large spine which is movably articulated with anterior end of pelvis and capable of being locked erect by a flange on they pelvis; most dorsal, anal and pectoral fin rays branched. Lateral line inconspicuous.

Colour: generally silvery, with upper half of body dusky, with or without darker blotches.

Tripodfishes are benthic, occurring usually on flat, sandy or weed-covered bottoms. They feed on bottom-living invertebrates. In some areas they are considered trashfish, however, they are often consumed in several countries bordering the Western Indian Ocean.



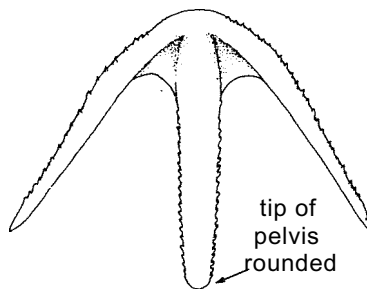
SIMILAR FAMILIES OCCURRING IN THE AREA:

Triacanthodidae: dorsal fin rays 12 to 18 (20 to 26 in Triacanthidae); caudal fin round to almost truncate; caudal peduncle not distinctly tapered; some genera with snouts produced into long tubes.

Other plectognath genera: all lack the prominent pelvic spine.

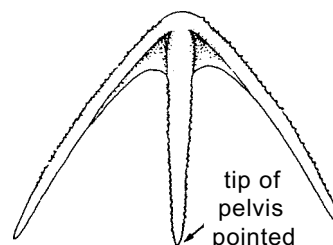
KEY TO SPECIES OCCURRING IN THE AREA:

1a. Scale-covered ventral surface of pelvis almost as wide anteriorly as posteriorly, not distinctly tapered to a point (Fig.1a); length of second dorsal fin spine not greater than half the length of first dorsal spine (Fig.2) Triacanthus



a) Triacanthus aculeatus

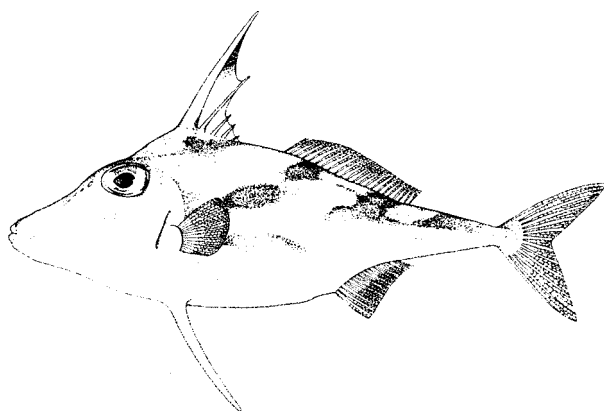
1b. Scale-covered ventral surface of pelvis much wider anteriorly than posteriorly, distinctly tapered to a point (Fig.1b); length of second dorsal fin spine (if not broken) more than half the length of first dorsal spine (Fig.3) Pseudotriacanthus



b) Pseudotriacanthus strigilifer

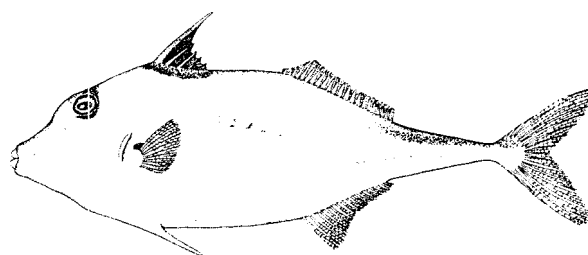
ventral view of pelvis and pelvic fins

Fig.1



Pseudotriacanthus strigilifer

Fig. 3



Triacanthus biaculeatus

Fig.2

LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

Pseudotriacanthus strigilifer (Cantor, 1849)

TRIACANTH Pseud 1

Triacanthus biaculeatus (Bloch, 1786)

TRIACANTH Triac 1

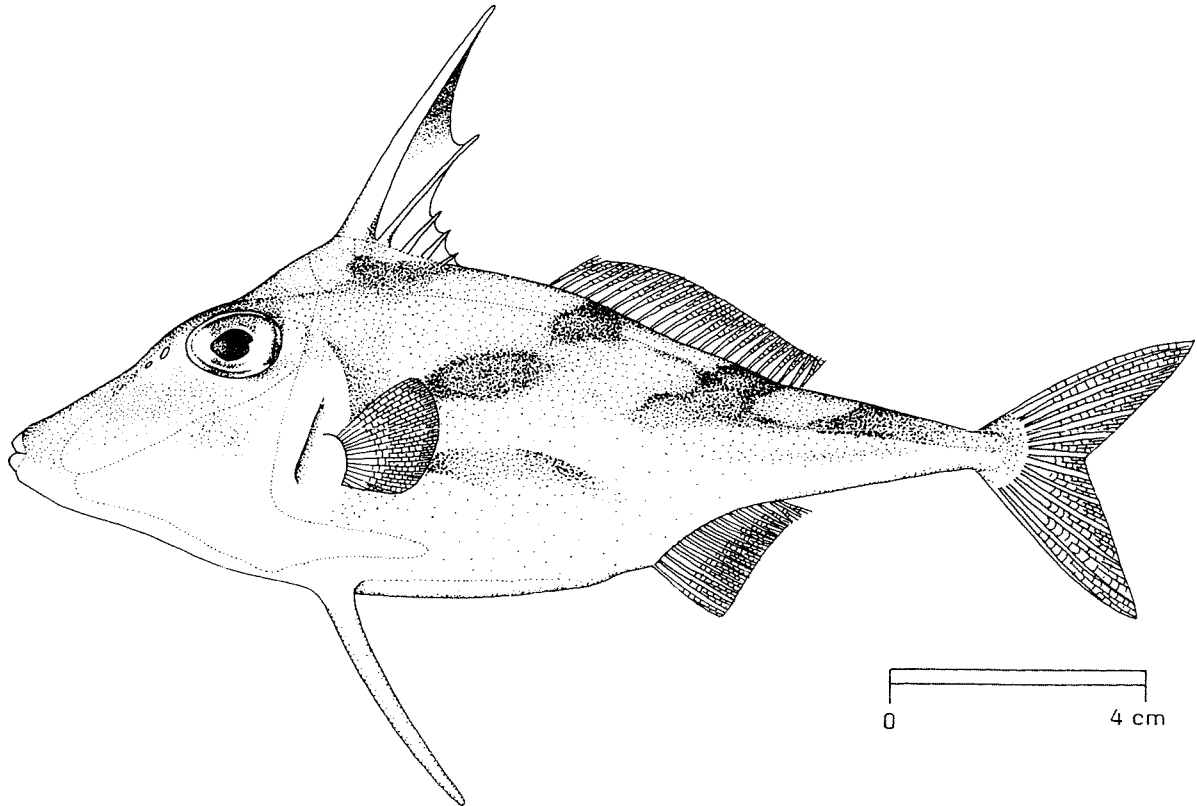
Prepared by B. Hutchins, Western Australian Museum, Perth, Australia; revised by J.C. Tyler, Division of Environmental Biology, National Science Foundation, Washington, DC: 20550, USA

FAO SPECIES IDENTIFICATION SHEETS

FAMILY : TRIACANTHIDAE

FISHING AREA 51
(W. Indian Ocean)Pseudotriacanthus strigilifer (Cantor, 1849)

OTHER SCIENTIFIC NAMES STILL IN USE: None



VERNACULAR NAMES:

FAO : En - Long-spined tripodfish
 Fr - Tripodin épineux
 Sp - Tripodín espinudo

NATIONAL:

DISTINCTIVE CHARACTERS:

Body moderately deep and compressed. Snout acute, the upper profile concave; postorbital profile of head to origin of spinous dorsal fin straight to convex. Dorsal fin spines 5, the second more than half the length of the first spine, remaining spines very short; soft dorsal fin rays 20 to 24, anal fin rays 13 to 17; anal fin base short, contained approximately 2 times in length of soft dorsal base; ventral surface of pelvis tapering prominently to an acute, slender tip.

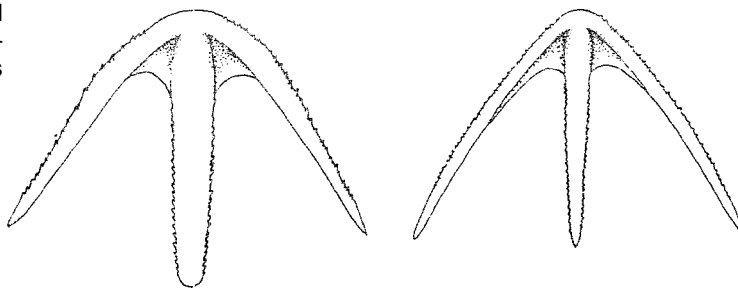
Colour: upper half of head and body dusky silver, and lower half silvery, with large, elongate, brown to orange blotches, usually with darker margins; distal two-thirds of first dorsal fin spine usually blackish, other spines white; soft dorsal and caudal fin rays dusky, the membranes hyaline; other fins whitish, with a dusky blotch on the pectoral fin base and in the axil; a yellow spot sometimes present on midside of caudal fin base.

DISTINGUISHING CHARACTERS SIMILAR SPECIES OCCURRING IN THE AREA:

Triacanthus biaculeatus: scale-covered ventral surface of pelvis slightly tapered to a round posterior end; length of second dorsal fin spine much less than half the length of first spine,

SIZE:

Maximum: 25 cm; common to 20 cm.



Triacanthus biaculeatus

Pseudotaiacanthus strigilifer

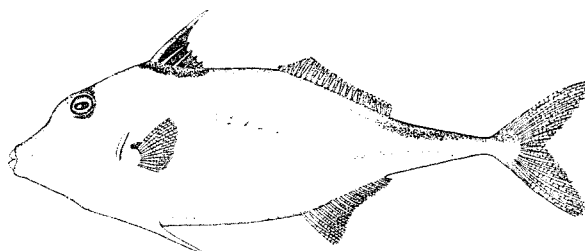
pelvis and pelvic fins

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Coastal waters of the Arabian Sea, from Sri Lanka to the Gulf of Oman. Also extends eastward to Indonesia and the Philippines.

Moderately common off the coast of India in depths to 110 m where it prefers flat bottoms.

Feeds on benthic invertebrates.



Triacanthus biaculeatus

PRESENT FISHING GROUNDS:

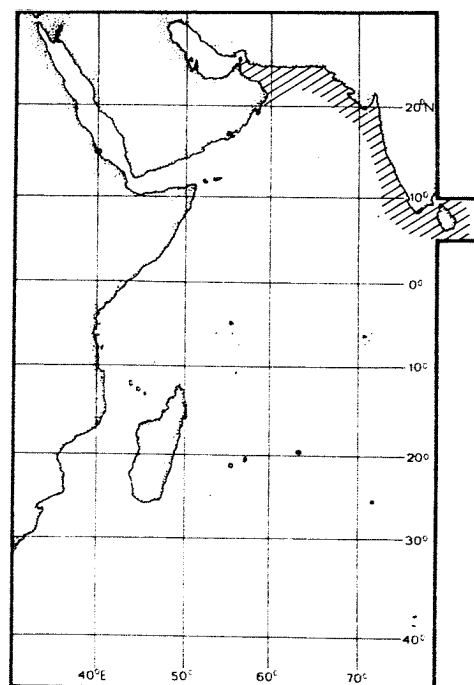
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

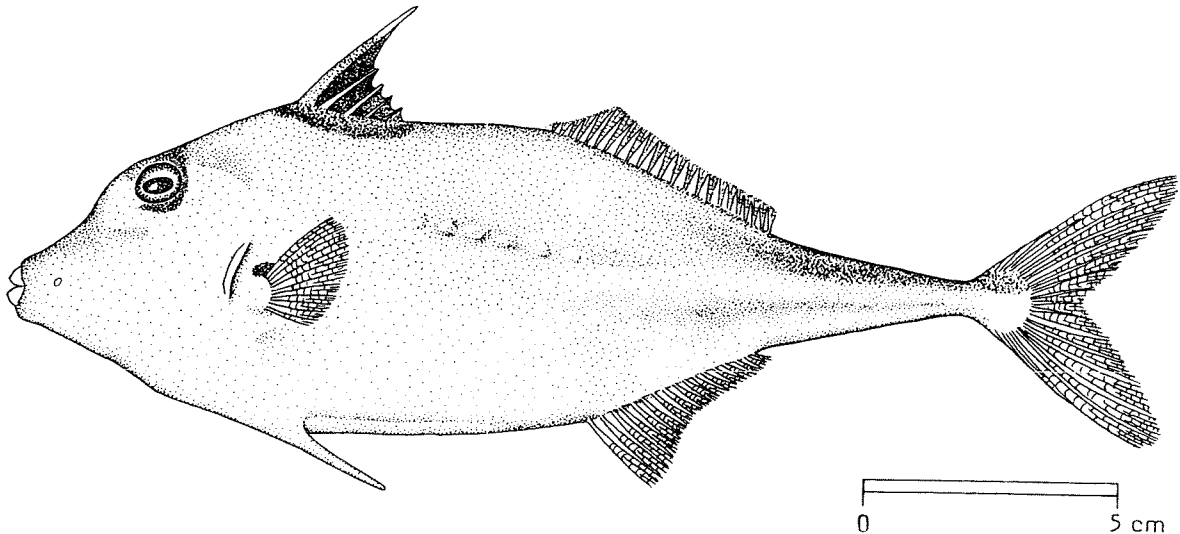
Taken by bottom trawl and shore seines.

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TRIACANTHIDAE

FISHING AREA 51
(W. Indian Ocean)Triacanthus biaculeatus (Bloch, 1786)OTHER SCIENTIFIC NAMES STILL IN USE : Triacanthus brevirostris Temminck & Schlegel, 1850

VERNACULAR NAMES:

FAO : En - Short-nosed tripodfish
 Fr - Tripodin nez court
 Sp - Tripodín nato

NATIONAL:

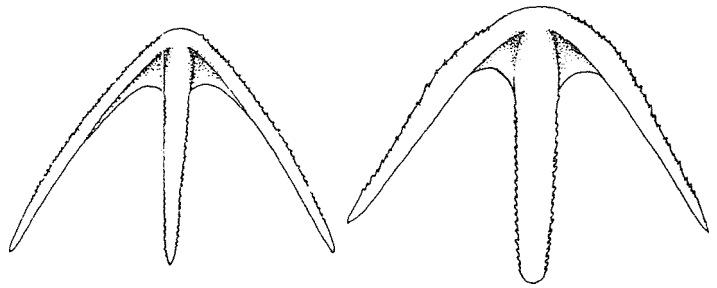
DISTINCTIVE CHARACTERS:

Body deep and compressed. Snout moderately acute, the upper profile straight to concave; postorbital profile of head to origin of spinous dorsal fin either convex, straight or convex before first dorsal spine and straight or concave over eye. Visible dorsal fin spines 5, the second much less than half the length of the first; second dorsal fin rays 21 to 26, anal fin rays 17 to 22; ventral surface of pelvis slightly tapered to a round posterior end.

Colour: upper side dusky silver and lower side creamy silver, with a silvery stripe along midside of body that is continued anteriorly over pectoral fin base to lower lip and dorsally to eye; anterior three-quarters of spinous dorsal fin membrane black, the posterior quarter yellow (in small individuals, this yellow coloration may be absent); basal half of first dorsal fin spine blackish, becoming whiter toward the tip; other fins (except pelvic) yellowish to brownish, the pectoral fin prominently yellow; pectoral fin axil dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pseudotriacanthus strigilifer: scale-covered ventral surface of pelvis distinctly tapered to a point; length of second dorsal spine (if not broken) more than half the length of the first spine.



Pseudotriacanthus strigilifer *Triacanthus biaculeatus*

pelvis and pelvic fins

SIZE:

Maximum: 30 cm; common to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

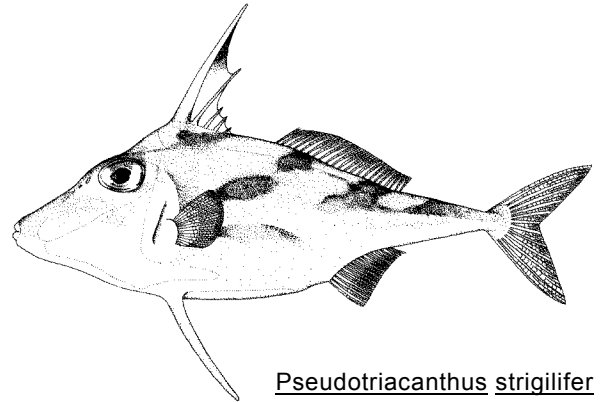
Coastal waters of the Arabian Sea, from Sri Lanka to the "Gulf". Also found in the eastern Indian Ocean, its range extending as far north as southern Japan and as far east as eastern Australia.

Found on flat bottoms both in shallow coastal waters and estuarine areas to depths of 60 m.

Feeds on benthic invertebrates.

PRESENT FISHING GROUNDS:

In shallow coastal waters and brackish waters throughout its range. One of the most commonly caught plectognath fishes in the Indian region of the area.



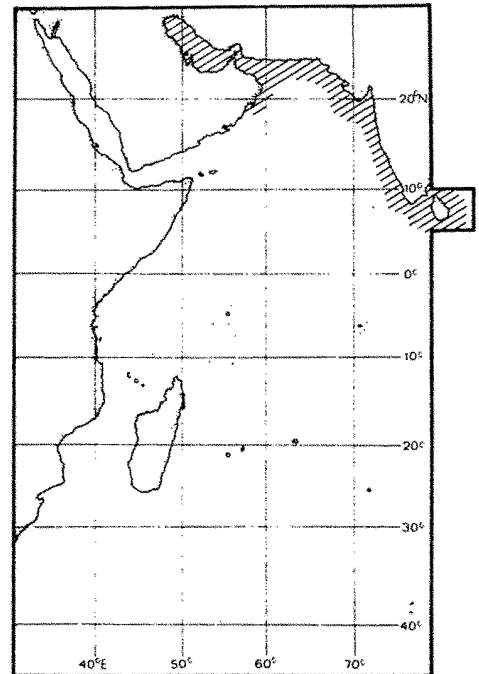
Pseudotriacanthus strigilifer

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Taken by bottom trawl and gillnets (drifting and fixed).

Marketed fresh.



FAO SPECIES IDENTIFICATION SHEETS

FISHING AREA 51
(W. Indian Ocean)

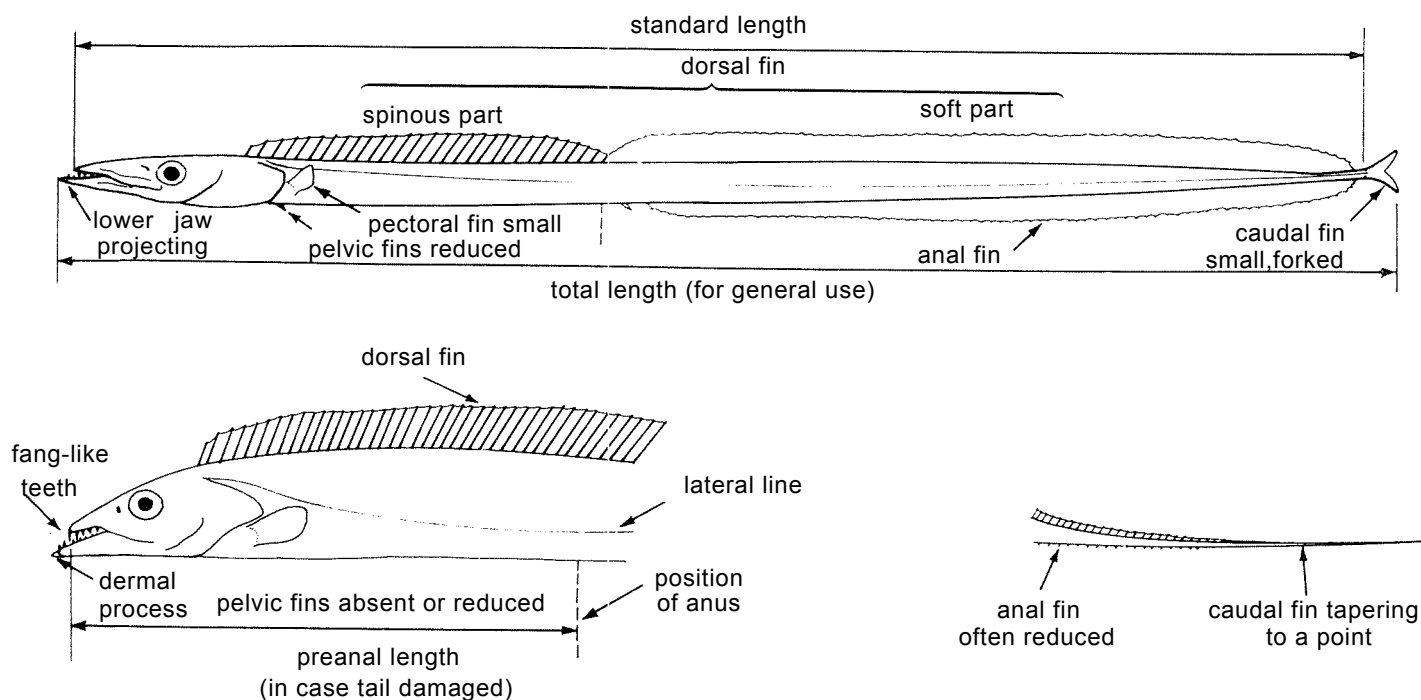
TRICHIURIDAE

Cutlassfishes, hairtailfishes, frostfishes, scabbardfishes

Body extremely elongate, compressed and ribbon-like. Mouth large, usually not protrusible, lower jaw projecting; usually a dermal process at tip of each jaw; strong canine teeth in jaws, those at front of upper jaw fang-like; maxilla concealed by preorbital bone; a single nostril on each side. Dorsal fin low and long, beginning shortly behind eye, its anterior spinous part shorter than the posterior soft portion, the two parts separated by a distinct notch in *Benthodesmus* and *Aphanopus*; anal fin low or reduced to short spinules; pectoral fins short and low on body; pelvic fins reduced to a scale-like spine (plus a rudimentary ray in *Benthodesmus*) or completely absent (in *Trichiurus* and *Lepturacanthus*); caudal fin either small and forked or absent, the body tapering to a point. Lateral line single. Scales absent.

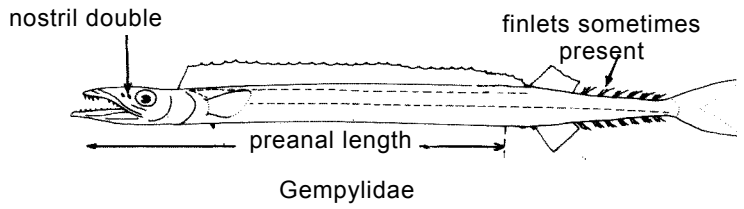
Colour: body generally silvery (but copper-coloured in *Aphanopus carbo*), a little darker on back; usually no distinct marks or blotches on body; dorsal and anal fins sometimes tinged with pale yellow; pectoral fins semi-transparent.

Voracious predators distributed in tropical and temperate seas. They generally inhabit deeper waters over the continental shelf and the slope, but some species (*Eupleurogrammus*, *Lepturacanthus* and *Trichiurus*) are common in shallow coastal waters. *Trichiurus lepturus* forms the object of local fisheries. The catch of Trichiuridae reported from the area in 1981 totalled about 30 000 t. The flesh is edible and tasty, but scanty.



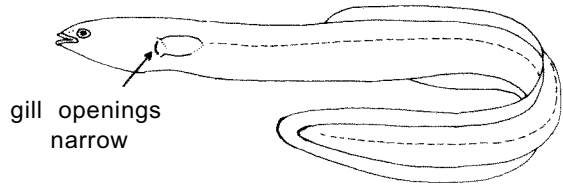
SIMILAR FAMILIES OCCURRING IN THE AREA:

Gempylidae: nostril double; soft (2nd) dorsal fin always distinct from, and shorter than the spinous (1st) dorsal fin; anal fin always well defined; soft rays of 2nd dorsal and anal fins decreasing in height posteriorly and followed by 2 to 7 finlets in most genera; preanal length half or more than half of standard length (less than half in Trichiuridae); minute or deformed scales present.



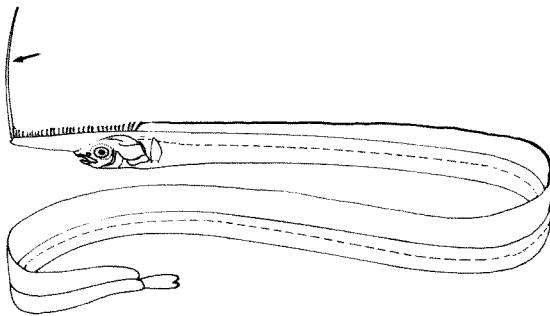
Gempylidae

Anguillidae and related (eel-like) fishes: body more cylindrical; caudal fin rounded; no spines in dorsal and anal fins; gill openings narrow.

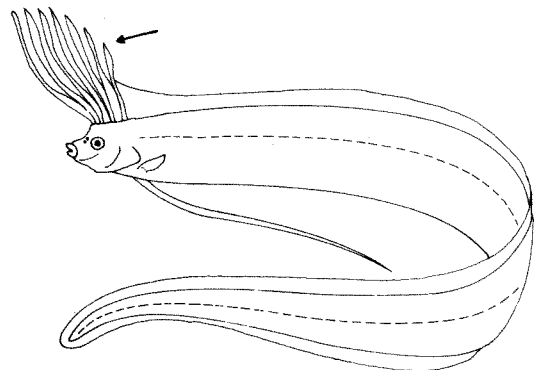


Anguillidae

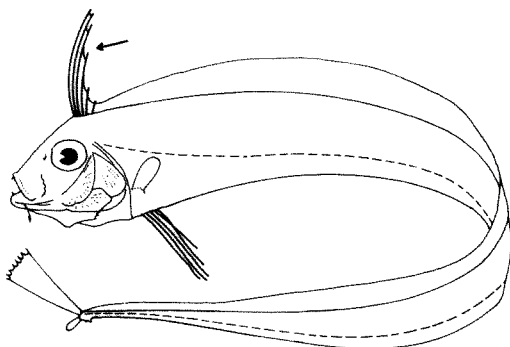
Trachipteroid fishes (Lophotidae, Regalecidae and Trachipteridae): usually anterior part of dorsal fin variously elongate, each dorsal fin ray with a lateral spine at its base; anal fin short or absent; pelvic fin rays 0 to 10.



Lophotidae



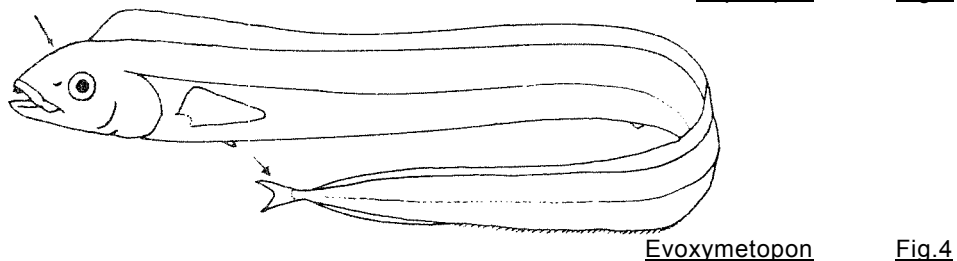
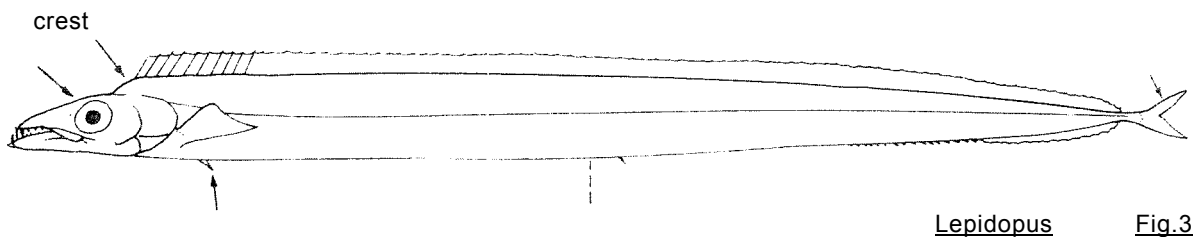
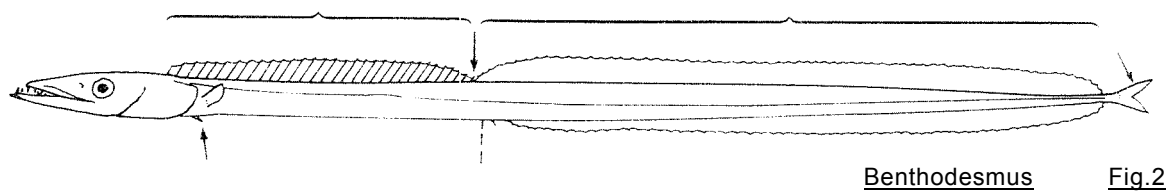
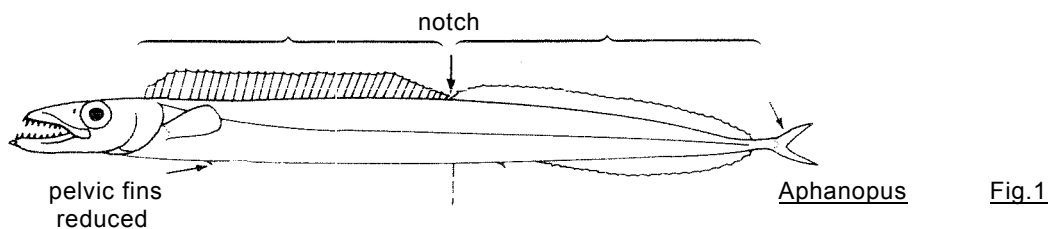
Regalecidae



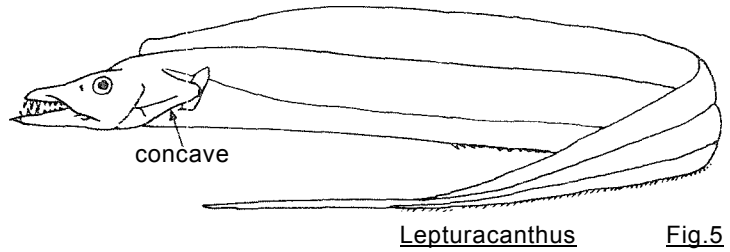
Trachipteridae

KEY TO SPECIES OCCURRING IN THE AREA:

- 1a. Caudal fin present, small and forked; pelvic fins present but strongly reduced or modified to a scale-like process (Figs 1. to 4, Subfamily Lepidopinae)
 - 2a. Head profile rising very gently from snout tip to dorsal fin origin; a notch between spinous and soft parts of dorsal fin (Figs 1 and 2)
 - 3a. Spinous part of dorsal fin slightly shorter than soft part (Fig.1); dorsal fin elements 91 to 95 Aphanopus
 - 3b. Spinous part of dorsal fin half as long as soft part (Fig.2); dorsal fin elements more than 100 Benthodesmus
 - 2b. Head profile with a prominent crest from snout tip to dorsal fin origin; no notch between spinous and soft parts of dorsal fin (Figs 3 and 4)
 - 4a. Dorsal rays about 100; eye close to dorsal profile (Fig.3) Lepidopus
 - 4b. Dorsal rays about 90; eye not. close to dorsal profile (Fig.4) Evoxymetopon

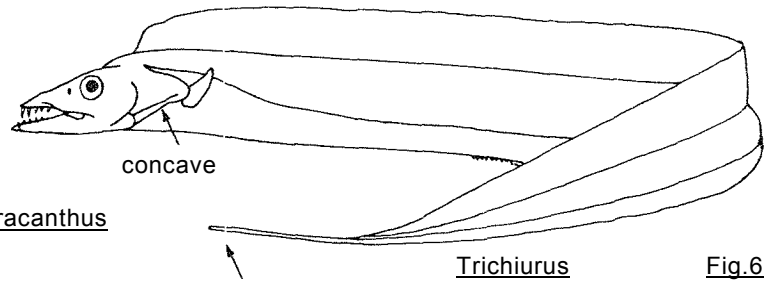


1b. Caudal fin absent, body tapering to a point (Figs 5 to 8) ; pelvic fins absent or modified to scale-like process (Subfamily Trichiurinae)

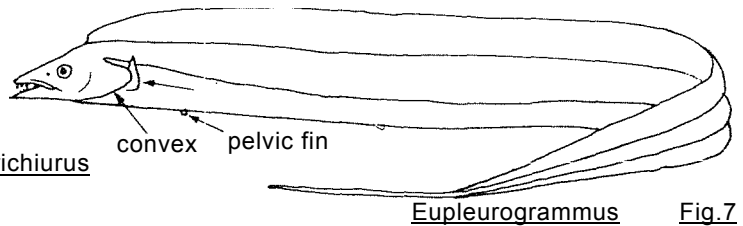


5a. Pelvic fins absent; lower hind margin of gill cover concave (Figs 5 and 6)

6a. First anal spine large, half of eye diameter, soft anal rays pungent, spinules, breaking ventral skin; 2 small, forward directed canine teeth in upper jaw, a small slit present on ventral side of lower jaw for receiving anteriormost fang of upper jaw (Fig.5) *Lepturacanthus*

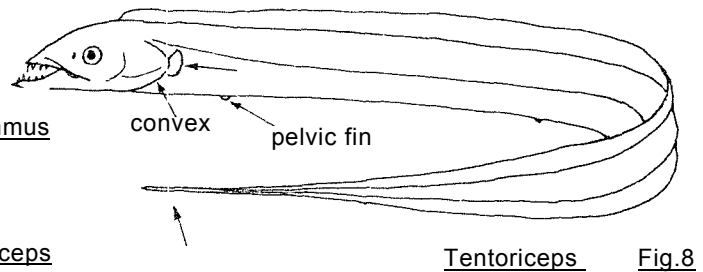


6b. First anal spine small, shorter than diameter of pupil; soft anal rays slightly breaking through skin in small specimens (not breaking through skin in larger specimens); no forward directed canine teeth in upper jaw, no slit on ventral side of lower jaw (Fig.6) *Trichiurus*



5b. Pelvic fins scale-like; lower hind margin of gill cover convex (Figs 7 and 8)

7a. Pectoral fins long, extending above lateral line (Fig.7) *Eupleurogrammus*



7b. Pectoral fins short, not reaching to lateral line (Fig.8) *Tentoriceps*

LIST OF SPECIES OCCURRING IN THE AREA:

Code numbers are given for those species for which Identification Sheets are included

Aphanopus Garbo Lowe, 1839

Benthodesmus elongatus (Clarke, 1879)

Benthodesmus tenuis (Günther, 1877)

Eupleurogrammus glossodon (Bleeker, 1860)

Eupleurogrammus muticus (Gray, 1831)

TRICH Eupl 1

TRICH Eupl 2

Evoxymetopon taeniatus (Poey, 1863)

FAO Sheets

TRICHIURIDAE

Fishing Area 51

Lepidopus caudatus (Euphrasen, 1788)

Lepturacanthus pantului (Gupta, 1966)

Lepturacanthus savala (Cuvier, 1829)

Tentoriceps cristatus (Klunzinger, 1844)

Trichiurus auriga Klunzinger, 1884

Trichiurus gangeticus Gupta, 1966

Trichiurus lepturus Linnaeus, 1758

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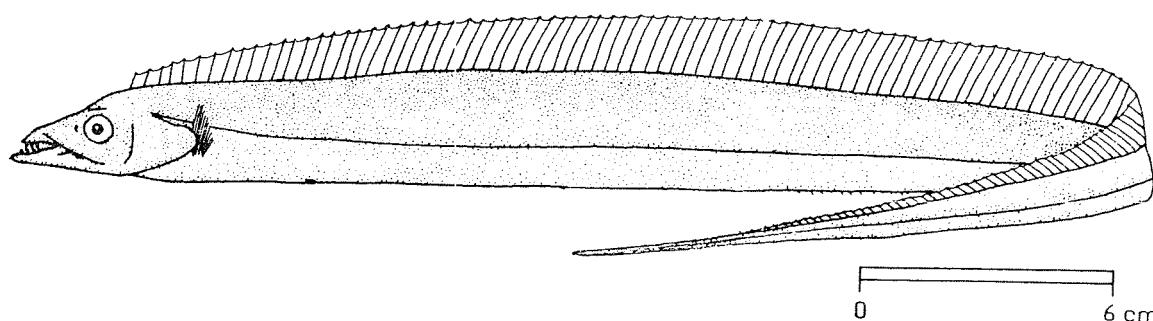
TRICH Trich 1

FAO SPECIES IDENTIFICATION SHEETS

FAMILY : TRICHIURIDAE

FISHING AREA 51
(W. Indian Ocean)Eupleurogrammus glossodon (Bleeker, 1860)

OTHER SCIENTIFIC NAMES STILL IN USE: Trichiurus glossodon Bleeker, 1860
Eupleurogrammus intermedius (Gray, 1831)
Trichiurus intermedius Gray, 1831



VERNACULAR NAMES:

FAO : En - Longtooth hairtail
 Fr - Poisson sabre dentu
 Sp - Pez sable dentón

NATIONAL :

DISTINCTIVE CHARACTERS:

Body extremely elongate and strongly compressed, ribbon-like, tapering to a point. Mouth large with a dermal flap on tip of each jaw; 2 or 3 fangs (usually without barbs in upper jaw, a pair of fangs at tip of lower jaw, a single series of sharp compressed lateral teeth in both jaws; eye small, its diameter contained about 7 or 8 times in head length, located close to dorsal profile of head; lower hind margin of gill cover convex. A single, long-based dorsal fin with 3 spines and about 125 soft rays; anal fin reduced to minute spinules buried in skin, originating beneath 32nd or 33rd dorsal fin ray; pectoral fins slightly shorter than snout, with 1 spine and 13 soft rays; pelvic fins present but reduced to a small scale-like process; caudal fin absent. Lateral line running almost straight along midbody, slightly nearer to ventral contour. Anus elongate and fairly large.

Colour: in fresh specimens, body steely blue with metallic reflections, becoming silvery grey after death. Dorsal fin membrane slightly tinged with black along spines, dorsal side of posterior part of fin slightly tinged with black; dermal flaps at tip of each jaw black; a black spot present just behind dermal flap of ventral side of lower jaw.

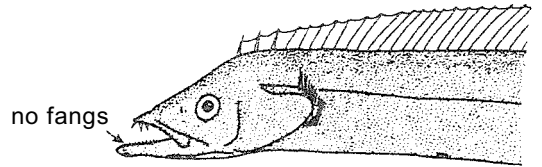
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Eupleurogrammus muticus: no fangs at tip of lower jaw; eye not near head contour; dorsal fin membrane pale, both dorsal and ventral sides of its posterior part black, no black spot behind dermal flap of lower jaw.

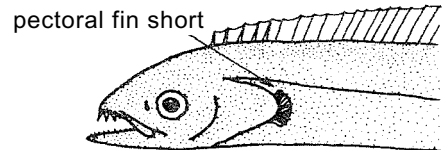
Tentoriceps cristatus: pectoral fin short, not reaching to lateral line and anal fin originating below 47th to 50th dorsal ray (originating beneath 32nd or 33rd dorsal ray in E. glossodon).

Other species of Trichiurinae: pelvic fins absent;; lower hind margin of gill cover concave.

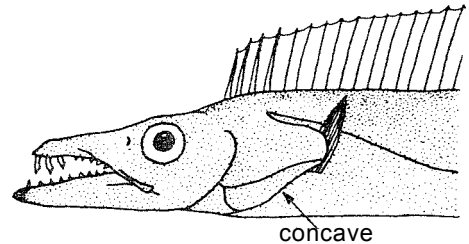
Species of Lepidopinae: caudal fin present, small and forked.



E. muticus



Tentoriceps cristatus



Other species of Trichiurinae

SIZE:

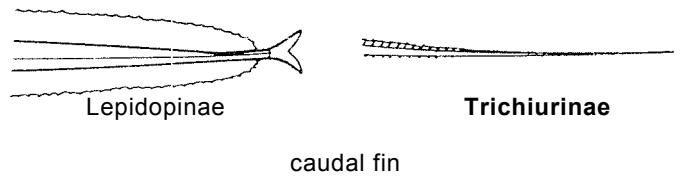
Maximum: 50 cm standard length; common to 40 cm standard length.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, found in the "Gulf" and off India and Sri Lanka. Elsewhere, from India to Malaysia and Indonesia.

Benthopelagic, living in coastal waters down to about 80 m depth; often comes near the surface at night.

Feeds on crustaceans, squids and fishes, (*Atherina forskali*, *Eupleurogrammus glossodon*, species of *Stolephorus*, *Escualosa*, *Sardinnella*, *Leiognathus*, *Dussumeria*, *Thryssa*, *Sphyraena*, *Hemirhamphus*, etc., in Palk Bay).



PRESENT FISHING GROUNDS:

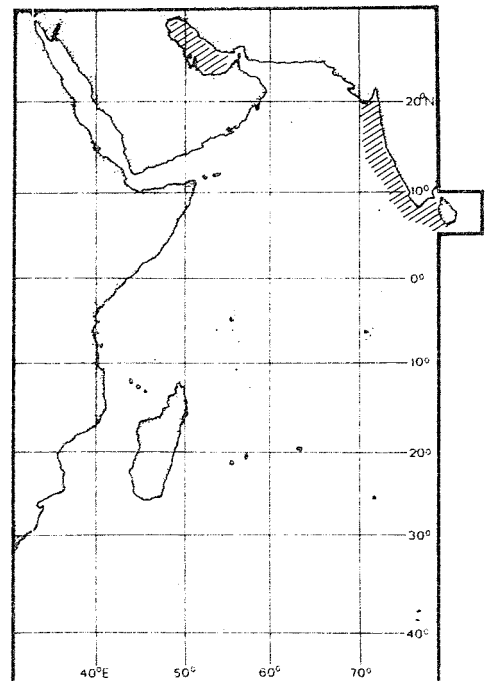
Coastal waters down to about 50 m depth in West Bengal to Madras, Palk Bay and Gulf of Mannar.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

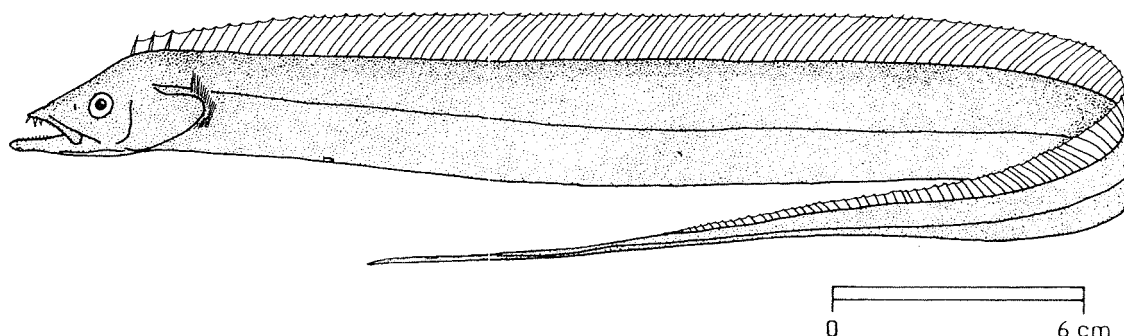
Caught mainly with shore seines, bagnets and coastal bottom trawls.

Marketed mostly dried, mixed with other trichiurids, also salted or fresh.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TRICHIURIDAE

FISHING AREA 51
(W. Indian Ocean)Eupleurogrammus muticus (Gray, 1831)OTHER SCIENTIFIC NAMES STILL IN USE: Trichiurus muticus Gray 1831

VERNACULAR NAMES:

FAO : En - Smallhead hairtail
 Fr - Poisson sabre asbas
 Sp - Pez sable asbas

NATIONAL:

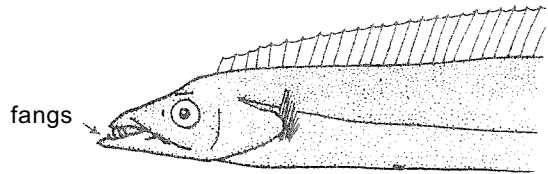
DISTINCTIVE CHARACTERS:

Body extremely elongate and strongly compressed, ribbon-like tapering to a point. Mouth large with a dermal flap at tip of each jaw; 2 or 3 mostly 3 fangs usually without barbs in upper jaw, no fangs at tip of lower jaw, a single series of sharp compressed lateral teeth in both jaws; eye small, its diameter contained 6 to 8 times in head length, located far from dorsal profile of head; lower hind margin of gill cover convex. A single, long-based dorsal fin with 3 spines and about 140 soft rays; anal fin reduced to minute spinules buried in skin originating beneath 41st to 43rd dorsal fin ray; pectoral fins about as large as snout, with 1 spine and 12 soft rays; pelvic fins present, but reduced to a small scale-like process; caudal fin absent. Lateral line running almost straight along midbody. Anus small.

Colour: in fresh specimens, body steely blue with metallic reflections, becoming silvery grey after death. Dorsal fin membrane semi-transparent, both dorsal and ventral sides of posterior part of fin black; dermal flap of upper jaw black, dermal flap of lower jaw black above and grey below.

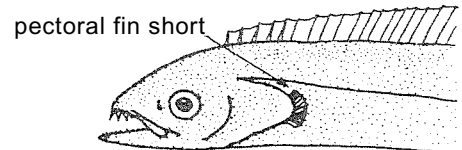
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Eupleurogrammus glossodon: a pair of fangs at tip of lower jaw; eye close to dorsal profile of head; dorsal fins membrane slightly tinged with black along spines, dorsal side of its posterior part slightly black; a black spot present just behind dermal flap of ventral side of lower jaw.



E. glossodon

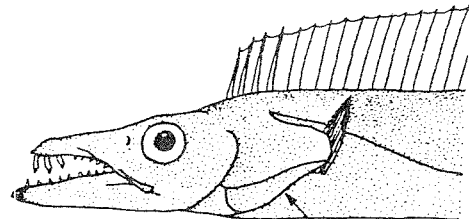
Tentoriceps cristatus: pectoral fin short, not reaching to lateral line and anal fin originating below 47th to 50th dorsal ray (below 41st to 43rd in E. muticus).



Tentoriceps cristatus

Other species of Trichiurinae: pelvic fins absent; lower hind margin of gill cover concave.

Species of Lepidopinae: caudal fin present, small and forked.



concave
other species of Trichiurinae

SIZE:

Maximum: 70 cm standard length; common to 50 cm standard length.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, found in the "Gulf" and off India and Sri Lanka. Elsewhere, extending eastward to Indonesia and China.



Lepidopinae

caudal fin

Trichiurinae

Benthopelagic, living in coastal waters down to about 80 m depth; often comes near the surface at night.

Feeds on a wide varieties of small fishes and crustaceans.

PRESENT FISHING GROUNDS:

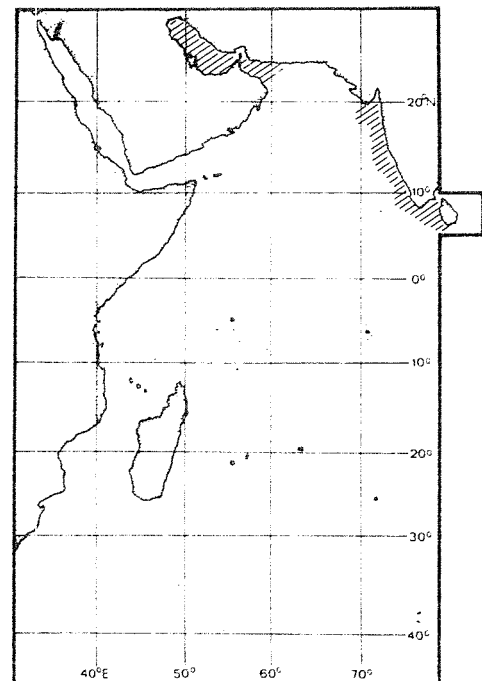
Coastal waters down to about 50 m depth in West Bengal to Madras, off the east coast of India, and around Bombay, off the west coast of India.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION :

Separate statistics are not reported for this species.

Caught mainly with shore seines, bagnets and coast al bottom trawls.

Marketed mostly dried and salted, mixed with other trichiurids, sometimes fresh.

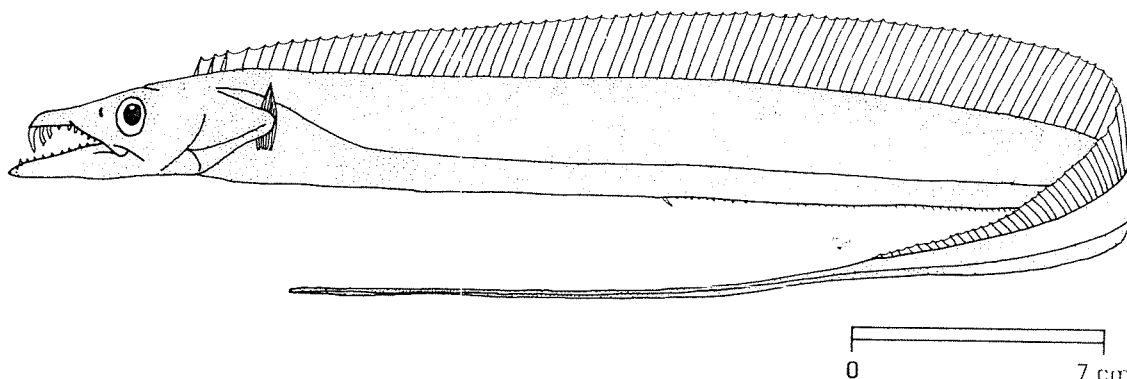


FAO SPECIES IDENTIFICATION SHEETS

FAMILY : TRICHIURIDAE

FISHING AREA 51
(W. Indian Ocean)

Lepturacanthus pantului (Gupta, 1966)

OTHER SCIENTIFIC NAMES STILL IN USE : Trichiurus pantului Gupta, 1966

VERNACULAR NAMES:

FAO : En - Coromandel hairtail
 Fr - Poisson sabre becune
 Sp - Pez sable coromandélico

NATIONAL:

DISTINCTIVE CHARACTERS:

Body extremely elongate and strongly compressed, ribbon-like, gradually tapering to a point. Snout short, contained about 3 times in head length; mouth large with a dermal flap at tip of each jaw; 3 (sometimes 4) fangs with barbs and 2 smaller forward directed canine teeth resert in upper jaw, anteriormost fan very long, coming out through a small slit on ventral side of lower jaw (when mouth is tightly closed); a pair of fangs (usually without barbs) present at tip of lower jaw; eye large, its diameter contained about 5 to 7 times in head length, suborbital space about half as large as eye; lower hind margin of gill cover concave. A single, long-based, dorsal fin with 3 spines and 120 to 131 soft rays; anal fin reduced to small spinules (74 to 84), breaking through skin, the anteriormost fairly long; pectoral fins slightly shorter than snout, with 1 spine and 10 or 11 soft rays. Anal fin origin situated beneath 36th to 40th dorsal fin ray; pelvic and caudal fins absent. Lateral line nearer to ventral than to dorsal profile of body.

Colour: in fresh specimens, body steely blue with metallic reflections becoming silvery grey after death. Tapering part black, margin of anus black, usually margin of dorsal fin membrane sooty; tip of both jaws black; a very small black spot present on anterior base of pectoral fin; inside of opercle and anterior part of shoulder girdle, jet black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Lepturacanthus savala: snout contained 2 to 2.5 times in head length (3 times in L. pantului); eye small, its diameter contained 7 to 9 times in head length (5 to 7 times in L. pantului); suborbital space slightly smaller than eye; no black spot on anterior base of pectoral fin, inside of opercle and anterior part of shoulder girdle pale black, margin of anus pale, tapering part white.

Trichiurus species: first anal fin spine small, shorter than diameter of pupil; no small teeth directly forward in upper jaw and no slit on ventral side of lower jaw.

Other species of Trichiurinae (Eupleurogrammus, Tentoriceps): pelvic fins present, as small, scale-like processes; lower hind margin of gill cover convex; no slit on ventral side of lower jaw.

Species of Lepidopinae: caudal fin present, small and forked.

SIZE:

Maximum: 92 cm standard length; common to 50 cm standard length.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, found only in the Gulf of Mannar (southeast India), elsewhere extending along the east coast of India to the Hoogly estuary (Calcutta). Not known from anywhere else.

Benthopelagic or pelagic, living in estuaries and coastal waters down to about 80 m depth.

Feeds on a wide variety of small fishes and crustaceans (chiefly on prawns, young clupeoids, Harpodon nehereus and Trichiurus species in Hooghly estuaries).

PRESENT FISHING GROUNDS:

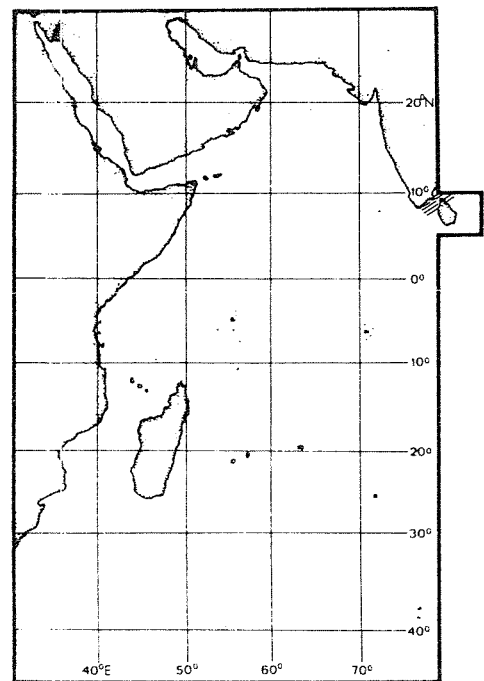
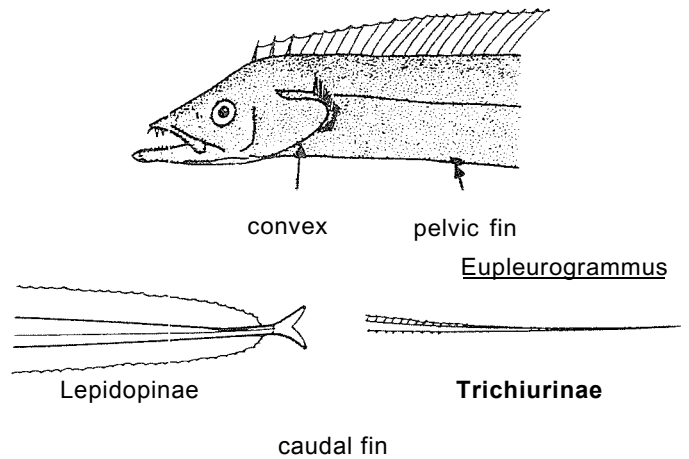
Coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

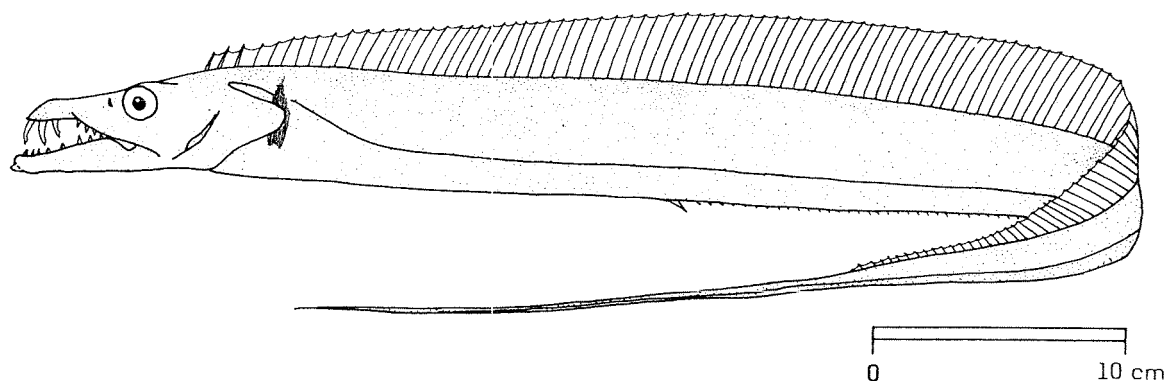
Caught mainly with bagnets in estuaries, with seines in inshore waters, and with trawls in offshore waters.

Marketed fresh as well as dried salted.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TRICHIURIDAE

FISHING AREA 51
(W. Indian Ocean)Lepturacanthus savala (Cuvier, 1829)OTHER SCIENTIFIC NAMES STILL IN USE: Trichiurus savala Cuvier, 1829

VERNACULAR NAMES:

FAO: En - Savalai hairtail
Fr - Poisson sabre savalai
Sp - Pez sable savalai

NATIONAL :

DISTINCTIVE CHARACTERS:

Body extremely elongate and strongly compressed, ribbon-like, tapering to a point (caudal tapering part very long). Snout long, contained 2 to 2.5 times in head length; mouth very large with a dermal flap at tip of each jaw; 2 or 3 (mostly 3) fangs with barbs and 2 small forward directed canine teeth present in upper jaw, anteriormost fang very long, coming out through a small slit on ventral side of lower jaw (when mouth is tightly closed); a pair of fangs (usually without barbs) present at tip of lower jaw; eye small, its diameter contained about 7 to 9 times in head length and slightly longer than suborbital space; lower hind margin of gill cover concave. A single, long-based, dorsal fin with 3 or 4 spines and 110 to 120 soft rays; anal fin reduced to small spinules (about 75) breaking through skin, the anteriormost fairly long, its origin situated beneath 36th to 39th dorsal fin ray; pectoral fins slightly shorter than snout, with 1 spine and 10 soft ray; pelvic and caudal fins absent. Lateral line nearer to ventral contour than to dorsal contour of body.

Colour: in fresh specimens, body steely blue, with metallic reflections; tapering part white. Margin of anus pale; usually margin of dorsal fin membrane white; tip of both jaws black; inside of opercle and anterior part of shoulder girdle, pale black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Lepturacanthus pantului: snout contained about 3 times in head length (2 to 2.5 times in L. savala); eye large, its diameter contained, 5 to 7 times in head length (7 to 9 times in L. savala), suborbital space about half as large as eye; a very small black spot present on anterior base of pectoral fin, inside of opercle and anterior part of shoulder girdle jet black, margin of anus black, tapering part black.

Trichiurus species: first anal fin spine small, shorter than diameter of pupil; no small, forward directed teeth in upper jaw and no slit on ventral side of lower jaw.

Other species of Trichiurinae (Eupleurogrammus, Tentoriceps): pelvic fins present as small scale-like processes; lower hind margin of gill cover convex; no slit on ventral side of lower jaw.

Species of Lepidopinae: caudal fin present, small and forked.

SIZE:

Maximum: 100 cm standard length; common to 70 cm standard length.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, common along the west coast of India and Sri Lanka. Elsewhere, from India to Malaysia, Singapore, Indonesia, New Guinea, northern Australia, the Philippines, Thailand and China.

Benthopelagic, living in coastal waters down to about 100 m depth; often comes near surface at night

Feeds on a wide variety of small fishes and crustaceans (chiefly on prawns and species of Setipinna, Anchoviella, Trichiurus and on Harpodon nehereus, in Hooghly estuaries).

PRESENT FISHING GROUNDS:

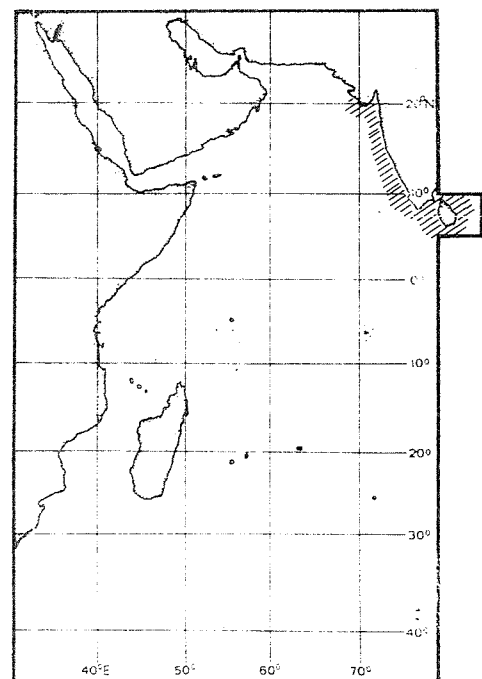
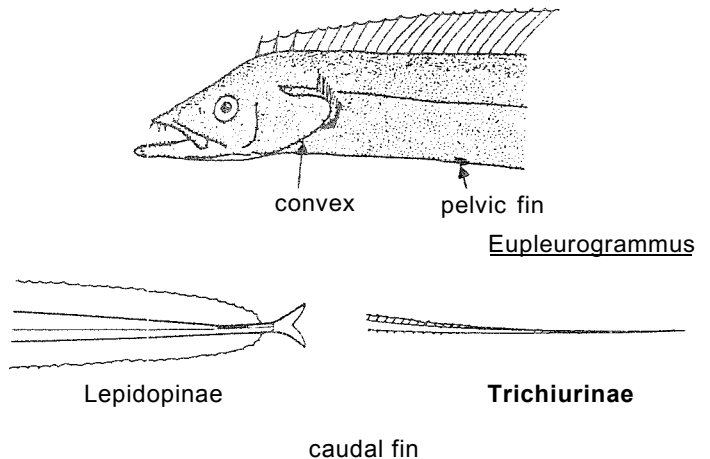
Coastal waters to about 50 m depth in almost all coastal areas in India and Sri Lanka.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with shore seines, bagnets and bottom trawls.

Marketed fresh as well as dried salted.

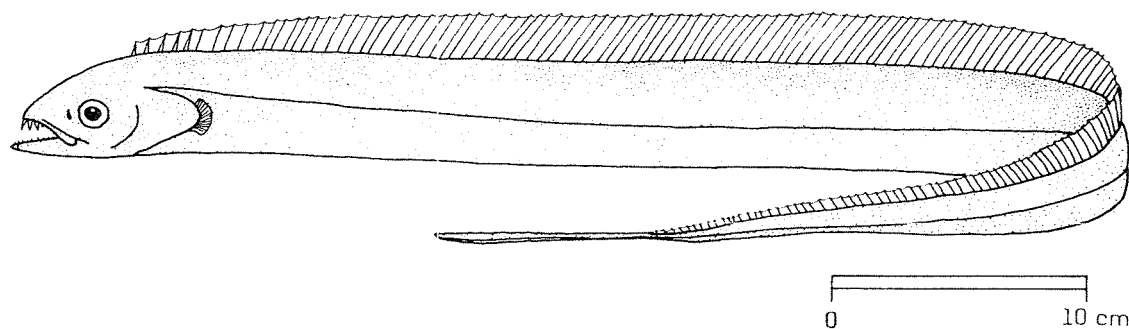


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TRICHIURIDAE

FISHING AREA 51
(W. Indian Ocean)Tentoriceps cristatus (Klunzinger, 1884)

OTHER SCIENTIFIC NAMES STILL IN USE:

Trichiurus muticus (non Grav): Kamahara 1940; Iwai & Hotta, 1950 (misidentification)Pseudoxymetopon sinensis Chu & Wu, 1962

VERNACULAR NAMES:

FAO: En Crested hairtail
Fr Poisson sabre manchot
Sp - Pez sable cuchilla

NATIONAL :

DISTINCTIVE CHARACTERS:

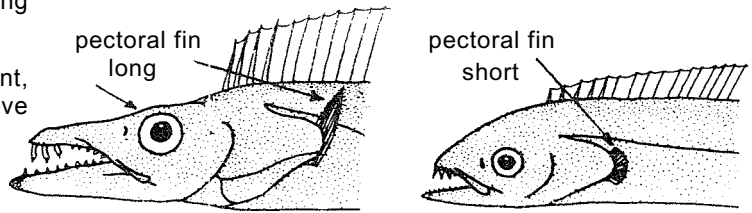
Body extremely elongate and strongly compressed, ribbon-like, tapering to a point. Dorsal profile of head evenly convex; mouth large with a dermal flap at tip of each jaw; 2 or 5 fangs in upper and 2 fangs in lower jaw, a single series of sharp compressed lateral teeth in both jaws; eye very large situated laterally, its diameter contained 5 or 6 times in head length; lower hind margin of gill cover convex. A single, long-based, dorsal fin with 5 spines and 126 to 144 soft rays; pectoral fins short, not reaching to lateral line, with 1 spine and 10 soft rays; pelvic fins present but reduced to scale-like processes; anal fin represented by a minute first spine and a scale-like second spine, situated beneath 47th to 50th dorsal fin ray, reduced to minute spinules buried in skin thereafter; caudal fin absent. Lateral line running almost straight along midbody.

Colour: in fresh specimens, body silvery white becoming silvery grey with dark cloud-like patches after death; each jaw and dorsal and anal fin bases sooty.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other species of Trichiurinae: dorsal profile of head not evenly convex, pectoral fin tip reaching to above lateral line.

Species of Lepidopinae: caudal fin present, small and forked, pectoral fin tip reaching to above lateral line.

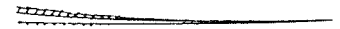
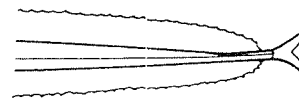


SIZE :

Maximum: 90 cm standard length; common to 70 cm standard length.

Other species of Trichiurinae

Tentoriceps cristatus



Lepidopinae

Trichiurinae

caudal fin

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, known to occur in the Red Sea, the Mozambique Channel and the Seychelles. Elsewhere, in the Andaman Sea, South China Sea, the Philippines, East China Sea, southern Japan and New South Wales.

Benthopelagic or pelagic, living in rather coastal waters down to about 90 m depth; not found in waters of low salinity.

Feeds mainly on small fishes and crustaceans.

PRESENT FISHING GROUNDS:

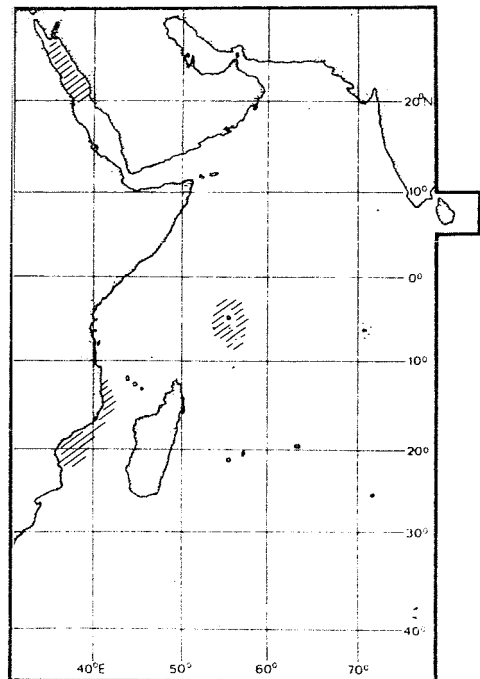
No special fishing grounds; offshore trawling grounds between 50 m and 90 m depth in the Andaman Sea, the Philippines and South China Sea.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with bottom trawls and sometimes with bagnets.

Marketed fresh and dried salted.



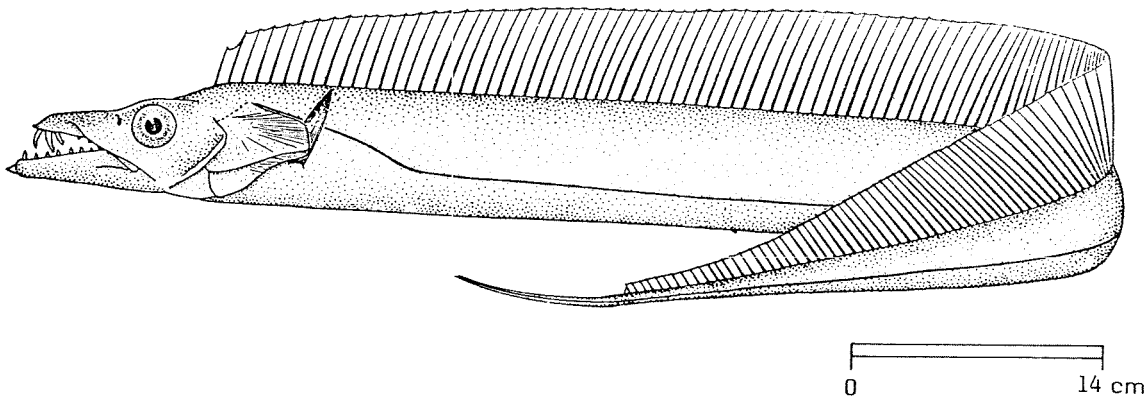
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TRICHIURIDAE

FISHING AREA 51
(W. Indian Ocean)

<u>Trichiurus lepturus</u> Linnaeus, 1758

OTHER SCIENTIFIC NAMES STILL IN USE:

Trichiurus haumela (Forsskål, 1775)Trichiurus lepturus japonicus Temminck & Schlegel, 1844Trichiurus japonicus Bleeker, 1857Trichiurus coxii Ramsay & Ogilby, 18B7

VERNACULAR NAMES:

FAO: En - Largehead hairtail
Fr - Poisson sabre commun
Sp - Pez sable

NATIONAL :

DISTINCTIVE CHARACTERS:

Body extremely elongate and strongly compressed, ribbon-like, tapering to a point (tip often broken). Mouth large, with a dermal flap at tip of each jaw; 2 or 3 pairs of enlarged fangs with barbs near tip of upper jaw and another pair near tip of lower jaw; a single series of sharp, compressed lateral teeth (often also fang-like in larger specimens) in both jaws; minute teeth on palatines (roof of mouth); eye large, its diameter contained 5 to 7 times in head length; lower hind margin of gill cover concave. Dorsal fin rather high and long-based, without a notch between the spinous and soft parts, with 3 spines and 130 to 135 soft rays; anal fin reduced to about 100 to 105 minute spinules (usually embedded in the skin or slightly breaking through), its origin below 39th to 41st dorsal fin ray; pectoral fins medium-sized, about as long as snout, with 1 spine and 11 to 13 soft rays; pelvic and caudal fins absent. Lateral line beginning at upper margin of gill cover, running oblique to behind tip of pectoral fin, then straight near to ventral profile. Body scaleless. Position of anus nearer to snout than to posterior tip of body (preanal length about 2/5th of standard length). Excess ossification of supraoccipital, interhaernal and interneural bones often seen in specimens from Indian waters.

Colour: fresh specimens are steel blue with silvery reflections, pectoral fins semi-transparent, other fins sometimes tinged with pale yellow; the colour becomes uniform silvery grey some time after death.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

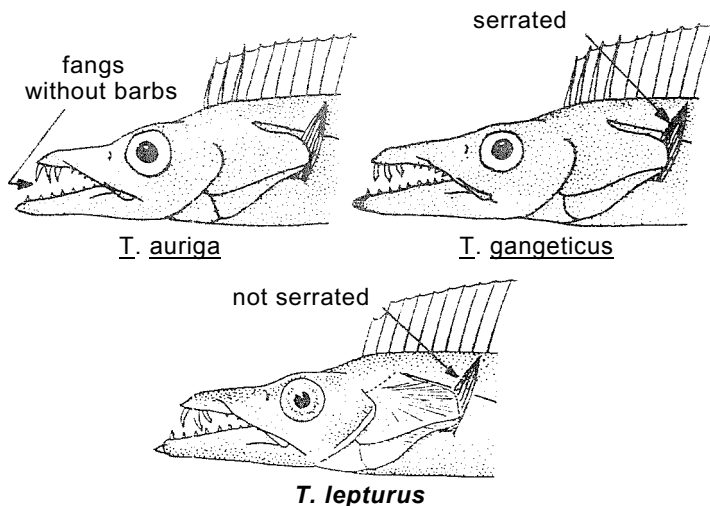
Trichiurus auriga: fangs in jaws without barbs; total dorsal fin rays less than 120 (133 to 138 in T. lepturus).

T. gangeticus: pectoral fin spine serrated; anal fin with about 85 minute reduced spinules (100 to 105 in T. Lepturus).

Lepturacanthus species: first anal fin spine large, half as large as eye; 2 small forward-directed canine teeth present in upper jaw and a small slit present on ventral side of lower jaw.

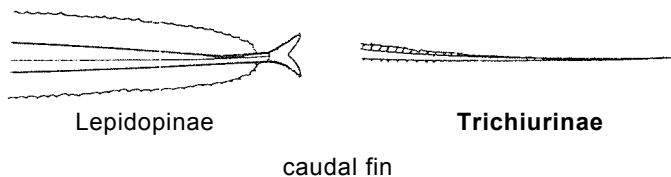
Other species of Trichiurinae: pelvic fins present as small, scale-like processes; lower hind margin of gill cover convex.

Species of Lepidopinae: caudal fin present, small and forked.



SIZE :

Maximum: 120 cm (standard length); common to 100 cm (standard length).



GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Distributed throughout tropical and temperate waters of the world; in the area, known from the east coast of Africa, the Red Sea, the North Arabian Sea, India and Sri Lanka.

Benthopelagic, living in coastal waters usually to the depth of 100 m; often comes near to surface at night.

Feeds on wide varieties of small fishes and crustaceans; such as species of Dussumieria, Sardinella, Stelephorus, Excualosa, Hemiramphus, Mugil Leiognathus, Caranx, Sciaena and Trichiurus.

PRESENT FISHING GROUNDS:

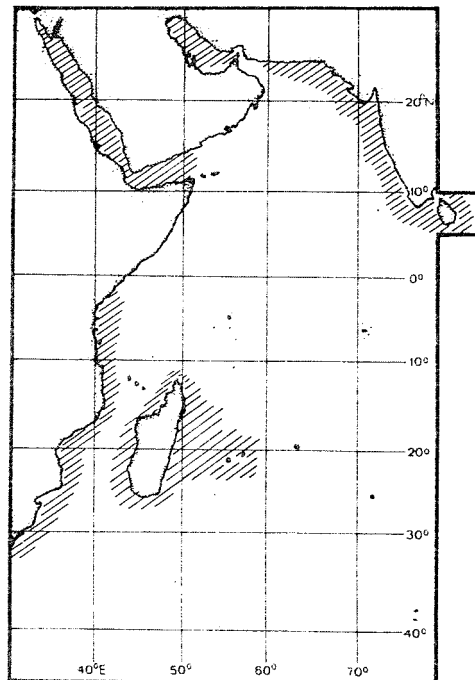
Exploited in coastal waters throughout its range.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

The reported catches for this species from Fishing Area 5.1 totalled about 5 500 t in 1981 (mostly taken by Pakistan).

Caught mainly with bagnets in estuaries, with seines in inshore waters, and with trawls in offshore waters.

Marketed mostly fresh as well as dried salted. Taste excellent, but flesh scant.



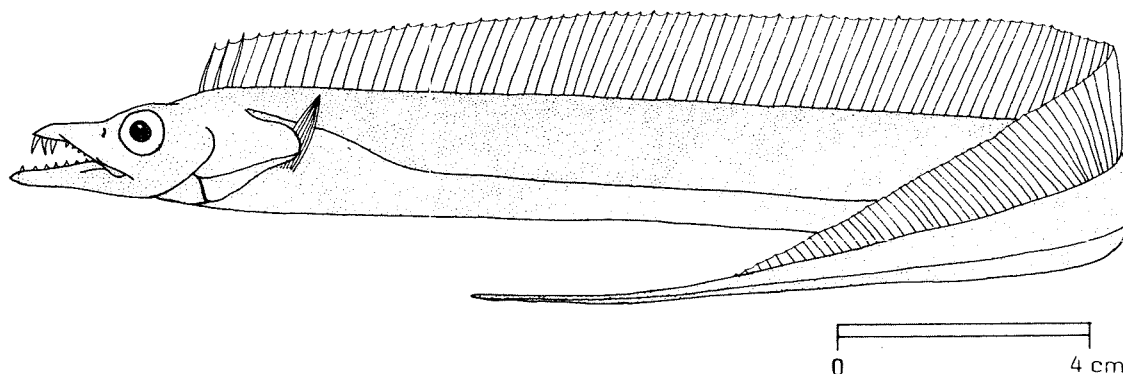
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TRICHIURIDAE

FISHING AREA 51
(W. Indian Ocean)

Trichiurus auriga Klunzinger, 1884

OTHER SCIENTIFIC NAMES STILL IN USE: None. (This species has long been synonymized with *Trichiurus lepturus*. Silas and Rajagopalan (1974) recently validated and redescribed this species)

**VERNACULAR NAMES:**

FAO: En - Pearly hairtail
Fr - Poisson sabre brochet
Sp - Pez sable perla

NATIONAL :

DISTINCTIVE CHARACTERS:

Body extremely elongate and strongly compressed, ribbon-like, tapering to a point. Mouth very large, with a small dermal flap at tip of each jaw; 2 or 3 pairs and one pair of fangs without barbs on upper and lower jaws, respectively; a single series of sharp, compressed lateral teeth in both jaws, minute teeth on palatines (roof of mouth); eye very large, its diameter contained 5.5 to 7 times in head length; lower hind margin of gill cover concave. Dorsal fin long-based and rather low, without a notch between the spinous and soft parts, with 3 spines and 106 to 113 soft rays; anal fin reduced to about 80 spinules slightly breaking skin, originating below 40th or 41st dorsal fin ray; pectoral fins about as long as snout, with 1 spine and 9 soft rays; pelvic and caudal fins absent. Lateral line originating at upper margin of gill cover, running obliquely to behind tip of pectoral fin, then straight near to ventral profile of body. Distance from snout to anus about 2/5 of standard length.

Colour: fresh specimens are pearl white with dorsal slightly dusky; margins of dorsal and anal fins dusky in formaline.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

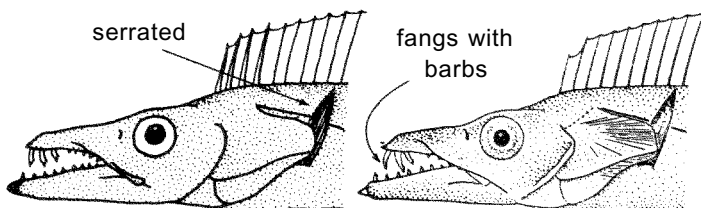
Trichiurus gangeticus: fangs in jaws with barbs; pectoral fin spine serrated; total dorsal fin rays more than 120 (109 to 116 in T. auriga).

T. lepturus: fangs in jaws with barbs; total dorsal fin rays more than 130.

Lepturacanthus species: first anal fin spine large, half as large as eye; 2 small forward-directed canine teeth present in upper Jaw; a small slit present on ventral side of lower jaw.

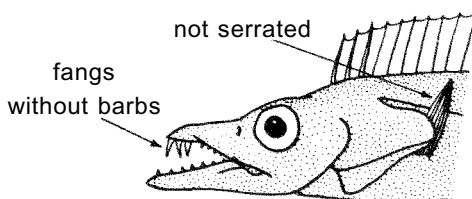
Other species of Trichiurinae: pelvic fins present as small, scale-like processes; lower hind margin of gill cover convex.

Species of Lepidopinae: caudal fin present, small and forked.



T. gangeticus

T. lepturus



T. auriga

SIZE :

Maximum: 35 cm (standard length); common to 30 cm (standard length).



Lepidopinae

Trichiurinae

caudal fin

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Distributed in deep waters of continental shelf edge and slope along the Kerala and Tamil Nadu coasts of India, the Red Sea and the Timor Sea.

Benthopelagic, living in deep waters ranging from 250 m to 360 m off Kerala and Tamil Nadu.

Feeds on deep water shrimps and small fishes like myctophids.

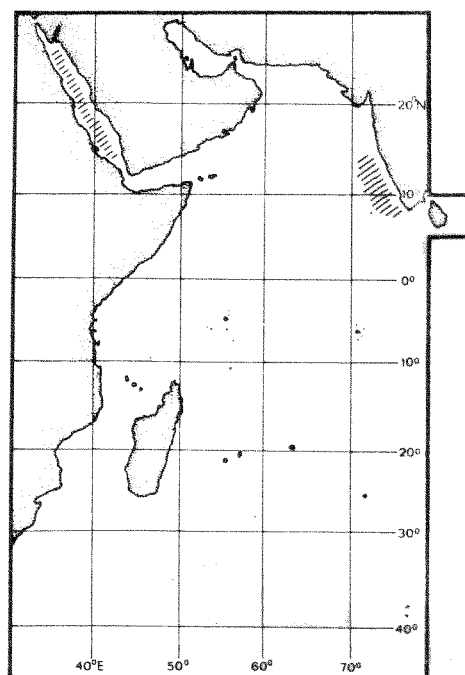
PRESENT FISHING GROUNDS:

Not especially developed for this species.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with deep water trawls.



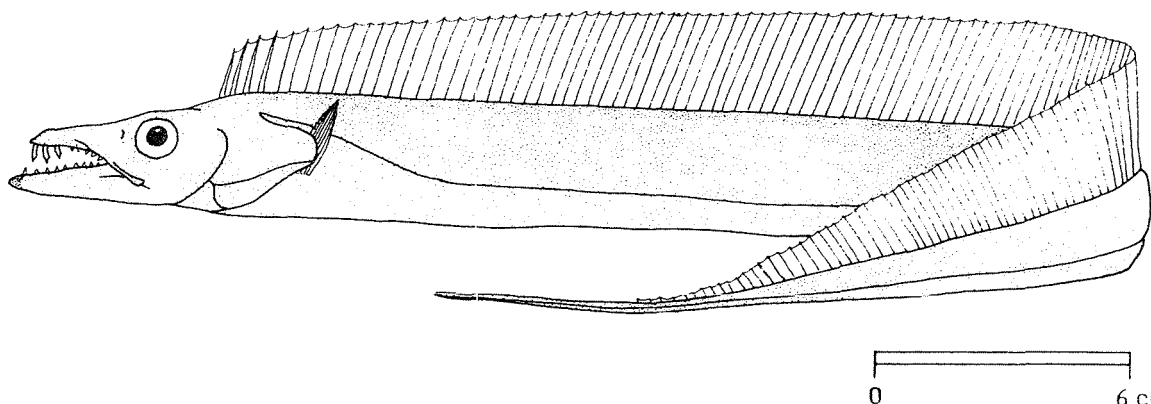
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TRICHIURIDAE

FISHING AREA 51
(W. Indian Ocean)

Trichiurus gangeticus Gupta, 1966

OTHER SCIENTIFIC NAMES STILL IN USE: Lepturacanthus gangeticus (Gupta, 1966)



VERNACULAR NAMES:

- FAO: En. - Ganges hairtail
- Fr - Poisson sabre du Gange
- SP - Pez sable del Ganges

NATIONAL:

DISTINCTIVE CHARACTERS:

Body extremely elongate and strongly compressed, ribbon-like, tapering to a point. Mouth very large, with a dermal flap at tip of each jaw; 2 or 3 pairs and one pair of fangs with barbs near tip of upper and lower jaws, respectively; a single series of sharp, compressed lateral teeth in both jaws; eye very large, situated dorsally, its diameter contained 6 or 7 times in head length; lower hind margin of gill cover concave. A single long-based dorsal fin, with 4 spines and 116 to 129 soft rays; anal fin reduced to about 85 minute spinules, slightly breaking through skin, originating below about 36th dorsal fin ray; pectoral fins about as long as snout, with one serrated spine and 10 or 11 soft rays; pelvic and caudal fins absent. Lateral line nearer to ventral profile than to dorsal profile of body, rising toward dorsal profile only anteriorly.

Colour: fresh specimens are bright silvery white with semi transparent dorsal and anal fin membranes; body becomes darker in formalin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

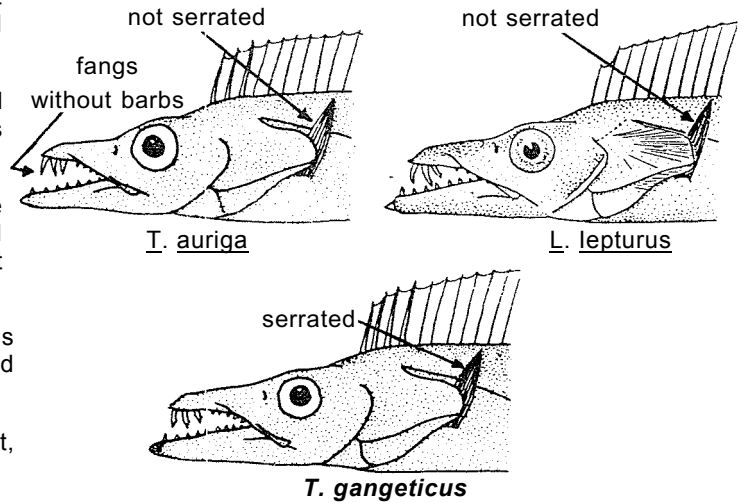
Trichiurus auriga: fangs in jaws without barbs; pectoral fin spine not serrated; total dorsal fin rays less than 120 (120 to 133 in T. gangeticus).

T. lepturus: pectoral spine not serrated; anal fin with about 100 to 105 minute reduced spinules (85 in T. gangeticus).

Lepturacanthus species: first anal fin spine large, half as large as eye; 2 small forward-directed canine teeth present in upper jaw; a small slit present on ventral side of lower jaw.

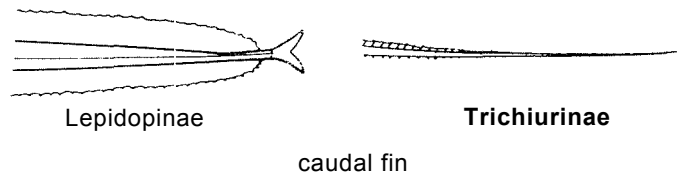
Other species of Trichiurinae: pelvic fins present as small, scale-like processes; lower hind margin of gill cover convex.

Species of Lepidopinae: caudal fin present, small and forked.



SIZE :

Maximum: 50 cm (standard length); common to 40 cm (standard length).



GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

In the area, found only In the Gulf of Miannar (southeast India). Elsewhere, northward extending to the Hooghly estuary (Calcutta).

Pelagic and benthopelagic; often comes near surface at night.

Feeds on a wide variety of small fishes and crustaceans.

PRESENT FISHING GROUNDS:

Coastal waters and estuaries of the east coast of India.

CATCHES, FISHING GEAR AND FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with shore seines, bagnets and bottom trawls.

Marketed fresh as well as dried salted, mixed with other trichiurids.

