

FAO SPECIES IDENTIFICATION SHEETS
FOR FISHERY PURPOSES

EASTERN INDIAN OCEAN Fishing Area 57
and WESTERN CENTRAL PACIFIC Fishing Area 71



VOLUME IV



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 1974

FAO SPECIES IDENTIFICATION SHEETS
FOR FISHERY PURPOSES

EASTERN INDIAN OCEAN (Fishing Area 57)
and
WESTERN CENTRAL PACIFIC (Fishing Area 71)

Compiled by the Fishery Resources and Environment Division, FAO

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VOLUME IV

- Bony Fishes: Families
from S (in part) to Z

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FAO species identification sheets for
fishery purposes. Eastern Indian Ocean
(fishing area 57) and Western Central
Pacific (fishing area 71). Volume 4

ISW, ISEW. Teleostei. Identification
sheets - taxonomy, geographic distribution,
fisheries, vernacular names.

FAO Sheets

Fishing Areas 57,71

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FAO SPECIES IDENTIFICATION SHEETS

FISHING AREAS 57,71

(E Ind. Ocean)

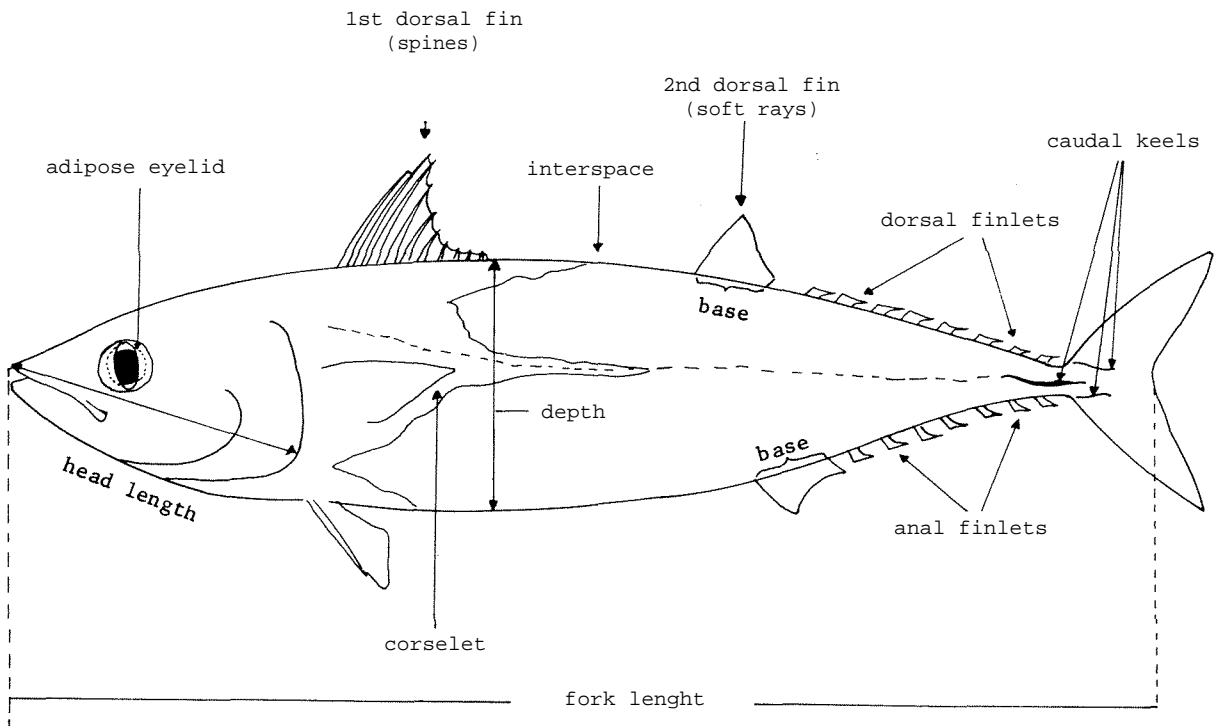
(W Cent. Pacific)

SCOMBRIDAE

Mackerels and tunas

Small to moderately large pelagic fishes which are frequently found in schools. 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. 2 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 or branched. 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*), or covered with small scales (*Thunnus*).

Colour: various *Scomber* species are usually bluish or greenish above with pattern of wavy bands on upper sides and silvery below; *Rastrelliger* species are greenish above with row of spots on upper sides; *Scomberomorus* and *Acanthocybium* are 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; *Katsumonus* has 4 to 6 conspicuous longitudinal stripes on its belly; *Auxis* and *Thunnus* are deep blue/black above; most species of *Thunnus* have bright yellow finlets with black borders.



SIMILAR FAMILIES OCCURRING IN THE AREA:

Carangidae: frequently have scutes developed along the posterior part of the lateral line and usually lack the well developed finlets present in the Scombridae; they also have 2 detached spines in front of anal fin.

Gempylidae: those species which could be confused with the Scombridae are silvery without bars or spots and have no keels on the caudal peduncle.

Key to Genera

- A deep median groove along belly in which fins can be hidden; moderately large cycloid (smooth) scales covering body (about 50 along lateral line); pelvic fins black, enormous in young, normal in adults; in very large adults, 2 small keels on either side of caudal peduncle *Gasterochisma*
- 1 b. No median groove along belly; scales on body minute, inconspicuous or absent
 - 2 a. 2 small keels on either side of caudal peduncle (Fig.1)
 - 3 a. Vertically zig-zag or wavy lines on back; anal fin spine fairly stiff and strong; teeth present on roof of mouth *Scomber*
 - 3 b. 2 horizontal rows of spots on each side of back; anal fin spine thin, rudimentary; no teeth on roof of mouth *Rastrelliger*
 - 2 b. 2 small keels and another between them on either side of caudal peduncle (Fig. 2)
 - 4 a. Teeth in jaws strong, compressed; almost triangular or knife-like; corselet of scales obscure
 - 5 a. 2 lateral lines, the lower joining the upper behind pectoral fin base and at base of caudal fin (Fig. 3); scaly process between pelvic fin bases single *Grammatorcynus*
 - 5 b. Single (upper) lateral line; scaly process between pelvic fin bases usually double
 - 6 a. Snout as long as rest of head (Fig. 4b); no gill rakers; 21 to 27 spines in first dorsal fin *Acanthocybium*
 - 6 b. Snout much shorter than rest of head (Fig. 4a); at least 3 gill rakers present; 14 to 22 spines in first dorsal fin *Scomberomorus*

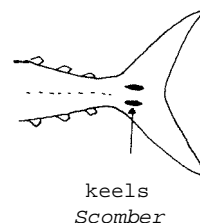


Fig. 1

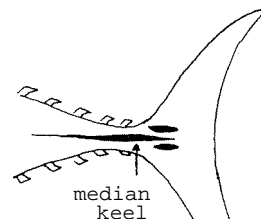


Fig. 2

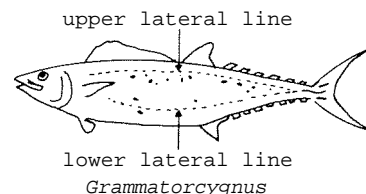


Fig. 3

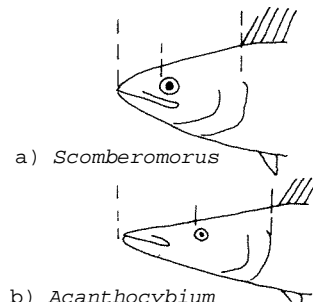


Fig. 4

- 4 b. Teeth in jaws slender, conical, hardly compressed; corselet of scales well developed (Fig. 5)
 - 7 a. Upper surface of tongue without cartilaginous longitudinal ridges
 - 8 a. Jaw teeth tiny, 40 to 55 on each side; gill rakers fine, numerous, 70 to 80 on first arch *Allothunnus*
 - 8 b. Jaw teeth larger, only 10 to 30 on each side; gill rakers fewer, 8 to 21 on first arch
 - 9 a. 5 to 10 narrow, dark longitudinal stripes on upper part of body; no teeth on tongue *Sarda*
 - 9 b. Upper part of body without stripes; two patches of teeth on tongue
 - 10 a. Body plain, no spots or stripes; first dorsal fin lower than second, with 13 to 15 spines; swimbladder well developed *Gymnosarda*
 - 10 b. Body with dark spots above lateral line and dark longitudinal lines below; first dorsal fin higher than second; swimbladder absent *Cybiosarda*
 - 7 b. Upper surface of tongue with two longitudinal ridges
 - 11 a. First and second dorsal fins widely separated, the space between them equal to base of first dorsal *Auxis*
 - 11 b. First and second dorsal fins barely separated, at most by about eye diameter
 - 12 a. 3 to 5 prominent dark longitudinal stripes on belly; gill rakers 53 to 63 on first arch; 15 to 16 spines in first dorsal fin *Katsuwonus*
 - 12 b. No dark longitudinal stripes on belly; gill rakers 19 to 43 on first arch; 11 to 14 spines in first dorsal fin
 - 13 a. Body naked behind corselet of enlarged and thickened scales; black spots often between pectoral and pelvic fin bases; 26 to 27 pectoral fin rays ... *Euthynnus*
 - 13 b. Body covered with very small scales behind corselet; no black spots on body; 30 to 36 pectoral fin rays *Thunnus*

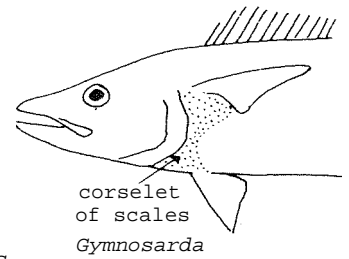


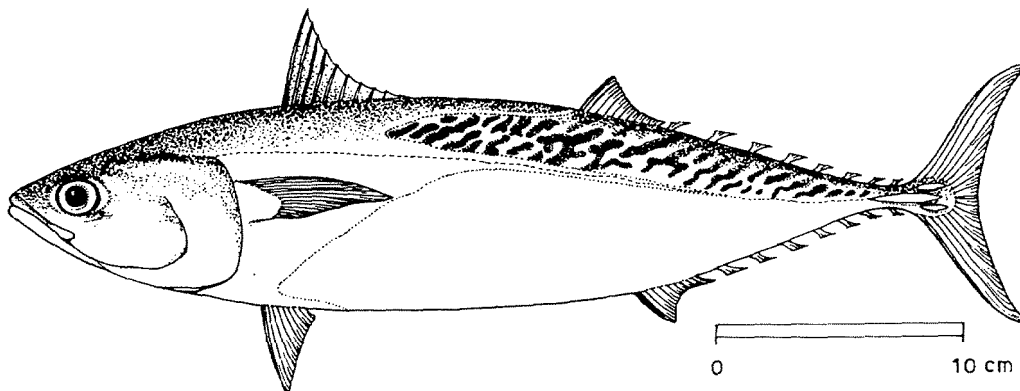
Fig. 5

List of Species occurring in the Area
(Code numbers are given for those species
for which Identification Sheets are included)

<i>Gasterochisma melampus</i>		<i>Cybiosarda elegans</i>	
<i>Scomber australasicus</i>	SCOMBR Scom 3	<i>Sarda australis</i>	
<i>Scomber japonicus</i>		<i>Sarda orientalis</i>	SCOMBR Sarda 2
<i>Rastrelliger brachysoma</i>	SCOMBR Rast 1	<i>Gymnosarda unicolor</i>	
<i>Rastrelliger faughni</i>	SCOMBR Rast 2	<i>Allothunnus fallai</i>	
<i>Rastrelliger kanagurta</i>	SCOMBR Rast 3		
<i>Scomberomorus commerson</i>	SCOMBR Scombm 1	<i>Auxis rochei</i>	SCOMBR Aux 2
<i>Scomberomorus guttatus</i>	SCOMBR Scombm 3	<i>Auxis thazard</i>	SCOMBR Aux 1
<i>Scomberomorus lineolatus</i>	SCOMBR Scombm 2	<i>Euthynnus affinis</i>	SCOMBR Euth 2
<i>Scomberomorus multiradiatus</i>		<i>Katsuwonus pelarnis</i>	SCOMBR Kats 1
<i>Scomberomorus niphonius</i>			
<i>Scomberomorus queenslandicus</i>		<i>Thunnus alalunga</i>	SCOMBR Thun 1
<i>Scomberomorus semifasciatus</i>		<i>Thunnus albacares</i>	SCOMBR Thun 3
<i>Grammatorcynus bicarinatus</i>		<i>Thunnus maccoyii</i>	SCOMBR Thun 4
<i>Acanthocybium solandri</i>		<i>Thunnus obesus</i>	SCOMBR Thun 5
		<i>Thunnus tonggol</i>	SCOMBR Thun 6

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Auxis thazard* (Lacepède, 1803)SYNONYMS STILL IN USE: *Auxis tapeinosoma* Bleeker, 1854
Auxis hira Kishinouye, 1923

VERNACULAR NAMES:

FAO: En - Frigate mackerel
Fr -
Sp -

NATIONAL:

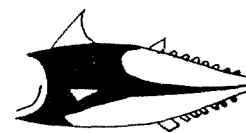
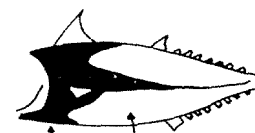
DISTINCTIVE CHARACTERS:

Body robust, elongate and rounded. 2 dorsal fins, the first with 10 to 12 spines, separated from the second by a large interspace (at least equal in length to the 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 the 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 and narrow in its posterior part (no more than 5 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 narrow, oblique to nearly horizontal, dark wavy lines in the scaleless area above lateral line; belly white; pectoral and pelvic fins purple, their inner side black.

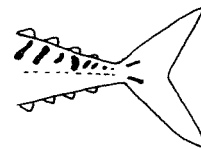
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

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

interpelvic
process
A. thazard*rochei*corselet naked surface
A. thazard

Scomber and *Rastrelliger* species: scales present all over body, no central keel on each side of caudal fin base between the 2 small keels, and marbled colour pattern of back extending forward up to head.

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



Scomber sp.

SIZE:

Maximum: 50 cm; common: 25 to 40 cm (larger than *A. rochei*).

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

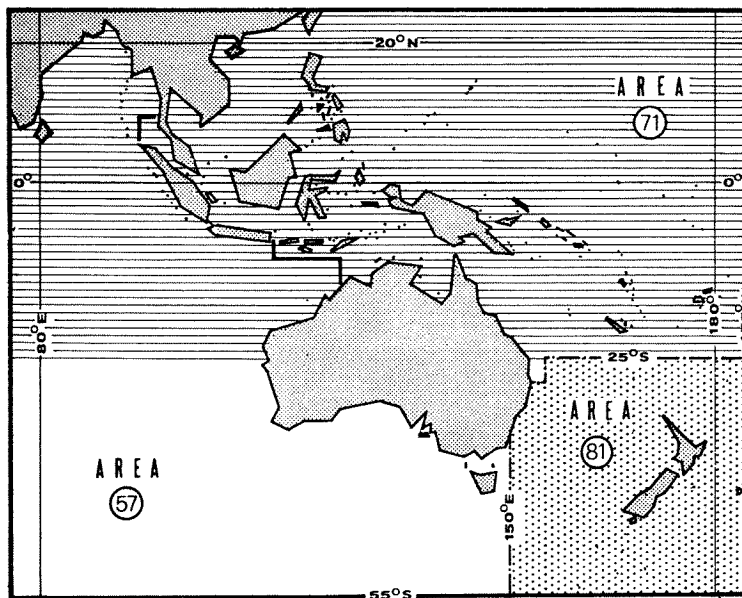
Throughout most of area, southward to tropical coasts of Australia; also, westward to East and South Africa, northward to Japan and eastward to Hawaii.

A seasonal visitor to coastal waters in India. More common in India than *A. rochei*. Occurs in large inshore schools during the summer months off New South Wales, Tasmania, and Western Australia.

FAO Species Synopsis Nos. 4 and 8 (also No. 27 - Atlantic).

PRESENT FISHING GROUNDS:

Mainly coastal waters.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

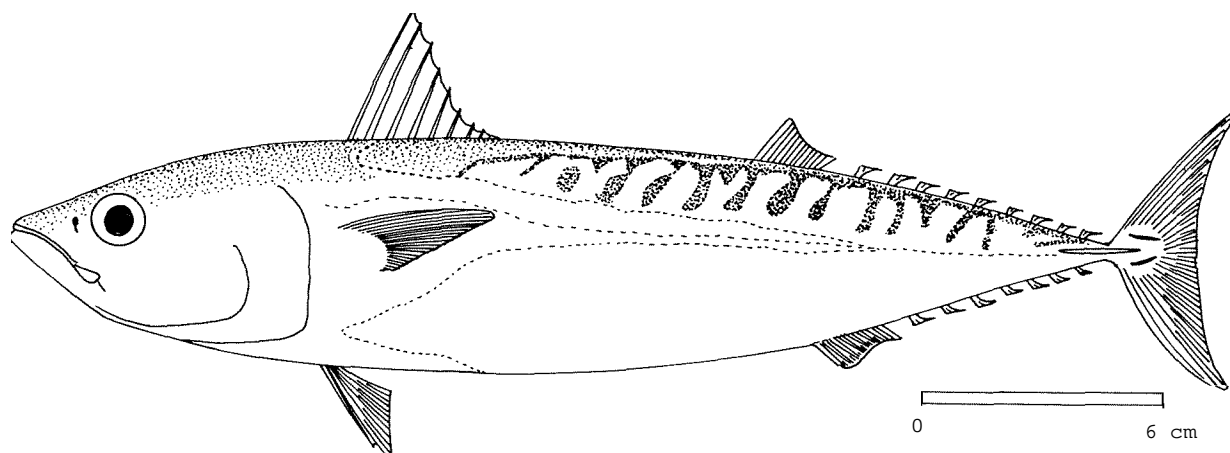
Separate statistics are not reported for this species.

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

Marketed dried-salted; also frozen and canned.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Auxis rochei* (Risso, 1810)SYNONYMS STILL IN USE: *Auxis thynnoides* Bleeker, 1855
Auxis maru Kishinouye, 1923

VERNACULAR NAMES:

FAO: En - Bullet mackerel
Fr -
Sp -

NATIONAL:

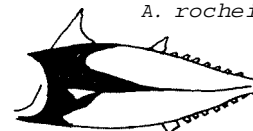
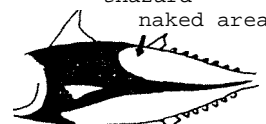
DISTINCTIVE CHARACTERS:

Body robust, elongate and rounded. 2 dorsal fins, separated by a large interspace (at least equal in length to the first dorsal fin base), the 2nd fin followed by 8 finlets; pectoral fins short, not reaching vertical line beneath anterior margin of scaleless area above the 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 the second dorsal fin origin). A strong central keel on each side of caudal fin base between 2 smaller keels.

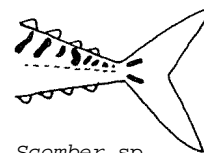
Colour: back bluish, turning to deep purple or almost black on the head; a pattern of 15 or more fair-by broad, nearby vertical dark bars in the scaleless area; belly white; pectoral and pelvic fins purple, their inner side black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

A. thazard: posterior part of corselet narrower (not more than 5 scales wide under the 2nd dorsal fin origin; 6 to 20 scales wide in *A. rochei*); pectoral fins reaching scaleless area above the corselet, and dark stripes on back oblique.

interpelvic
process
A. rocheicorselet *A. thazard*naked area
A. rochei

Scomber and *Rastrelliger* species: scales present all over body, no central keel on each side of caudal fin base between the 2 small keels, and marbled colour pattern of back extending forward up to head.



Scomber sp.

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

SIZE:

Maximum: 40 cm; common: 20 to 35 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout area except for southern coasts of Australia (bounded by 40° N and 34° S); also, westward to East and South Africa, northward to Japan and eastward to the Pacific coasts of the Americas.

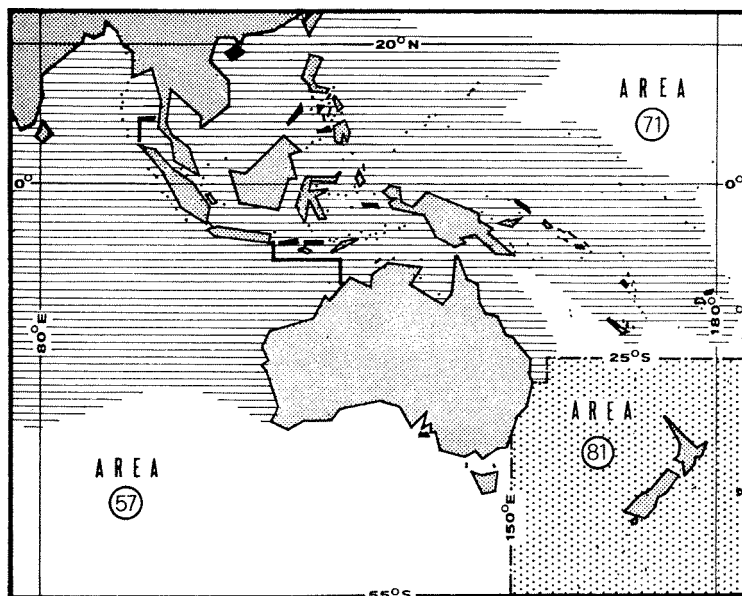
Adults have been taken largely in inshore waters and near islands.

Feeds on small fishes, especially clupeoids; also on crustaceans, especially megalops larvae and larval stomatopods, and on squids.

FAO Species Synopsis No. 28.

PRESENT FISHING GROUNDS:

No specific fishery exists. It is caught with other species in the Philippines and along the west coast of India.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

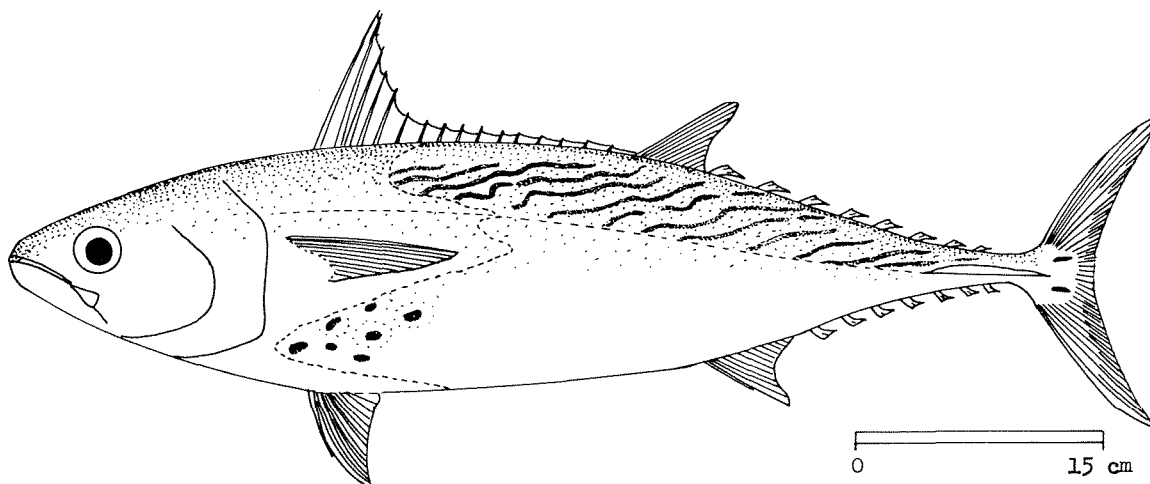
Separate statistics are not reported for this species.

Caught with purse seines, lift nets, traps, pole and line, and by trolling (the gear used is not selective for the species).

Small catches are marketed fresh in India and Australia. Large catches in India are dried-salted for export to Ceylon. Also, frozen and canned for the export market. In Japan it has a reputation as a poor food fish, whether fresh or salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Euthynnus affinis* (Cantor, 1850)SYNONYMS STILL IN USE: *Euthynnus yaito* Kishinouye, 1923

VERNACULAR NAMES:

FAO: En - Eastern little tuna
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Medium sized fish with robust, elongate and fusiform body. Gill rakers 29 to 34 on first arch. 2 dorsal 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. very slender caudal peduncle with a prominent lateral keel between 2 smaller 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).

interpelvic
process

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Thunnus species: no pattern of stripes on back; also, scales present on all parts of body.

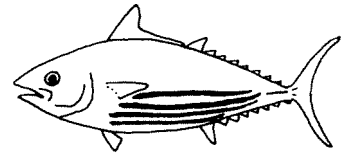
Katsuwonus pelamis: no striped colour pattern on back, but very characteristic dark longitudinal bands along lower sides; also, more gill rakers on first arch (53 to 63; 29 to 34 in *E. affinis*).

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

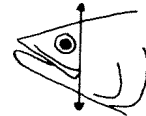
Axius, *Scomber* and *Rastrelliger* species: large interspace between dorsal fins (at least equal to length of first dorsal fin base).

SIZE:

Maximum: about 100 cm;
common: 50 to 60 cm.



K. pelamis



Sarda sp.



Scomber sp.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout northern part of area and southward to northern coasts of Australia; also, westward to East Africa and eastward to Hawaii (one specimen from California).

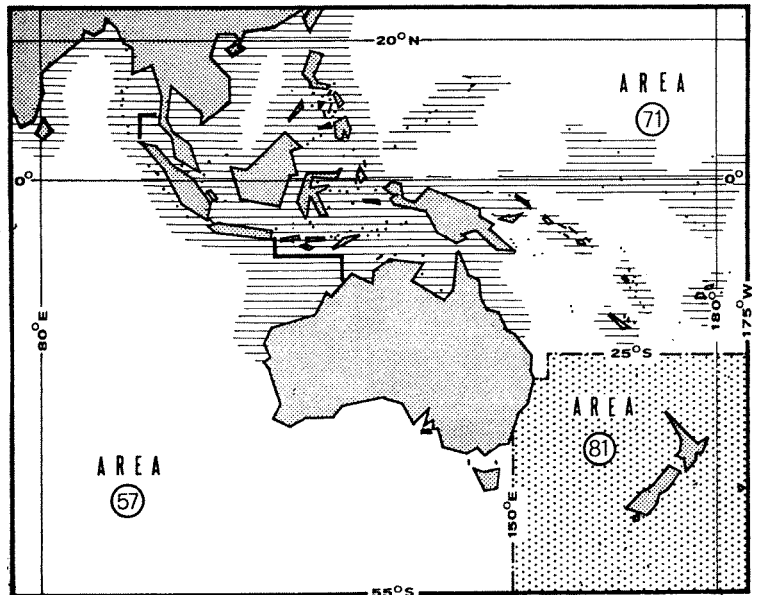
Found in coastal waters and along reefs; enters estuaries.

Feeds on stomatopods, decapods, pteropods, cephalopods, and fishes.

FAO Species Synopsis No: 5 and No. 7 (as *E. yaito*).

PRESENT FISHING GROUNDS:

Coastal waters, mainly in Andaman Sea, South China Sea, north of New Guinea, and Marshall Islands.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

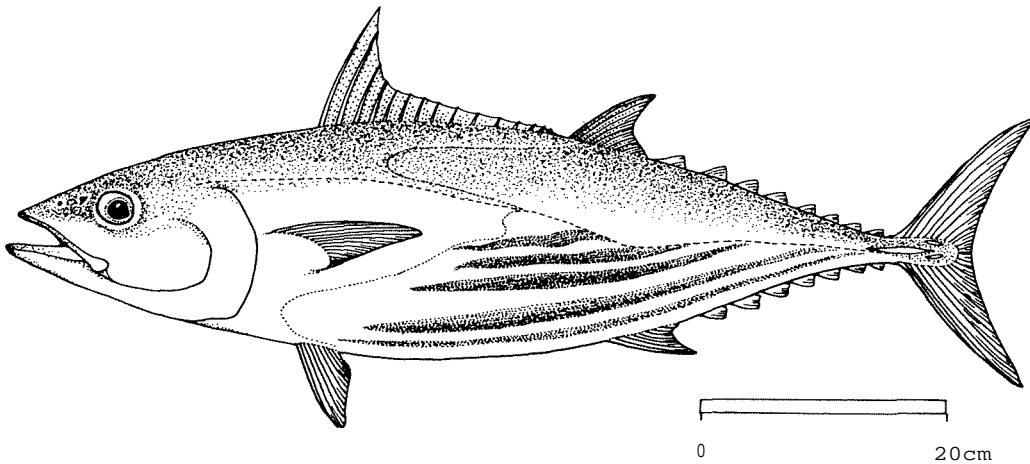
Separate statistics are reported for this species only by Malaysia (1972: 400 tons).

Caught mainly by surface trolling; also with gill nets.

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

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Katsuwonus pelamis* (Linnaeus, 1758)SYNONYMS STILL IN USE: *Euthynnus pelamis* (Linnaeus, 1758)

VERNACULAR NAMES:

FAO: En - Skipjack tuna
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body fusiform, elongate and rounded; gill rakers numerous, 53 to 63 on first gill arch. 2 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 fin short; 2 flaps (interpelvic process) between pelvic fins; anal fin followed by 7 to 8 finlets. Body scaleless except for corselet and lateral Line. A strong keel on each side of base of caudal fin between 2 smaller keels.

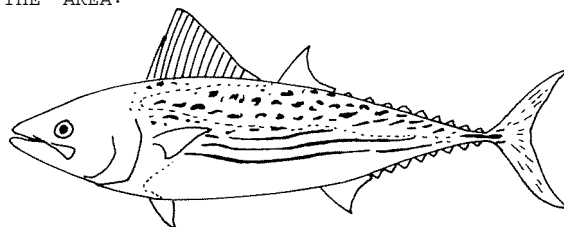
Colour: back dark purplish blue, lower sides and belly silvery, with 4 to 6 very conspicuous longitudinal dark bands which in live specimens may appear as discontinuous lines of dark blotches.

interpelvic
process

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Cybiosarda elegans: the only other scombrid with longitudinal stripes on lower sides, but it has spots above the lateral line; also, only 12 to 15 gill rakers on first arch (53 to 63 in *K. pelamis*), and body flattened and compressed.

All other scombrid species in area: lack dark longitudinal bands on lower flanks.



C. elegans

SIZE:

Maximum: 100 cm; common: 40 to 80 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Cosmopolitan in tropical and sub-tropical seas.

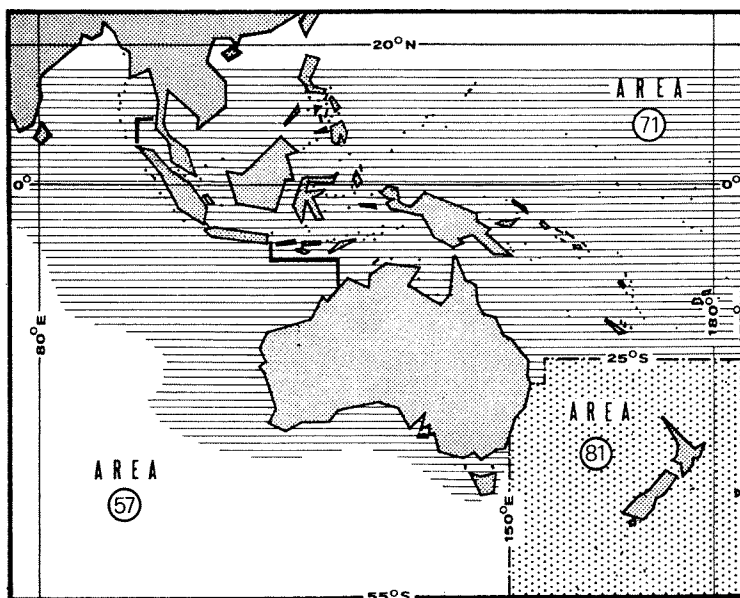
Occurs in large schools in deep coastal and oceanic waters, generally above the thermocline.

Feeds on fishes, cephalopods, and crustaceans.

FAO Species Synopsis Nos. 21 and 22.

PRESENT FISHING GROUNDS:

Deep coastal and oceanic waters.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL ARMS OF UTILIZATION:

The total reported catch in 1972 was:

area 57 (Eastern Indian Ocean): 100 tons (Australia only)
area 71 (Western Central Pacific): 96 800 tons (Japan: 75 500 tons;
Philippines: 21 300 tons)

Caught mainly by pole and line; also with purse seines.

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

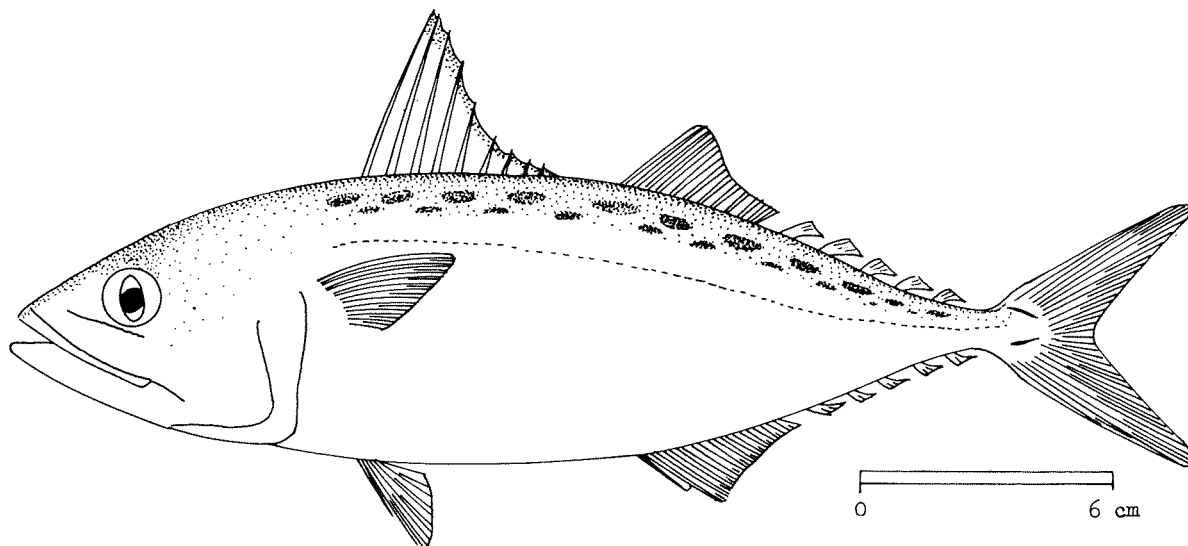
FAD SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

Rastrelliger brachysoma (Bleeker, 1851)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

- FAO: En - Short-bodied mackerel
- Fr -
- Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body very deep, its depth at margin of gill cover 3.7 to 4.0 times in standard length; head equal to or less than body depth. Maxilla covered by lacrimal bone but extending nearly to end of lacrimal. Well developed adipose eyelids. Intestine very long, 3.0 to 3.4 times standard length. Gill rakers very long, visible when mouth is opened, 30 to 48 on lower limb of first gill arch; numerous bristles on longest gill raker, about 150 on one side in specimens of 120 mm, 210 in specimens of 150 mm, and 240 at 180 mm standard length. Second dorsal and anal fins each followed by 5 finlets.

Colour: back blue/green, sides and belly silvery, with a row of dark spots along back; spinous dorsal fin yellowish with a black edge, pectoral and pelvic fins dusky, other fins yellowish.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Rastrelliger kanagurta: less deep-bodied, the depth at margin of gill cover 4.0 to 4.8 times in standard length (3.7 to 4.0 in *R. brachysoma*); intestine shorter, 1.3 to 1.7 times standard length; bristles on longest gill raker fewer, about 105 on one side in specimens of 120 mm, 140 in specimens of 150 mm, and 160 in specimens of 180 mm standard length.

Rastrelliger faughni: body slimmer, its depth at margin of gill cover about 5.0 times in standard length (3.7 to 4.0 in *R. brachysoma*); intestine about equal to standard length; gill rakers shorter than snout, not extending far into mouth when the latter opened, and less numerous (20 to 25 on lower limb of first gill arch; 30 to 48 in *R. brachysoma*); only 30 to 55 bristles on one side of the longest gill raker.

SIZE:

Maximum: 34.5 cm
common: 15 to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

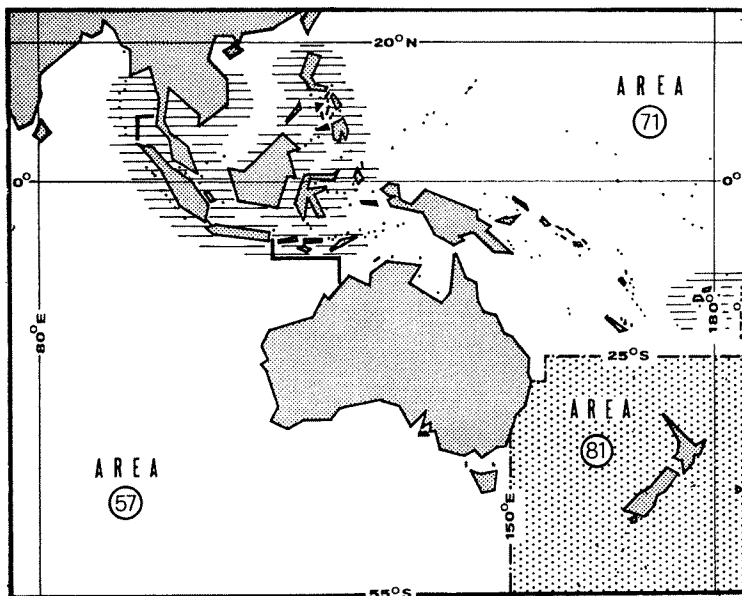
Known from the Andaman Sea, Indonesia, Thailand, Philippines, and eastward to Fiji Islands.

Lives in large schools in coastal waters, usually at depths between 10 and 50 m.

Feeds on minute plankton organisms.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

This species is usually included, together with *R. kanagurta* in a single statistical category. The total reported catch for this category in 1972 was:

area 57 (Eastern Indian Ocean): 15 100 tons (India only)
area 71 (Western Central Pacific): 180 900 tons (Malaysia: 17 600 tons;
Philippines: 44 100 tons;
Thailand: 119 200 tons)

Caught mainly with purse seines, encircling gill nets, lift nets, bamboo stake traps, and midwater trawls.

Marketed fresh; also dried-salted, smoked, canned, or fermented.

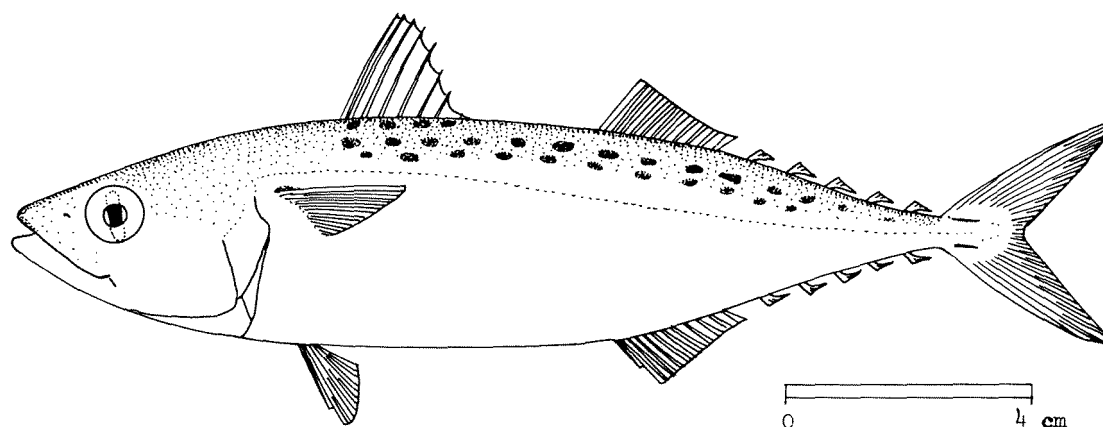
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

Rastrelliger faughni Matsui, 1967

SYNONYMS STILL IN USE: *Scomber australasicus*: misidentification



VERNACULAR NAMES:

FAO: En - Faughn's mackerel
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body slim, its depth at margin of gill cover about 5.0 times in standard length; head longer than body depth. Maxilla covered by lacrimal bone but extending only 3/4 the length of the lacrimal. Adipose eyelids present. Intestine short, about equal to standard length. Gill rakers shorter than snout; when mouth is opened wide gill rakers do not extend far into mouth; 20 to 25 rakers on lower limb of first gill arch; few bristles on longest gill raker, 30 to 55 on one side. Dorsal and anal fins each followed by 5 finlets; anal fin spine rudimentary and covered with skin.

Colour: back dark, belly yellowish silver; two rows of black dots on back below dorsal fin base from origin of first dorsal fin to caudal peduncle; 2 to 6 large spots at base of first dorsal fin, visible from above; two faint stripes at level of lateral line in some specimens; a black blotch behind pectoral fin base; outer margin of dorsal and pectoral fins dark.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

R. kanagurta: more deep-bodied, the depth at margin of gill cover 4.0 to 4.8 times in standard length (5.0 times in *R. faughni*); intestine longer, 1.3 to 1.7 times standard length (equal in *R. faughni*); gill rakers longer, clearly visible when mouth is opened, and more numerous (30 to 46 on lower limb of first gill arch; 20 to 25 in *R. faughni*).

R. brachysoma: much more deep-bodied, its depth at margin of gill cover 3.7 to 4.0 times in standard length (5.0 times in *R. faughni*); intestine much longer (3.0 to 3.4 times standard length; gill rakers longer, clearly visible when mouth is opened, and more numerous (30 to 46 on lower limb of first gill arch; 20 to 25 in *R. faughni*).

SIZE:

Maximum: 20 cm;
common: 9 to 19 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

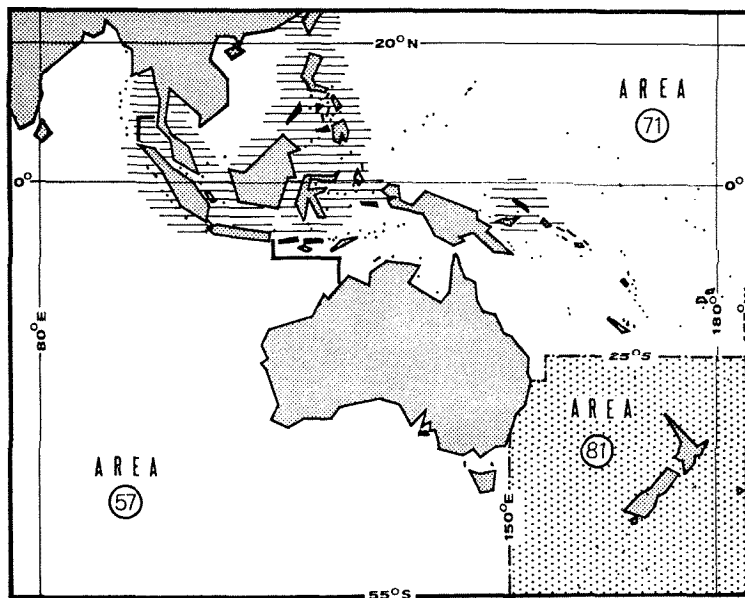
This recently described (1967) species is now known from Malaysia, Indonesia, New Britain, the Philippines, and Taiwan.

A pelagic and migratory fish found in large schools in coastal waters.

Feeds on small plankton organisms. Little is known about the biology of this species.

PRESENT FISHING GROUNDS:

Mainly coastal waters.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

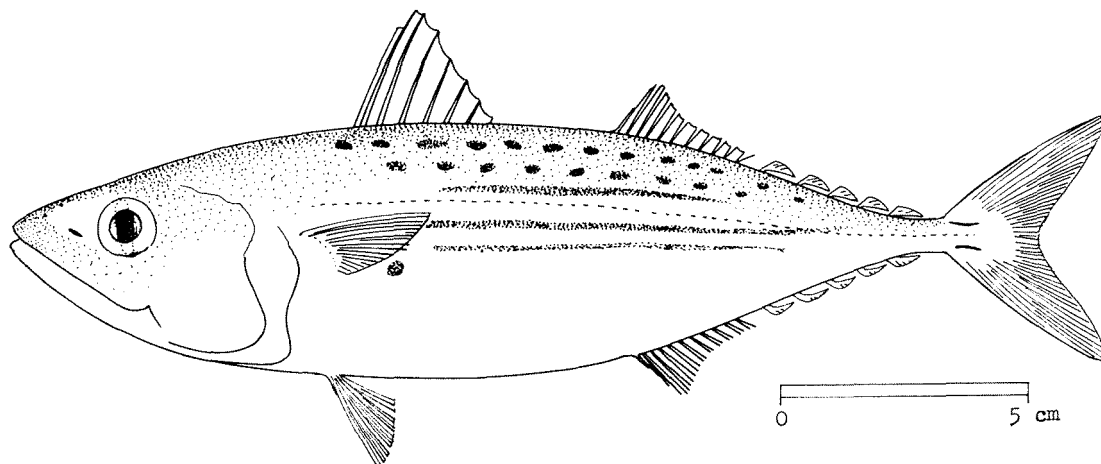
Separate statistics are not reported for this species.

In the Philippines, occasionally taken with *Auxis* and *Decapterus* species in fish corals and with purse seines.

Marketed fresh, dried-salted, smoked, canned or fermented.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Rastrelliger kanagurta* (Cuvier, 1816)SYNONYMS STILL IN USE: *Rastrelliger chrysozonus* (Rüppell, 1835)

VERNACULAR NAMES:

FAO: En - Indian mackerel
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body moderately deep, its depth at margin of gill cover 4.0 to 4.8 times in standard length; head longer than body depth. Maxilla covered by lacrimal bone, but extending nearly to end of lacrimal. Well developed adipose eyelids. Intestine 1.3 to 1.7 times standard length. Gill rakers very long, visible when mouth is opened, 30 to 46 on lower limb of first arch; moderate number of bristles on longest gill raker, 105 on one side in specimens of 120 mm, 140 in specimens of 150 mm, and 160 in specimens of 180 mm standard length. Second dorsal and anal fins each followed by 5 finlets.

Colour: back blue/green, flanks silver with golden tint; two 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: more deep-bodied, the depth at margin of gill cover 3.7 to 4.0 times in standard length (4.0 to 4.8 in *R. kanagurta*); intestine very long, 3.0 to 3.4 times standard length (1.3 to 1.7 in *R. kanagurta*); bristles on longest gill rakers more numerous, about 150 on one side in specimens of 120 mm, 210 in specimens of 150 mm, and 240 in specimens of 180 mm standard length.

Rastrelliger faughni: body slimmer, its depth at margin of gill cover about 5.0 times in standard length (4.0 to 4.8 in *R. kanagurta*); intestine about equal to standard length; gill rakers 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 gill raker (over 100 in *R. kanagurta*).

SIZE:

Maximum: 35 cm; common: 20 to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

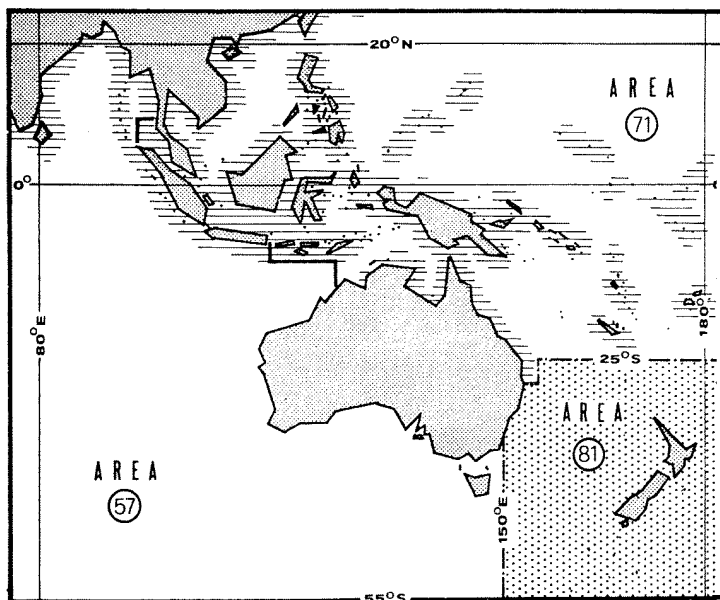
Throughout area except southern coasts of Australia; also, westward to Red Sea and northward to Japan. Has entered eastern Mediterranean.

A common pelagic fish, often found in large surface schools.

Feeds on plankton organisms, mainly crustaceans.

PRESENT FISHING GROUNDS:

Mainly in coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

This species is usually included together with *R. brachysoma* in a single statistical category. The total reported catch for this category in 1972 was:

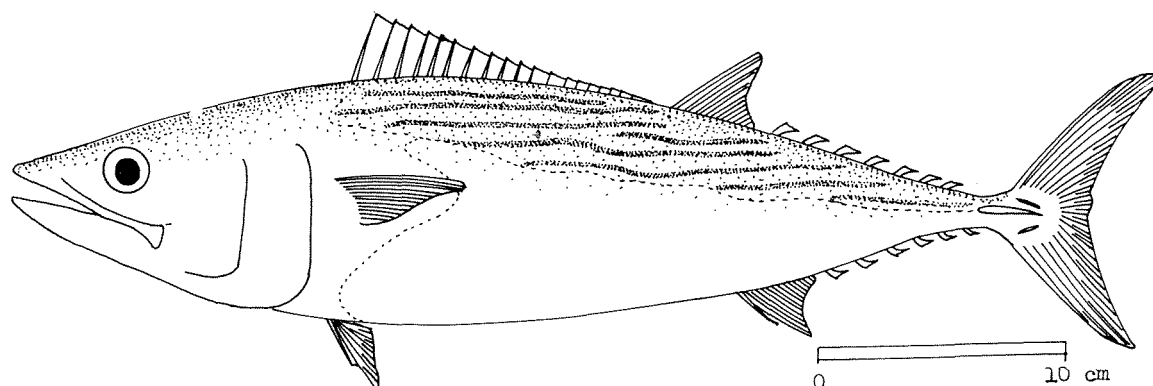
area 57 (Eastern Indian Ocean): 15 100 tons (India only)
area 71 (Western Central Pacific): 180 900 tons (Malaysia: 17 600 tons;
Philippines: 44 100 tons;
Thailand: 119 200 tons)

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

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

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Sarda orientalis* (Temminck & Schlegel, 1844)SYNONYMS STILL IN USE: *Sarda orientalis serventyi* Whitley, 1945

VERNACULAR NAMES:

FAO: En - Oriental bonito

Fr -

Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A small species, the body relatively slender. Mouth rather wide, upper jaw reaching to hind margin of eye or beyond; 12 to 20 teeth on each side in upper jaw, 10 to 17 in lower jaw; teeth on palatines but none on tongue or vomer. Gill rakers 8 to 13 on first arch. 2 dorsal fins, almost joined, the first very long with 17 to 19 spines, its border straight or only slightly concave, the second followed by 7 to 9 finlets; pectoral fins short, with 23 to 25 soft rays (usually 24); pelvic fins with 2 flaps (interpelvic process) between them; anal fin followed by 6 to 7 finlets. Entire body with scales, minute except on well defined corselet. A prominent keel on each side of caudal peduncle between two smaller keels.

interpelvic
process*Sarda* spp.

Colour: back and upper sides steel blue, with 5 to 11 dark oblique stripes running forward and downward; lower sides and belly silvery.

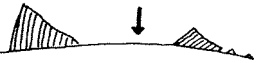
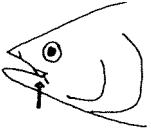
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Sarda australis: confined to the southeastern corner of Australia; also, more gill rakers (19 to 21; 8 to 13 in *S. orientalis*) and usually 26 pectoral fin rays (usually 24 in *S. orientalis*).

All other scombrid species in area: a shorter upper jaw which never reaches to hind margin of eye, and a shorter, clearly concave 1st dorsal fin; also, many are considerably larger and all have a different colour pattern; *Scomber*, *Rastrelliger* and *Auxis* species have widely separated dorsal fins (interspace at least equal to length of first dorsal fin base).



Sarda



Scomber

SIZE:

Maximum: 80 cm; common: 30 to 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Apparently only recorded from southern coasts of India, the Philippines and the southwest corner of Australia; also, westward to East Africa, northward to Japan and eastward to Hawaii and the Pacific coasts of the Americas.

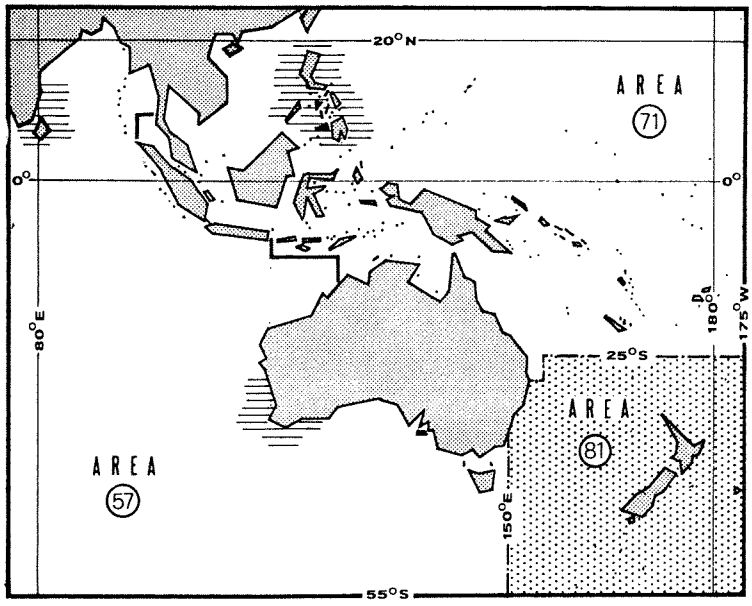
Inhabits coastal waters.

Feeds on crustaceans, squids, and small fishes.

FAO Species Synopsis Nos. 3 and 30.

PRESENT FISHING GROUNDS:

Coastal waters.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

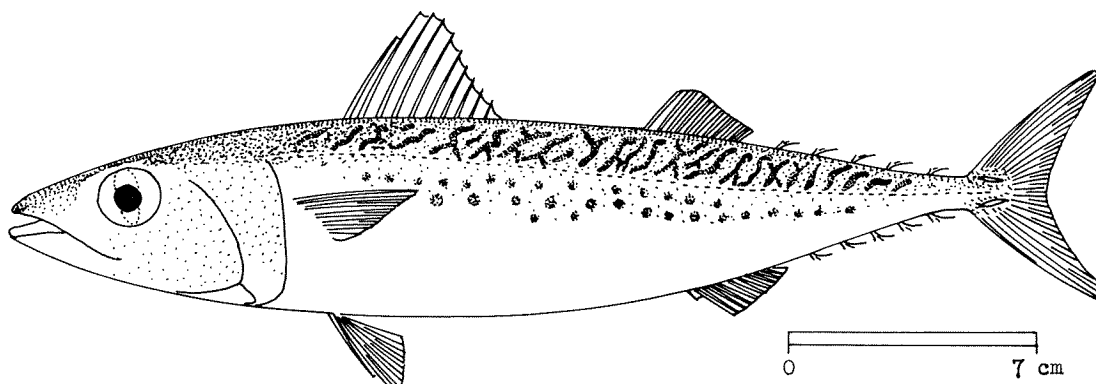
Separate statistics are not reported for this species.

Caught mainly by pole and line and with purse seines.

Marketed mainly fresh; also dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Scomber australasicus* Cuvier, 1831SYNONYMS STILL IN USE: *Scomber japonicus*: Munro, 1967

VERNACULAR NAMES:

FAO: En - Slimy mackerel
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and rounded, snout pointed, caudal peduncle slim. Vomer and palatine bones in roof of mouth with fine teeth; 24 to 28 gill rakers on lower limb of first gill arch. 2 dorsal fins and a series of finlets behind second dorsal and anal fins; the 2 dorsal fins widely separated (interspace approximately equal to length of first dorsal fin base); 10 to 13 dorsal spines in first dorsal fin; anal spine independent from anal fin. Scales behind head and around pectoral fins larger and more conspicuous than those covering other parts of body. 2 small keels on each side of caudal fin base, but no central keel between them.

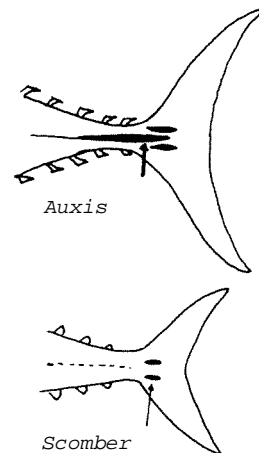
Colour: markings on back oblique lines which zigzag and undulate; belly marked with thin, wavy, broken lines which appear in places as speckling; no rows of spots along the back next to dorsal fin bases.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Rastrelliger species: no teeth on vomer and palatines; only a rudimentary anal spine, and 2 horizontal rows of spots on each side of back. Also, *R. brachysoma* and *R. kanagurta* have more gill rakers (30 to 48; 24 to 28 in *S. australasicus*) that are so long they are clearly visible when the mouth is opened; *R. faughni* tends to have fewer gill rakers (21 to 25).

Auxis rochei and *A. thazard*: a strong central keel between the 2 feeble keels at base of caudal fin; also, a corselet of scales, while the rest of the body is scaleless.

All other scombrid species occurring in the area: the 2 dorsal fins close together (interspace much smaller than the length of the first dorsal fin base), a strong keel on caudal peduncle; also, size of species larger.



SIZE:

Maximum: 40 cm; common: 20 to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

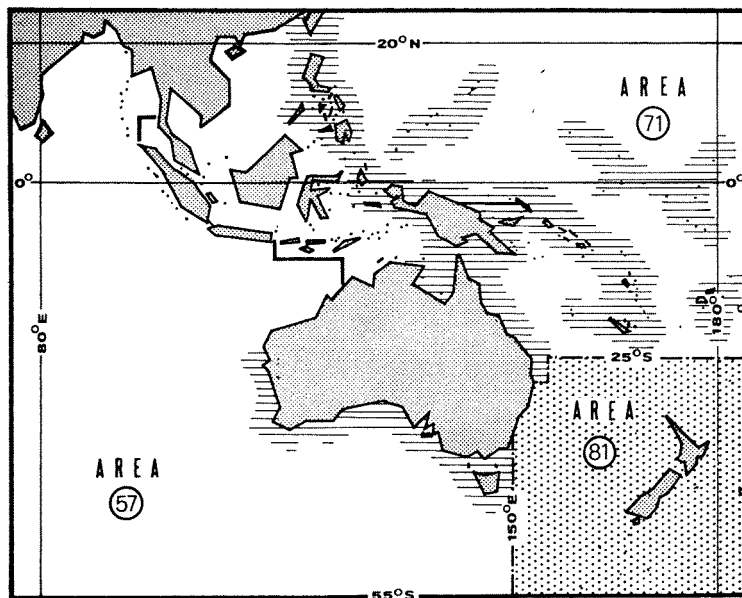
Eastern part of area only, including Taiwan, the Philippines, New Guinea to southern Australia; also, northward to Japan, southward to New Zealand, and eastward to Hawaii.

A pelagic fish, occurring in surface waters.

Little is known of its biology.

PRESENT FISHING GROUNDS:

Mainly coastal waters; commercially important in southern Australia and southern part of Western Australia.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

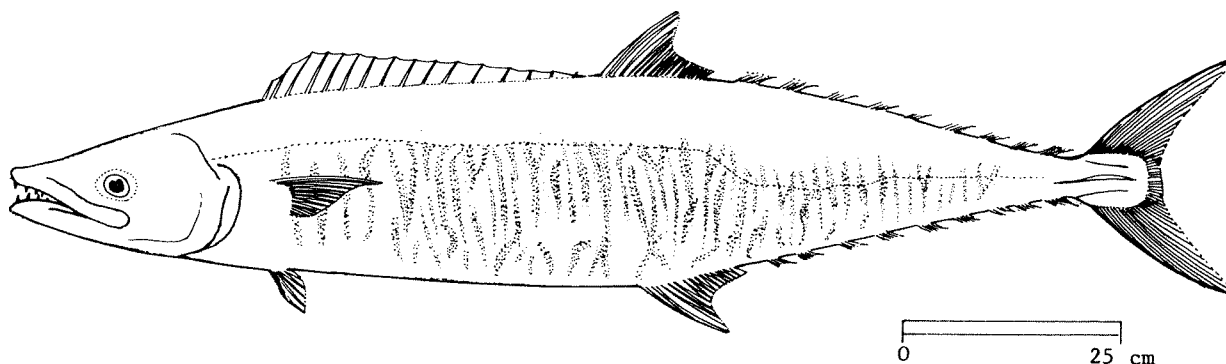
Separate statistics are not reported for this species.

Caught mainly with purse seines, encircling gill nets, and handlines.

Marketed mainly fresh and dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Scomberomorus commerson* (Lacepède, 1802)SYNONYMS STILL IN USE: *Cybium commersoni* (Lacepède, 1802)

VERNACULAR NAMES:

FAO: En - Narrow-barred Spanish mackerel
Fr -
Sp -

NATIONAL:

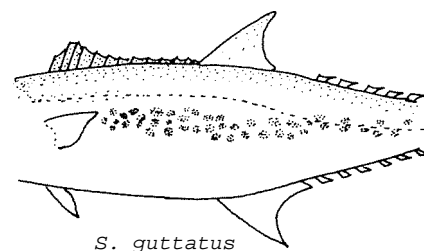
DISTINCTIVE CHARACTERS:

Body elongate, rather strongly compressed. Upper jaw reaching to posterior margin of eye or slightly beyond; teeth in jaws strong and compressed. Gill rakers 0 to 2 on upper limb and 2 to 6 on lower limb of first gill arch (total 4 to 8). 2 dorsal fins, the first with 14 to 17 spines and the second with 14 to 19 soft rays, followed by 8 to 10 finlets. Anal fin originating below midpoint of second dorsal fin and with 14 to 18 rays followed by 8 to 10 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 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.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

S. guttatus: dark spots along sides of body and lateral line almost straight.

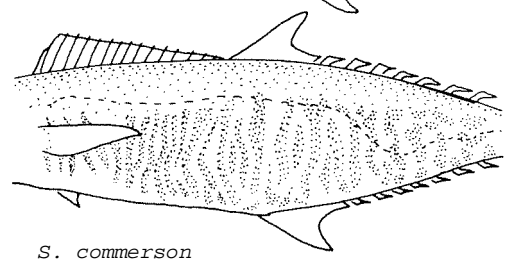
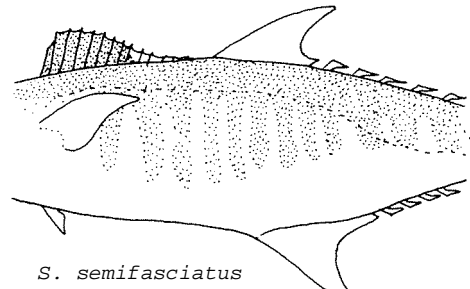
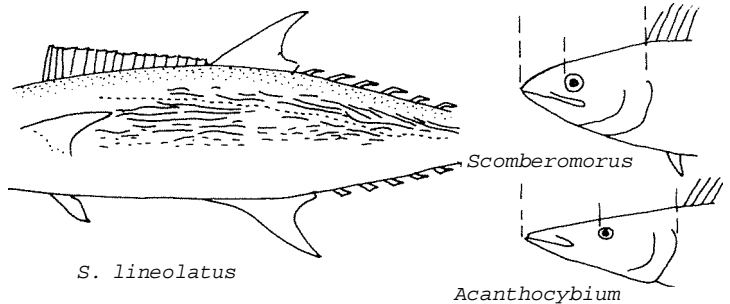


S. lineolatus: dark horizontal streaks along sides of body, and lateral line almost straight.

Acanthocybium solandri: no gill rakers, and 21 to 27 dorsal fin spines (14 to 17 in *S. commerson*); also, the snout as long as rest of the head (shorter in *S. commerson*)

S. semifasciatus: anal fin with 20 to 22 rays (14 to 18 in *S. commerson*), about 20 vertical bands on body (20 to 50 in *S. commerson*), and pectoral fin markedly falcate (not falcate in *S. commerson*).

All other *Scomberomorus* species in area: spots or lines along body but no vertical bars.



SIZE:

Maximum: 235 cm (largest species in genus);
common: 60 to 90 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

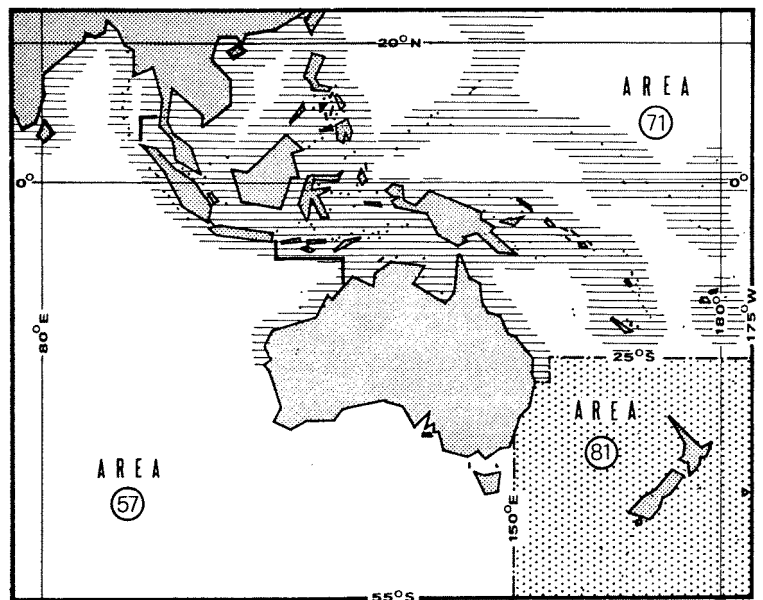
Throughout northern part of area to northern Australia; also, westward to East Africa and northward to Japan. Has entered eastern Mediterranean.

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, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

The total reported catch in 1972 was:

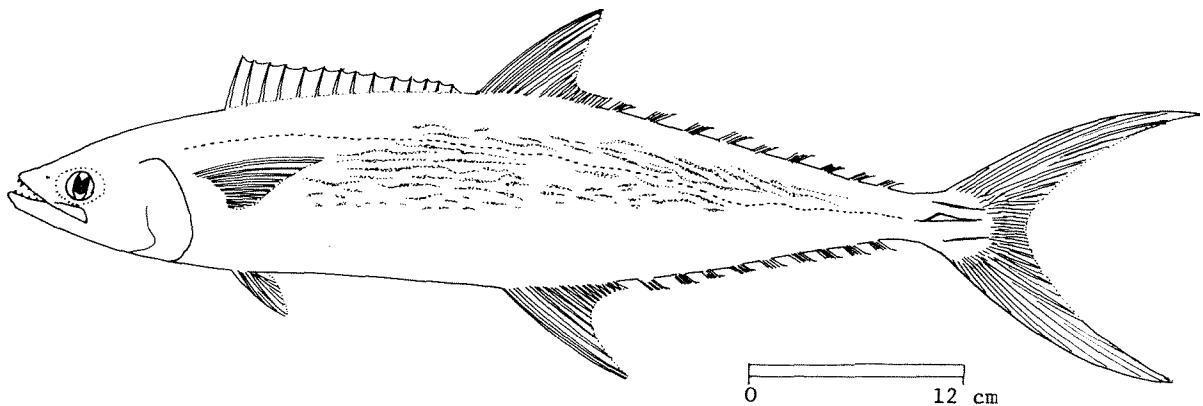
- area 57 (Eastern Indian Ocean): 11 100 tons (India only)
- area 71 (Western Central Pacific): 700 tons (Australia only)

Caught mainly with drift gill nets, bamboo stake traps, midwater trawls, and by trolling.

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

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Scomberomorus lineolatus* (Cuvier, 1831)SYNONYMS STILL IN USE: *Cybium lineolatum* (Cuvier, 1831)
Indocybium lineolatum : Munro, 1955

VERNACULAR NAMES:

FAO: En - Streaked Spanish mackerel
Fr -
SP -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate, strongly compressed. Upper jaw reaching to below hind margin of pupil; teeth in jaws pointed and strongly compressed. Gill rakers 2 to 4 on upper limb and 8 to 12 on lower limb of first gill arch. 2 dorsal fins, the first with 15 to 17 spines and the second with 19 to 20 soft rays followed by 8 to 10 finlets. Anal fin with 18 to 20 soft rays, originating below anterior part of second dorsal fin and followed by 8 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 fin covered with scales. No swimbladder.

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

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

All other *Scomberomorus* species in area: either vertical bars (*S. commerson* and *S. semifasciatus*) or prominent round spots (*S. guttatus*, *S. queenslandicus* and *S. nipponius*). Also, lateral line abruptly bent downward below end of second dorsal fin, and fewer gill rakers (0 to 2 on the upper limb and 2 to 6 on the lower limb of the first arch in *S. commerson*; 2 to 4 and 8 to 12 in *S. lineolatus*).

Acanthocybium solandri: snout as long as rest of head (shorter in *S. lineolatus*); long side branches from the lateral line, which is strongly curved below middle of first dorsal fin; no gill rakers; and 21 to 27 dorsal fin spines (15 to 17 in *S. lineolatus*).

SIZE:

Maximum: 90 cm; common: 50 to 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

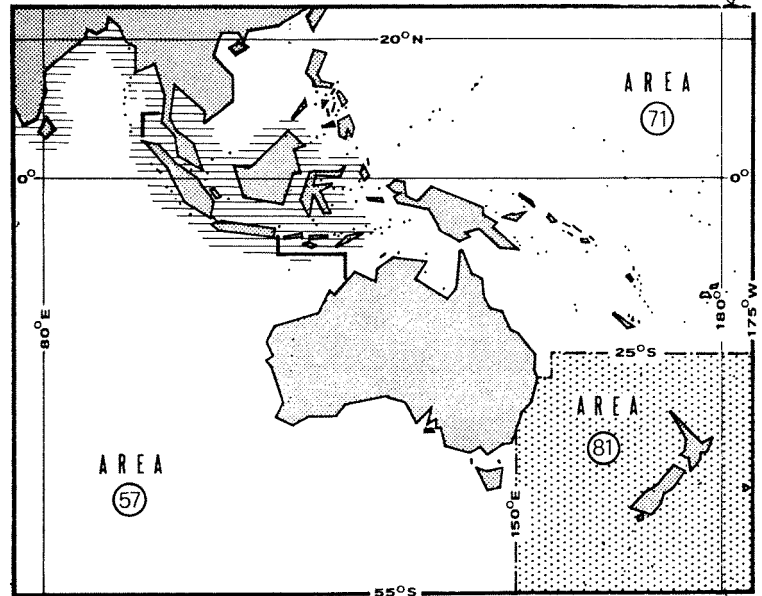
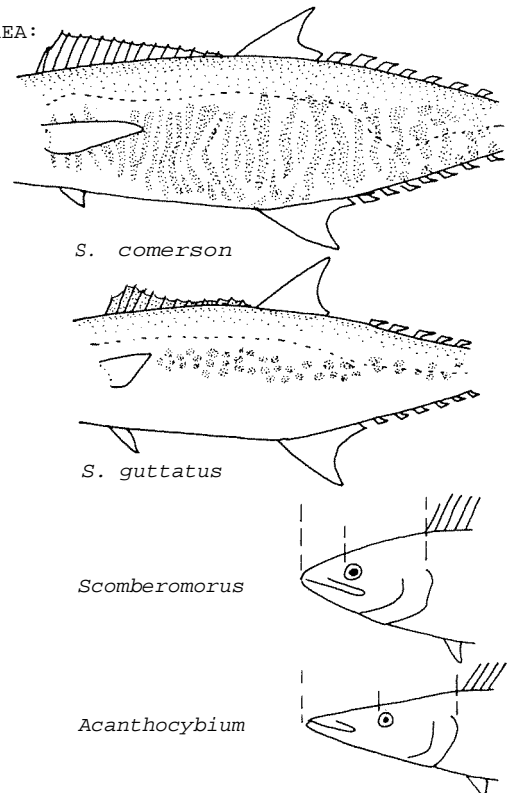
All along the Indian coast, Ceylon, and southward to Indonesia; also, westward to East and South Africa. Little is known about the biology of this species.

A pelagic migratory fish, inhabiting coastal waters at depths between 30 and 200 m.

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

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of unclassified *Scomberomorus* species (excluding *S. commerson*, for which separate statistics are available) in 1972 was:

- area 57 (Eastern Indian Ocean): 11 100 tons (India only)
- area 71 (Western Central Pacific): no data

Caught with drift gill nets, midwater trawls, purse seines, and by trolling.

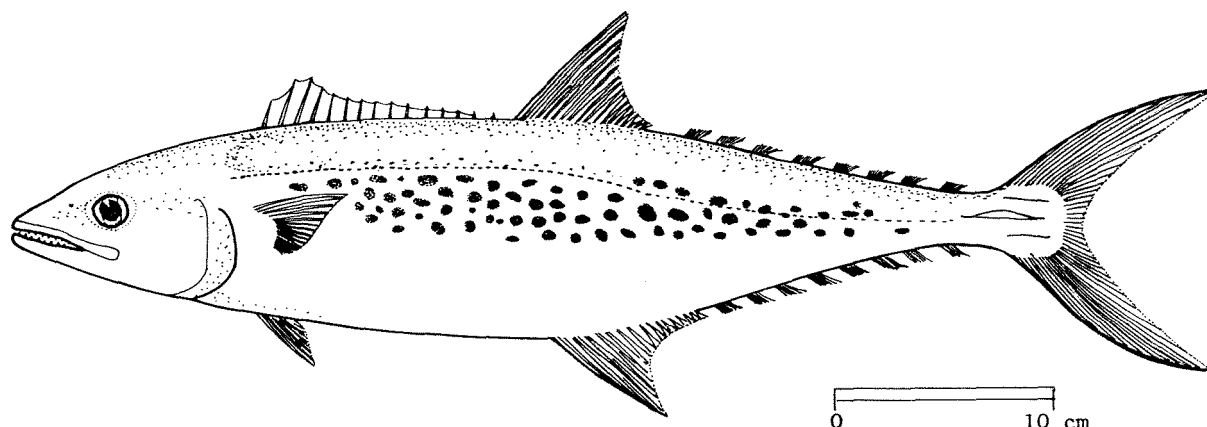
Marketed mainly fresh; also dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

Scomberomorus guttatus (Bloch & Schneider, 1801)

SYNONYMS STILL IN USE: *Cybium guttatum*: Cuvier 1831
Indocybium guttatum: Munro, 1955

VERNACULAR NAMES:

FAO: En - Indo-Pacific Spanish mackerel
Fr -
Sp -

NATIONAL:

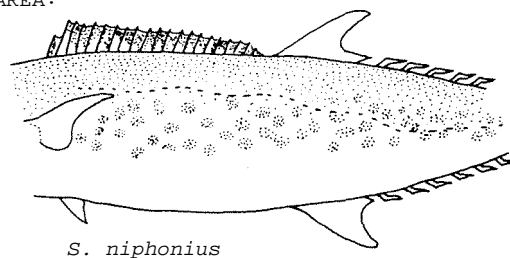
DISTINCTIVE CHARACTERS:

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. Gill rakers 1 to 4 on upper limb and 6 to 9 on lower limb of first gill arch. 2 dorsal fins, the first with 15 to 17 spines and the second followed by 8 to 9 finlets. Anal fin originating below anterior part of second dorsal fin and followed by 8 to 10 finlets. Lateral line almost straight to below middle of second dorsal fin, and gently bent downward to middle of caudal peduncle.

Colour: blue on back, silvery on sides; usually, 3 irregular rows of dark round spots (smaller than eye) along sides of body; spinous dorsal fin uniform dark.

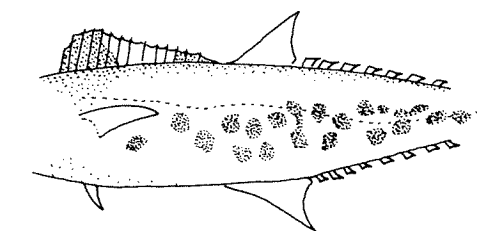
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

S. niphonius: also with dark spots along sides, but first dorsal fin mottled with white; restricted to eastern part of area (coasts of China and eastern Australia).

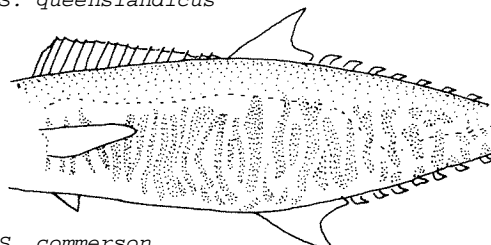


S. queenslandicus: dark spots along sides fewer and larger than eye (restricted to Australia).

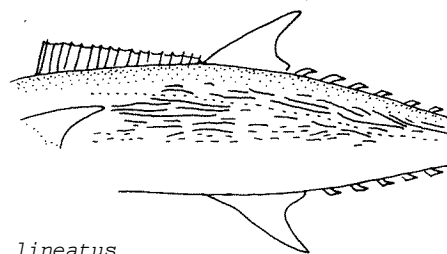
Other *Scomberomorus* species: vertical lines or bars (*S. commerson*, *S. semifasciatus*) or horizontal lines (*S. lineatus*) along sides.



S. queenslandicus



S. commerson



S. lineatus

SIZE:

Maximum: 82 cm; common: 45 to 55 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

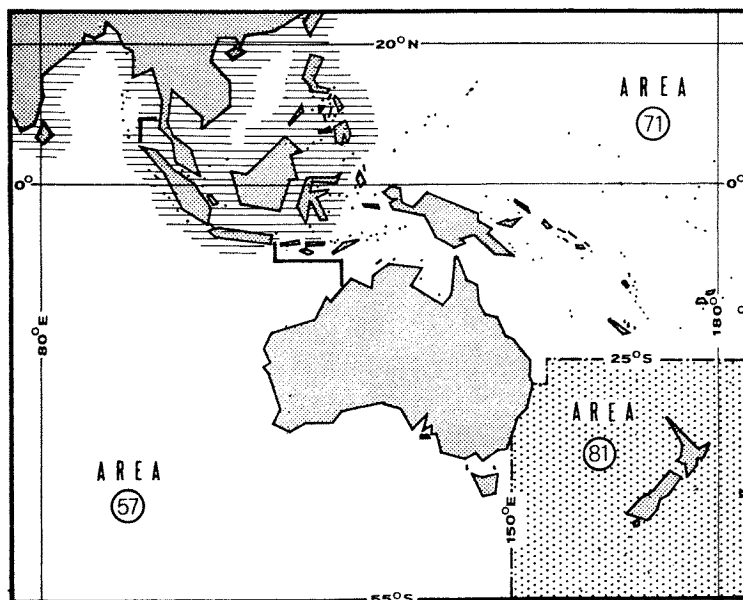
Northern part of area, eastward to Philippines, but not New Guinea and Australia; also, northward to Japan and westward to East Africa.

A pelagic migratory fish inhabiting coastal waters, at depths between 15 and 200 m; 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, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of unclassified *Scomberomorus* species (excluding *S. commerson*, for which separate statistics are available) in 1972 was

- area 57 (Eastern Indian Ocean): 11 100 tons (India only)
- area 71 (Western Central Pacific): no data

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

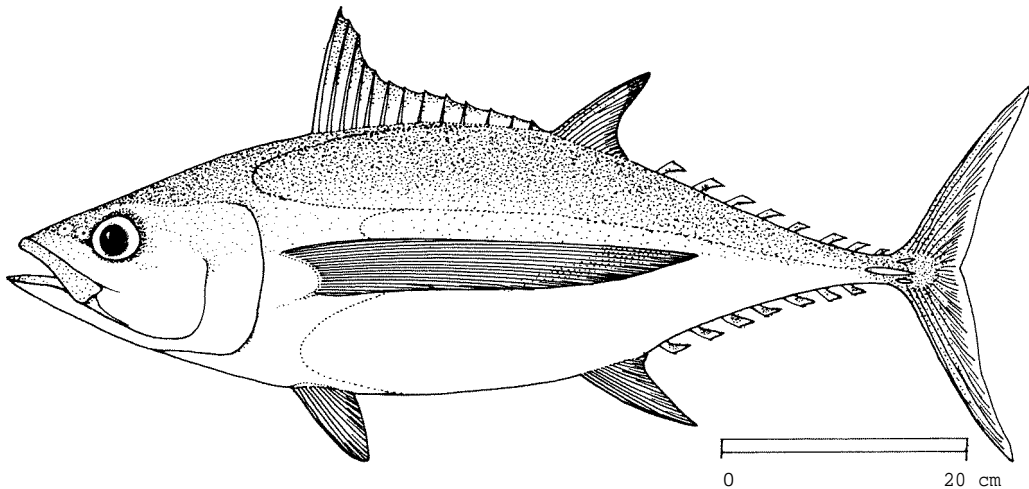
Marketed mainly fresh; also dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

<i>Thunnus alalunga</i> (Bonnaterre, 1788)
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SYNONYMS STILL IN USE: *Germo alalunga* (Bonnaterre, 1788)
Thunnus germo (Lacepède, 1800)

VERNACULAR NAMES:

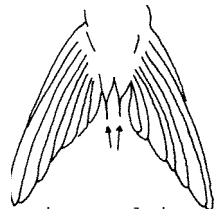
FAO: En - Albacore
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A large fish with an elongate, fusiform body, deepest at a more posterior point than in other tunas (at, or only slightly anterior to, 2nd dorsal fin rather than near middle of 1st dorsal fin base). Eyes rather large. Gill rakers 25 to 31 on first arch. 2 dorsal fins, separated only by a narrow interspace, the 2nd 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 to 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 two smaller keels. Liver striated on ventral surface; swimbladder present.

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

interpelvic
process
Thunnus sp.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

All other tuna species: pectoral fins shorter and no white border to caudal fin. However, young specimens of *T. alalunga* (less than 30 cm) have shorter pectoral fins than similar sized specimens of *T. albacares* and *T. obesus*. They can be distinguished from *T. albacares* by the absence of white vertical stripes or spots on lower sides and belly.

T. maccoyii: more gill rakers (31 to 40; 25 to 31 in *T. alalunga*) and a very short pectoral fin.

T. albacares: no striations on ventral surface of liver, and belly frequently crossed by about 20 broken, nearly vertical striations; also, develops greatly elongated second dorsal and anal fins in large adults.

T. tonggol: fewer gill rakers (19 to 28; 25 to 31 in *T. alalunga*); no striations on ventral surface of liver; no swimbladder; and a pattern of pale spots and streaks oriented horizontally on lower part of body.

SIZE:

Maximum: 137 cm; common: 40 to 100 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

A cosmopolitan species, often extending into cool waters. Found across the Indian Ocean from East Africa to Australia, between 10° N and 30° S. In the Western Pacific its range extends from 40° S, off the southern tip of Australia, to about 45°N, off the coast of Hokkaido, Japan.

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

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

FAO Species Synopsis No. 9 (as *T. germo*).

PRESENT FISHING GROUNDS:

Oceanic waters, throughout its range.

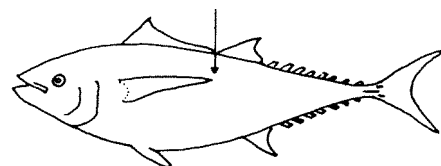
CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

The total catch reported in 1972 was:

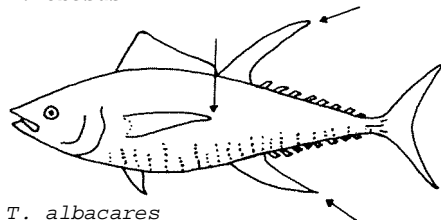
area 57 (Eastern Indian Ocean): 500 tons (Japan only)
area 71 (Western Central Pacific: 2 100 tons (Japan: 2 000 tons;
Philippines: 100 tons)

Caught with purse seines, longlines; also by trolling.

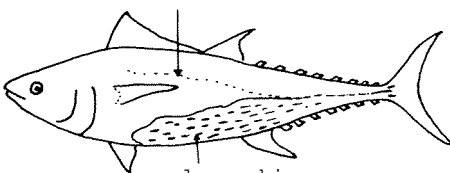
Marketed mainly frozen, canned; also fresh and dried-salted.



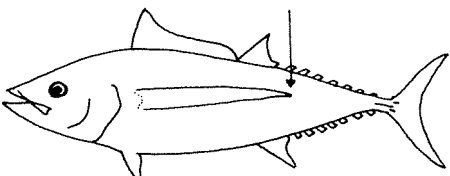
T. obesus



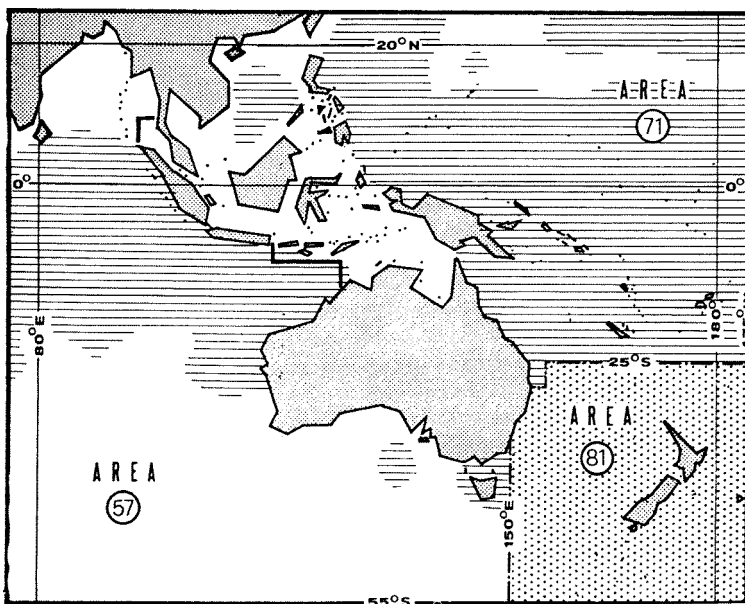
T. albacares



T. tonggol pale markings



T. alalunga



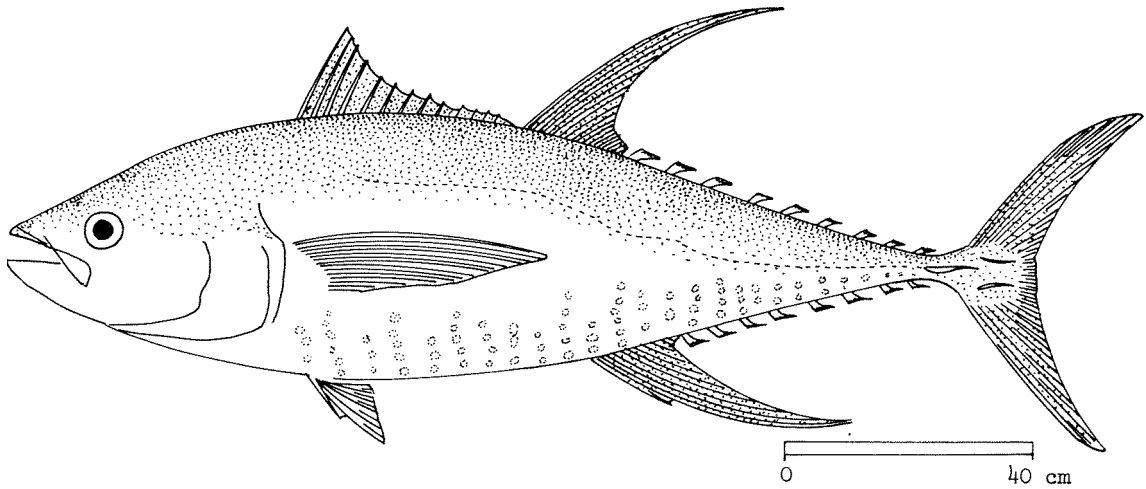
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

Thunnus albacares (Bonaterre, 1788)

SYNONYMS STILL IN USE: *Neothunnus macropterus* (Temminck & Schlegel, 1844)



VERNACULAR NAMES

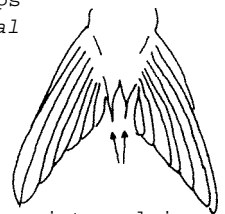
FAO: En - Yellowfin tuna
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A large fish with an elongate, fusiform body, slightly compressed from side to side. Gill rakers 26 to 34 on first arch. 2 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 pale lines; dorsal and anal fins, and dorsal and anal finlets, bright yellow, the finlets with a narrow black border.



interpelvic process
Thunnus spp.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

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

T. tonggol: fewer gill rakers (19 to 26; 26 to 34 in *T. albacares*); no swimbladder, and pale markings on lower part of body oriented horizontally instead of vertically.

T. maccoyii: more gill rakers (31 to 40; 26 to 34 in *T. albacares*), striations on ventral surface of liver, and pectoral fin shorter (not reaching to origin of second dorsal fin).

T. alalunga: pectoral fins much longer, 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, and striations on ventral surface of liver.

SIZE:

Maximum: 195 cm; common: 50 to 150 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout northern part of area and southward to western and eastern coasts (possibly also southern coasts) of Australia (most catches in the Indian Ocean are north of 30°S). Also, westward to East Africa, northward to Japan and eastward through New Zealand to the coasts of the Americas.

Oceanic, above and below thermocline.

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

FAO Species Synopsis No. 10 (as *Neothunnus macropterus*) and No. 16 (as *T. albacares*).

PRESENT FISHING GROUNDS:

Open waters, throughout its range.

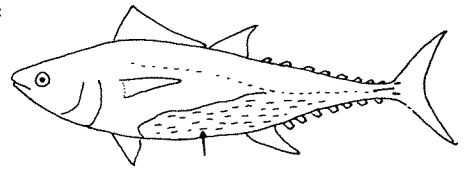
CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

The total reported catch in 1972 was:

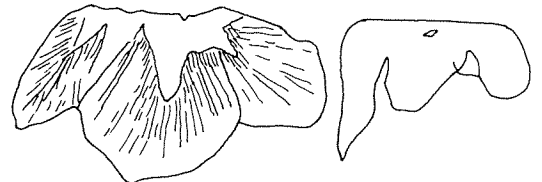
- area 57 (Eastern Indian Ocean): 1 700 tons (Japan only)
- area 71 (Western Central Pacific): 22 100 tons (Japan only)

Caught mainly with purse seines and longlines; also occasionally with gill nets (Indonesia, Philippines).

Marketed mainly frozen and canned.

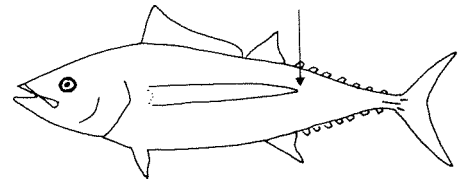


T. tonggol

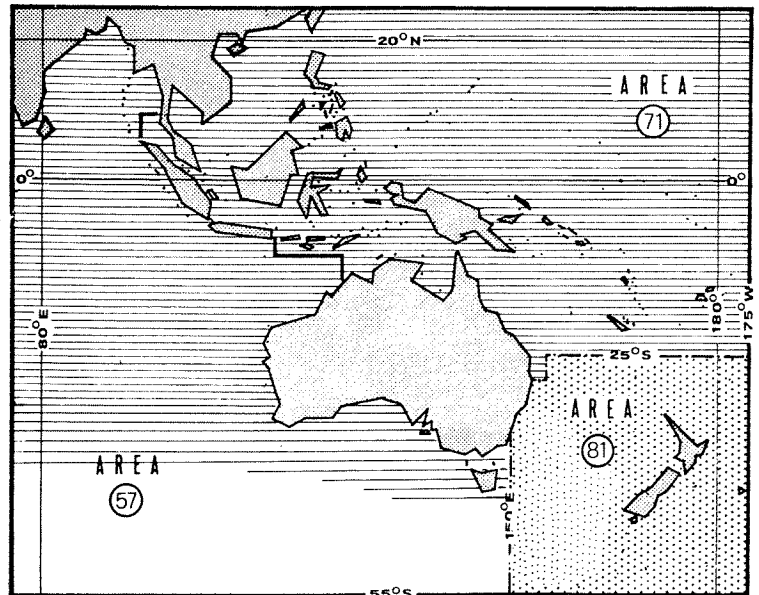


ventral surface
of liver
T. maccoyii

ventral surface
of liver
T. albacares



T. alalunga



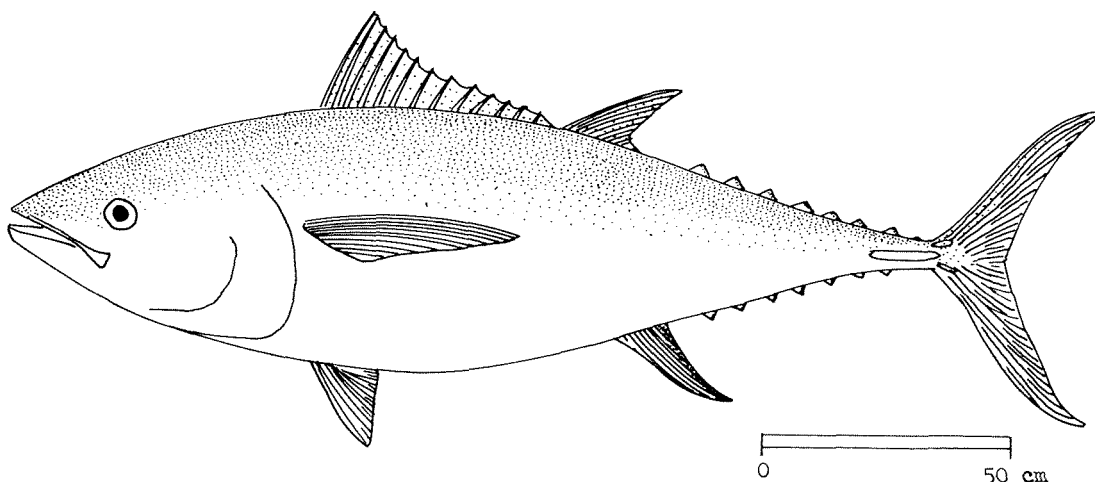
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

Thunnus maccoyii (Castelnau, 1872)

SYNONYMS STILL IN USE: *Thunnus thynnus maccoyii* (Castelnau, 1872)



VERNACULAR NAMES:

FAO: En - Southern bluefin tuna
Fr -
Sp -

NATIONAL:

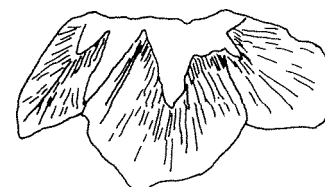
DISTINCTIVE CHARACTERS:

A large fish with a fusiform and rounded body; eye small. Gill rakers numerous, 32 to 40 on first arch. 2 dorsal fins, separated only by a narrow interspace, the second higher than the first, followed by 9 to 10 finlets; pectoral fins very short, less than 80% of head length, never reaching the interspace between dorsal fins; 2 flaps (interpelvic process) between pelvic fins; anal fin followed by 8 to 9 finlets. Body with very small scales; corselet of larger scales well developed, although not particularly conspicuous. Caudal peduncle with a strong lateral keel between 2 smaller keels. 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, the second reddish brown; anal fin and finlets dusky yellow edged with black; caudal keel yellow in adults.



interpelvic process
Thunnus sp.



ventral side of liver
T. maccoyii

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

T. tonggol: only 19 to 28 gill rakers on first arch; 31 to 40 in *T. maccoyii*; distance from snout to second dorsal fin origin 49 to 55% of fork length (more than 55% in *T. maccoyii*); pale markings oriented horizontally on lower part of body, no striations on ventral surface of liver, and no swimbladder.

T. alalunga: pectoral fins much longer, reaching backward well beyond end of second dorsal fin; also, colour pattern different (particularly the white-edged caudal fin) and fewer gill rakers (25 to 31; 31 to 40 in *T. maccoyii*).

T. albacares: fewer gill rakers (26 to 34); no striations on ventral surface of liver; pectoral fins longer (usually reaching beyond second dorsal fin origin) and belly frequently crossed by about 20 broken, nearly vertical lines; also develops greatly elongated second dorsal and anal fins in large adults.

T. obesus: fewer gill rakers (23 to 31) and pectoral fins longer (22 to 31% of fork length in specimens longer than 110 cm and more than 31% in Indo-Pacific specimens less than 110 cm).

SIZE:

Maximum: 222 cm;
common: 40 to 180 cm (in Australian commercial catch).

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Restricted to the southern part of area, generally south to 30°S, along southern coasts of Australia from Sydney to Perth and offshore north to Indonesia; also, eastward to New Zealand.

Oceanic, usually below thermocline.

Feeds on cephalopods, crustaceans (principally euphausians and stomatopod larvae) and fishes such as mackerel, pilchards, jack mackerel and anchovies.

FAO Species Synopsis No. 17.

PRESENT FISHING GROUNDS:

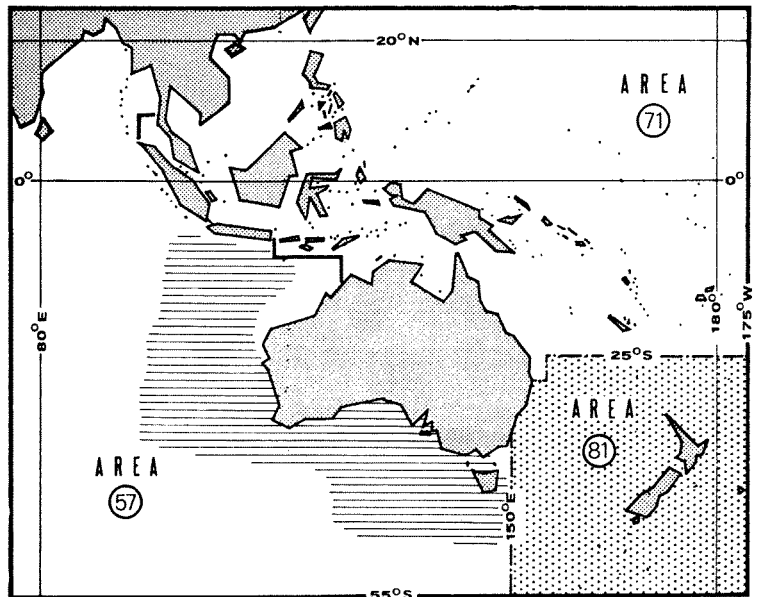
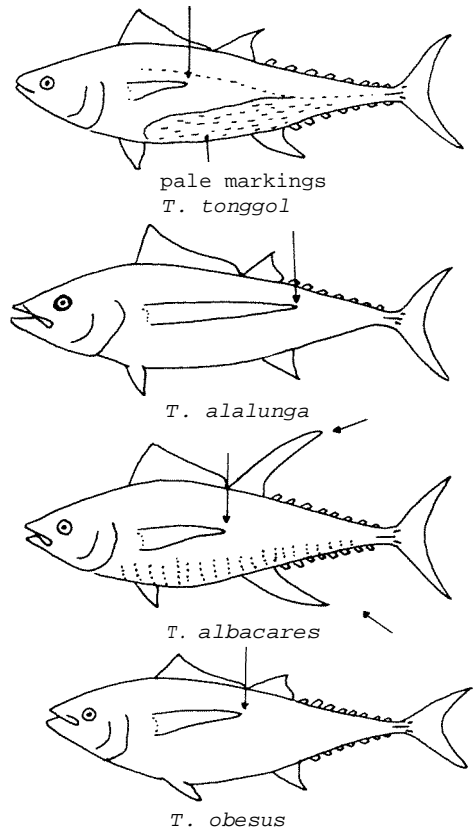
Open waters, mainly off western and southern Australia.

CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

The total reported catch for area 57 (Eastern Indian Ocean) in 1972 was 23 100 tons (Australia: 5 100 tons, and Japan: 18 000 tons).

Caught with pole and line, longlines, and by trolling.

Marketed mainly canned and frozen.



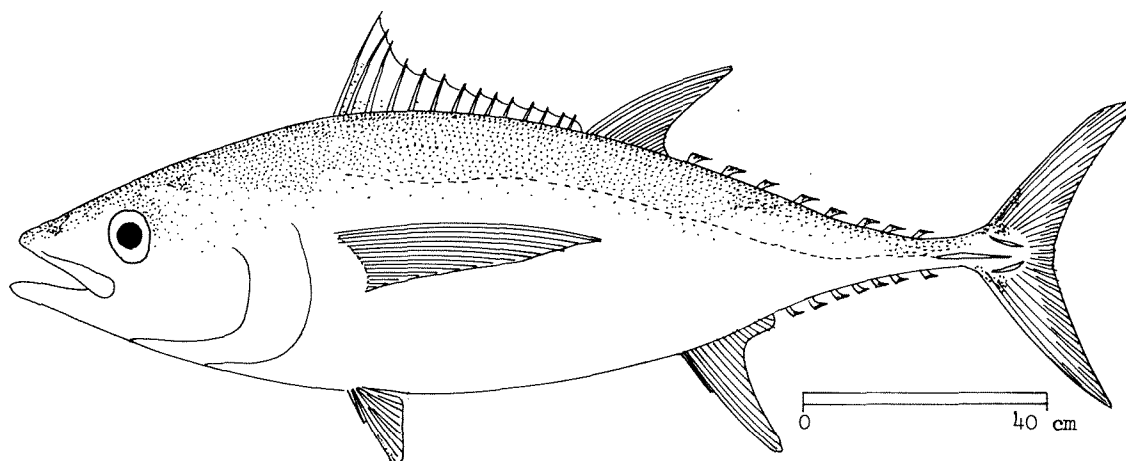
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

Thunnus obesus (Lowe, 1839)

SYNONYMS STILL IN USE: *Parathunnus mebachi* Kishinouye, 1923
Parathunnus sibi (Temminck & Schlegel, 1844)



VERNACULAR NAMES:

FAO: En - Bigeye tuna
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A large fish with an elongate, fusiform body, slightly compressed from side to side. Gill rakers 23 to 31 on first arch. 2 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), 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; first dorsal fin deep yellow, second dorsal and anal fins light yellow, finlets bright yellow edged with black.



interpelvic process
Thunnus spp.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

T. albacares: no striations on ventral surface of liver, second dorsal and anal fins elongated in large adults, and 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.

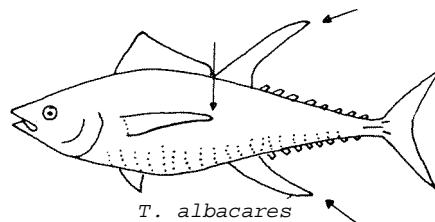
T. tonggol: fewer gill rakers (19 to 25; 23 to 31 in *T. obesus*), no striations on ventral surface of liver, no swimbladder, and horizontally oriented pale spots and streaks on lower sides.

T. maccoyii: more gill rakers (31 to 40) and pectoral fins shorter (not more than 80% of head length, 20 to 23% of fork length).

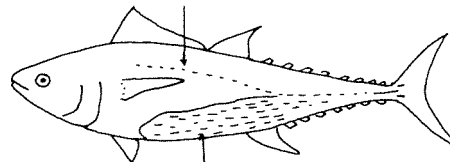
T. alalunga: a prominent white border to caudal fin, the greatest body depth nearest the second dorsal and anal fin origins instead of more anteriorly, and usually pectoral fins longer (reaching about to second dorsal finlet, usually 30% of fork length or more; pectoral fins of Indo-Pacific specimens of *T. obesus* in the 40 to 100 cm fork length range overlap that of *T. alalunga*).

SIZE:

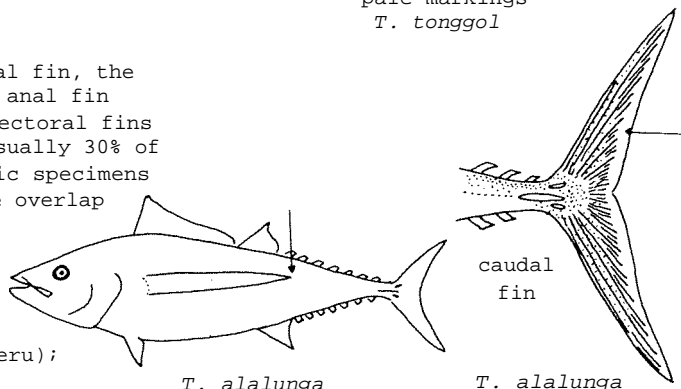
Maximum: 236 cm (hook and line record from Peru);
common: 60 to 180 cm.



T. albacares



pale markings
T. tonggol



caudal fin

T. alalunga

T. alalunga

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout area, to 30°S; also, westward to East and South Africa, northward to Japan, and eastward almost to coasts of Americas.

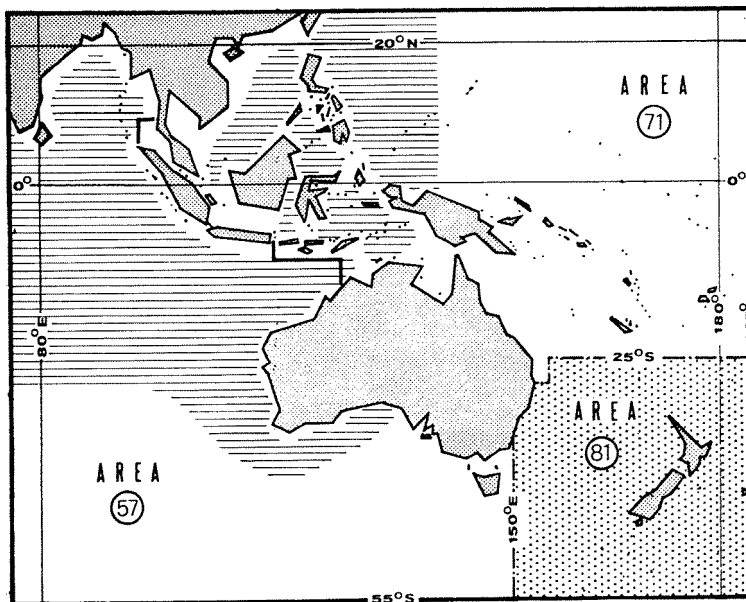
A pelagic oceanic species, taken from the surface to depths of 250 m.

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

FAO Species Synopsis No. 11 (as *Parathunnus mebachi*) and No. 14 (as *P. sibi*).

PRESENT FISHING GROUNDS:

Open waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

The total reported catch in 1972 was:

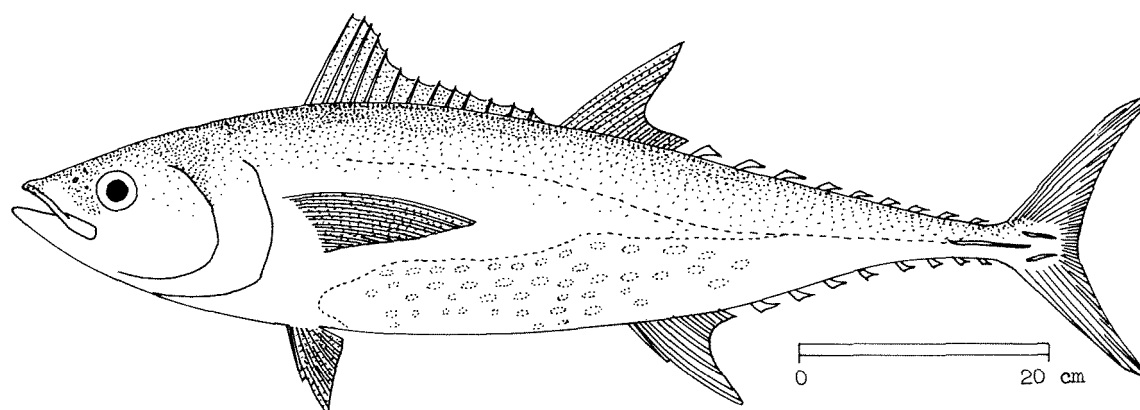
- area 57 (Eastern Indian Ocean): 1 600 tons (Japan only)
- area 71 (Western Central Pacific): 19 600 tons (Japan only)

Caught mainly with longlines; longlining has accounted for 90 to 95% of the Pacific catch since about 1957; occasionally, purse seines are also used.

Marketed mainly canned and frozen; also dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCOMBRIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Thunnus tonggol* (Bleeker, 1851)SYNONYMS STILL IN USE: *Kishinoella tonggol* (Bleeker, 1851)

VERNACULAR NAMES:

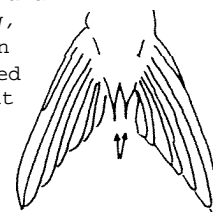
FAO: En - Longtail tuna
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

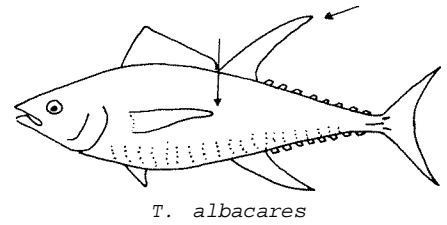
A small species with a fusiform and rounded body. Gill rakers few, 19 to 26 on first arch. 2 dorsal fins, separated only by a narrow interspace, the second higher than the first and followed by 9 finlets; pectoral fins with 30 to 35 soft rays, short to moderately long, 22 to 31% of fork length in smaller specimens (under 60 cm fork length) and 16 to 22% in larger individuals; 2 flaps (interpelvic process) between pelvic fins; anal fin followed by 8 finlets. 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 elongated 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.

interpelvic
process
Thunnus spp.

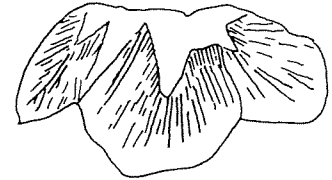
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

All other *Thunnus* species: more gill rakers (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.



T. albacares

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



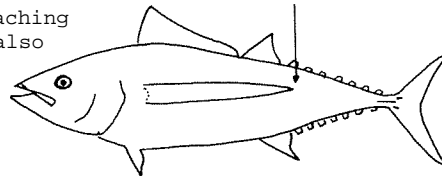
ventral surface of liver

T. maccoyii

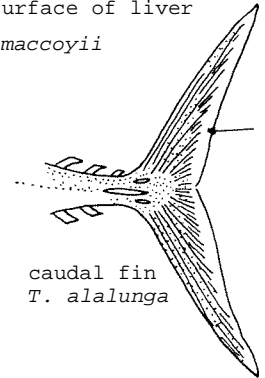
T. maccoyii: gill rakers (31 to 40); pectoral fins shorter (less than 80% of head length); swimbladder present, and liver ventrally striated.

T. obesus: gill rakers (23 to 31); swimbladder present, and liver ventrally striated.

T. alalunga: pectoral fins much longer, reaching backward well beyond end of second dorsal fin; also caudal fin white-edged; swimbladder present, and liver ventrally striated.



T. alalunga



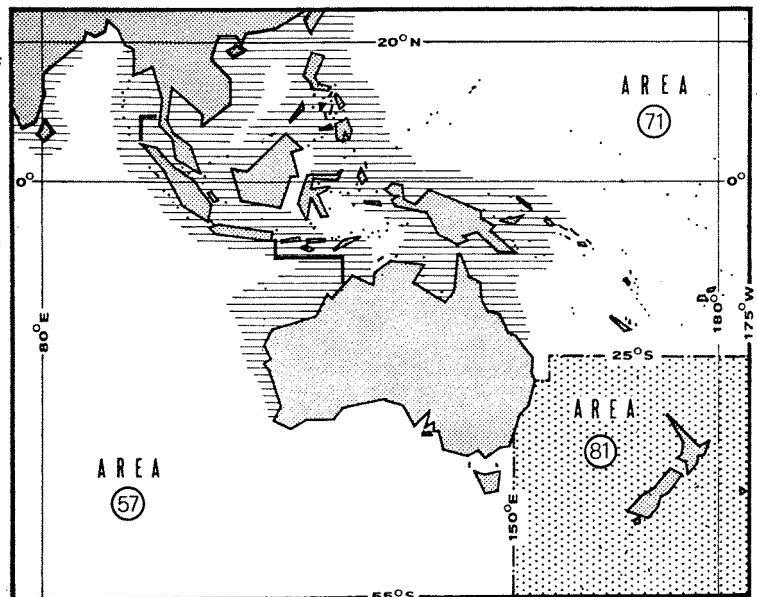
caudal fin
T. alalunga

SIZE:

Maximum: 105 cm; common: 40 to 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Most of northern part of area, southward to New South Wales and Fremantle (Australia); also, westward to Gulf of Aden and northward to Sea of Japan.



A largely coastal species but avoids to 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. 31.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.

CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with longlines.

Marketed mainly fresh and dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

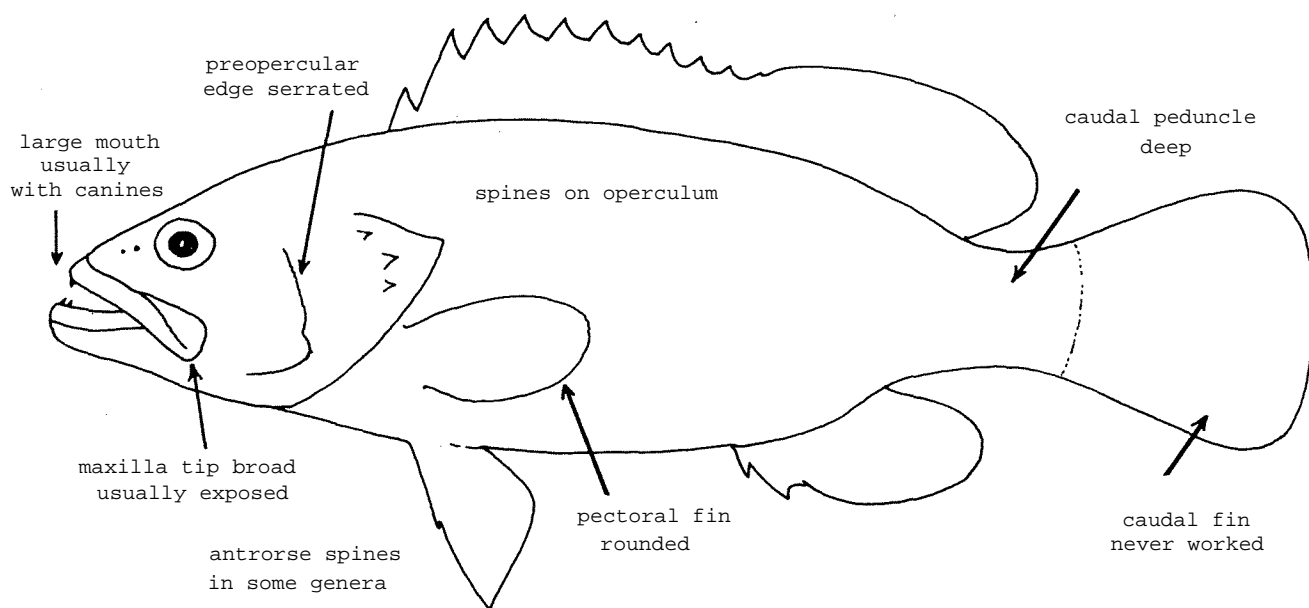
FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

SERRANIDAE

Groupers and Seabasses

(Anthiidae included by many authors, but omitted here
since not of commercial importance)

Oblong, moderately elongate, perch-like fishes. Mouth large, its cleft horizontal or oblique; maxilla tip broad, usually completely exposed or only partially hidden beneath suborbital bones when mouth closed. Teeth in a villiform band in jaws, with a few anterior canines and sometimes canines at sides of lower jaw; vomer and palatines (roof of mouth) toothed or smooth. Operculum with 1 to 3, usually flat spines; hind edge of preoperculum serrated, lower edge sometimes with antrorse (forward pointing) spines. Gill membranes separate from isthmus; 4 gill arches; pseudobranch present; gill rakers strong, long or short. Vertebrae 10 to 14, sometimes more, but not exceeding 35. Swimbladder small. A single dorsal fin, soft and spinous portions sometimes partially separated by a notch; 7 to 12 spines. Pectoral fins normally rounded. Pelvic fins with 1 spine and 5 soft rays, close to base of pectoral fins; axillary scale present but inconspicuous. Anal fin with 3 spines, mostly strong, but sometimes weak. Caudal peduncle usually deep; caudal fin with 7 to 8 principal rays, its hind edge rounded, truncate, lunate or emarginate, but never forked. Scales small or moderate in size, mostly ctenoid (rough to touch), sometimes cycloid (smooth), firmly embedded in skin; head scaled.



SIMILAR FAMILIES OCCURRING IN THE AREA:

Grammistidae: upper border of operculum attached to body by a flap of skin; nasal organ elongate (with horizontal lamellae in most genera, but arranged in a circle in *Diploprion* and *Aulacocephalus*; in a rosette in Serranidae); also, mucus of skin toxic, with bitter taste.

Pseudogrammidae: resemble Serranidae and Grammistidae, but do not reach more than 9 cm length.

Theraponidae, Kuhliidae, Plectorhynchidae, etc.: mouth moderate, upper jaw not reaching beyond eye centre; also, many species have dark horizontal stripes along body or oblique stripes on caudal fin.

Centropomidae: spinous and soft portions of dorsal fin clearly separated at base of fin, 7 to 8 spines in dorsal fin and a single strong spine on operculum.

Key to Genera

1 a. Spinous and soft portions of dorsal fin completely or partially separated by a deep notch (Fig. 1); no canine teeth in jaws

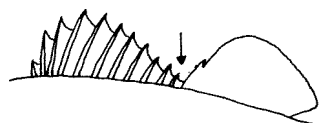
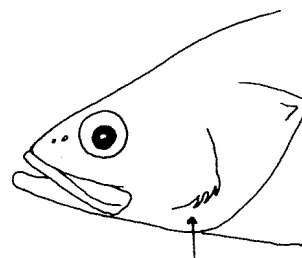


Fig. 1

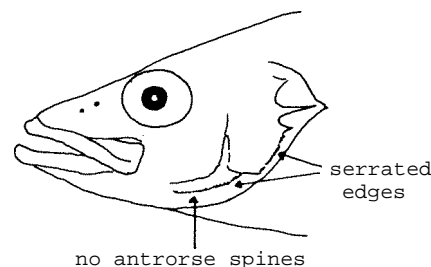
2 a. Preoperculum with strong antrorse spines at its angle (Fig. 2); edges of sub- and interoperculum smooth; distance between origins of pelvic and anal fins greater than length of head *Lateolabrax*



antrorse spines at angle of preoperculum

Fig. 2

2 b. Preoperculum with a strong spine at its lower angle but no antrorse spines on lower edge (Fig. 3); edges of sub- and interoperculum serrated; distance between origins of anal and pelvic fins shorter than length of head *Niphon*



no antrorse spines

Fig. 3

1 b. Spinous and soft portions of dorsal fin not separated by a deep notch (Fig. 4)

3 a. Canine teeth absent in jaws; head anteriorly very low, with a smoothly concave profile, becoming convex before the dorsal fin; hind nostril a vertical slit; dorsal fin with 10 spines *Cromileptes*

3 b. Canine teeth present in jaws; head normal, invariably with a convex profile; hind nostril normal, round; dorsal fin with 6 to 11 spines

4 a. Scales large, 40 to 55 along lateral line

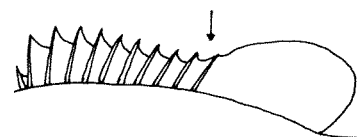
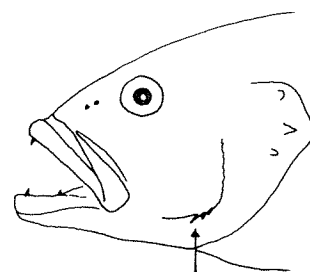


Fig. 4

5 a. Anal fin with 6 soft rays; 42 to 45 scales in lateral line; a few hinged teeth in upper jaw *Chelidoperca*

5 b. Anal fin with 9 soft rays; 50 to 55 scales in lateral line; no depressible teeth in upper jaw *Aethaloperca*

- 4 b. Scales small, over 80 along lateral line; 7 to 12 soft rays in anal fin
- 5 a. 6 to 8 dorsal fin spines; lower edge of preoperculum with several antrorse spines (Fig. 5) *Plectropomus*
- 5 b. 9 to 11 dorsal. fin spines; lower edge of preoperculum without antrorse spines
- 6 a. 2 to 3 curved canines on each side of lower jaw (Fig. 6)
- 7 a. Caudal fin deeply lunate, soft parts of dorsal and anal fins forming triangular lobes (Fig. 7) *Variola*
- 7 b. Caudal fin truncate, soft parts of dorsal and anal fins rounded posteriorly *Gracilia*
- 6 b. No distinct enlarged canines on each side of lower jaw; caudal fin rounded, truncate or emarginate (Fig. 8)
- 8 a. 9 dorsal fin spines *Cephalopholis*
- 8 b. 11 dorsal fin spines
- 9 a. Palatines toothless *Anyperodon*
- 9 b. Palatines toothed
- 10 a. 10 to 12 soft anal fin rays; preoperculum edge angulate (Fig. 9); body rhomboid, laterally compressed; caudal fin truncate; colour uniformly dark brown *Trisotropis*
- 10 b. 7 to 9 soft anal fin rays; preoperculum edge rounded or with slight angle only; body oblong and relatively less compressed laterally; caudal fin mostly rounded, sometimes truncate; colour not uniformly dark brown
- 11 a. Dorsal fin spines shorter than soft rays, increasing in length posteriorly (Fig. 10); body with black and yellow bands in young, becoming mottled dark and yellow in adult; pectoral fin dark or black-banded *Promicrops*
- 11 b. Dorsal fin spines more or less equal in length to soft rays, with median ones the longest (Fig. 11) colour not as above *Epinephelus*



antrorse spines at angle of preoperculum
Fig. 5

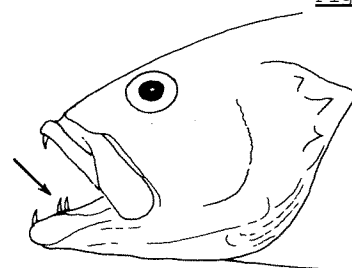


Fig. 6

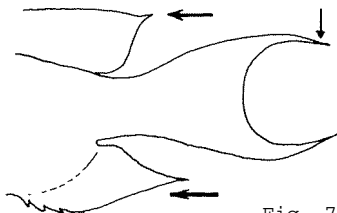
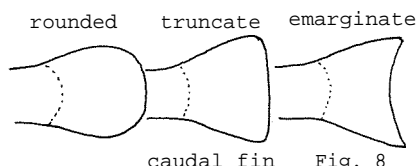


Fig. 7



caudal fin Fig. 8

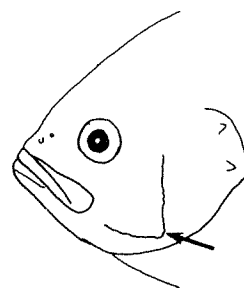
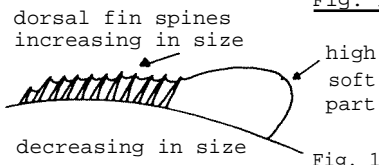


Fig. 9



dorsal fin spines increasing in size
high soft part
decreasing in size
Fig. 10

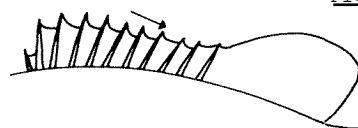


Fig. 11

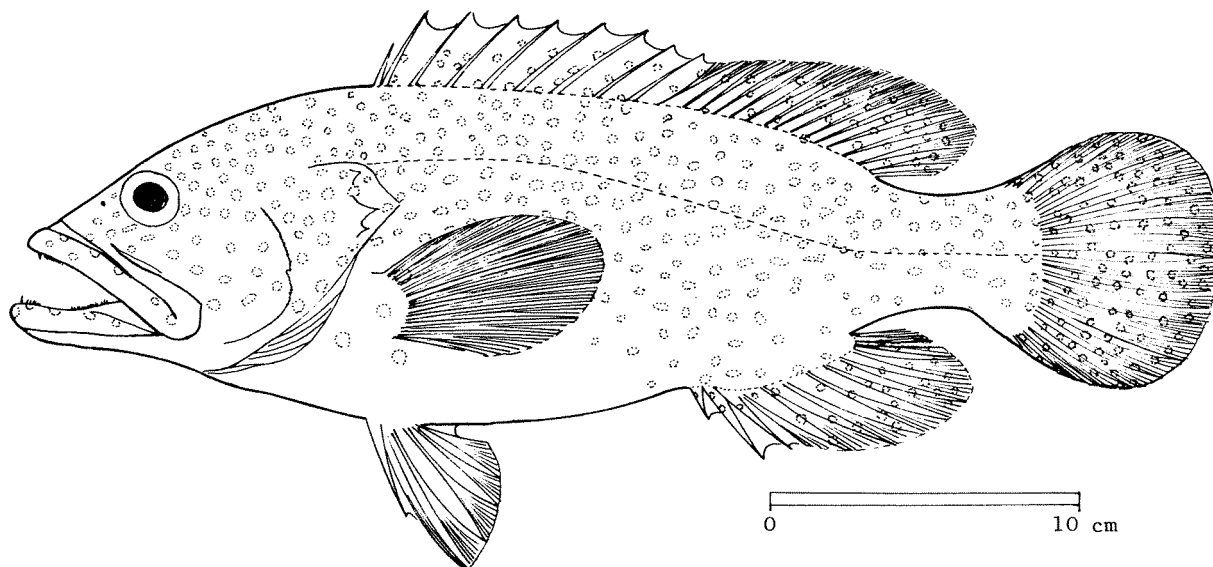
List of Species occurring in the Area*
(Code numbers are given for those species
for which Identification Sheets are included)

<i>Aethaloperca rogoa</i>		<i>Epinephelus hoedtii</i>	
		<i>Epinephelus kohleri</i>	
<i>Anyperodon leucogrammicus</i>		<i>Epinephelus latifasciatus</i>	
		<i>Epinephelus maculatus</i> (<i>medurensis</i> or <i>fario</i> of authors)	
<i>Cephalopholis argus</i>		<i>Epinephelus malabaricus</i>	
<i>Cephalopholis aurantius</i>		<i>Epinephelus megachir</i>	SERRAN Epin 10
<i>Cephalopholis boenack</i>		<i>Epinephelus merra</i>	
<i>Cephalopholis cyanostigma</i>		<i>Epinephelus moara</i>	
<i>Cephalopholis leopardus</i>		<i>Epinephelus morrhua</i>	
<i>Cephalopholis miniatus</i>	SERRAN Cephal 1	<i>Epinephelus retouti</i>	
<i>Cephalopholis nigripinnis</i>		<i>Epinephelus rhyncholepis</i>	
<i>Cephalopholis pachycentron</i>	SERRAN Cephal 2	<i>Epinephelus septemfasciatus</i>	
<i>Cephalopholis sexmaculatus</i> (<i>C. coatesi</i> of authors)		<i>Epinephelus sexfasciatus</i>	
<i>Cephalopholis sonnerati</i>	SERRAN Cephal 3	<i>Epinephelus summana</i>	SERRAN Epin 11
<i>Cephalopholis urodelus</i>		<i>Epinephelus tauvina</i>	SERRAN Epin 12
		<i>Epinephelus truncatus</i> (perhaps not in area)	
<i>Chelidoperca hirundacea</i>		<i>Epinephelus undulosus</i>	
<i>Cromileptes altivelis</i>	SERRAN Cromil 1	<i>Gracilia albomarginatus</i>	
		<i>Lateolabrax japonicus</i> (perhaps not in area)	
<i>Epinephelus akaora</i>		<i>Nippon spinosus</i>	
<i>Epinephelus amblycephalus</i>			
<i>Epinephelus areolatus</i>	SERRAN Epin 4	<i>Plectropomus leopardus</i>	SERRAN Plect 1
<i>Epinephelus awoara</i>	SERRAN Epin 5	<i>Plectropomus maculatus</i>	
<i>Epinephelus bleekeri</i>	SERRAN Epin 6	<i>Plectropomus melanoleucus</i>	
<i>Epinephelus brunneus</i>	SERRAN Epin 7	<i>Plectropomus oligacanthus</i>	
<i>Epinephelus chlorostigma</i>		<i>Plectropomus truncatus</i>	SERRAN Plect 2
<i>Epinephelus coeruleopunctatus</i>			
<i>Epinephelus corallicola</i>		<i>Promicrops lanceolatus</i>	SERRAN Promic 1
<i>Epinephelus diacanthus</i>			
<i>Epinephelus epistictus</i>		<i>Trisotropis dermopterus</i> (perhaps not in area)	
<i>Epinephelus fasciatomaculatus</i>			
<i>Epinephelus fasciatus</i>	SERRAN Epin 8	<i>Variola louti</i>	SERRAN Variol 1
<i>Epinephelus fuscoguttatus</i>	SERRAN Epin 9		
<i>Epinephelus gilberti</i>			
<i>Epinephelus hexagonatus</i>			

* List tentative and by no means conclusive since many genera urgently need revision

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Cephalopholis miniatus* (Forsskål, 1775)SYNONYMS STILL IN USE: *Enneacentrus miniatus* Munro, 1955
Cephalopholis miniatus Munro, 1967

VERNACULAR NAMES:

FAO: En - Vermilion seabass
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A small serranid fish with a stout body. No canine teeth at sides of jaws. Dorsal fin with 9 spines and 14 to 15 soft rays. Anal fin with 3 spines and 9 soft rays. Caudal fin rounded. Scales extending more or less onto basal portions of fins.

Colour: orange, red or red/brown, brighter on belly; head, body and unpaired fins covered with small blue spots, ringed with dark brown; pectoral and pelvic fins sometimes with a few spots also; inside of gill opening more or less tinged with red; unpaired fins and pelvic fins with narrow dark brown margins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Cephalopholis aurantius: blue or golden spots restricted to head and front of body.

Cephalopholis argus: also has blue spots on body (outlined in dark brown), but soft part of dorsal fin and anal and caudal fins with yellow margins (dark brown in *C. miniatus*); also, 15 to 17 soft dorsal fin rays (14 to 15 in *C. miniatus*).

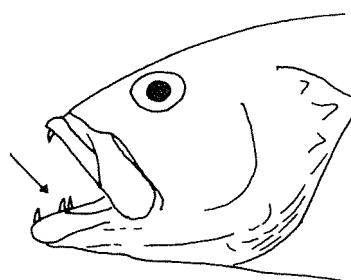
Cephalopholis sonnerati and *C. nigripinnis*: spots only present on head and front of body (white in *C. sonnerati*; yellow or blue in *C. nigripinnis*).

Other *Cephalopholis* species: body with darker vertical bars (or horizontal blue bars in *C. boenack*), or dark saddle-like blotches on back (*C. sexmaculatus*) or on caudal peduncle (*C. leopardus*); also, spots either restricted to head or of different colour (brown, red, black, etc., not blue).

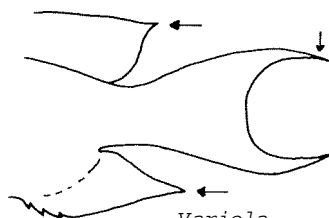
Variola species: caudal fin lunate (emarginate in juveniles) and canine teeth at sides of jaws.

Epinephelus, *Cromileptes* and *Promicrops* species: 10 to 11 dorsal fin spines (9 in *Cephalopholis*).

Plectropomus species: only 6 to 8 dorsal fin spines.



Variola



Variola
(adults)

SIZE:

Maximum: 50 cm; common: 30 to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

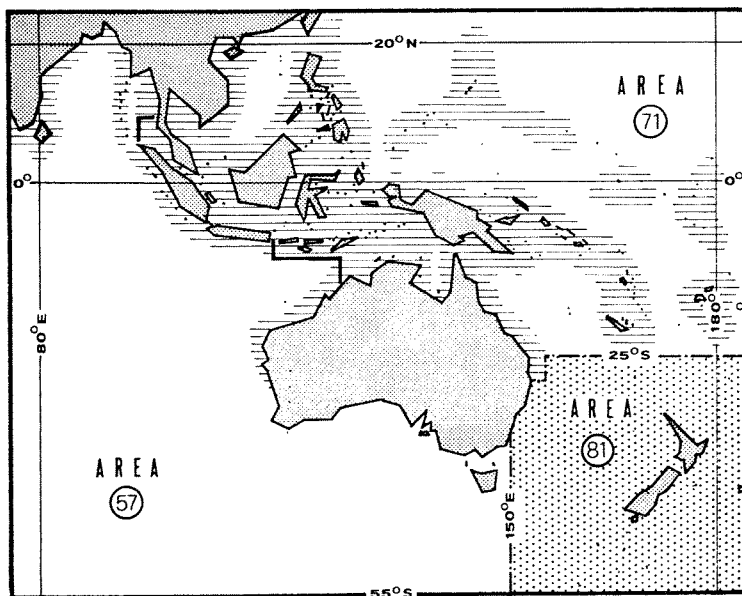
Throughout warm coastal waters of area.

Inhabits coral reefs and rocky areas.

Feeds on bottom-living invertebrates and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with handlines and traps.

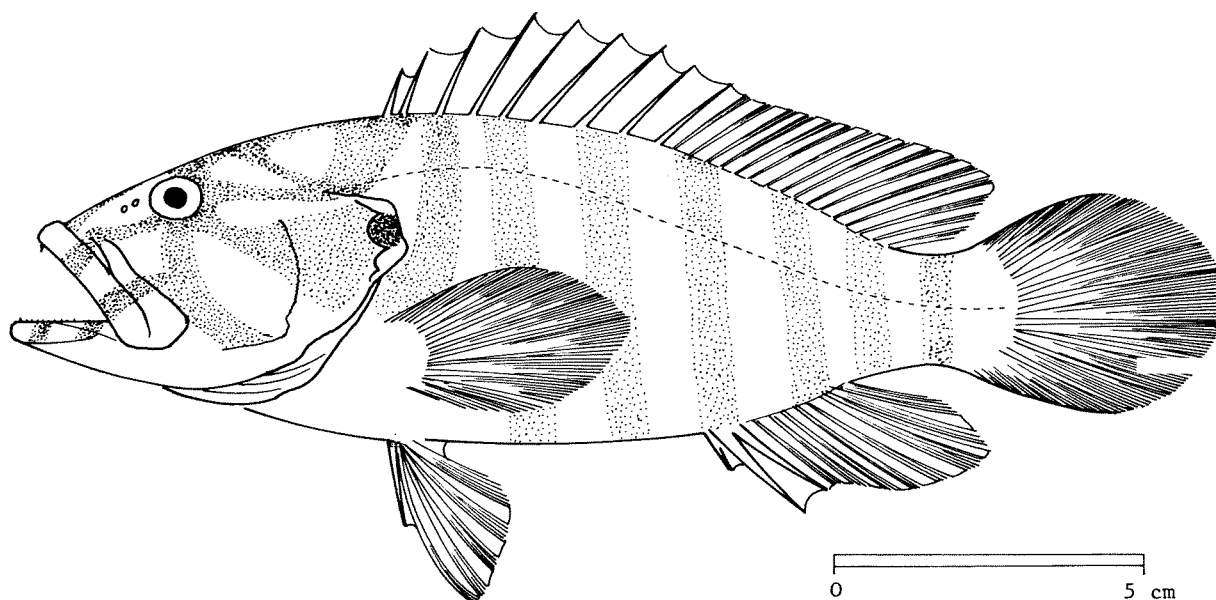
Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Cephalopholis pachycentron* (Valenciennes, 1828)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Brown-banded seabass
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A small serranid fish with a stout body. No canine teeth at sides of jaws. *Dorsal fin* with 9 spines and 15 to 17 soft rays. *Anal fin* with 3 spines and 8 soft rays. *Caudal fin* rounded. Scales extending more or less onto basal portions of fins.

Colour: varies from dark chocolate brown to a very pale red/brown; 8 more or less distinct darker vertical bars on body, almost disappearing when the basic colour is pale red/brown. Head often with small black-edged blue spots that may extend onto front part of body; 4 to 5 dark brown streaks radiating from eye to upper jaw and hind part of head. A black/brown blotch between upper and lower opercular spine. Soft parts of dorsal and anal fins with narrow white margins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Cephalopholis aurantius: head, body and fins orange/red (pale to dark red/brown in *C. pachycentron*), without bars.

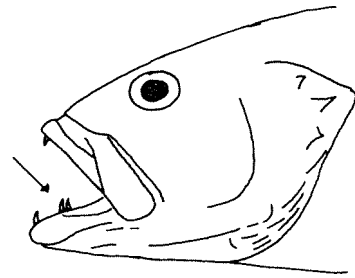
Other *Cephalopholis* species with bars: spots all over body, not just on head and front of body; also, bars horizontal and blue in *C. boenack*, or reduced to saddle-like blotches in *C. sexmaculatus* and *C. leopardus*.

Other *Cephalopholis* species: dominant colour pattern is spots, not bars; also, usually 9 soft anal fin rays (8 in *C. pachycentron*).

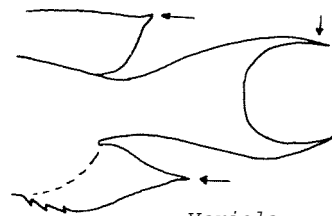
Variola species: caudal fin lunate (emarginate in juveniles) and canine teeth at sides of jaws.

Epinephelus, *Cromileptes* and *Promicrops* species: 10 to 11 dorsal fin spines (9 in *Cephalopholis*).

Plectropomus species: only 6 to 8 dorsal fin spines.



Variola



Variola
(adults)

SIZE:

Maximum: 30 cm; common: 15 to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

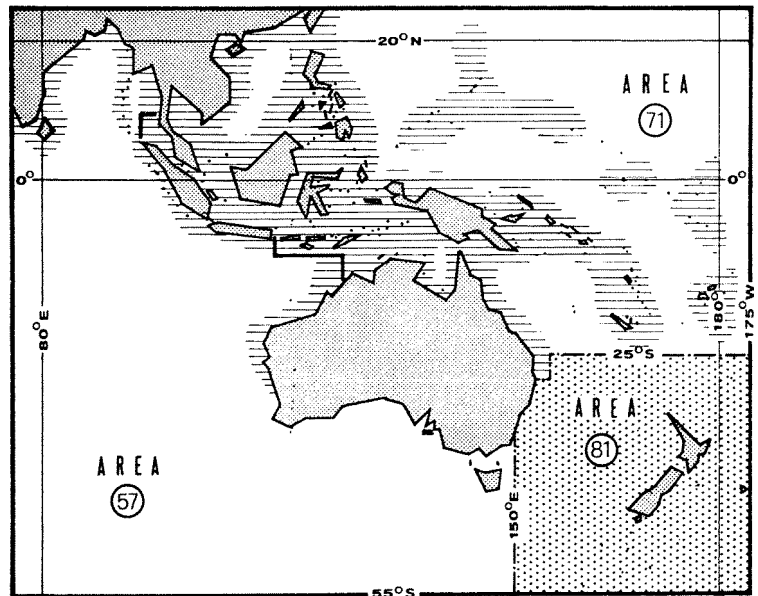
Throughout warm coastal waters of area.

Inhabits shallow coral reefs and rocky areas.

Feeds on smaller bottom-living invertebrates and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

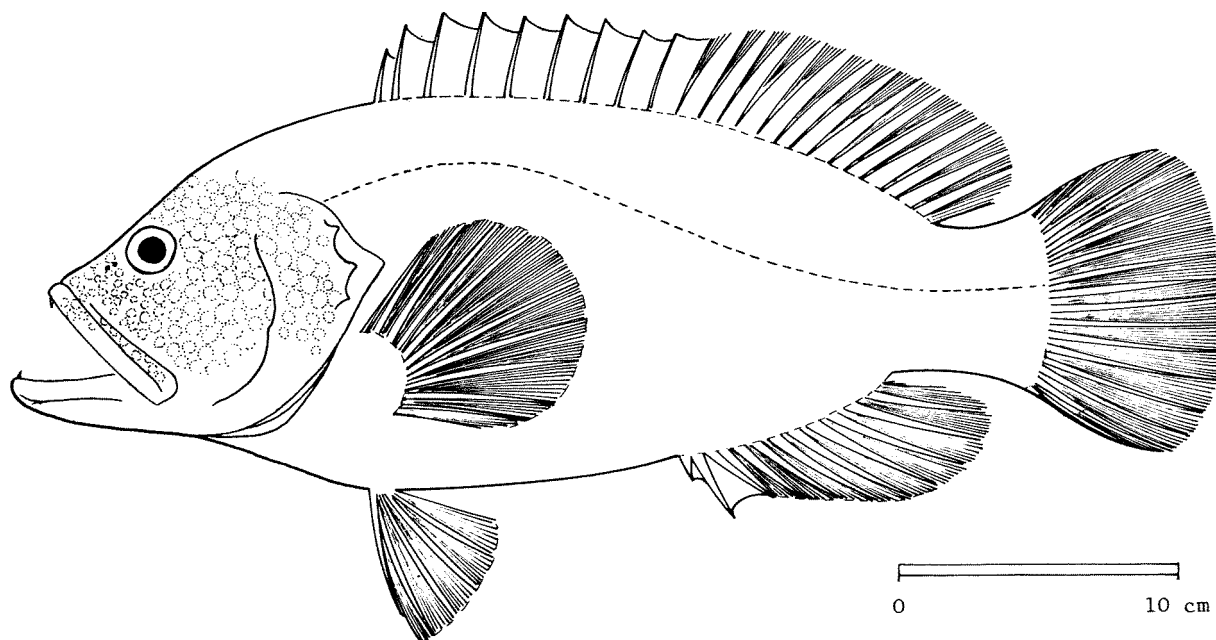
Separate statistics are not reported for this species.

Caught mainly with handlines, traps, gill nets and purse seines.

Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Cephalopholis sonnerati* (Valenciennes, 1828)SYNONYMS STILL IN USE: *Enneacentrus sonnerati* Munro, 1955
Cephalopholis sonnerati Munro, 1967

VERNACULAR NAMES:

FAO: En - Tomato seabass
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A small-sized serranid fish with a stout body. No canine teeth at sides of jaws. Dorsal fin with 9 spines and 14 to 15 soft rays. Anal fin with 3 spines and 9 soft rays. Caudal fin rounded. Fine scales extending onto basal portion of fins.

Colour: body and fins brilliant red; head with numerous white spots.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Cephalopholis nigripinnis: spots on head and front of body yellow or blue, body dark red/brown and pectoral and caudal fins broadly edged with white.

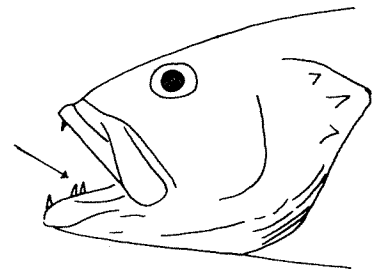
Cephalopholis aurantius: head, body and fins orange/red and spots on head and front of body blue or golden (white in *C. sonnerati*).

Other *Cephalopholis* species: either spots present over entire body (blue spots in *C. miniatus* and *C. argus*) or darker bars on body (or saddle-like blotches in *C. semmaculatus* and *C. leopardus*).

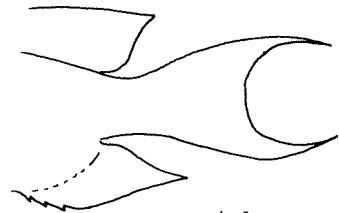
Variola species: caudal fin lunate (emarginate in juveniles) and canine teeth at sides of jaws.

Epinephelus, *Cromileptes* and *Promicrops* species: 10 to 11 dorsal fin spines (9 in *Cephalophotis*).

Plectropomus species: only 6 to 8 dorsal fin spines.



Variola



Variola
(adults)

SIZE:

Maximum: 60 cm; common: 30 to 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

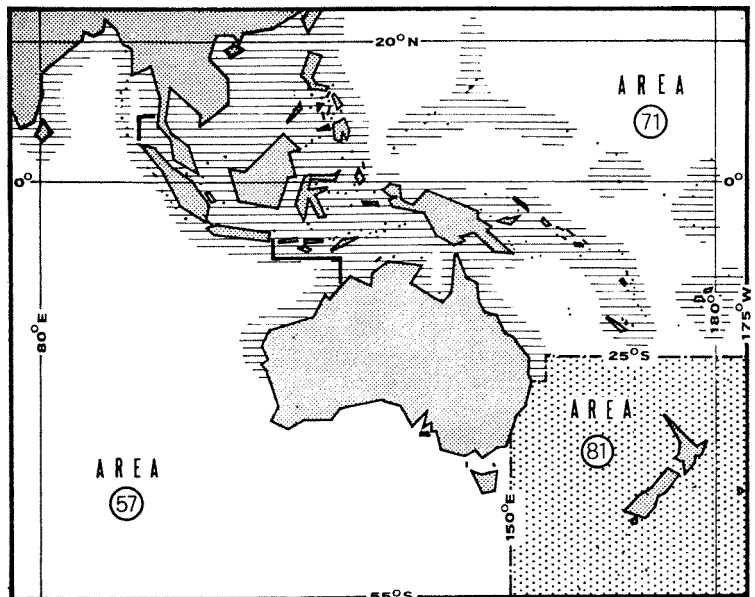
Throughout warm coastal waters of area.

Inhabits shallow coral reefs and rocky areas.

Feeds on bottom-living invertebrates and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

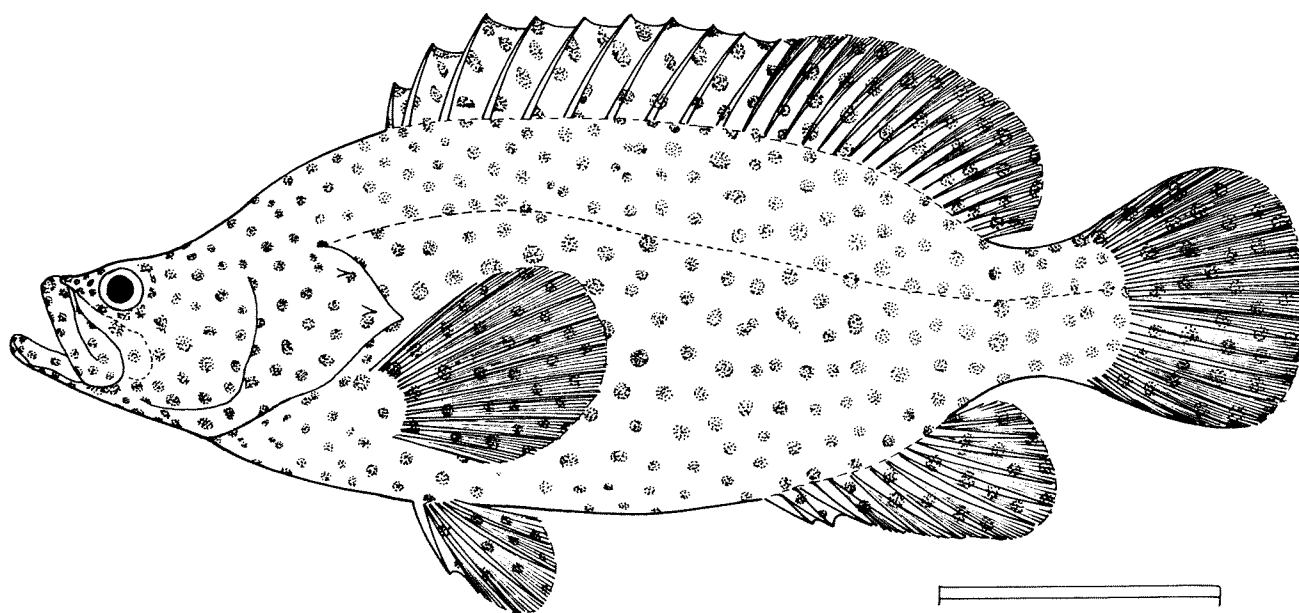
Separate statistics are not reported for this species.

Caught mainly with handlines and traps.

Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Cromileptes altivelis* (Valenciennes, 1828)SYNONYMS STILL IN USE: *Serranus altivelis* (Valenciennes, 1828)

VERNACULAR NAMES

FAO: En - Humpback seabass
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A moderate-sized, compressed serranid fish; anterior part of head low and flattened, its dorsal profile deeply concave behind eyes. Canine teeth completely absent. Preoperculum finely serrated along its upper edge, but without any enlarged spinules at angle. 2 flat spines on operculum. Dorsal fin with 10 spines and 18 to 19 soft rays; soft dorsal fin rays long, about half the length of head, slightly longer than the longest fin spine. Anal fin with 3 spines and 9 to 11 soft rays. Caudal fin rounded.

Colour: body light brown with numerous dark brown spots; head and all fins similarly spotted; with age the relative size of spots decreases, and the number of spots increases.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Other serranid genera: upper head profile convex; also, dorsal fin spines 11 (*Epinephelus*, *Promicrops*), 9 (*Variola*, *Cephalopholis*) or 6 to 8 (*Plectropomus*) (10 in *Cromileptes*).

SIZE:

Maximum: 70 cm; common: 45 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

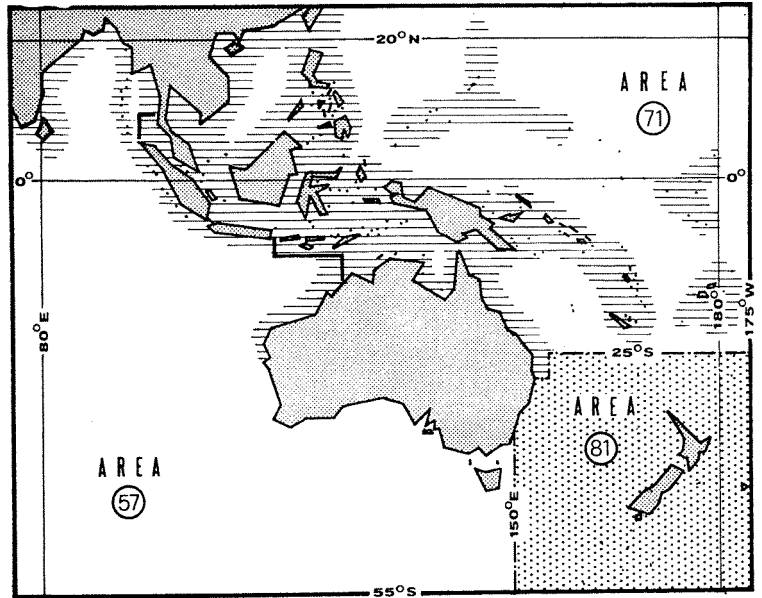
Throughout warm coastal waters of area.

Inhabits shallow waters of coral and rocky reefs.

Feeds on bottom-living invertebrates and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

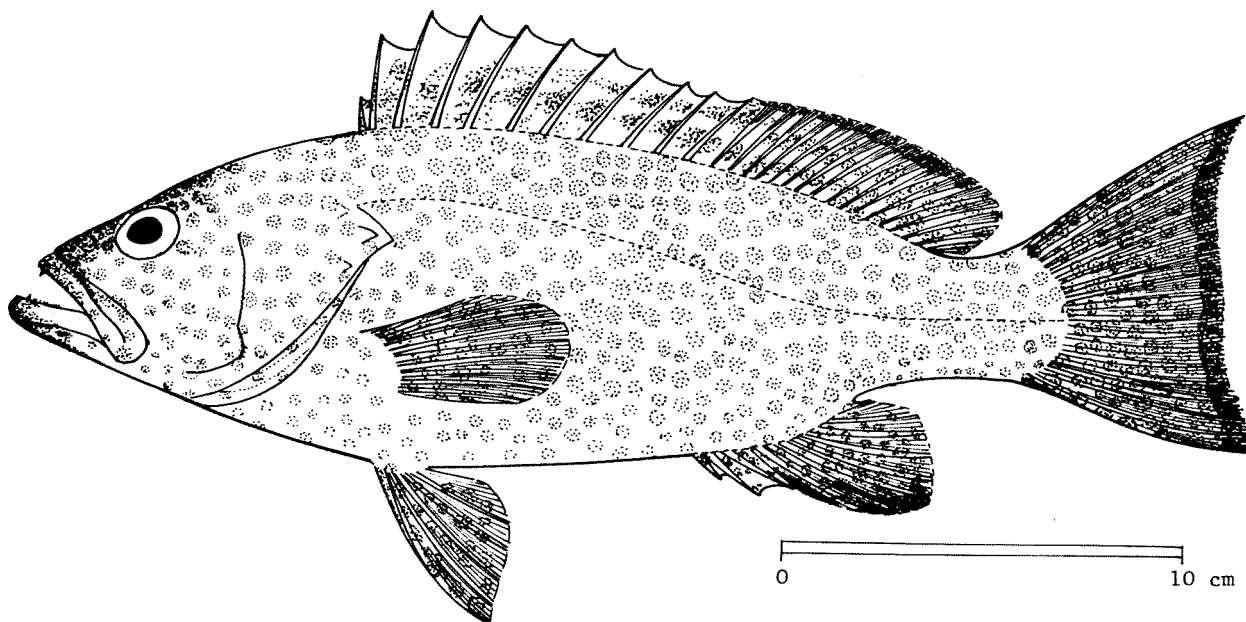
Separate statistics are not reported for this species.

Caught mainly with handlines, traps and gill nets.

Marketed fresh only.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Epinephelus areolatus* (Forsskål, 1775)SYNONYMS STILL IN USE: *Serranus aereolatus* Fowler & Bean, 1930

VERNACULAR NAMES:

FAO: En - Areolated grouper
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly small serranid fish with a slender and laterally compressed body. Preoperculum with a convex and finely serrated upper edge and 2 to 4 enlarged spinules at angle. Operculum with convex upper border and 3 flat spines, the middle spine equidistant from upper and lower ones. Teeth in narrow bands, in 2 series on sides of jaws, teeth of inner series longer and depressible; canines at front of jaws. Dorsal fin with 11 spines and 15 to 16 soft rays. Caudal fin truncate to emarginate.

Colour: ground colour of head, body and fins pale brown, covered by dark green/brown spots; spots on fins usually darker; caudal and soft part of dorsal and anal fins edged dusky black but with a fine white outer margin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus fuscoguttatus and *E. corallicola*: no spinules at angle of preoperculum, caudal fin rounded (truncate or emarginate in *E. areolatus*) and 3 to 4 black blotches along back at base of dorsal fin.

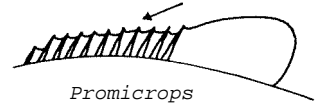
Epinephelus bleekeri and *E. maculatus*: spots on body respectively orange/red or red with black centres; also, caudal fin rounded.

Epinephelus summana and *E. coeruleopunctatus*: spots on body respectively pale yellow (or white) or blue; also, caudal fin rounded.

Epinephelus tauvina: spots on body red/brown, dark vertical or oblique stripes on body and caudal fin rounded.

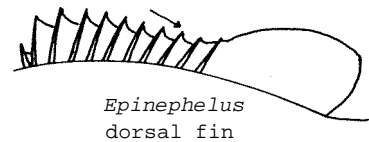
Other *Epinephelus* species: stripes present on body, or spots much larger, sometimes forming reticulated honeycomb pattern.

Promicrops species: dorsal fin spines increase in length posteriorly, the longest spine shorter than soft rays.



Cephalopholis, *Cromileptes* and *Variola* species: 9 to 10 dorsal fin spines (11 in *Epinephelus*).

Plectropomus species: 6 to 8 dorsal fin spines.



SIZE:

Maximum: 40 cm; common: 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

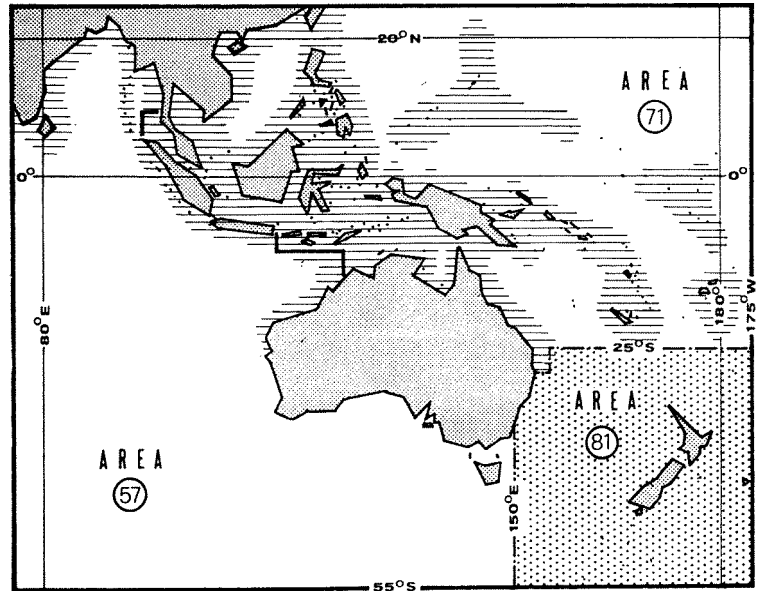
Throughout warm coastal waters of area.

Inhabits coastal waters down to 80 m.

Feeds on bottom-living invertebrates and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of unspecified *Epinephelus* species in 1972 was: 7 900 tons (Philippines: 7 800 tons; Singapore: 100 tons).

Caught mainly with bottom longlines, handlines and bottom trawls.

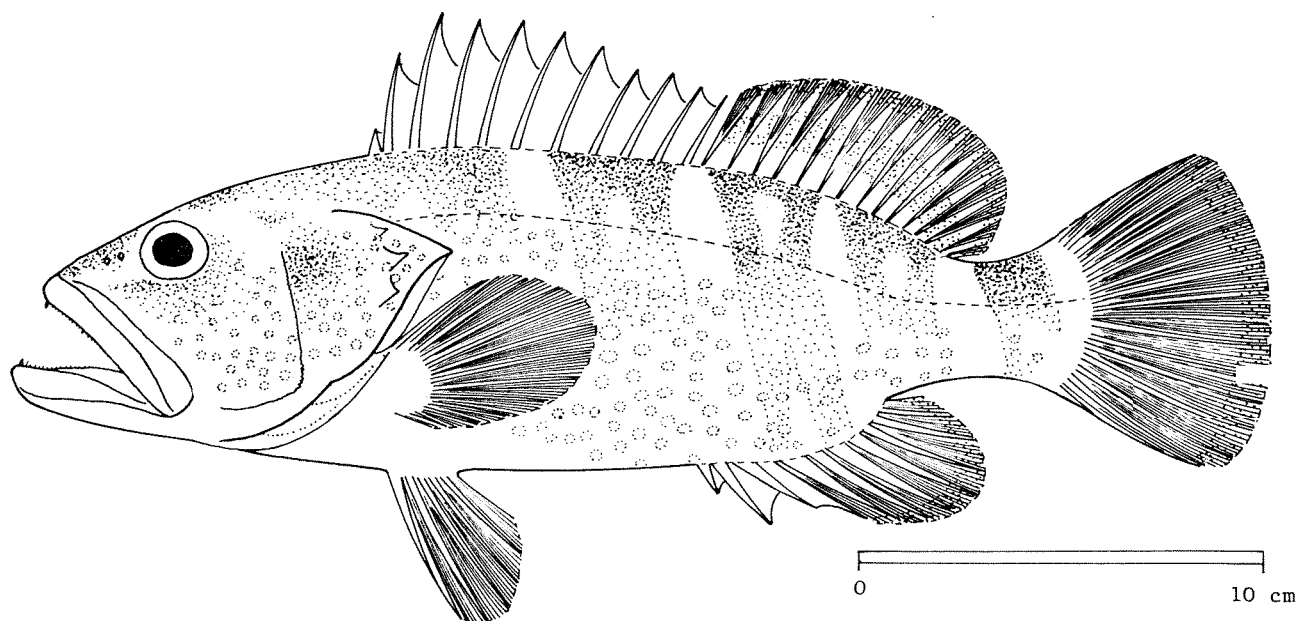
Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Epinephelus awoara* (Temminck & Schlegel, 1842)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Yellow grouper
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly small serranid fish with an oblong and laterally compressed body. Preoperculum with a slightly convex upper edge and 4 to 5 spinules at angle. Operculum with convex upper border and 3 flat spines, the middle one closer to the lower one. Teeth in narrow bands, in 2 series on sides of jaws, teeth of inner series longer and depressible; canines at front of jaws. Dorsal fin with 11 spines and 15 to 16 soft rays. Caudal fin rounded.

Colour: ground colour pale brown above, yellow on underside of head and body; body with yellow spots and 5 dark brown oblique bands leaning forward and distinctly forked along most of their length; fins with yellow margins; juveniles with dark bands, but often without yellow spots.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

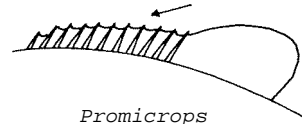
Epinephelus sexfasciatus, *E. akaora*, *E. fasciatomaculatus* and *E. tauvina*: oblique brown bands lean backward; spots on body and fins brown (*E. sexfasciatus*), red/brown (*E. tauvina*) or orange/red (*E. akaora*, *E. fasciatomaculatus*) (yellow in *E. awoara*).

Epinephelus brunneus, *E. septemfasciatus* and *E. moara*: oblique brown bands lean backward (in *E. brunneus*, 2 curved brown bands on head) and no spots on or between bands.

Epinephelus fasciatus: body red, with dark red bands; also, margin of spinous dorsal fin black.

Other *Epinephelus* species: colour pattern wholly spotted or reticulated.

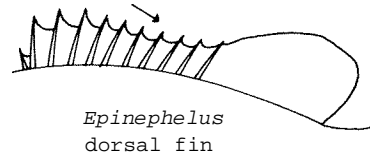
Promicrops species: dorsal fin spines increasing in length posteriorly, the longest spine shorter than soft rays.



Promicrops

Cephalopholis, *Cromileptes* and *Variota* species: 9 to 10 dorsal fin spines (11 in *Epinephelus*).

Plectropomus species: 6 to 8 dorsal fin spines.



Epinephelus
dorsal fin

SIZE:

Maximum: 50 cm; common: 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

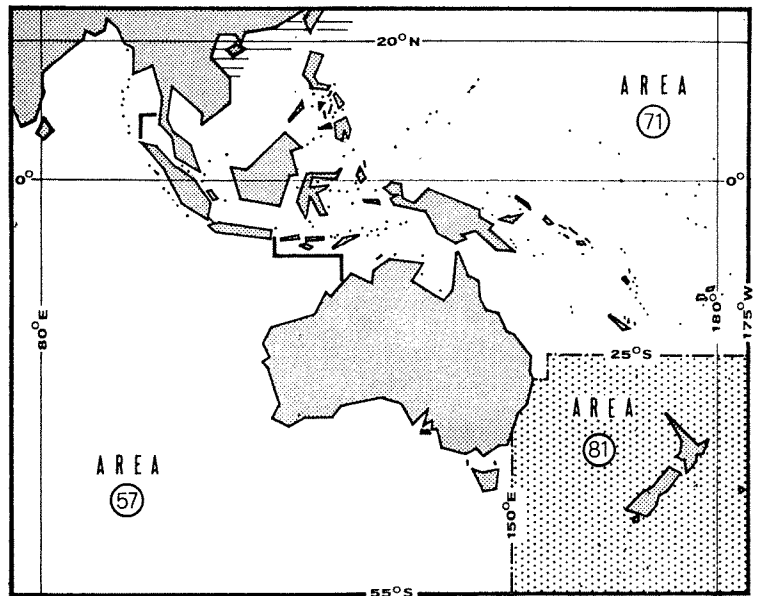
Coasts of China and Vietnam; also, northwards to Japan.

Shallow coastal waters down to 80 m.

Feeds on bottom-living invertebrates and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of unspecified *Epinephelus* species in 1972 was: 7 900 tons (Philippines: 7 800 tons; Singapore: 100 tons).

Caught mainly with bottom longlines and trawls.

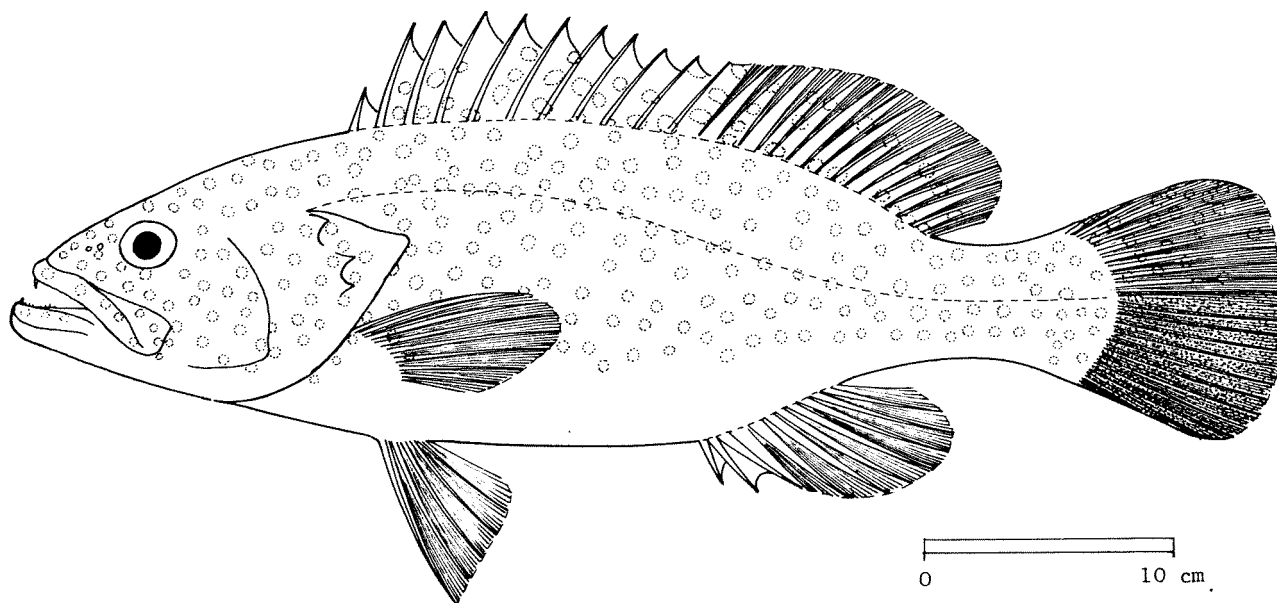
Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Epinephelus bleekeri* (Vaillant & Bocourt, 1877)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Bleeker's grouper
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A medium-sized serranid fish with an elongate and laterally compressed body. Preoperculum with a convex, finely serrated upper edge and a shallow notch above its angle, but no enlarged spinules on latter. Operculum with a straight upper border and 3 flat spines, the middle spine about equidistant from lower and upper ones. Teeth in narrow bands, in 2 series on sides of jaws, teeth of outer series longer, those of inner series shorter and depressible; canines at front of jaws. Dorsal fin with 11 spines and 16 to 17 soft rays. Caudal fin slightly rounded.

Colour: ground colour light brown above, lighter brown below; upper parts of head and body, pelvic and anal fins, and upper half of caudal fin covered with orange to orange/red spots; lower half of caudal fin and outer edge of anal fin purple/brown.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus maculatus: spots on body red with a black centre.

Epinephelus tauvina: spots on body red/brown and darker vertical or oblique stripes.

Epinephelus fuscoguttatus and *E. corallicola*: 3 to 4 black blotches along back at base of dorsal fin; also, upper border of gill cover strongly convex (straight in *E. bleekeri*).

Epinephelus areolatus: spots on body dark green/brown; also, caudal fin truncate or emarginate (rounded in *E. bleekeri*).

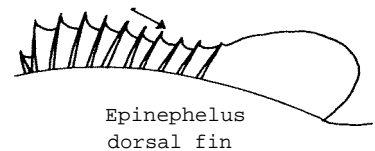
Epinephelus surmnana and *E. coeruleopunctatus*: spots on body respectively pale yellow (or white) or blue.

Other *Epinephelus* species: stripes present on body, or spots much larger, sometimes forming a reticulated honeycomb pattern.

Promicrops species: dorsal fin spines increasing in length posteriorly, the longest spine shorter than soft rays.

Cephalopholis, *Cromileptes* and *Variola* species: 9 to 10 dorsal fin spines (11 in *Epinephelus*).

Plectropomus species: 6 to 8 dorsal fin spines.



SIZE:

Maximum: 75 cm; common: 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

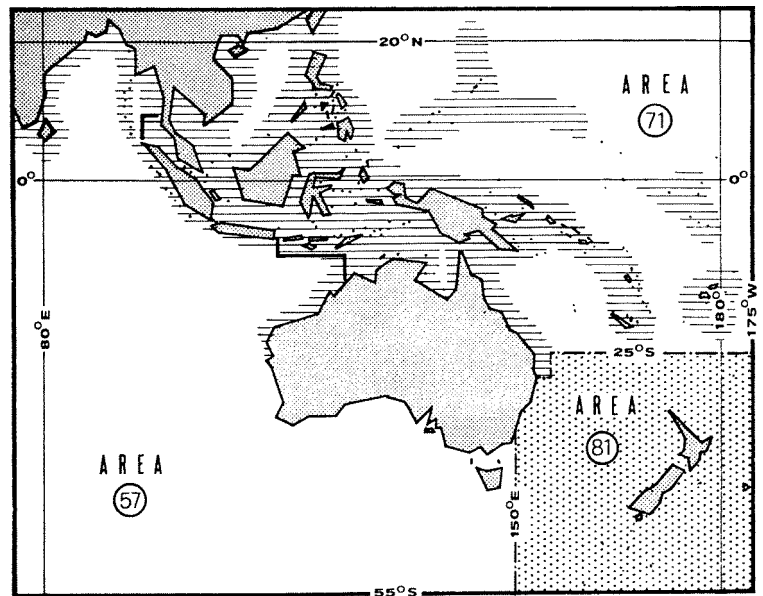
Throughout warm coastal waters of area.

Inhabits shallow waters of coral and rocky areas.

Feeds on bottom-living crustaceans and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of unspecified *Epinephelus* species in 1972 was: 7 900 tons (Philippines: 7 800 tons; Singapore: 100 tons).

Caught mainly with bottom longlines, handlines and bottom trawls.

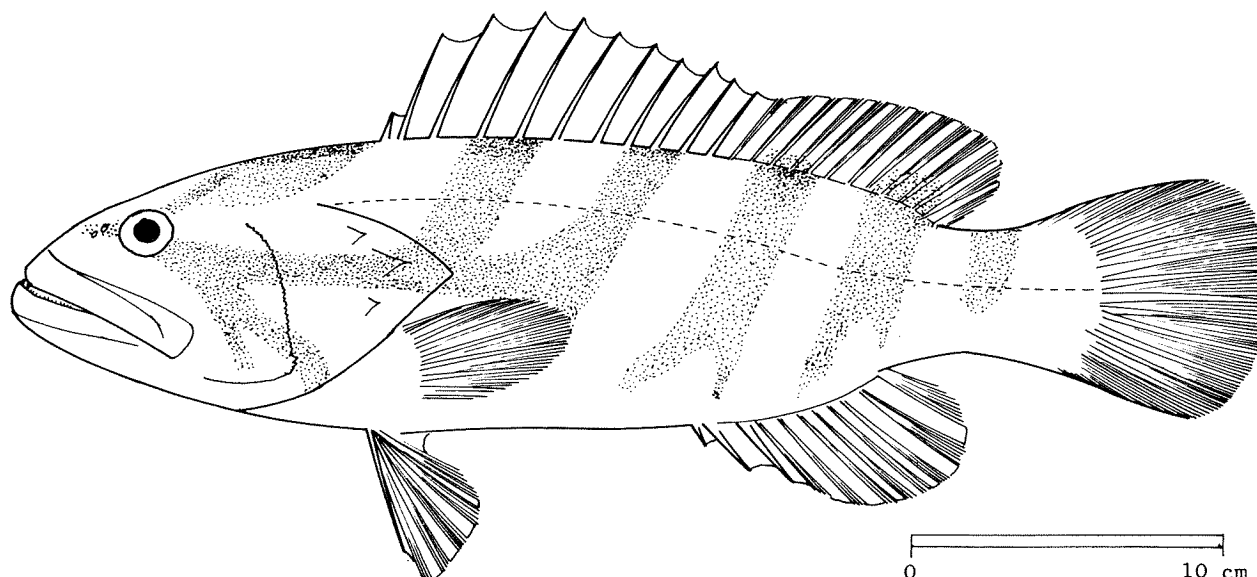
Marketed mostly fresh; also dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Epinephelus brunneus* (Bloch, 1793)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Mud grouper
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A large serranid fish with an oblong and laterally compressed body. Preoperculum with a conspicuously inclined serrated upper edge and 3 to 4 small spinules at angle. Operculum with upper border convex and 3 flat spines, the middle one closer to the lower one. Teeth in narrow bands, in 2 series on sides of jaws, those of inner series longer and depressible; canines at front of jaws. Dorsal fin with 11 spines and 13 to 14 soft rays. Caudal fin rounded.

Colour: head, body and fins varying from olive/brown to brown; 5 to 6 partially paired oblique dark bands leaning backward, and 4 dark curved bands radiating from eye to snout and hind part of head in the young and subadults; dark bands sometimes forming blotches and disappearing in fish larger than 60 cm.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus septemfasciatus: bands not continued onto head and no spinules at angle of preoperculum.

Epinephelus moara: soft part of dorsal fin higher than spinous part and usually with 15 soft rays (13 to 14 in *E. brunneus*).

Epinephelus fasciatus: dark red bands on red body.

Other *Epinephelus* species: dark bands interspersed with spots, or only spots (or blotches) present, sometimes forming a reticulated pattern.

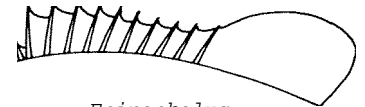
Promicrops species dorsal fin spines increasing in length posteriorly, the longest spine shorter than soft fin rays.

Cephalopholis, *Cromileptes* and *Variola* species: 9 to 10 dorsal fin spines (11 in *Epinephelus*).

Plectropomus species: 6 to 8 dorsal fin spines.



Promicrops



Epinephelus dorsal fin

SIZE:

Maximum: 150 cm;
common: 40 to 90 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

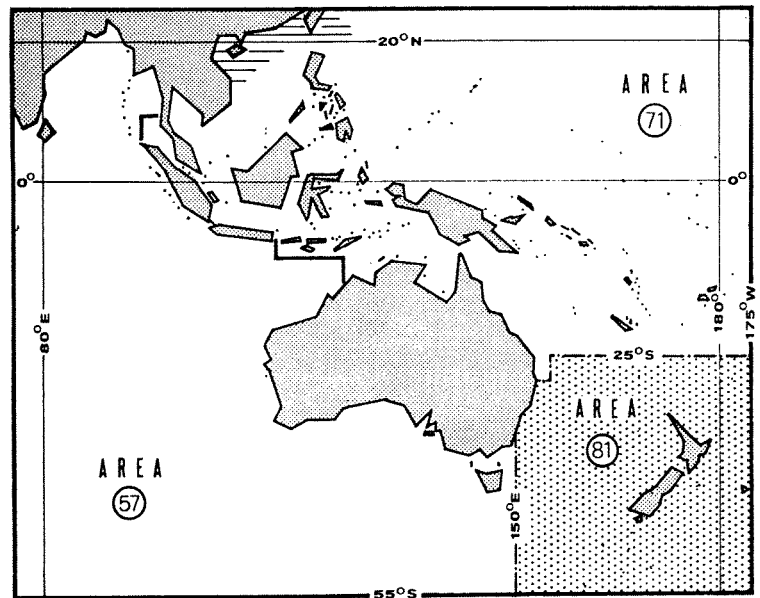
Coasts of China and Vietnam.

Inhabits coastal areas, down to 100 m.

Feeds on bottom-living invertebrates and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of *Epinephelus* species in 1972 was 7 900 tons (Philippines: 7 800 tons; Singapore: 100 tons).

Caught mainly with bottom longlines and trawls.

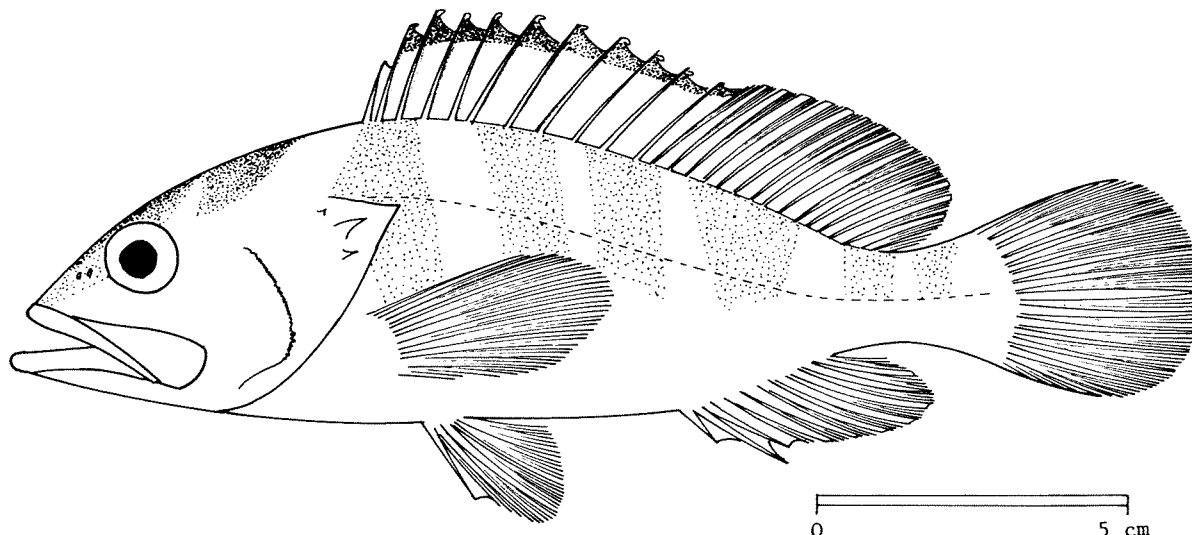
Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEET

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Epinephelus fasciatus* (Forsskål, 1775)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Red-banded grouper
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A small serranid fish with an oblong and somewhat robust body. Preoperculum with a convex, finely serrated upper edge, its angle slightly produced and bearing enlarged spinules. Operculum with upper border straight and 3 flat spines, the middle spine equidistant from upper and lower ones. Teeth in narrow bands, in 2 to 3 series on sides of jaws, those of inner series longer and depressible; canines at front of jaws. Dorsal fin with 11 spines and 16 soft rays. Caudal fin rounded.

Colour: ground colour orange/red on head, body and fins; a red band from tip of snout along dorsal part of head through eye to front of dorsal fin; 6 red bands on body; margin of spinous dorsal fin black; upper part of iris black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

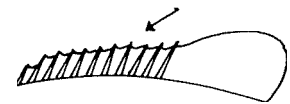
Other *Epinephelus* with stripes: either body and stripes not red or spots present between stripes; also, lack the distinctive black margin to spinous part of dorsal fin.

Other *Epinephelus* species: colour pattern wholly spotted, sometimes reticulated.

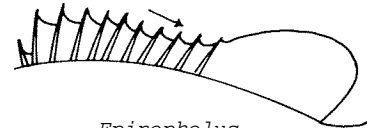
Promicrops species: dorsal fin spines increasing in length posteriorly, the longest spine shorter than soft rays.

Cephalopholis, *Cromileptes* and *Variola* species: 9 to 10 dorsal fin spines (11 in *Epinephelus*).

Pleotropomus species: 6 to 8 dorsal fin spines.



Promicrops



Epinephelus
dorsal fin

SIZE:

Maximum: 30 cm; common: 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

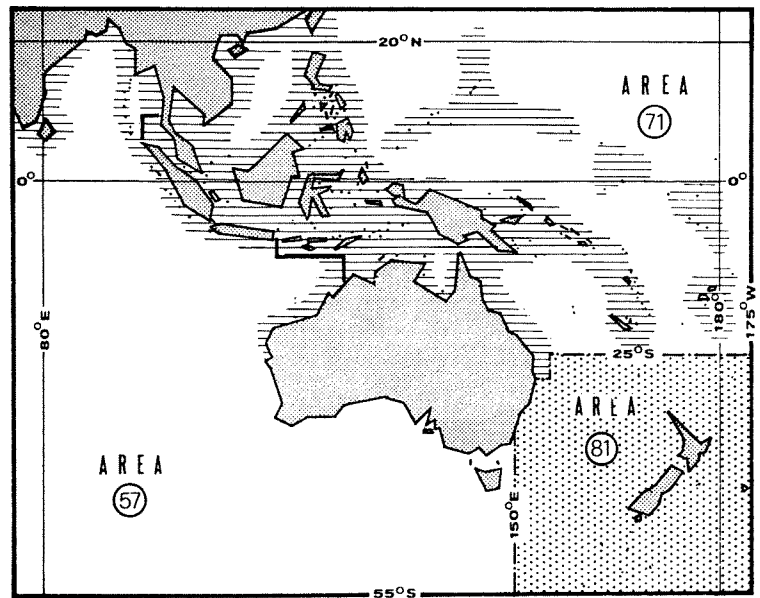
Throughout warm coastal waters of area.

Inhabits shallow waters of coral and rocky areas.

Feeds on bottom-living invertebrates and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of *Epinephelus* species in 1972 was 7 900 tons (Philippines: 7 800 tons; Singapore: 100 tons).

Caught mainly with handlines and traps.

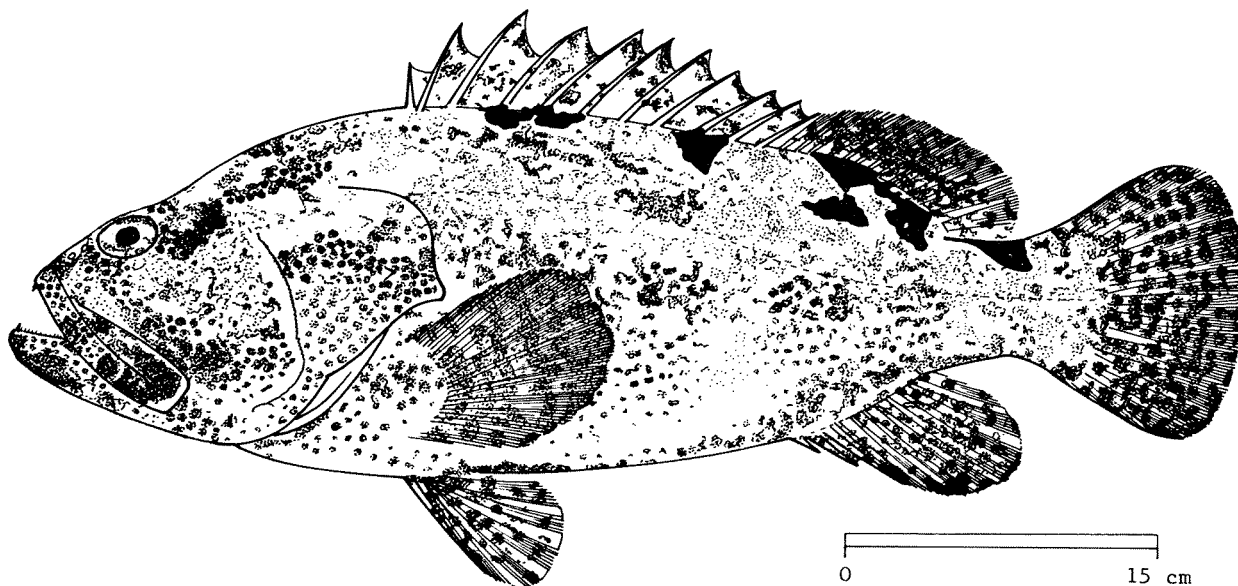
Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Epinephelus fuscoguttatus* (Forsskål, 1775)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Brown-marbled grouper
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A large serranid fish with an oblong and laterally compressed body. Preoperculum obtusely rounded and finely serrated along its upper edge; no enlarged spinules at angle. Operculum with upper border strongly convex and 3 flat spines, the upper and lower of which are poorly developed, the lower closest to edge of operculum. Gill rakers 17 to 20 on lower part of 1st arch. Teeth small, in narrow bands in young, in broad bands in adults, those of inner series longer and depressible; canines at front of jaws. Dorsal fin with 11 spines and 14 to 15 soft rays. Pectoral fin with 18 to 19 rays. Caudal fin rounded.

Colour: ground colour varying from olive/yellow to light brown, covered all over by numerous close-set dark brown spots, so that pale colour of narrow interspaces contrasts highly with dark spotting, especially on head; 4 black blotches, 3 along base of dorsal fin and 1 forming a black saddle on caudal peduncle.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus microdon: pectoral fin rays 16 or more (usually 17) and lower gill rakers 15 to 16 (18 to 19 pectoral fin rays and 17 to 20 gill rakers in *E. fuscoguttatus*).

Epinephelus corallicola: spots more dispersed and all fins with a narrow white edge.

Epinephelus areolatus: spots dark green/brown and caudal fin truncate.

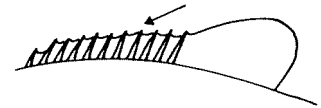
Other spotted *Epinephelus* species: spots red/brown, red, orange/red, yellow, white or blue; also, spots sometimes enlarged to form a honeycomb or reticulated pattern. (*E. megachir*, *E. merra*, etc.).

Other *Epinephelus* species: colour pattern wholly or partly striped.

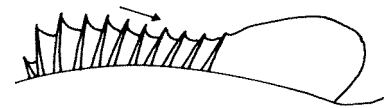
Promicrops species: dorsal fin spines increasing in length posteriorly, the longest spine shorter than soft rays.

Cephatopholis, *Cromileptes* and *Variola* species: 9 to 10 dorsal fin spines (11 in *Epinephelus*).

Plectropomus species: 6 to 8 dorsal fin spines.



Promicrops



Epinephelus
dorsal fin

SIZE:

Maximum: 120 cm;
common: 60 to 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

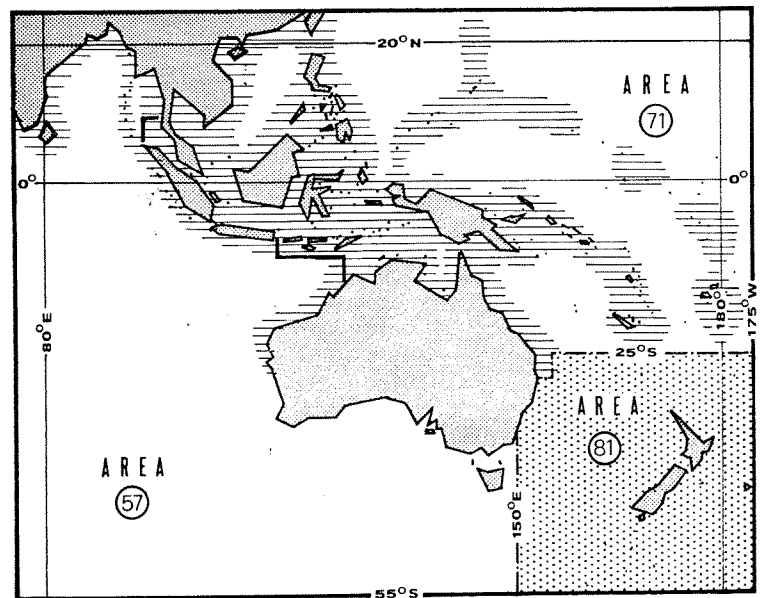
Throughout warm coastal waters of area.

Inhabits coastal areas and coral reefs, down to 60 m.

Feeds on bottom-living crustaceans and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

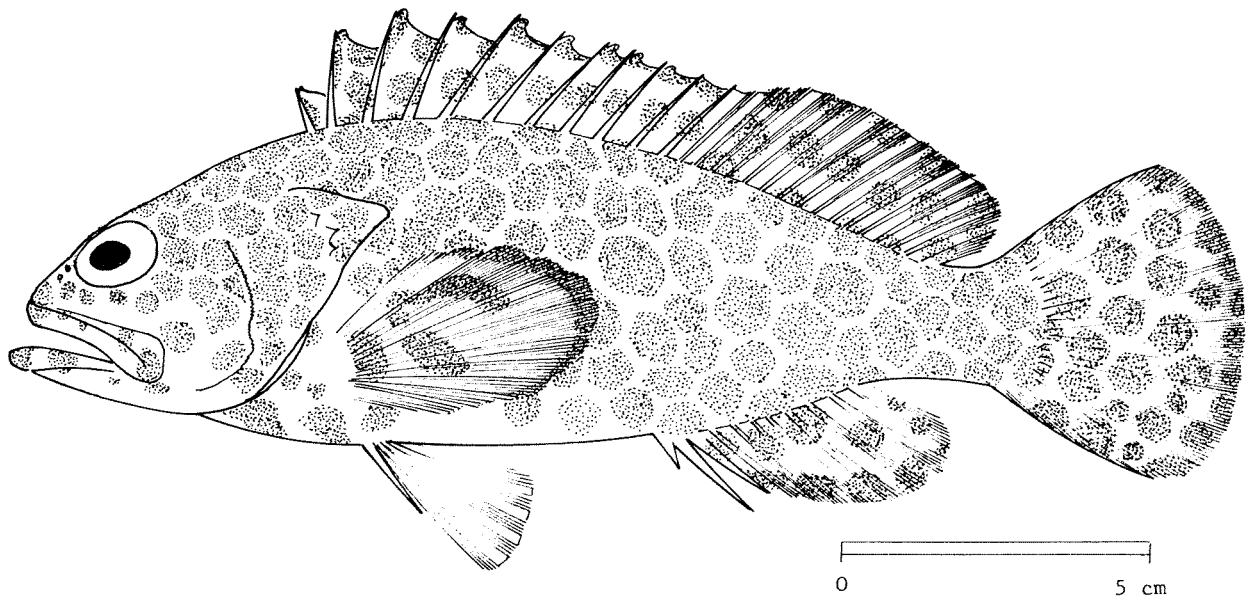
Separate statistics are not reported for this species. The total reported catch of *Epinephelus* species in 1972 was 7 900 tons (Philippines: 7 800 tons; Singapore: 100 tons).

Caught mainly with gill nets, traps, longlines and handlines.

Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Epinephelus megachir* (Richardson, 1846)SYNONYMS STILL IN USE: *Serranus megachir*: Fowler & Bean, 1930

VERNACULAR NAMES:

FAO: En - Honeycomb grouper
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A small serranid fish with an oblong and laterally flattened body. Preoperculum with a convex, finely serrated upper edge and a wide shallow notch above its angle, the latter without enlarged spinules. Operculum with a straight upper edge and 3 flat spines, the middle spine equidistant from upper and lower ones. Teeth in narrow bands, in 2 series on sides of jaws, those of inner series longer and depressible; canines at front of jaws. Dorsal fin with 11 spines and 16 to 18 soft rays. Pectoral fins broad and long, slightly longer than head without snout. Caudal fin rounded.

Colour: ground colour of head, body and fins pale brown, overlain by large honeycomb-like red blotches; breast with a W-shaped mark; pectoral fins with several indistinct red blotches, a curved red band across upper half of fins and a broad dusky black margin; underside of head also with red blotches.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus merra: small brown spots on all fins and spots of body red/brown (red in *E. megachir*).

Epinephelus chlorostigma: spots on body red/brown and very close-set.

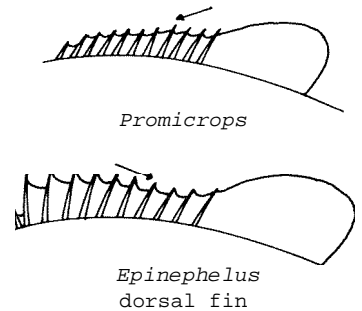
Epinephelus hexagonatus: white triangular spaces between blotches, 4 black blotches along base of dorsal fin and pectoral fins dusky orange (black-edged in *E. megachir*).

Other *Epinephelus* species: either small spots on body or else stripes dominate colour pattern.

Promicrops species: dorsal fin spines increasing in length posteriorly, the longest spine shorter than soft fin rays.

Cephalopholis, *Cromileptes* and *Variola* species: 9 to 10 dorsal fin spines (11 in *Epinephelus*).

Plectropomus species: 6 to 8 dorsal fin spines.



SIZE:

Maximum: 50 cm; common: 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

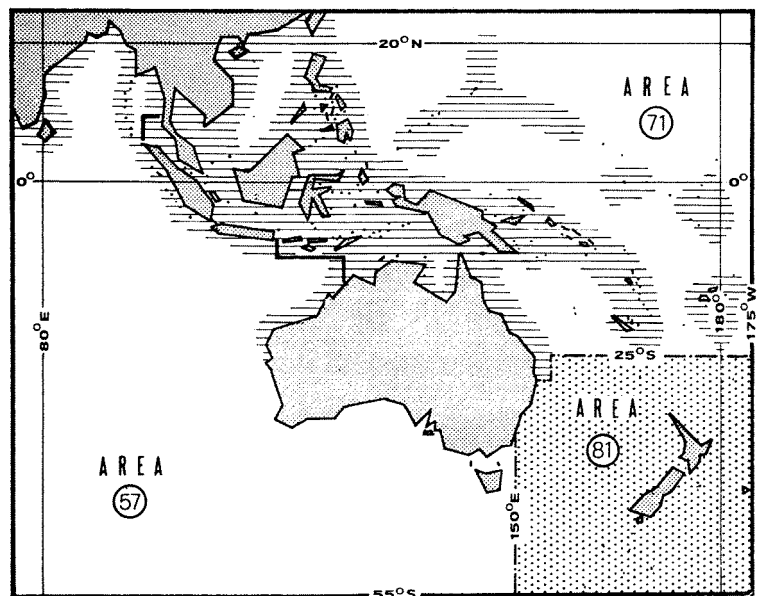
Throughout warm coastal waters of area.

Inhabits coastal waters, down to 80 m.

Feeds on bottom-living crustaceans and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of *Epinephelus* species in 1972 was 7 900 tons (Philippines: 7 800 tons; Singapore: 100 tons).

Caught mainly with bottom longlines, handlines and bottom trawls.

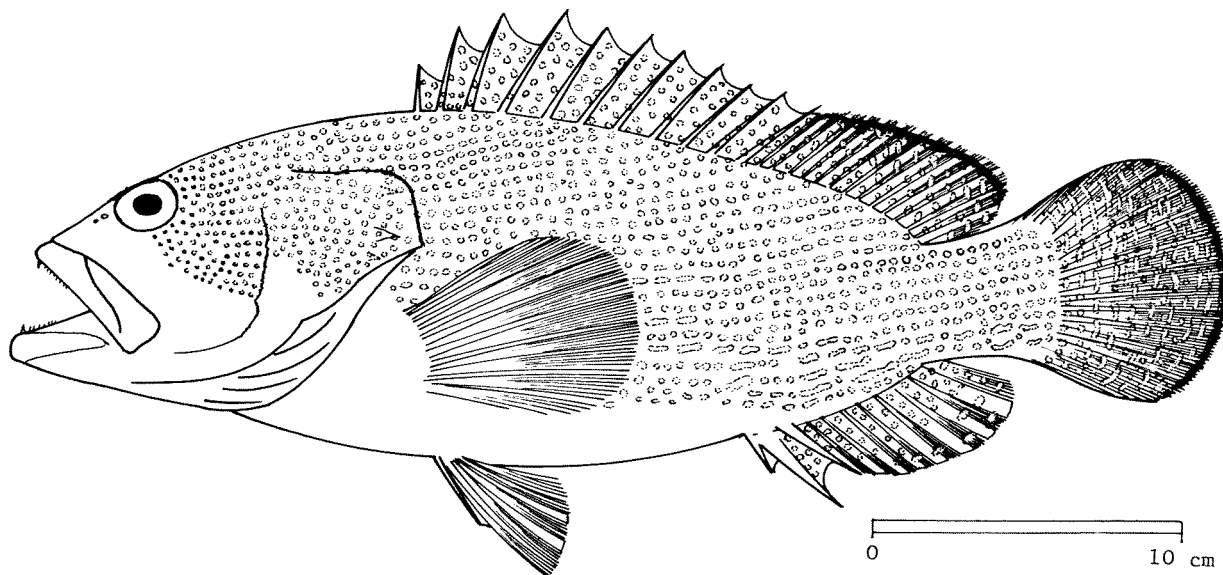
Marketed mostly fresh; also dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Epinephelus summana* (Forsskål, 1775)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Summan grouper
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A small serranid fish with an oblong and laterally compressed body. Preoperculum with a convex and finely serrated upper edge and a shallow notch above its angle, the latter without enlarged spinules. Operculum with a strongly convex upper edge and 3 flat spines, the middle spine closer to the lower one. Teeth in narrow bands, in 2 series on sides of jaws, the inner ones longer and depressible; canines at front of jaws. Dorsal fin with 11 spines and 14 to 15 soft rays. Caudal fin rounded.

Colour: ground colour dark brown, overlain by numerous pale yellow or white dots on head, body and median fins, sometimes forming short, uneven pale lines; dark brown vertical bands may be present; caudal fin, soft part of dorsal fin and anal fin with a dark brown margin and a fine, but distinct, white edge; pale yellow or white dots considerably larger in the young.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus coeruleopunctatus: spots on head and body blue; angle of preoperculum with enlarged spinules.

Epinephelus bleekeri, *E. maculatus*, *E. areolatus* and *E. tauvina*. spots on body respectively orange/red, red with black centres, dark green/brown and red/brown (also, dark bands in *E. tauvina*).

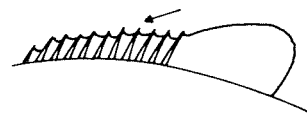
Epinephelus fuseoguttatus and *E. corallicola*: 3 to 4 black blotches along back at base of dorsal fin.

Other *Epinephelus* species: distinct stripes on body, or spots much larger, sometimes forming a reticulated honeycomb pattern.

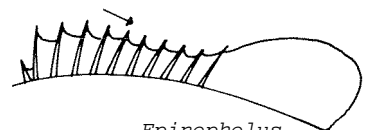
Promicrops species: dorsal fin spines increasing in length posteriorly, the longest spine shorter than soft fin rays.

Cephalopholis, *Cromileptes* and *Variola* species: 9 to 10 dorsal fin spines (11 in *Epinephelus*).

Plectropomus species: 6 to 8 dorsal fin spines.



Promicrops



Epinephelus
dorsal fin

SIZE:

Maximum: 50 cm; common: 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

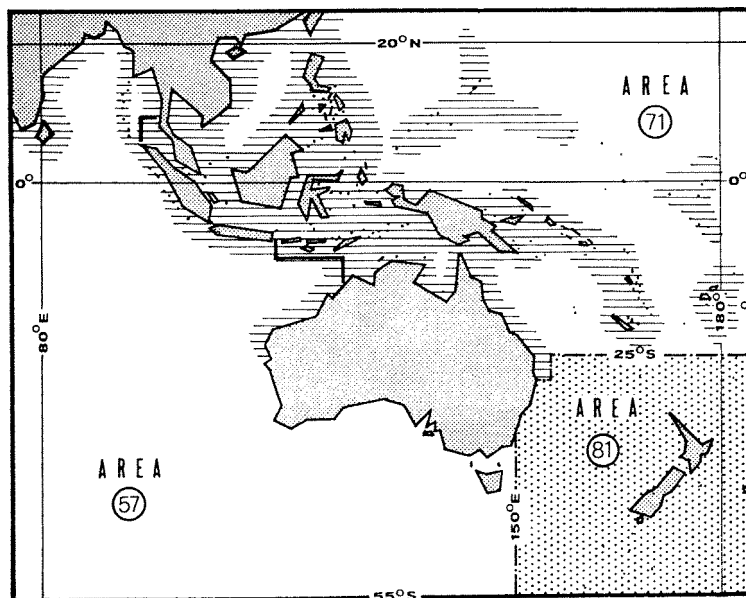
Throughout warm coastal waters of area.

Inhabits shallow coral and rocky areas.

Feeds on bottom-living crustaceans and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

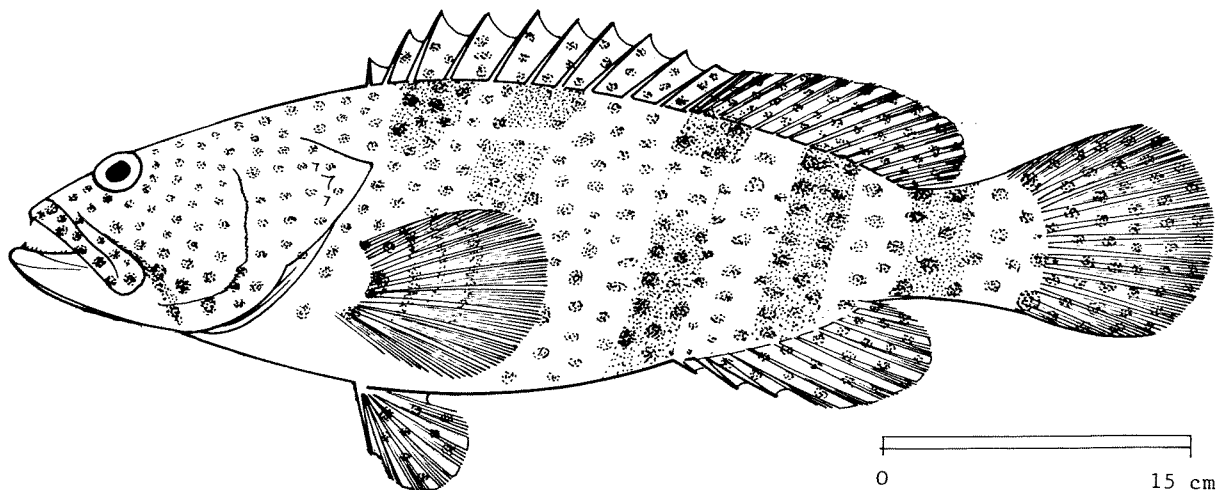
Separate statistics are not reported for this species. The total reported catch of *Epinephelus* species in 1972 was 7 900 tons (Philippines: 7 800 tons; Singapore: 100 tons).

Caught mainly with handlines and traps.

Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Epinephelus tauvina* (Forsskål, 1775)SYNONYMS STILL IN USE: *Epinephelus elongatus* Schultz, 1953

VERNACULAR NAMES:

FAO: En - Greasy grouper
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A large serranid fish with an elongate and thick-set body. Preoperculum with a slightly convex serrated upper edge and several strong spinules at lower angle. Operculum with straight upper edge and 3 spines, the middle spine closer to the lower one. Gill rakers 27 to 30 on lower part of 1st gill arch. Teeth in narrow bands, in 2 series on sides of jaws, those of the inner series longer and depressible. Dorsal fin with 11 spines and 15 to 16 soft rays. Caudal fin rounded.

Colour: ground colour light brown, with darker vertical or oblique bands; upper parts of head and body and base of pectoral fins covered by red/brown spots; spots on cheek arranged in regular series from eye to preopercular angle; spots in large adults obscure or absent.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus merra and *E. hexagonatus* (small specimens): 16 soft dorsal fin rays and 20 to 23 or 23 to 27 gill rakers (15 to 16 and 27 to 30 in *E. tauvina*); also, deeper-bodied (depth 3.2 to 3.3 times in standard length; 3.3 to 3.7 in *E. tauvina*).

Epinephelus bleekeri and *E. maculatus*: spots on body respectively orange/red or red with black centres.

Epinephelus fuscoguttatus and *E. corallicola*: spots on body dark brown; also, no spinules at angle of preoperculum.

Epinephelus areolatus: spots on body dark green/brown; also, caudal fin truncate or emarginate (rounded in *E. tauvina*).

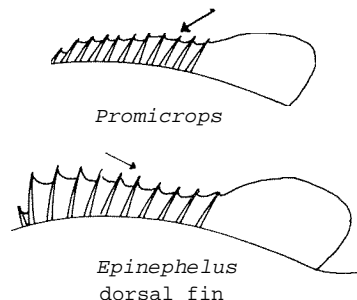
Epinephelus summana and *E. caeruleopunctatus*: spots on body respectively pale yellow (or white) or blue.

Other *Epinephelus* species: stripes dominate colour pattern, or spots much larger, forming a honeycomb or reticulated pattern (larger specimens of *E. merra*, *E. hexagonatus*, etc.).

Promicrops species: dorsal fin spines increasing in length posteriorly, the longest spine shorter than soft fin rays.

Cephalopholis, *Cromileptes* and *Variola* species: 9 to 10 dorsal fin spines (11 in *Epinephelus*).

Plectropomus species: 6 to 8 dorsal fin spines.



SIZE:

Maximum: 150 cm;
common: 60 to 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

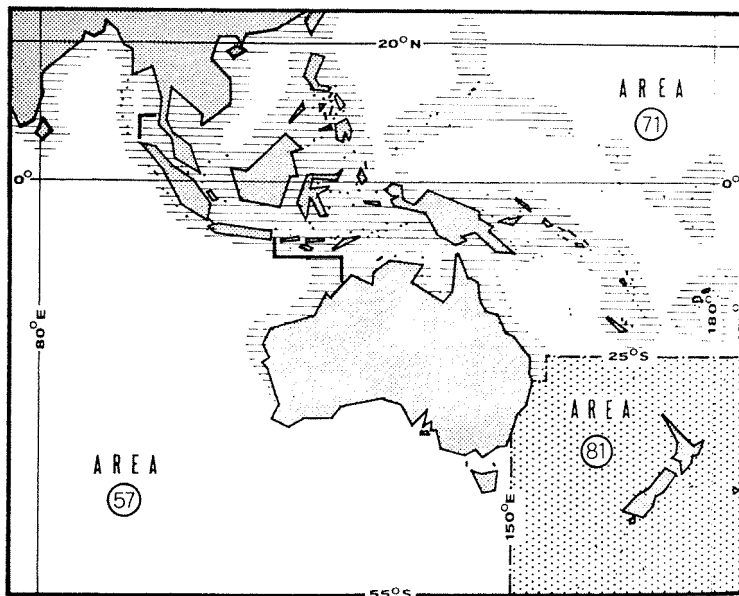
Throughout warm coastal waters of area.

Inhabits shallow areas, down to 60 m.

Feeds on bottom-living crustaceans and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

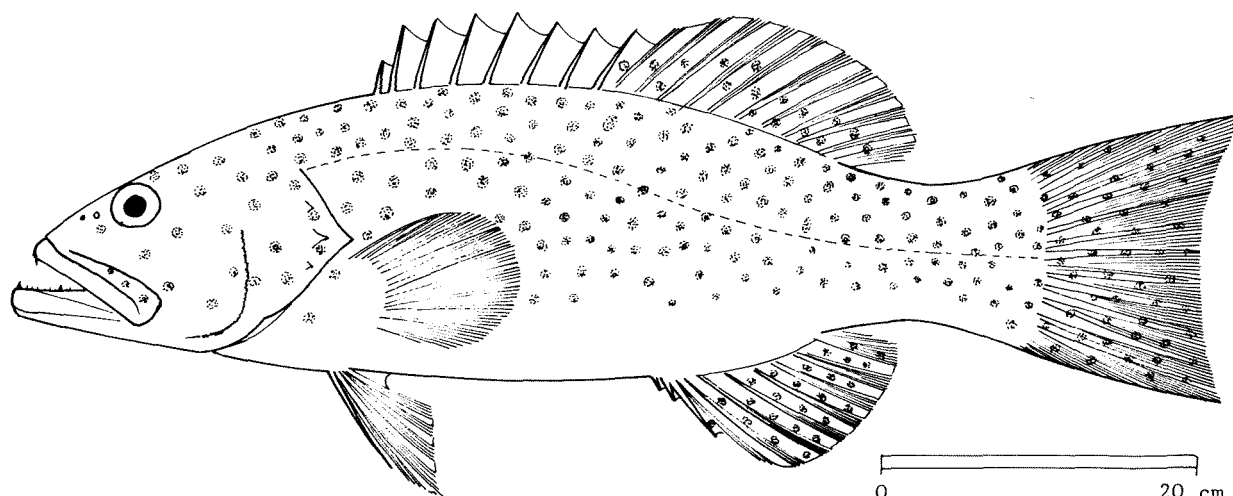
Separate statistics are not reported for this species. The total reported catch of *Epinephelus* species in 1972 was 7 900 tons (Philippines: 7 800 tons; Singapore: 100 tons).

Caught mainly with longlines, handlines and bottom trawls.

Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Plectropomus leopardus* (Lacepède, 1802)SYNONYMS STILL IN USE: *Plectropoma maculatum* (not of Bloch): Munro, 1967

VERNACULAR NAMES:

FAO: En - Blue-spotted seabass
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

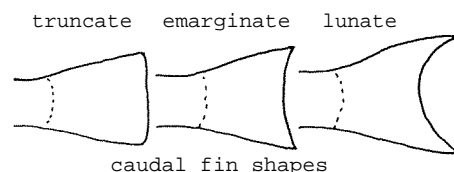
A medium-sized serranid fish with a robust and slightly compressed body. A pair of canine teeth near symphysis of each jaw and two more canines on each side of lower jaw; villiform teeth on vomer in a V-shaped band, villiform palatine teeth in a narrow streak. Maxilla reaching to below posterior half of eye. Preoperculum finely serrated posteriorly, with 3 or 4 small antrorse (forward-pointing) spines on lower edge; 3 spines on operculum, equidistant from each other. Dorsal fin with 8 spines and 10 to 12 soft rays; spines short, very low and slender. Anal fin with 3 spines and 7 to 8 soft rays. Anal and pelvic fin spines weak and short. Caudal fin emarginate.

Colour: variable; usually light red/brown on back, becoming paler toward belly; numerous dark-edged, pale blue spots, usually oval-shaped, on upper parts of head, body and fins (except pectoral and pelvic fins); spots absent on lower parts of body and head.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Plectropomus truncatus: caudal fin emarginate and soft part of dorsal and caudal fins with a white margin.

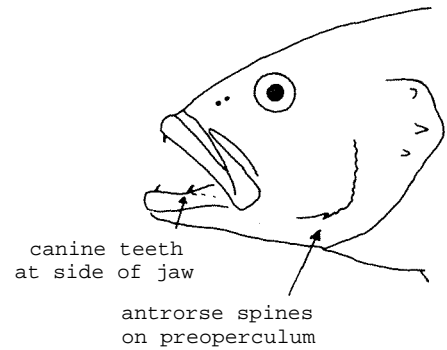
Other *Plectropomus* species: either colour pattern different (e.g. blue lines in *P. oligacanthus*) or caudal fin truncate or lunate.



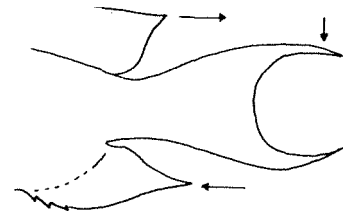
Cephalopholis species: no antrorse spines at angle of preoperculum, 9 dorsal fin spines, and no enlarged canine teeth at sides of lower jaw.

Epinephelus and *Promicrops* species: dorsal fin spines 11 (6 to 8 in *Plectropomus*).

Variola and *Cromileptes* species: dorsal fin spines respectively 9 and 10; also, caudal fin lunate (*Variola*) or upper head profile concave (*Cromileptes*).



Plectropomus



Variola

SIZE:

Maximum: 120 cm; common: 80 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

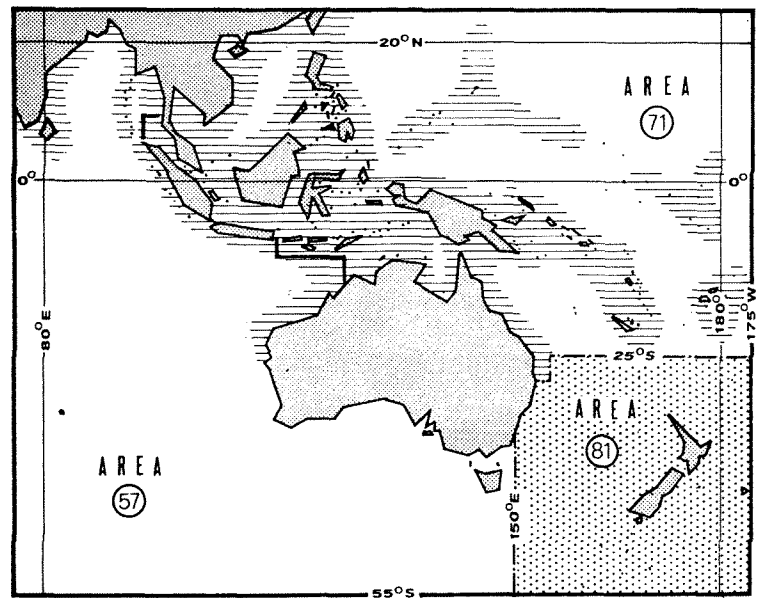
Throughout warm coastal waters of area.

Inhabits coral reefs and coastal rocky shores.

Feeds on bottom-living crustaceans and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with handlines, gill nets and traps.

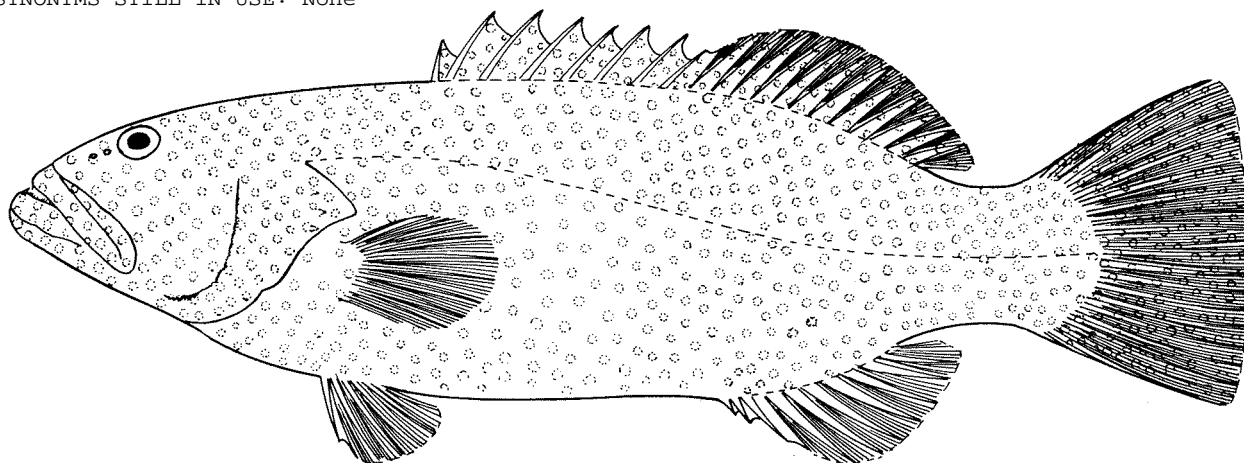
Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Plectropomus truncatus* Fowler & Bean, 1930

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Squaretail seabass
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

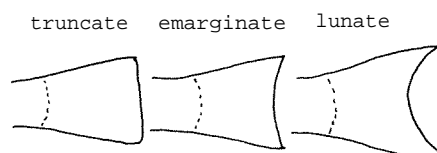
A medium-sized serranid fish with a robust and slightly compressed body. A pair of canine teeth near symphysis of each jaw, and two more canines on each side of lower jaw; villiform teeth on vomer in a V-shaped band, villiform palatine teeth in a narrow streak. Maxilla reaching to below posterior half of eye. Preoperculum finely serrated posteriorly, with 3 or 4 small antrorse (forward-pointing) spines on lower edge; 3 spines on operculum, the median spine closer to the lower. Dorsal fin with 8 spines and 11 to 13 soft rays; spines short, very low and slender. Anal fin with 3 spines and 8 soft rays. Anal and pelvic fin spines weak and short. Caudal fin truncate, without pointed tips.

Colour: red/brown on back, light brown toward belly; numerous small, dark-edged, pale blue spots everywhere except outer part of pectoral fins; spots more numerous, smaller and more closely set on caudal fin and soft part of dorsal fin; a white border to soft part of dorsal and caudal fins.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Plectropomus leopardus: caudal fin emarginate and no white border to soft part of dorsal and caudal fins.

Other *Plectropomus* species: either colour pattern different (e.g. blue lines in *P. oligacanthus*) or caudal fin emarginate or lunate.

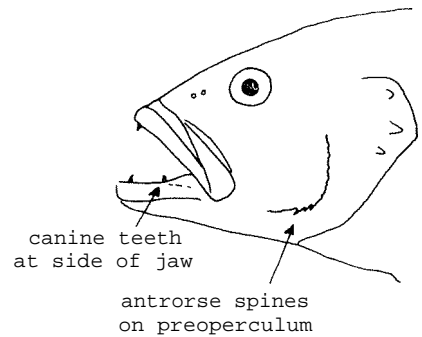


caudal fin shapes

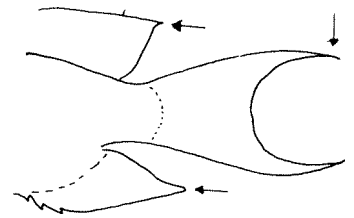
Cephalopholis species: no antrorse spines at angle of preoperculum, 9 dorsal fin spines, and no canine teeth at sides of lower jaw.

Epinephelus and *Promicrops* species: dorsal fin spines 11 (6 to 8 in *Plectropomus*).

Variola and *Cromileptes* species: dorsal fin spines respectively 9 and 10; also, caudal fin lunate (*Variola*) or upper head profile strongly concave (*Cromileptes*).



Plectropomus



Variola

SIZE:

Maximum: 120 cm; common: 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

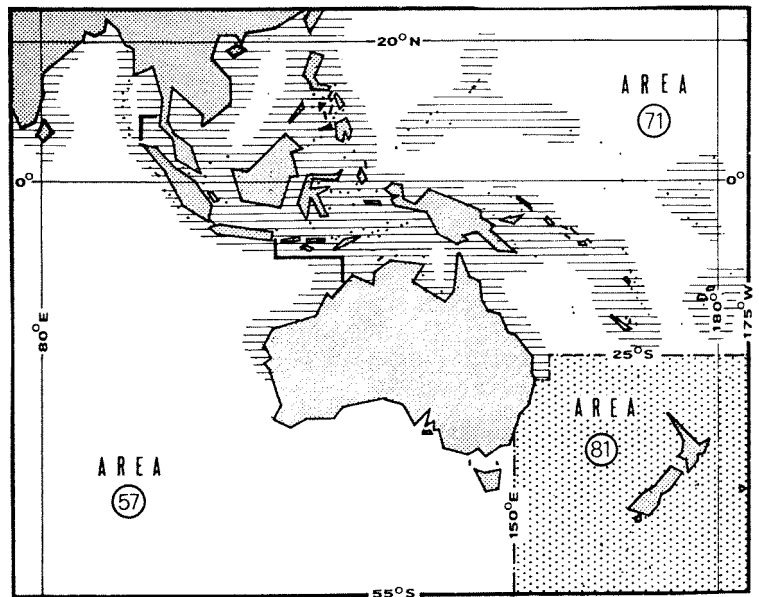
Throughout warm coastal waters of area.

Inhabits coral reefs and shallow rocky shores.

Feeds on bottom-living invertebrates and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

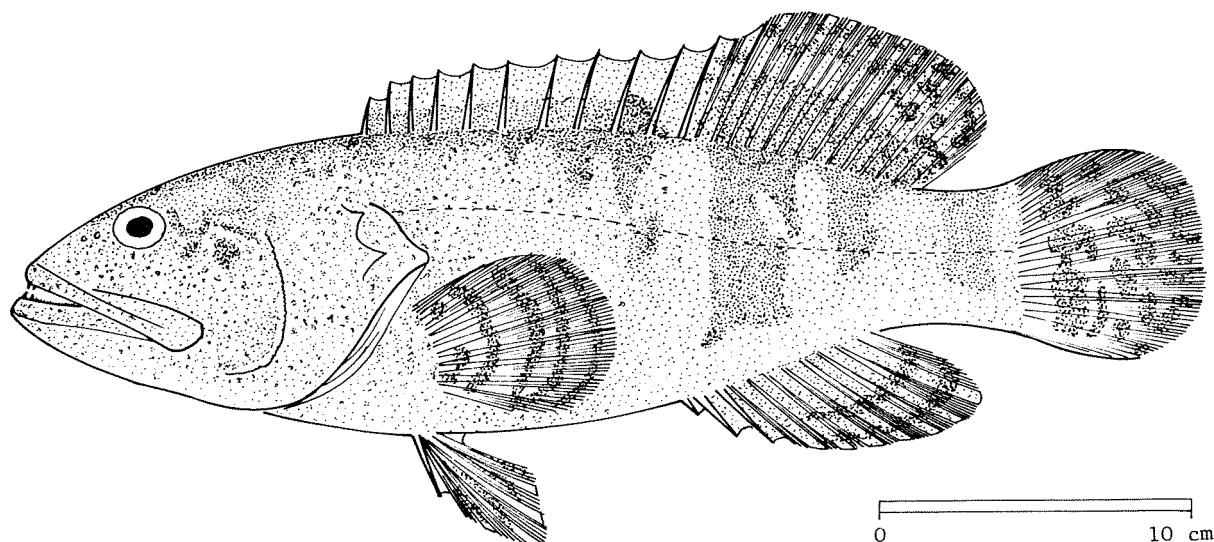
Separate statistics are not reported for this species.

Caught mainly with handlines, gill nets and traps.

Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Promicrops lanceolatus* (Bloch, 1790)SYNONYMS STILL IN USE: *Serranus lanceolatus*: Fowler & Bean, 1930

VERNACULAR NAMES:

FAO: En - Mottled brown seabass
Fr -
Sp -

NATIONAL:

INSTINCTIVE CHARACTERS:

A large serranid fish with a robust body. Preoperculum with a rounded border, its upper edge finely serrated or smooth. Two pairs of canine teeth at front of each jaw. Dorsal fin with 11 spines and 14 to 15 soft rays; spines short, increasing in length from 1st to 11th; soft rays comparatively long, about twice the length of longest spine. Anal fin with 3 spines and 5 soft rays. Caudal fin rounded.

Colour: in large adults of 90 cm or more, entire fish uniformly dark brown; in smaller fish, ground colour grey with broad irregular dark brown bands, often broken up to form dark patches or a mottling of grey blotches and irregular dark, variegated bars; unpaired fins with yellow and irregular dark bands, blotches and spots; paired fins lemon yellow, with dark spots and band-like markings.

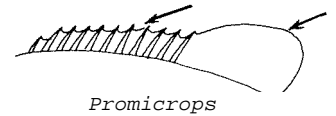
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Epinephelus species: dorsal fin spines about as long as soft rays (almost half length in *Promicrops*), and decreasing in length posteriorly.

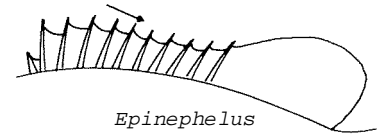
Cephalopholis and *Variola* species: dorsal fin spines 9; also, caudal fin lunate (emarginate in young) in *Variola*.

Plectropomus species: dorsal fin spines 8 to 9 (11 in *Promicrops*).

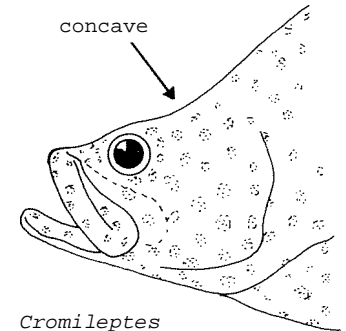
Cromileptes species: dorsal fin spines 10 and upper profile of head concave.



Promicrops



Epinephelus
dorsal fin



Cromileptes

SIZE:

Maximum: 75 cm; common: 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

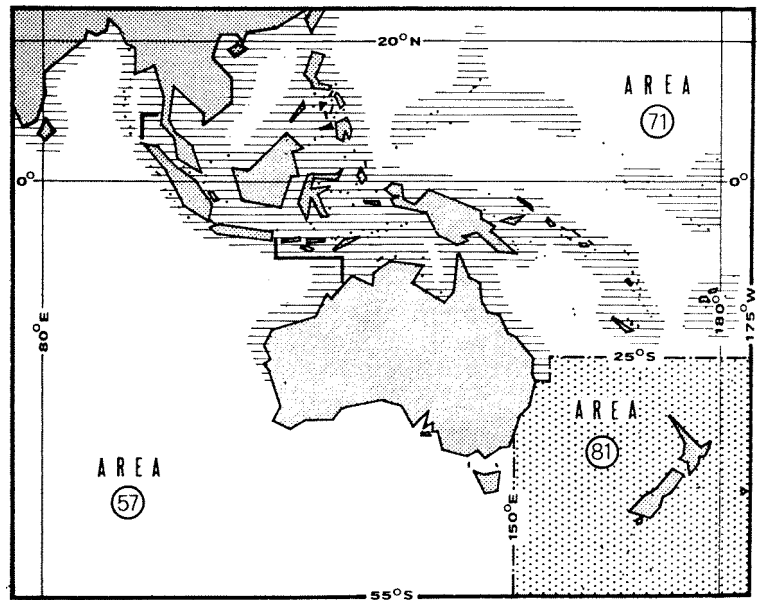
Throughout warm coastal waters of area.

Inhabits coral reef areas, down to 80 m.

Feeds chiefly on bottom-living fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with handlines and traps.

Marketed only fresh.

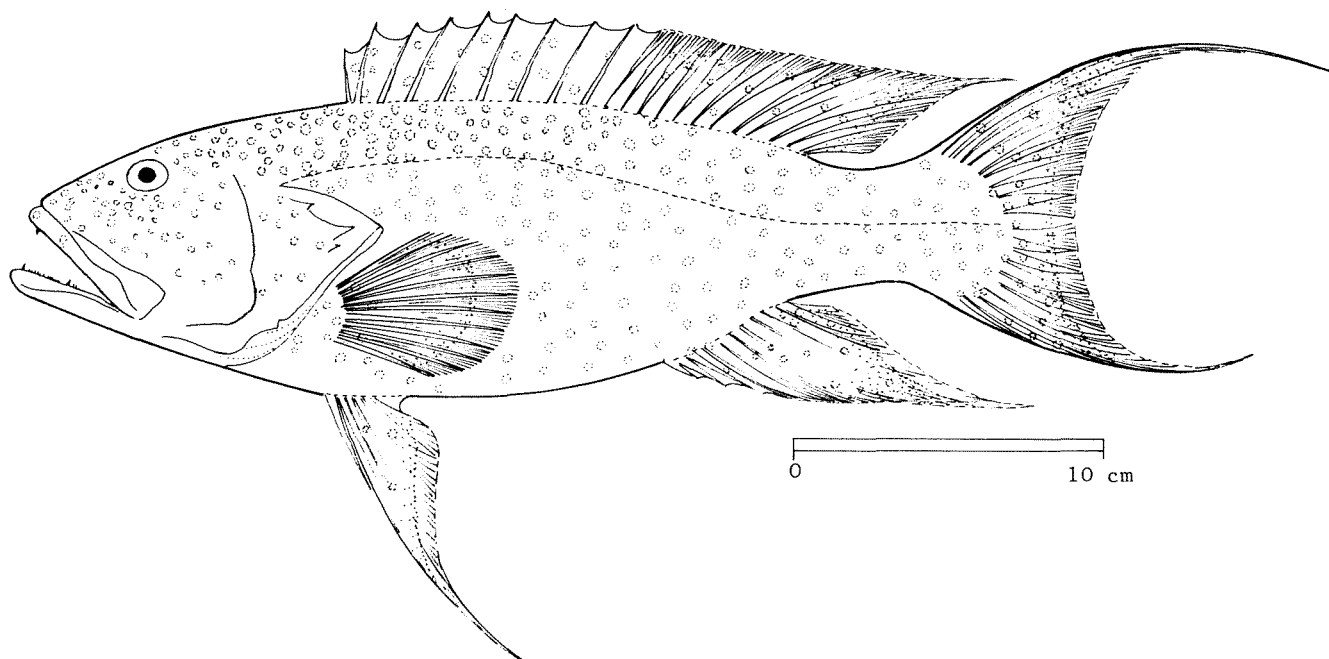
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SERRANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

Variola louti (Forsskål, 1775)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Moontail seabass
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A medium-sized serranid fish with oblong and compressed body. Teeth in jaws villiform with outer row enlarged; 1 or 2 curved canines on each side of upper jaw; lower jaw with a canine on each side anteriorly and 2 to 3 canines half-way along jaw; villiform teeth on vomer and palatines (roof of mouth). Preoperculum edge weakly serrated, its angle rounded and devoid of enlarged spinules. Dorsal fin with 9 spines and 13 to 14 soft rays; anal fin with 3 spines and 8 soft rays. Dorsal, anal and pelvic fins ending posteriorly in a point. Caudal fin deeply lunate (emarginate in young).

Colour: body red with blue spots; fins also red and blue-spotted and with a broad yellow margin; occasionally black blotches present on body and head.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

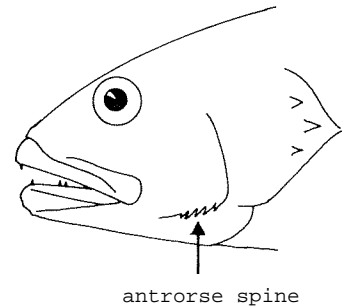
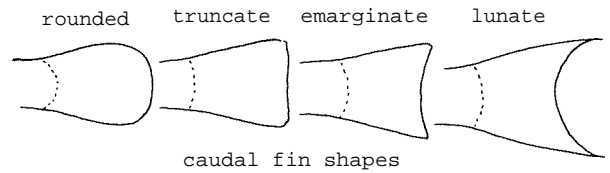
All other serranid genera: lack the characteristic lunate caudal fin and pointed tips to dorsal, anal and pelvic fins.

Cephalopholis species: no enlarged canine teeth at sides of lower jaw.

Epinephelus and *Promicrops* species: dorsal fin spines 11 (9 in *Variola*).

Plectropomus species: dorsal fin spines 6 to 8; also, antrorse (forward-pointing) spines on lower edge of preoperculum.

Cromileptes species: dorsal fin spines 10 and upper head profile strongly concave.



Plectropomus

SIZE:

Maximum: 60 cm; common: 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

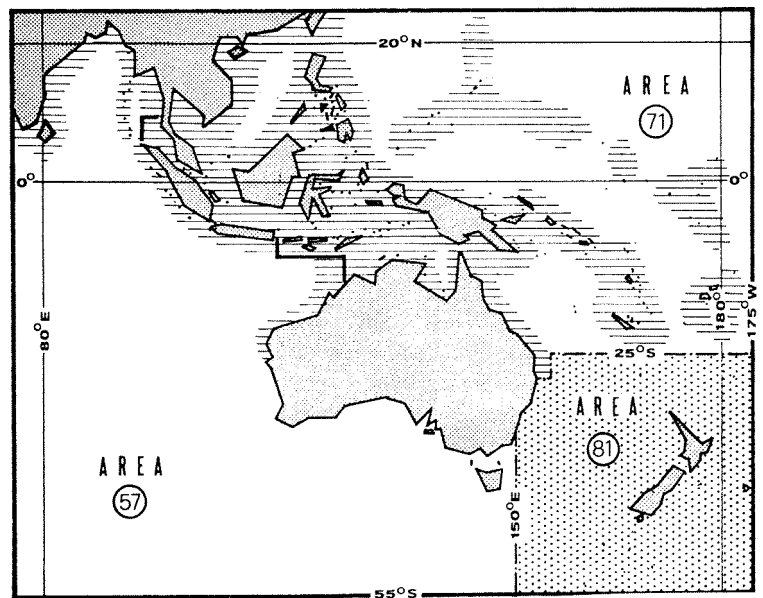
Throughout warm coastal waters of area.

Inhabits coral reef areas, down to 60 m.

Feeds chiefly on bottom-living fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with handlines and traps.

Marketed only fresh.

FAO SPECIES IDENTIFICATION SHEETS

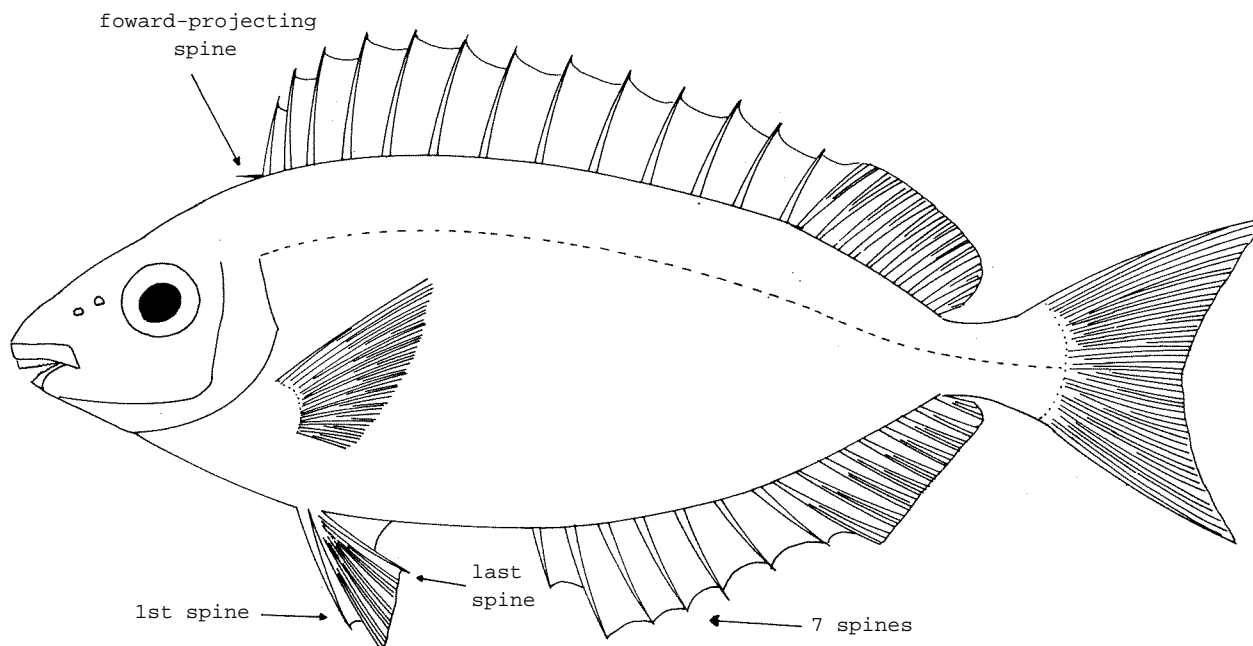
FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

SIGANIDAE

Spinefeet, rabbitfishes

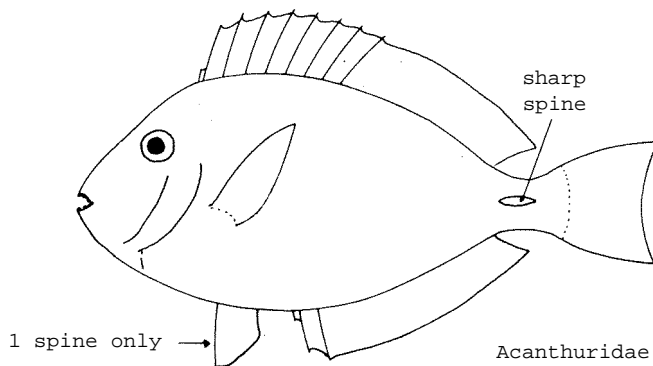
Spiny-rayed fishes with a compressed, oval body covered with minute, thin, cycloid scales (smooth to touch). Mouth small, with a row of close-set teeth in each jaw. Dorsal fin with 13 spines and about 10 soft rays; a sharp spine projecting forward immediately in front of dorsal fin (sometimes covered by skin); pelvic fins with 2 strong spines, separated by 3 soft fin rays; anal fin with 7 spines and about 9 soft rays. All species of *Siganus* have poison glands connected with the fin spines.

Colour: very variable.



SIMILAR FAMILIES OCCURRING IN THE AREA:

All other families: have at most 1 spine in pelvic fins; Acanthuridae also have up to 6 sharp spines or keels on each side of caudal peduncle and only 2 to 3 anal fin spines.



Acanthuridae

Key to Genera

Siganus only

List of Species occurring in the Area

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

<i>Siganus argenteus</i>		<i>Siganus punctatissimus</i>
<i>Siganus canaliculatus</i>	SIGAN Sigan 4	<i>Siganus punctatus</i>
<i>Siganus corallinus</i>		<i>Siganus shortlandensis</i>
<i>Siganus doliatus</i>		<i>Siganus spinus</i>
<i>Siganus fuscescens</i>		<i>Siganus stellatus</i> (presence in area doubtful)
<i>Siganus guttatus</i>		<i>Siganus tetrazonus</i>
<i>Siganus javus</i>	SIGAN Sigan 3	<i>Siganus uspi</i>
<i>Siganus labyrinthodes</i>		<i>Siganus vermiculatus</i>
<i>Siganus lineatus</i>		<i>Siganus virgatus</i>
<i>Siganus margaritiferus</i> (doubtful)		<i>Siganus vulpinus</i>
<i>Siganus puellus</i>		

* The taxonomic status of some species of this family requires further clarification. Dr. Woodland (Department of Zoology, University of New England, Armidale, N.S.W., Australia) is preparing a review of the Siganidae from the Indo-Pacific. Users of the Species Identification Sheets are hereby encouraged to send him samples of such fishes, as this will considerably facilitate his task

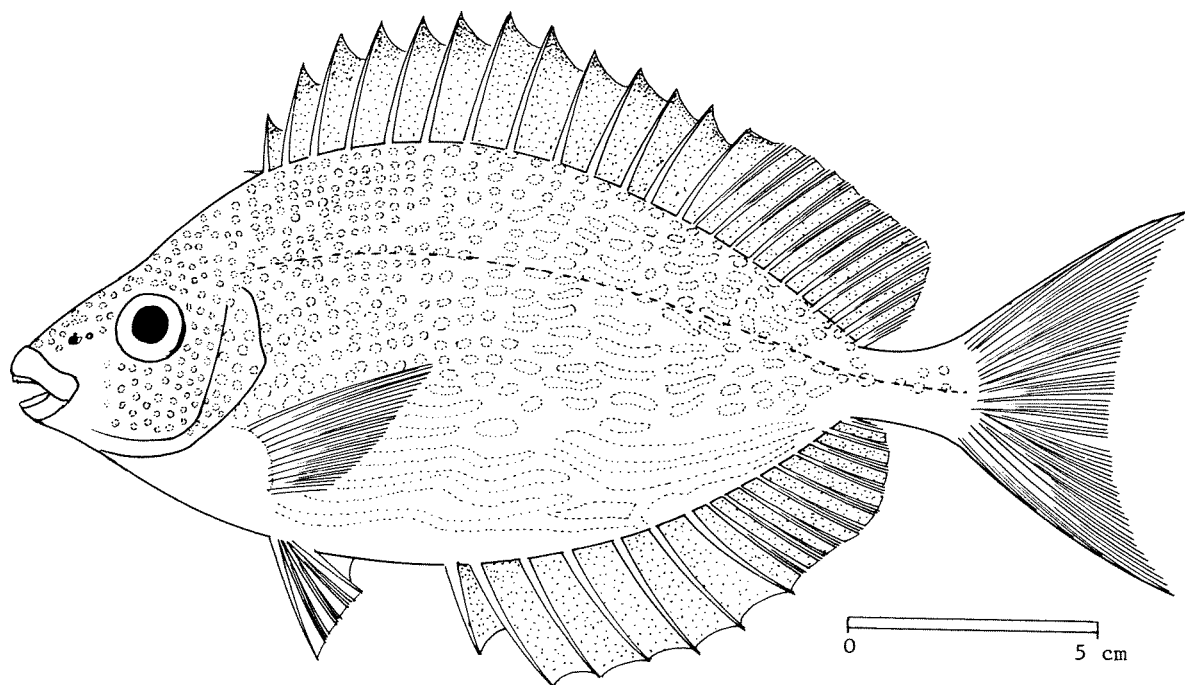
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

Siganus javus (Linnaeus, 1766)

SYNONYMS STILL IN USE: *Teuthis javus*: Herre, 1953



VERNACULAR NAMES:

- FAO: En - Streaked spinefoot
- Fr -
- Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body oval and compressed, its depth 1.8 to 2.3 times in standard length; profile of head slightly concave above eye; anterior nostril with a small triangular flap reaching half way to posterior nostril. A sharp, forward-projecting spine present in front of dorsal fin; dorsal fin with 13 spines followed by soft rays, the first spine much shorter than the last; pelvic fins with 2 spines separated by 3 soft rays; anal fin with 7 spines followed by soft rays, the first spine much shorter than the last. Scales minute and thin, 30 to 35 rows between mid-dorsal fin base and lateral line.

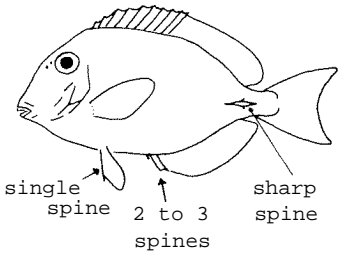
Colour: back brownish, belly silvery; numerous small grey spots on head and upper flanks, coalescing into pale undulating lines on lower sides. No black blotch behind upper part of gill opening. Dorsal and anal fins yellow or orange. Fins unmarked except for vertical bars on caudal in some specimens.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Siganus canaliculatus, *Siganus punctatus*, *Siganus guttatus*: white or golden spots on sides, but no pale longitudinal lines on lower sides; also, caudal fin very deeply forked in *S. punctatus*, last anal spine about equal to first in *S. canaliculatus*, and a large golden spot on sides at base of soft dorsal fin in *S. guttatus*.

Other *Siganus* species: no pale longitudinal lines along lower sides (except some *S. lineatus*, but large gold spot at base of soft dorsal).

Acanthuridae: 2 to 3 anal fin spines, a single pelvic fin spine and one or more spines on each side of caudal peduncle.



Acanthuridae

SIZE:

Maximum: 35 cm; common: about 20 cm

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

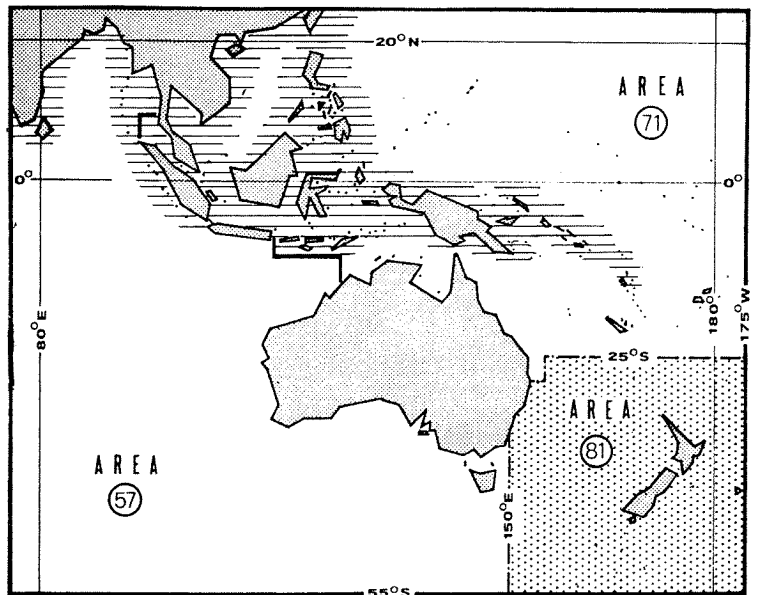
Most of northern part of area and southward to New Hebrides.

Occurs in schools in coastal waters; also in brackish and freshwaters.

Feeds by scraping micro-organisms from rocks.

PRESENT FISHING GROUNDS:

In coastal waters.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

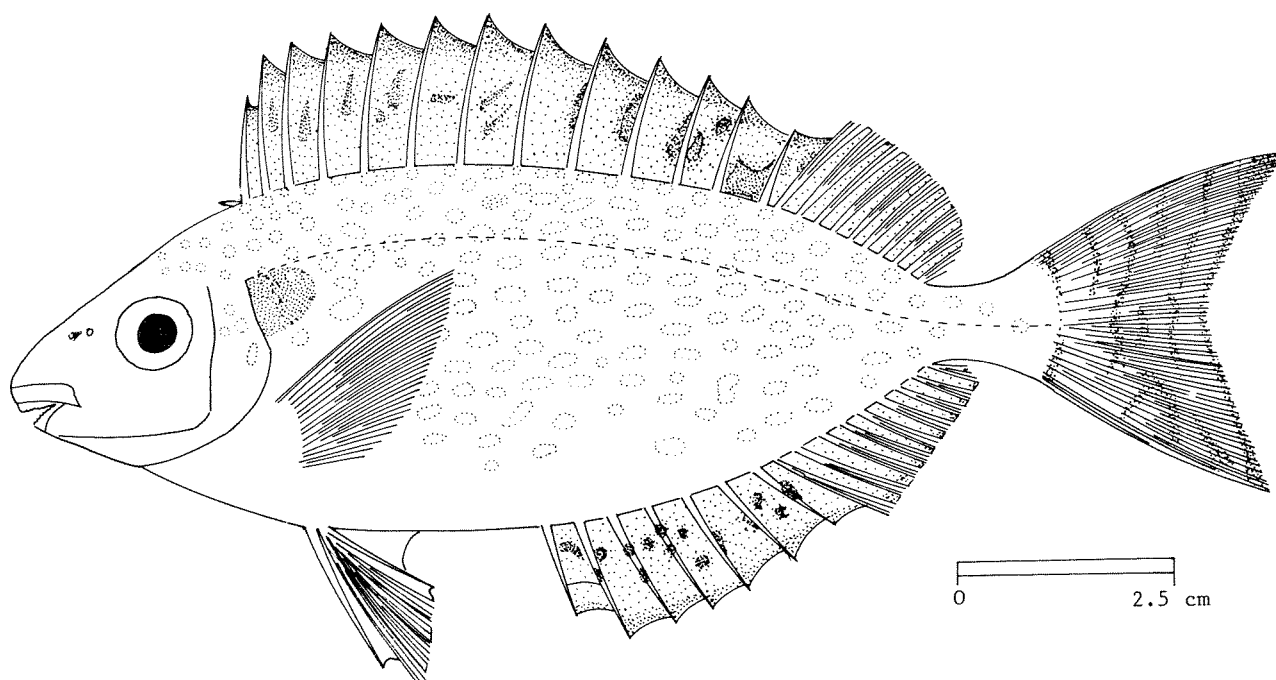
Separate statistics are not reported for this species.

Caught mainly with bottom trawls and traps.

Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SIGANIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Siganus canaliculatus* (Park, 1797)SYNONYMS STILL IN USE: *Siganus oramin* (Bloch & Schneider, 1801)
? *Amphacanthus margaritiferus* Valenciennes, 1835

VERNACULAR NAMES:

FAO: En - Whitespotted spinefoot
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body oval and compressed, its depth 2.4 to 2.8 times in standard length; profile of head slightly concave above eye; anterior nostril with a small dark flap. A sharp, forward-projecting spine present in front of dorsal fin; dorsal fin with 13 spines followed by soft rays, the last spine the shortest; pelvic fins with 2 spines, separated by 3 soft rays; anal fin with 7 spines followed by soft rays, the first and last spines nearly equal in length. Scales minute and thin, 20 to 23 rows between mid-dorsal fin base and lateral line.

Colour: back light brown or greenish, belly silvery; a large dark brown blotch behind upper part of gill opening; numerous pale spots on back and sides; dark cloudy markings (spots or lines) on dorsal, anal and caudal fins. In some specimens the spots are much smaller and much more numerous than illustrated above; it has not been established whether these belong to a separate species (*S. margaritiferus*).

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

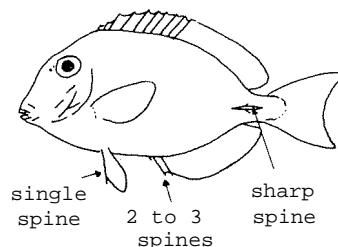
Siganus punctatus: caudal fin very deeply forked and last dorsal spine much longer than first.

Siganus javus: pale spots on lower flanks coalesce to form longitudinal lines, no dark spot behind upper part of gill openings; also, last dorsal spine much longer than first.

Siganus guttatus: large pale orange spots on flanks; body depth 2.0 to 2.1 times in standard length.

Other *Siganus* species: markings on body forming dark spots or lines.

Acanthuridae: 2 to 3 anal spines, a single pelvic spine and one or more spines on each side of caudal peduncle.



Acanthuridae

SIZE:

Maximum: 30 cm; common: about 15 cm

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

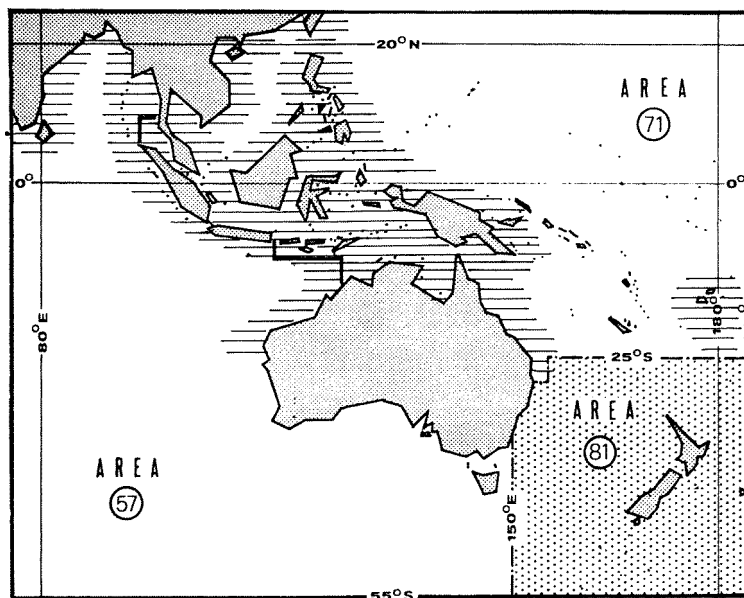
Most of northern part of area and southward to northern coasts of Australia.

Occurs in schools in coastal areas; also in brackish and freshwaters.

Feeds by scraping algae from rocks and corals, and browsing on seaweeds and sea grasses.

PRESENT FISHING GROUNDS:

In coastal waters.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL 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

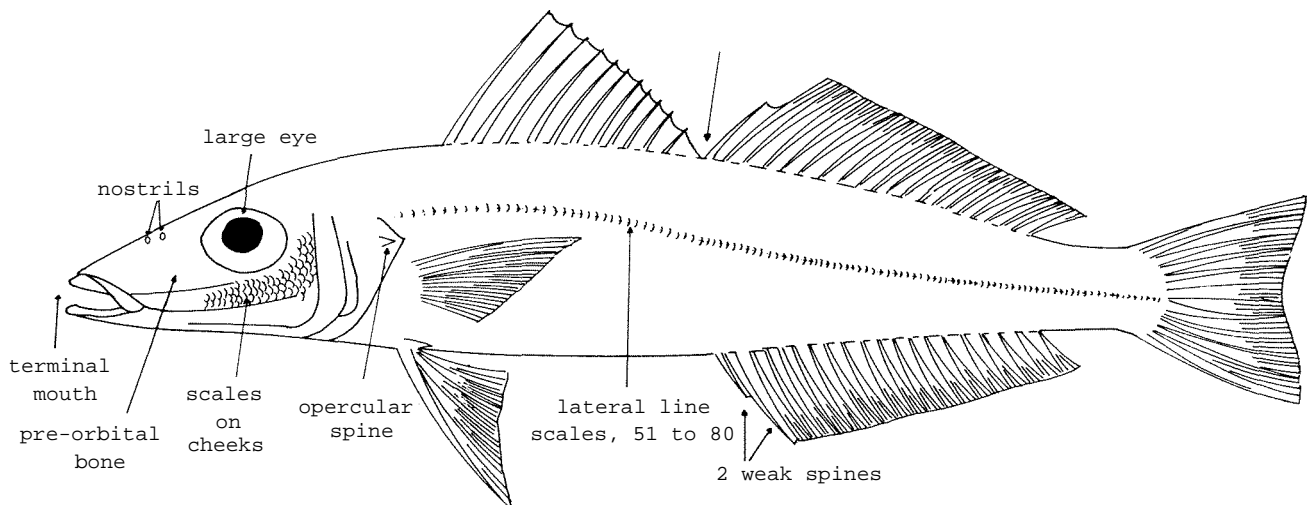
FISHING AREAS 57,71
(E Ind. ocean)
(W Cent. Pacific)

SILLAGINIDAE

Sillagos, whittings

Body elongate, slightly compressed, tapering from middle of spinous dorsal fin to head and tail. Operculum with a small, sharp spine. Mouth small, terminal; end of upper jaw slides below pre-orbital bone; jaw teeth in broad villiform bands; small teeth on roof of mouth restricted to anterior part of vomer, none on palatines. Two separate dorsal fins, the 1st with 9 to 12 slender spines, its origin above middle of pectoral fins; the 2nd 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.

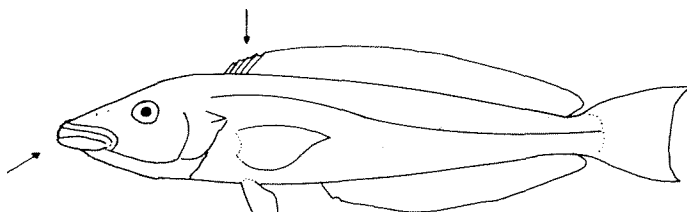
Colour: silvery grey/green, sometimes with black spots.



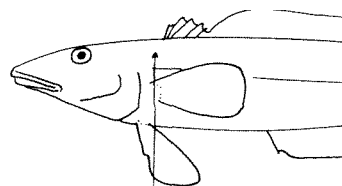
SIMILAR FAMILIES OCCURRING IN THE AREA:

Branchiostegidae: have a single, continuous dorsal fin; mouth large, with fleshy lips.

Mugiloididae (Parapercidae): have dorsal fin spines short; spinous dorsal fin sometimes joined to soft dorsal fin; base of pelvic fins in advance of pectoral fin base.



Branchiostegidae



Mugiloididae

Key to Genera

Genera presently under revision - a key will be issued as soon as possible

List of Species occurring in the Area
(Code numbers are given for those species
for which Identification Sheets are included)

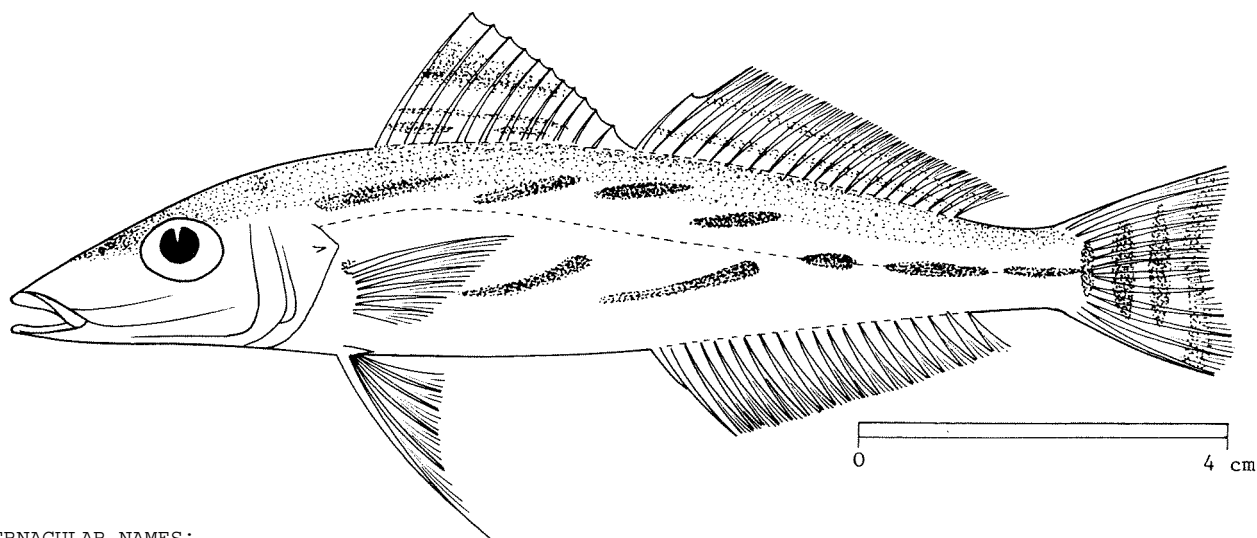
<i>Sillago analis</i>		<i>Sillaginodes punctata</i>
<i>Sillago bassensis</i>		
<i>Sillago boutani</i>		
<i>Sillago ciliata</i>		<i>Sillaginopodys chondropus</i>
<i>Sillago japonica</i>		
<i>Sillago macrolepis</i>		
<i>Sillago maculata</i>	SILL Sill 1	<i>Sillaginopsis panijus</i>
<i>Sillago parvisquamis</i>	(will be placed under new genus)	
<i>Sillago robusta</i>		3 new species to be described
<i>Sillago schomburgkii</i>		(personal communication from R.J. McKay)
<i>Sillago siharna</i>	SILL Sill 2	

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SILLAGINIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Sillago maculata* Quoy & Gaimard, 1824

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Trumpeter sillago
Fr -
Sp -

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). Eye 1.5 to 2 times in length of snout; 3 series of scales on cheeks; a small, sharp spine on operculum. Lower gill rakers 10. 1st dorsal fin with 11 spines; 2nd dorsal fin with 1 spine and 19 to 21 soft rays; anal fin with 1 or 2 spines and 18 to 21 soft rays. Lateral line with 70 to 74 scales, 5 to 6 scale rows above lateral line. Two subspecies have been identified recently (personal communication from R.J. McKay): *S. maculata aeolus* (2nd dorsal fin with 18 to 19 soft rays; anal fin with 17 to 18 soft rays), and *S. maculata maculata* (2nd dorsal fin with 19 to 21 soft rays; anal fin with 18 to 20 soft rays).

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; 2nd dorsal fin blotched to form 2 horizontal or slightly converging bars; anal fin 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:

Sillago ciliata (juveniles): black blotches on body only present in juveniles; soft dorsal fin rays 17 to 18 (19 to 21 in *S. maculata*), soft anal fin rays 15 to 16 (18 to 21 in *S. maculata*).

Other *Sillago* species: flanks without black blotches.

SIZE:

Maximum: 20 cm; common: 12 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

S. maculata aeolus: throughout most of northern part of area but not to Australia; also, westward to coasts of East Africa and northward to China.

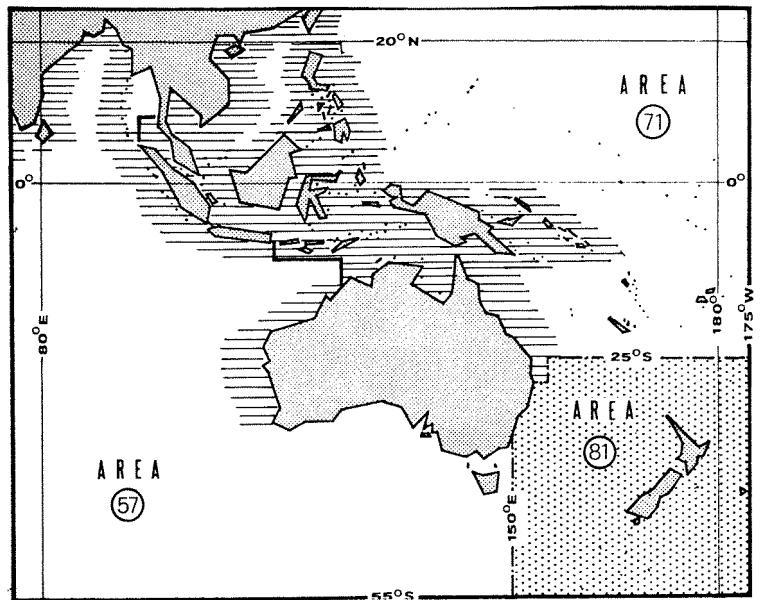
S. maculata maculata: western and eastern coasts of Australia, up to southern coast of New Guinea.

Inhabits shallow sandy bottoms of shores and bays; also estuaries.

Feeds on small invertebrates.

PRESENT FISHING GROUNDS:

Shallow waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of unclassified Sillaginidae in 1972 was:

area 57 (Eastern Indian Ocean): 1 400 tons (Australia only)
area 71 (Western Central Pacific): 900 tons (Philippines: 600 tons)

Caught with bottom trawls, beach seines and handlines.

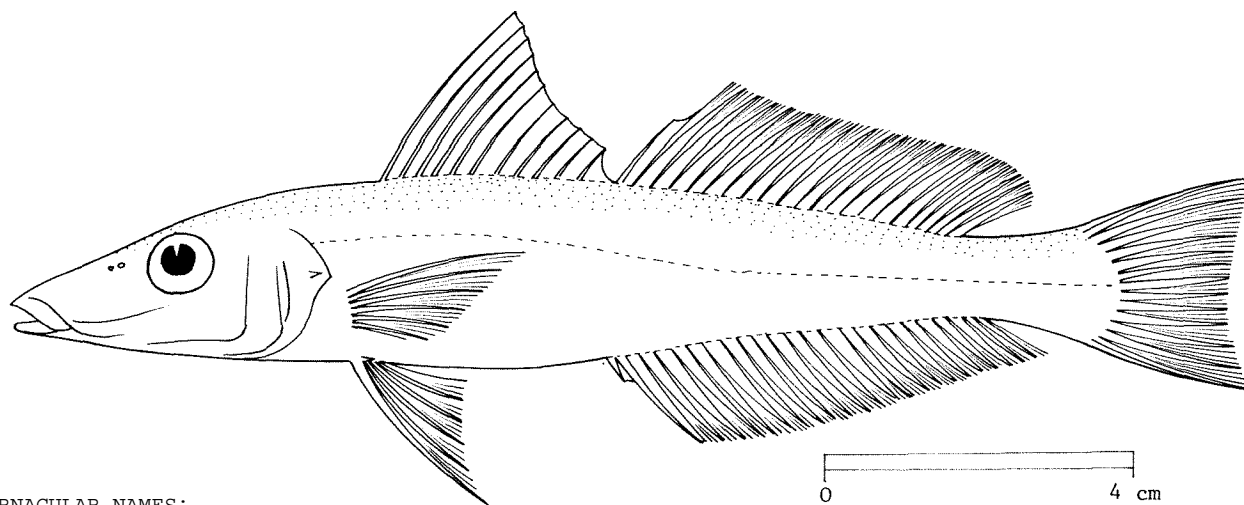
Not a very good food fish, because of its small size; often used as fertilizer, but also marketed fresh, frozen and dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SILLAGINIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Sillago sihama* (Forsskål, 1775)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Silver sillago
Fr -
Sp -

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). Eye at least twice in length of snout; 2 to 3, mostly 2, series of scales on cheeks; a small, sharp spine on operculum. Lower gill rakers 7 to 9. First dorsal fin higher than 2nd and with 11 weak spines; 2nd dorsal fin with 1 spine and 20 to 23 soft rays; anal fin with 2 spines and 22 to 24 soft rays. Lateral line with 69 to 73 scales; 5 to 6 scale rows above lateral line.

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:

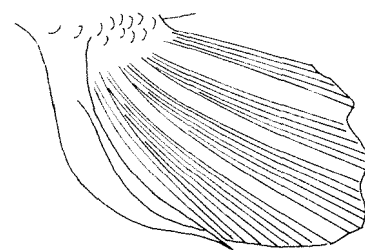
Sillago maculata: conspicuous dark blotches on back and flanks, and darker markings on dorsal and caudal fins.

Sillago macrolepis: 54 to 56 scales in lateral line (69 to 73 in *S. sihama*).

Sillago ciliata: 17 to 18 soft dorsal rays and 15 to 16 soft anal rays (20 to 23 and 22 to 24 in *S. sihama*).

Sillaginopodus chondropus: pelvic spine thickened and fused to 1st branched ray.

Sillago japonicus: 3 to 4 scale rows above lateral line (5 to 6 in *S. sihama*).



pelvic fin

S. chondropus

SIZE:

Maximum: 25 cm; common: 15

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

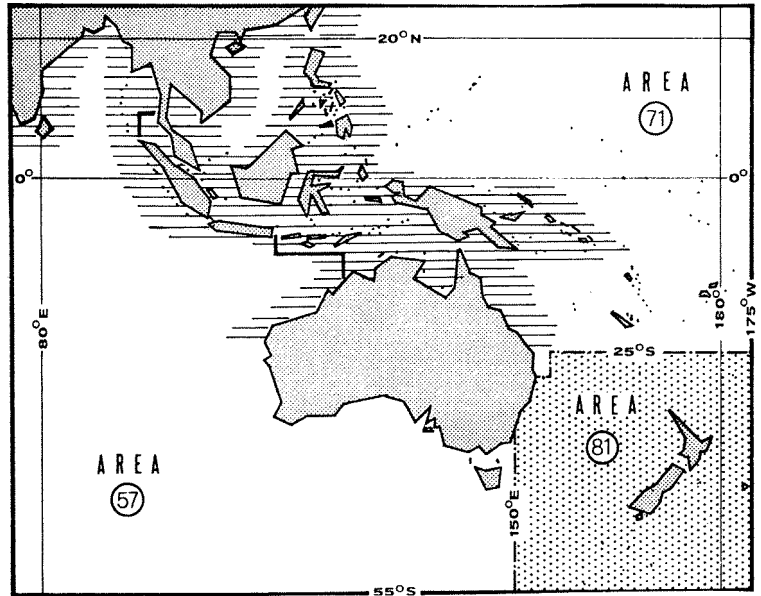
Throughout most of northern part of area and southward to northern coasts of Australia; also, westward to East Africa.

Inhabits shallow sandy bottoms of shores and bays, also estuaries.

Feeds on small invertebrates.

PRESENT FISHING GROUNDS:

Shallow waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of unclassified Sillaginidae in 1972 in fishing area 71 (Western Central Pacific) was 900 tons (Philippines: 600 tons); catch data for Sillaginidae in fishing area 57 (Eastern Indian ocean) are reported by Australia only, but do not include *S. sihama*.

Caught with beach seines and handlines.

A very good food fish, marketed fresh, frozen and dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

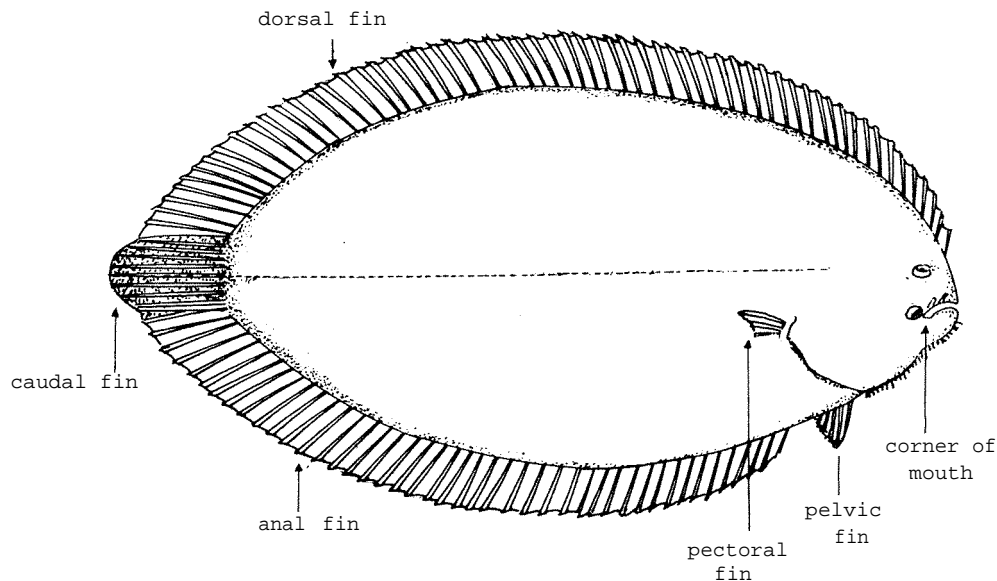
FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

SOLEIDAE

Soles

Oval or somewhat elongate and strongly compressed flat fishes with eyes on right side of body. Preoperculum 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 cross-bands on eyed side of body and vertical fins; blind side yellow/white. Colour highly variable according to substratum.



SIMILAR FAMILIES OCCURRING IN THE AREA:

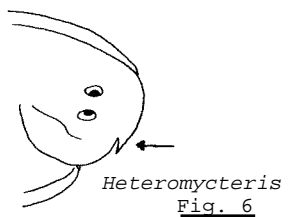
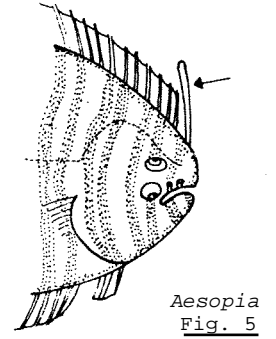
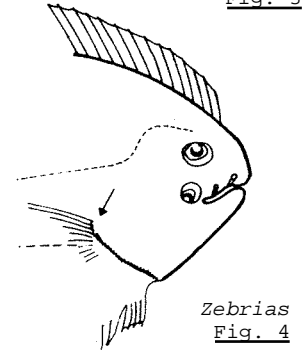
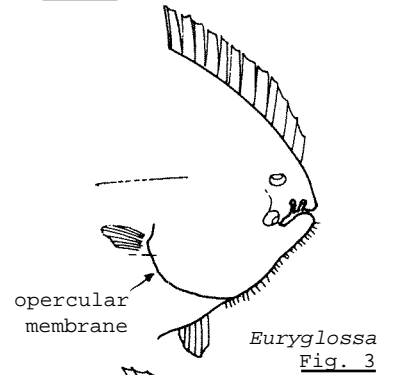
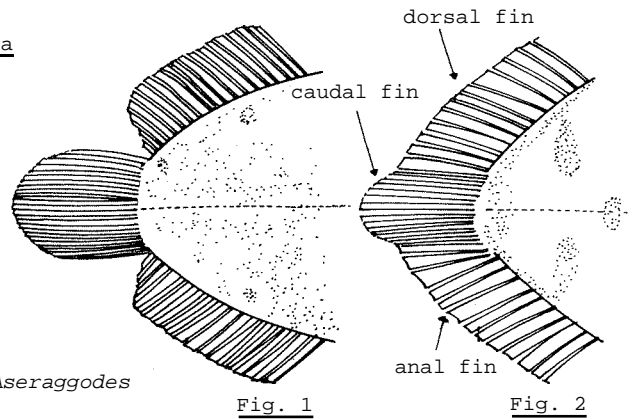
Cynoglossidae: also have dorsal fin origin far forward on head, and dorsal and anal fins always joined to caudal fin, but eyes on left side of body (eyes on right side in Soleidae).

Psettodidae: dorsal and anal fins always separate from caudal fin, dorsal fin not extending forward on to head, and spiny rays present on dorsal and pelvic fins (no spiny rays in Soleidae).

Pleuronectidae, Bothidae: margin of preoperculum free and distinct (no preopercular margin, preoperculum hidden beneath skin in Soleidae).

Key to Genera

- 1 a. Snout not forming a distinct hook
- 2 a. Caudal fin separate from dorsal and anal fins (Fig. 1)
- 3 a. Pectoral fins absent
 - 4 a. Pelvic fin of eyed side short-based, separate from genital papilla and anal fin
 - 5 a. First dorsal fin ray not prolonged *Aseraggodes*
 - 5 b. First dorsal fin ray prolonged *Coryphillus*
 - 4 b. Pelvic fin of eyed side with a long base, joined to genital papilla or anal fin *Pardachirus*
- 3 b. Pectoral fins well developed
 - 6 a. Body and head with numerous transverse wavy lines; anterior nasal tube on eyed side long *Soleichthys*
 - 6 b. Body and head without transverse wavy lines but with more or less distinct black blotches; anterior nasal tube on eyed side short *Solea*
- 2 b. Caudal fin joined to dorsal and anal fins (Fig. 2)
- 7 a. Pectoral fins absent *Achiroides*
- 7 b. Pectoral fins present
 - 8 a. Opercular membrane not joined to pectoral fins (Fig. 3)
 - 9 a. Body elongate, a bony process on snout *Synaptura*
 - 9 b. Body oval, no bony process on snout *Euryglossa*
- 8 b. Opercular membrane on both sides of body joined to upper rays of pectoral fins (Fig. 4)
- 10 a. Pelvic fin of eyed side not joined to anal fin
 - 11 a. First ray of dorsal fin not modified *Zebrias*
 - 11 b. First ray of dorsal fin enlarged and free (Fig. 5) *Aesopia*
- 10 b. Pelvic fin of eyed side joined to anal fin *Phyllichthys*
- 1 b. Snout forming a distinct hook (Fig. 6)..... *Heteromycteris*

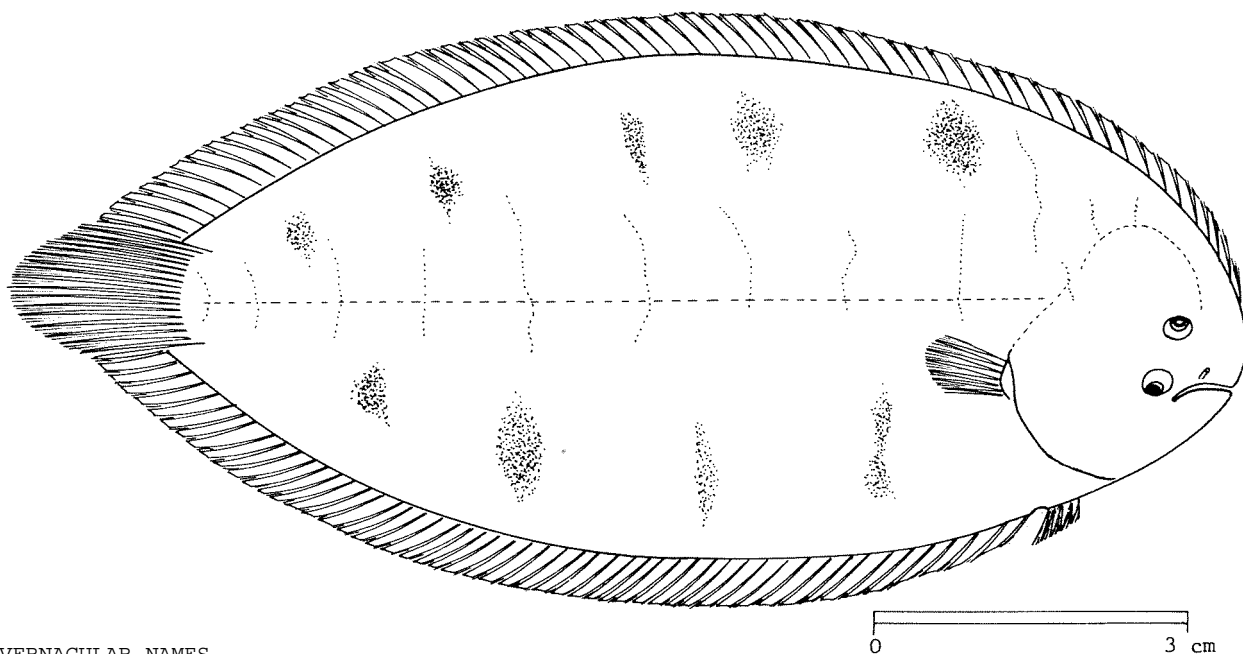


List of Species occurring in the Area
(Code numbers are given for those species
for which Identification Sheets are included)

<i>Achiroides leucorhynchos</i>		<i>Heteromycteris hartzfeldi</i>	
<i>Achiroides melanorhynchos</i>		<i>Heteromycteris oculus</i>	
<i>Aesopia cornuta</i>		<i>Pardachirus jaubertensis</i>	
		<i>Pardachirus pavoninus</i>	SOL Pard 1
<i>Aseraggodes cyaneus</i>		<i>Pardachirus poropterus</i>	
<i>Aseraggodes dubius</i>		<i>Pardaehirus whitleyi</i>	
<i>Aseraggodes kaianus</i>		<i>Phyllichthys selerolepis</i>	
<i>Aseraggodes klunzingeri</i>		<i>Phyllichthys sejunctus</i>	
<i>Aseraggodes melanospilus</i>		<i>Solea elongata</i>	
<i>Aseraggodes melanostictus</i>		<i>Solea ovata</i>	SOL Sol 2
<i>Aseraggodes microlepidotus</i>			
<i>Aseraggodes persimilis</i>		<i>Soleichthys heterorhinos</i>	
<i>Aseraggodes routheri</i>			
<i>Aseraggodes texturatus</i>			
<i>Coryphilus filiger</i>		<i>Synaptura albomaculata</i>	
		<i>Synaptura commersoniana</i>	SOL Syn 1
		<i>Synaptura villosa</i>	
<i>Euryglossa aenea</i>		<i>Zebrias altipinnis</i>	
<i>Euryglossa aspilos</i>		<i>Zebrias annandalei</i>	
<i>Euryglossa harmandi</i>		<i>Zebrias craticula</i>	
<i>Euryglossa krampfi</i>		<i>Zebrias quagga</i>	
<i>Euryglossa macrolepis</i>		<i>Zebrias synapturoides</i>	
<i>Euryglossa orientalis</i>	SOL Eury 1	<i>Zebrias zebra</i>	SOL Zeb 1
<i>Euryglossa pan</i>			
<i>Euryglossa panoides</i>			
<i>Euryglossa setifer</i>			

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SOLIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Euryglossa orientalis* (Bloch & Schneider, 1801)SYNONYMS STILL IN USE: *Brachirus orientalis* (Bloch & Schneider, 1801)
Synaptura orientalis (Bloch & Schneider, 1801)

VERNACULAR NAMES

FAO: En - Oriental sole
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body oval and flat, both contours equally arched, with ctenoid (rough) scales on both sides; head scales of blind side modified into cutaneous sensory processes. 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, the left somewhat shorter than the right; pelvic fins moderately symmetrical, united basally.

Colour: grey or brown with cloudy indistinct patches on eyed side, tinged yellow on blind side; right pectoral fin darker.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Euryglossa pan: also has well developed pectoral fins, but scales on head and neck enlarged (not larger than the others in *E. orientalis*).

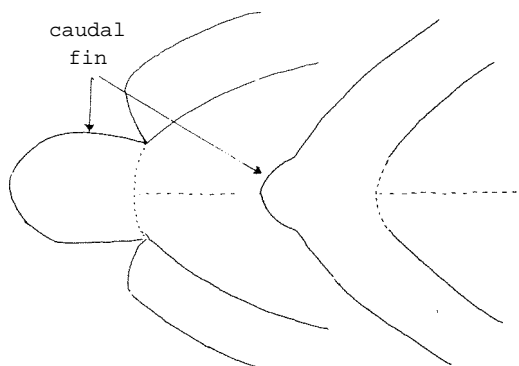
Other *Euryglossa* species: pectoral fin of at least one side rudimentary (pectoral fins of both sides well developed in *E. orientalis*).

Solea and *Soleichthys* species: dorsal and anal fins separate from caudal fin; also, body with numerous transverse wavy lines (*Soleichthys*) or black blotches (*Solea*).

Synaptura and *Achiroides* species: also have dorsal and anal fins joined to caudal fin, but either bony process present on snout (*Synaptura*) or pectorals absent (*Achiroides*).

Zebrias, *Aesopia* and *Phyllichthys* species: also have dorsal and anal fins joined to caudal fin, but opercular membrane joined to upper rays of pectoral fins; also, a number of dark cross-bars on body.

Heteromycteris species: snout forming a long hook.



Solea, soleichthys
Soleichthys

Euryglossa

SIZE:

Maximum: 21 cm; common: 10 to 12 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

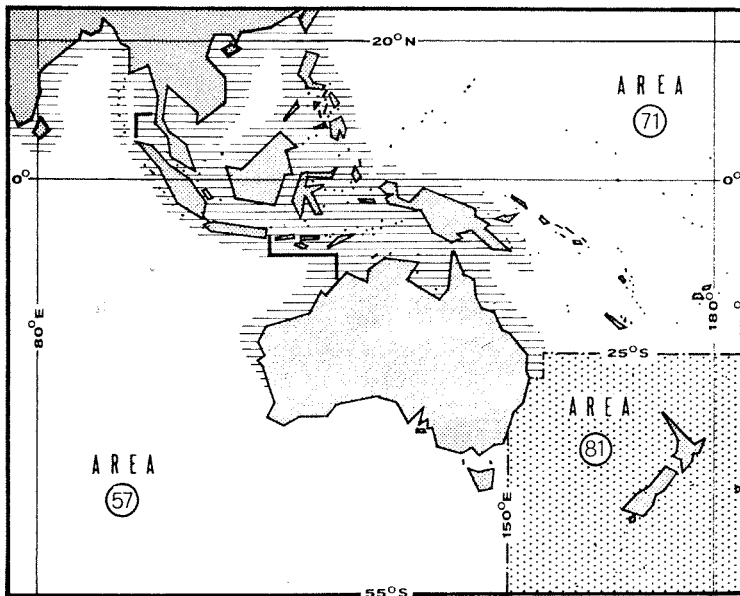
Throughout most warm coastal waters of area.

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, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

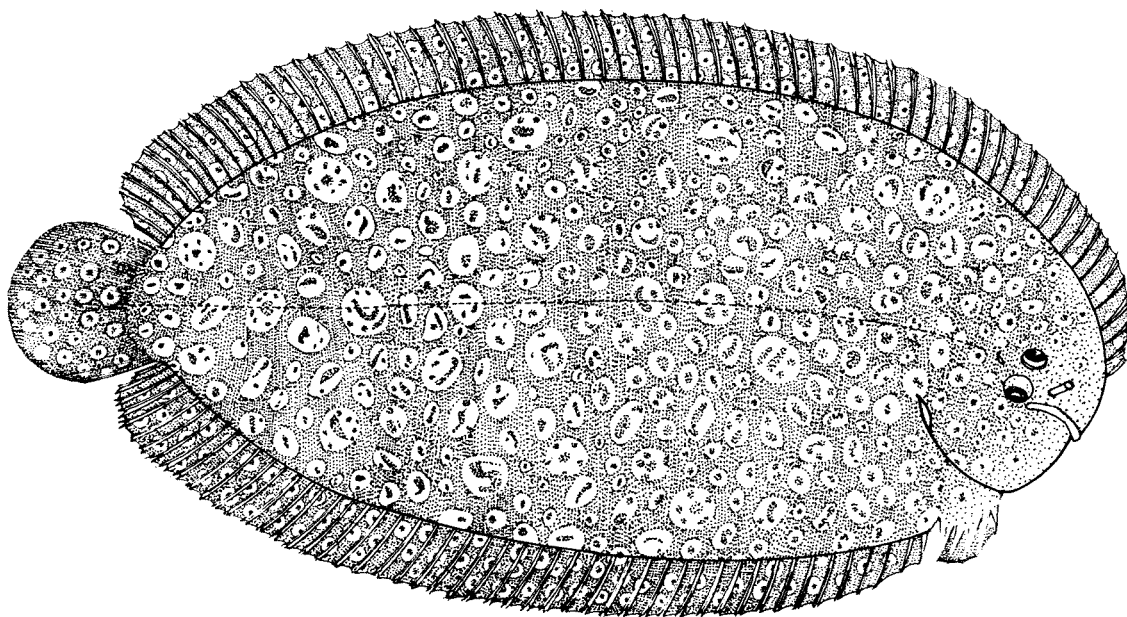
Separate statistics are not reported for this species.

Caught mainly with bottom trawls.

Marketed fresh, frozen and dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SOLEIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Pardachirus pavoninus* (Lacepède, 1802)SYNONYMS STILL IN USE: *Achirus pavoninus* Lacepède, 1802

VERNACULAR NAMES

FAO: En - Peacock sole
Fr -
Sp -

NATIONAL:



DISTINCTIVE CHARACTERS:

Body oblong and flat with feebly ctenoid (rough) scales on both sides. Eyes on right side, separated by a scaly space; mouth strongly curved, cleft reaching to below front border of lower eye. Dorsal and anal fins separate from caudal fin; no pectoral fins; pelvic fins unequal, the right one with an elongated base and attached posteriorly to genital papilla.

Colour: red/brown, densely spotted on head; body and fins of eyed side also with spots of various sizes and shapes, bordered by a dark rim and some with a blackish spot in centre.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

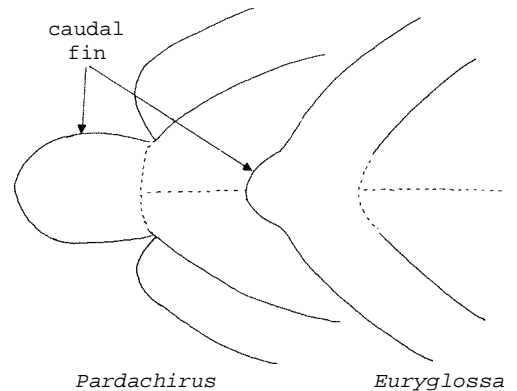
Other *Pardachirus* species: body colouration quite different, e.g., yellow/brown with small brown scattered spots (*P. jaubertensis*), black with indistinct spots and wavy lines (*P. poropterus*) or red/brown with 3 to 4 rows of black blotches (*P. whitleyi*).

Synaptura, Euryglossa, Achiroides, Zebrias, Aesopia and *Phyllichthys* species: dorsal and anal fins joined to caudal fin.

Solea and *Soleichthys* species: also have dorsal and anal fins separate from caudal fin, but pectoral fins well developed.

Aseraggodes and *Coryphillus* species: also have dorsal and anal fins separate from caudal fin and lack pectoral fins, but pelvic fins short-based and separate from genital papilla and anal fin.

Heteromycteris species: snout forming a long hook.



SIZE:

Maximum: 20 cm; common: 10 to 15 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

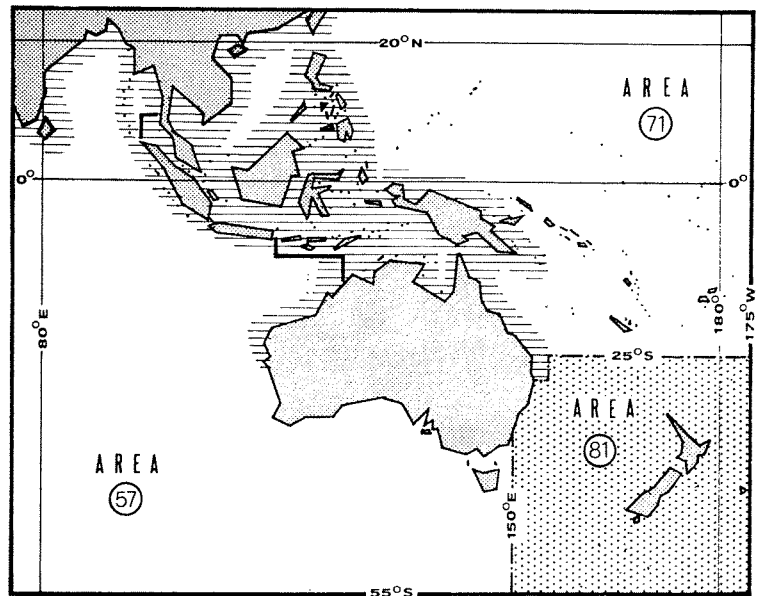
Throughout most warm coastal waters of northern part of area and southward to northern coasts of Australia.

Inhabits shallow sand/mud bottoms in coastal waters.

Feeds mainly on bottom-living invertebrates, especially small crustaceans.

PRESENT FISHING GROUNDS:

Shallow sand/mud grounds of the continental shelf.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with bottom trawls.

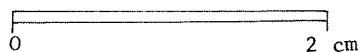
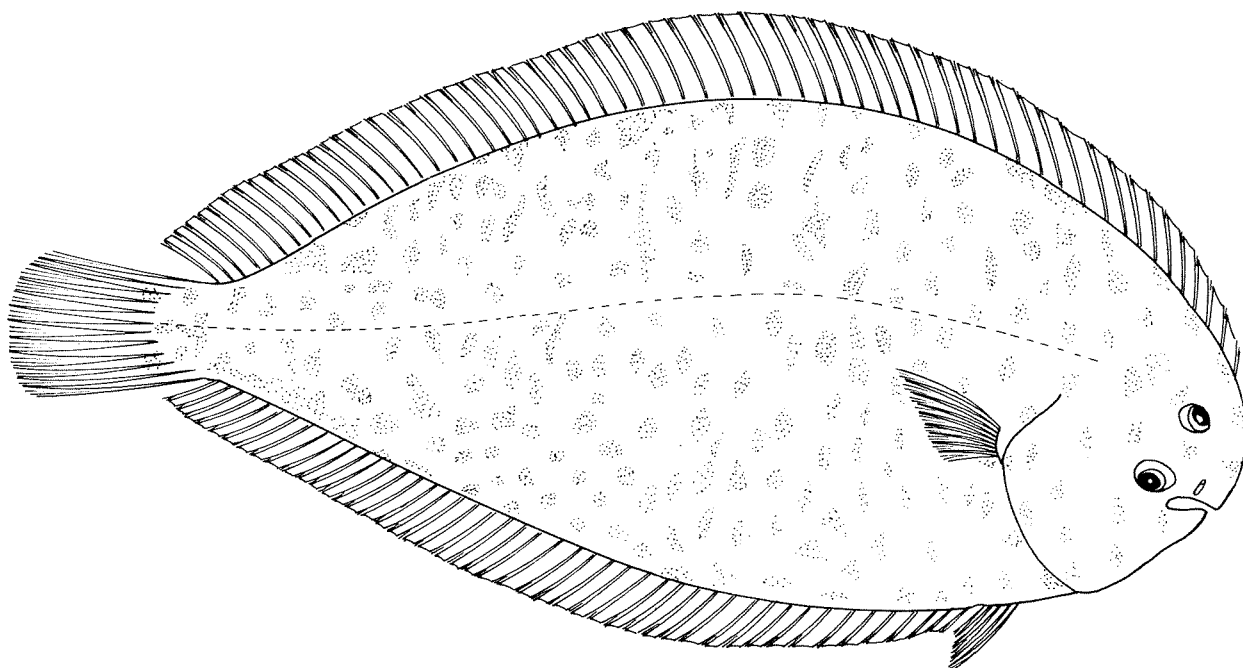
Marketed fresh or frozen.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SOLEIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

<i>Solea ovata</i> Richardson, 1846

SYNONYMS STILL IN USE: *Solea humilis* Cantor, 1850

VERNACULAR NAMES:

FAO: En - Ovate sole
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body ovate and flat with small ctenoid (rough) scales on both sides. Eyes on right side, separated by a small concave space. Snout obtusely pointed with series of short cutaneous sensory processes on blind side; mouth small, curved, cleft reaching to below anterior half of lower eye. Dorsal and anal fins separated from caudal fin; pectoral fin on eyed side about twice as long as that on blind side; both pelvic fins present.

Colour: olive/brown with spots and black blotches on eyed side of body and fins; deep black blotches on outer two-thirds of pectoral fins.

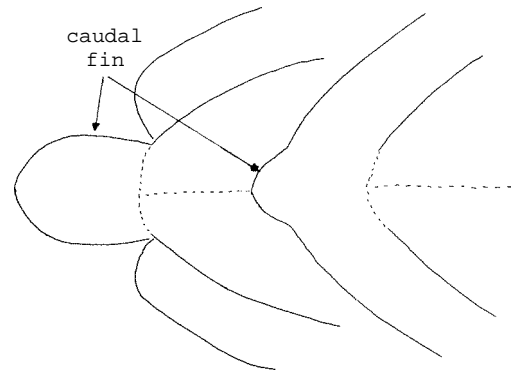
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Solea elongata: body elongate, its depth 3 times in total length (about twice in *S. ovata*).

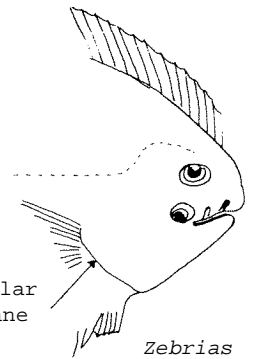
Soleichthys, *Pardachirus*, *Aseraggodes* and *Coryphillus* species: also have dorsal and anal fins separate from caudal fin, but numerous dark transverse lines on body; also, anterior nasal tube of eyed side longer (*Soleichthys*), or pectoral fins absent (*Pardaehirus*, *Aseraggodes*, *Coryphillus*).

Synaptura, *Euryglossa*, *Achiroides*, *Zebrias*, *Aesopia* and *Phyllichthys* species: dorsal and anal fins joined to caudal fin; also, opercular membrane joined to upper rays of pectoral fins in *Zebrias*, *Aesopia* and *Phyllichthys* and pectoral fins absent in *Aehiroides*.

Heteromycteris species: snout forming a long hook.



Solea



Euryglossa

Zebrias

SIZE:

Maximum: 10 cm; common: 8 to 9 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

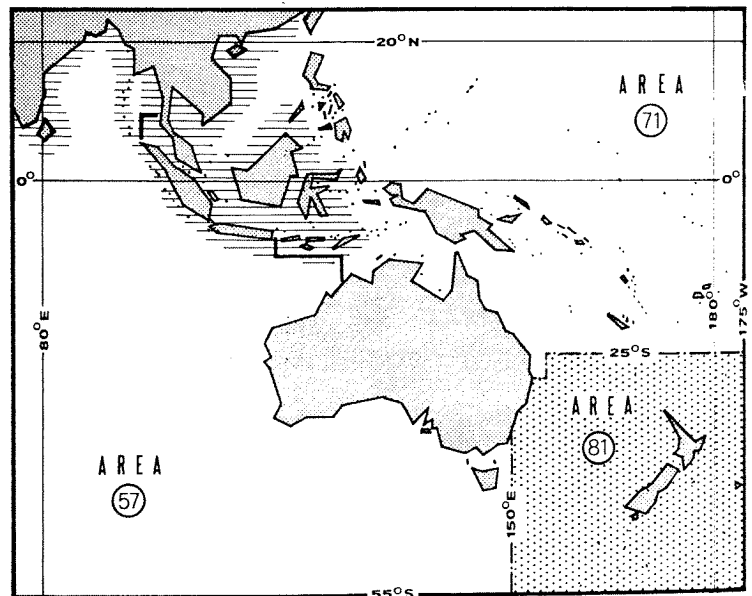
Throughout northwestern part of area but not to the Philippines, New Guinea or Australia.

Inhabits shallow sand/mud bottoms in coastal waters.

Feeds mainly on bottom-living invertebrates, especially crustaceans.

PRESENT FISHING GROUNDS:

Shallow sand/mud grounds of the continental shelf.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with bottom trawls.

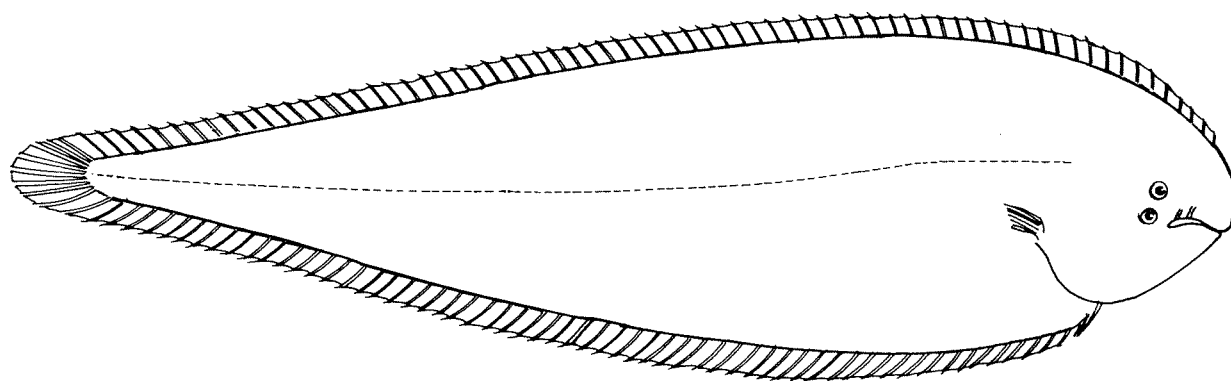
Marketed fresh, frozen and dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SOLEIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Synaptura commersoniana* (Lacepède, 1802)

SYNONYMS STILL IN USE: None



0 6 cm

VERNACULAR NAMES:

FAO: En - Commerson's sole
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and flat, broad anteriorly and tapering posteriorly, with ctenoid (rough) scales on eyed side, cycloid (smooth) on blind side; 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. 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; pelvic fins short and asymmetrical.

Colour: grey/brown on eyed side of body, dorsal, anal and caudal fins dusky towards edges of both sides and with a conspicuous white margin; right pectoral fin dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Synaptura albomaculata and *S. villusa*: scales on head and body similar in size (scales on head and nape of eyed side larger than those on body in *S. commersoniana*); also, 2 to 3 rows of white spots on eyed side of body in *S. albomaculata*.

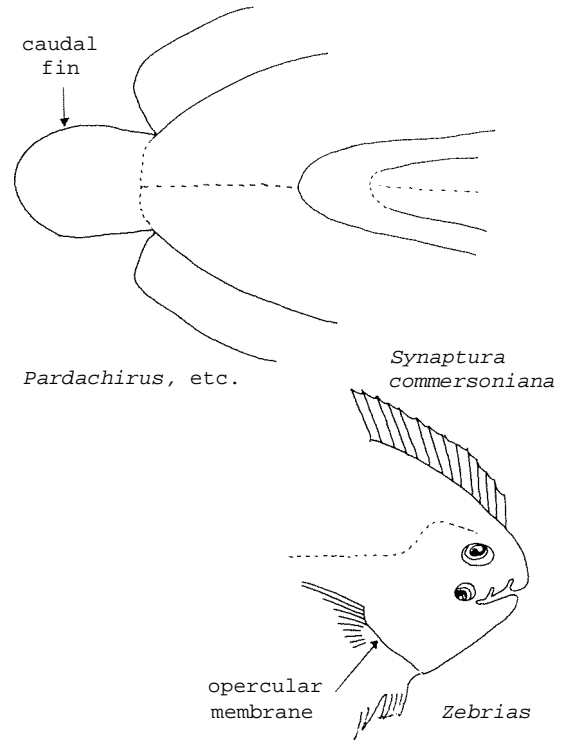
Solea and *Soleichthys* species: dorsal and anal fins separate from caudal fin; body with numerous transverse wavy lines (*Soleichthys*), or with black blotches (*Solea*).

Pardachirus, *Aseraggodes* and *Coryphillus* species: dorsal and anal fins separate from caudal fin and pectoral fins absent.

Euryglossa and *Achiroides* species: also have dorsal and anal fins joined to caudal fin, but no bony process on snout and body oval in shape (elongate in *Synaptura*).

Zebrias, *Aesopia* and *Phyllichthys* species: also have dorsal and anal fins joined to caudal fin, but opercular membrane joined to upper rays of pectoral fins; also, a number of dark cross-bars on body.

Heteromycteris species: snout forming a long hook.



SIZE:

Maximum: 32 cm; common: 20 to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

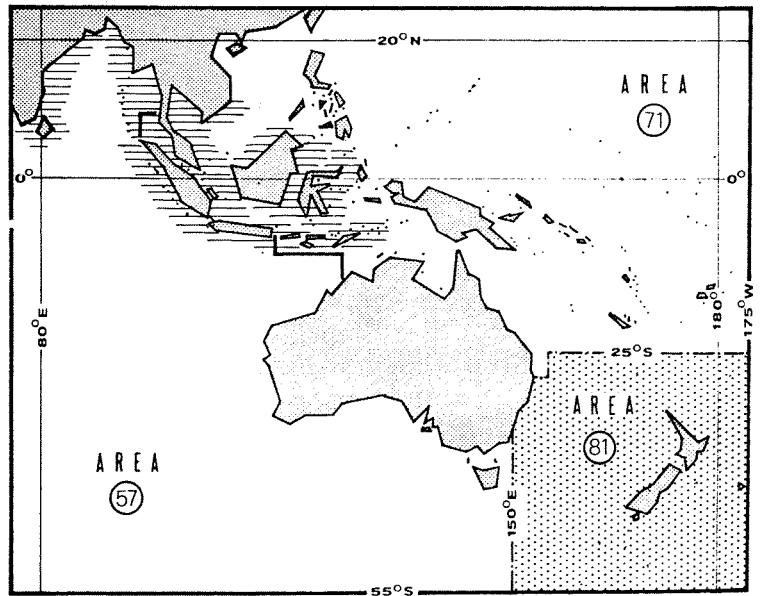
Northwestern part of area, but not to the Philippines, New Guinea or Australia.

Inhabits mainly sand/mud bottoms in coastal waters.

Feeds mainly on bottom-living invertebrates, especially on small crustaceans.

PRESENT FISHING GROUNDS:

Shallow sand/mud grounds of the continental shelf.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

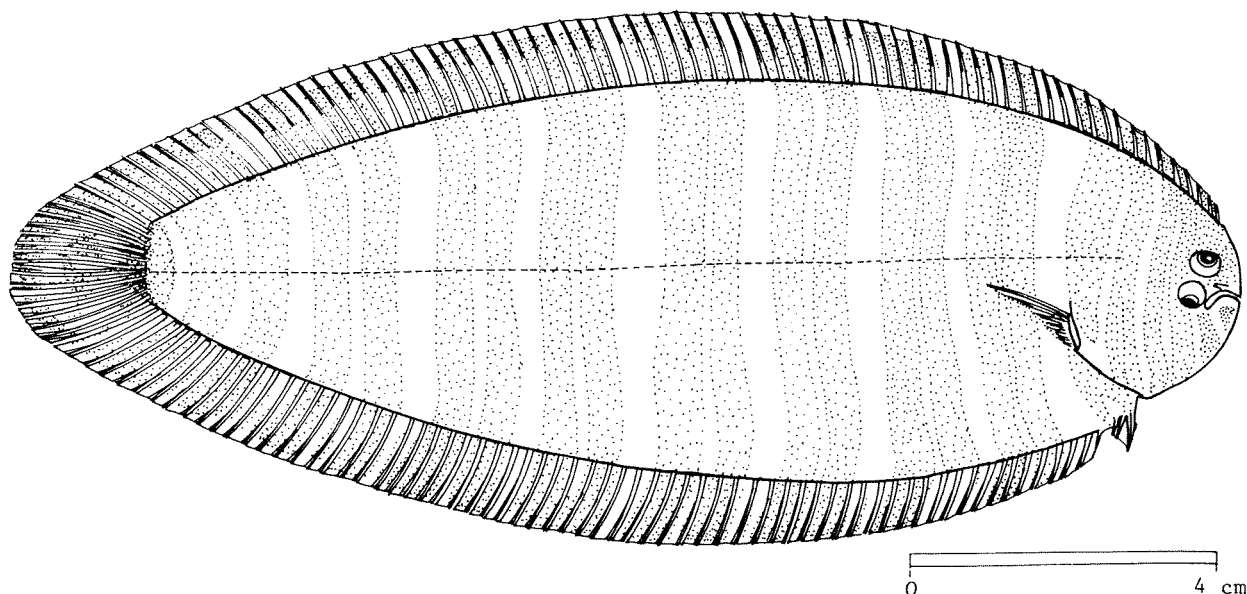
Separate statistics are not reported for this species.

Caught mainly with bottom trawls.

Marketed fresh, frozen and dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SOLEIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Zebrias zebra* (Bloch, 1787)SYNONYMS STILL IN USE: *Synaptura zebra* (Bloch, 1787)

VERNACULAR NAMES:

FAO: En - Zebra sole
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate and flat, with strongly ctenoid (rough) scales on both sides. *Eyes on right side, separated by a scaly space; mouth curved, cleft reaching to below anterior border of lower eye. Dorsal and anal fins completely joined to caudal fin; pectoral fins well developed, attached to opercular membrane, the right much longer than the left, upper 2 rays of right pectoral fin longer than others; pelvic fins shorter than right pectoral fin, right pelvic fin base longer than left.*

Colour: yellow/brown on eyed side, with 12 paired dark brown cross-bands continued onto fins, where they are bent backward; a white-bordered, dark, ocellus on caudal fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Zebrias altipinnis: 14 unpaired cross-bands on eyed side of body (12 paired cross-bands in *Z. zebra*).

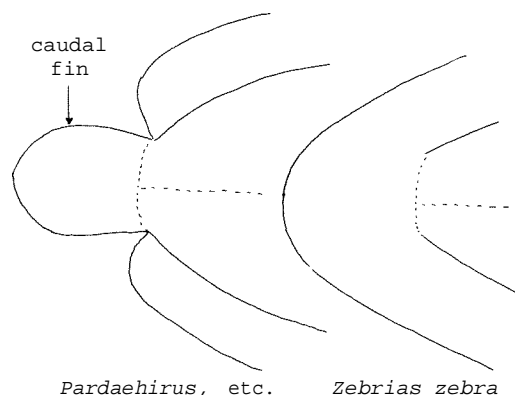
Zebrias annandatei, *Z. quagga* and *Z. synapturoides* species: dorsal and anal fins only partly confluent with caudal fin; also, a tentacle on each eye and 10 to 11 dark cross-bands (*Z. quagga*); or no tentacle on eye but 13 dark cross-bands (*Z. synapturoides*), or 20 to 24 dark cross-bands equal in width to spaces between them (*Z. craticula*).

Euryglossa and *Synaptura* species: also have dorsal and anal fins joined to caudal fin, but opercular membrane not joined to pectoral fins; also, either a bony process on snout and an elongate body (*Synaptura*), or no bony process and an oval body (*Euryglossa*).

Achiroides, *Aesopia* and *Phyllichthys* species: also have dorsal and anal fins joined to caudal fin but pectoral fins absent (*Achiroides*); or the first ray of dorsal fin enlarged and free from remaining dorsal fin rays (*Aesopia*); or pelvic fin of eyed side joined to anal fin (*Phyllichthys*).

Solea, *Soleichthys*, *Pardachirus*, *Aseraggodes* and *Coryphillus* species: dorsal and anal fins separate from caudal fin.

Heteromycteris species: snout forming a long hook.



SIZE:

Maximum: 14 cm; common: 15 to 17 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Northwestern part of area but not to the Philippines, New Guinea or Australia.

Inhabits shallow sand/mud bottoms in coastal waters.

Feeds mainly on bottom-living invertebrates, especially small crustaceans.

PRESENT FISHING GROUNDS:

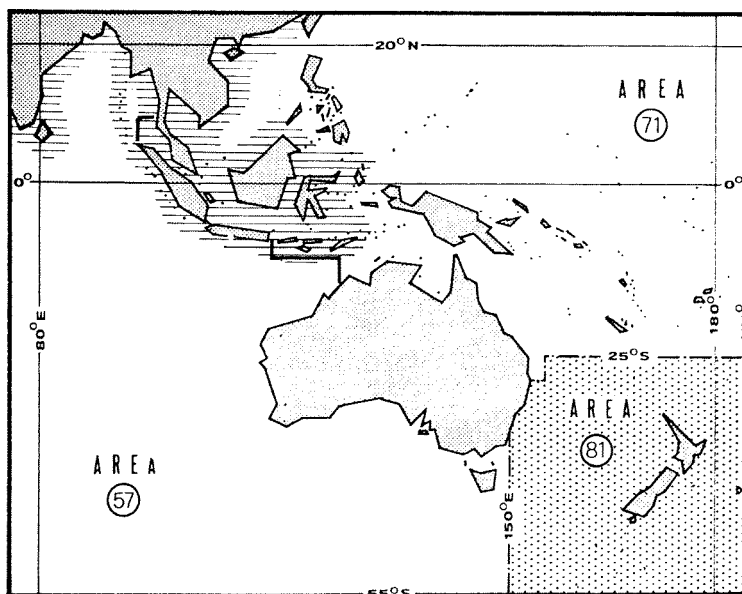
Shallow sand/mud grounds of the continental shelf.

CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORM OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with bottom trawls.

Marketed fresh, frozen and dried-salted.



FAO SPECIES IDENTIFICATION SHEETS

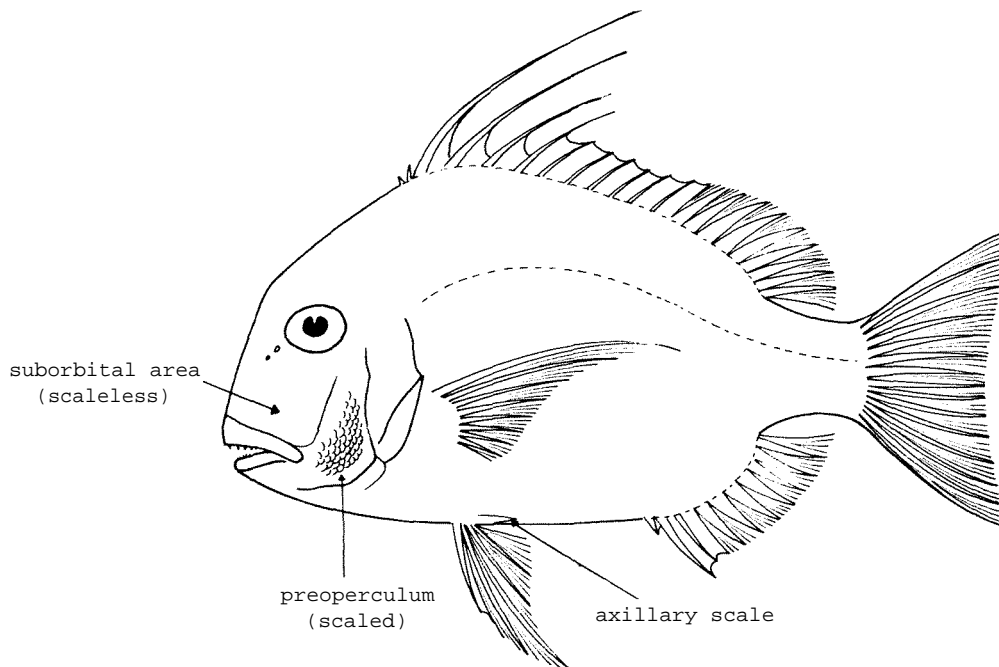
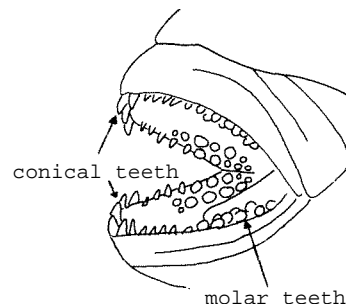
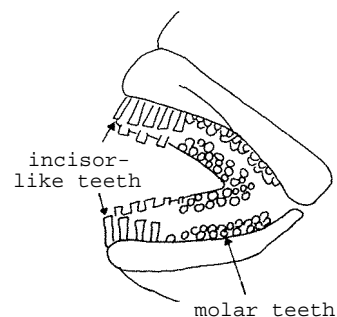
FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

SPARIDAE

Seabreams, porgies

Body oblong, usually deep and more or less compressed, head large, often with steep upper profile; snout scaleless. Mouth small, upper jaw not reaching beyond eye centre; hind tip of premaxilla overlaps maxilla. Jaw teeth usually differentiated into conical, incisor-like or canine teeth in front and rounded, molar-like teeth behind; palate usually toothless. Suborbital area scaleless, with hind margin not serrated. Posterior nostril the larger. Preoperculum scaled, without spines or serrations on margin. Dorsal fin single, with 10 to 13 stout spines and 10 to 15 soft rays, last spines and first rays usually of about same length, anterior spines sometimes elongate or filamentous; pectoral fins long and pointed; pelvic fins below or just behind pectoral fin base, with 1 spine and 5 soft rays, axillary scales present; anal fin with 3 spines and 8 to 12 rays, the spines, especially the 2nd, often stout; caudal fin emarginate or forked. Scales cycloid (smooth) or weakly ctenoid (rough to touch); a single, continuous lateral line.

Colour: overall colour very variable, from silvery to reddish to almost black; bright patterns not usually found, although some species have vertical bars on body, especially when young, and others have small spots along each scale row or small bright blue spots scattered on upper sides.



SIMILAR FAMILIES OCCURRING IN THE AREA:

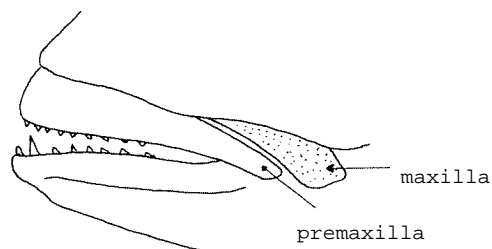
Pentapodidae: maxilla not overlapped by hind tip of premaxilla; also, molar teeth only in *Monotaxis*

Serranidae: similar species lack pelvic axillary scales.

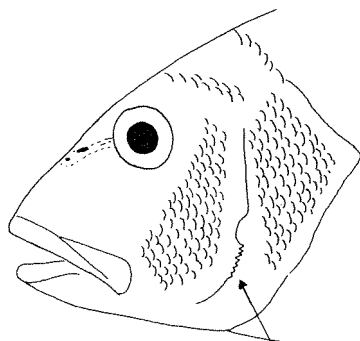
Kyphosidae: head small and scales present on snout.

Lutjanidae, Pomadasyidae: margin of preoperculum serrated; also, no molar teeth in jaws.

Lethrinidae: no scales on preoperculum and 8 to 9 rays in soft part of dorsal fin (10 or more in Sparidae).

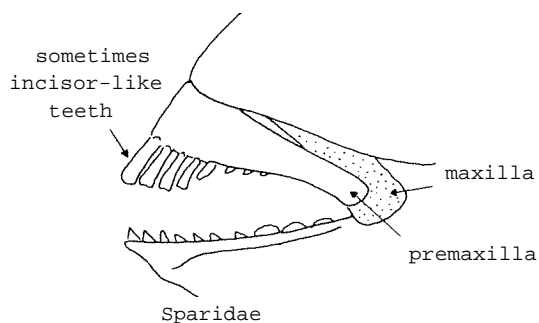


Pentapodidae



preoperculum serrated

Lutjanidae



Sparidae

Key to Genera

1 a. Elongated spines in dorsal fin

2 a. Dorsal fin with 1st and 2nd spines minute (Fig. 1)

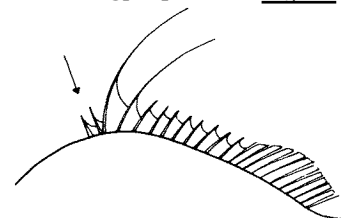
Argyrops

Argyrops

Fig. 1

2 b. Dorsal fin with 1st and 2nd spines well developed (Fig. 2)

Evynnis



Evynnis

Fig. 2

1 b. No elongated spines in dorsal fin

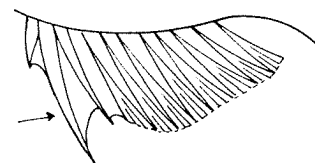
3 a. 2nd anal spine much longer than 3rd (Fig. 3)

Mylio

3 b. 2nd anal spine not markedly longer than 3rd

4 a. No molar teeth present in jaws; back with 3 golden yellow spots

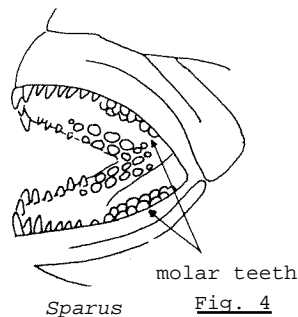
Taius



Mylio

Fig. 3

- 4 b. Molar teeth present in jaws (Fig. 4);
back without yellow spots
 - 5 a. Reddish with small blue spots on upper sides;
7 to 9 soft anal rays ... *Sparus*
 - 5 b. Not reddish in colour and without small blue spots; 11 to 12 soft anal rays *Rhabdosargus*



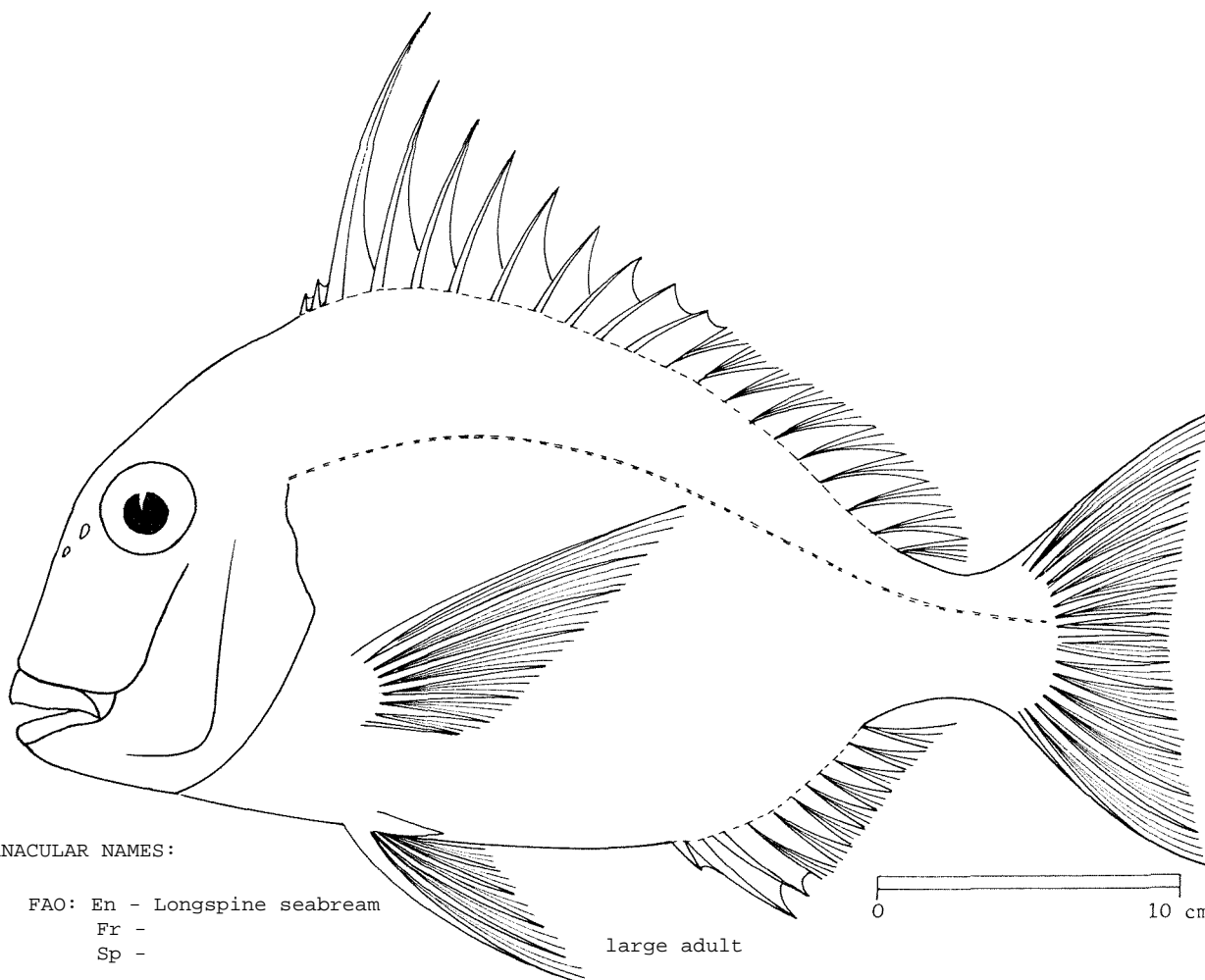
List of Species occurring in the Area*
(Code numbers are given for those species for which Identification Sheets are included)

<i>Argyrops filamentosus</i>		<i>Rhabdosargus sarba</i>	SPARID Rhab 1
<i>Argyrops spinifer</i>	SPARID Argy 1	<i>Sparus auratus</i>	
<i>Evynnis cardinalis</i>	SPARID Evyn 1	<i>Sparus major</i>	SPARID Spar 2
<i>Evynnis japonicus</i>		<i>Taius tumifrons</i>	SPARID Tai 1
<i>Mylio berda</i>	SPARID Myl 1		
<i>Mylio bifasciatus</i>			
<i>Mylio latus</i>	SPARID Myl 2		
<i>Mylio macrocephalus</i>			

* Probably incomplete. The family requires a full revision

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Argyrops spinifer* (Forsskål, 1775)SYNONYMS STILL IN USE: *Sparus spinifer* Forsskål, 1775

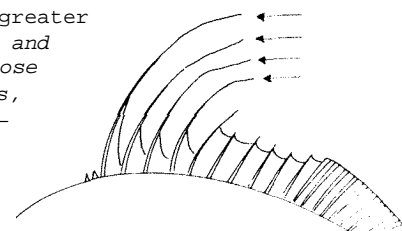
VERNACULAR NAMES:

FAO: En - Longspine seabream
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body robust and very deep, strongly compressed, depth of head much greater than its length, especially so in large fish; upper profile of head steep and almost straight or slightly concave from upper jaw to eye; eye large, close to front profile. Dorsal fin single, with 11 to 12 spines and 10 soft rays, the first 2 spines very short, 3rd to 5th spines (sometimes to 7th) flattened and much elongated (in young fish reaching to level of caudal fin, shorter in older fish); soft dorsal fin rays all approximately equal in length. Anal fin with 3 spines and 8 to 9 soft rays, 1st spine short, 2nd and 3rd of equal length or 2nd slightly longer. Caudal fin emarginate with pointed lobes. Scales large; soft parts of dorsal and anal fins with a low scaly sheath.

A. *spinifer* (medium-sized adult)

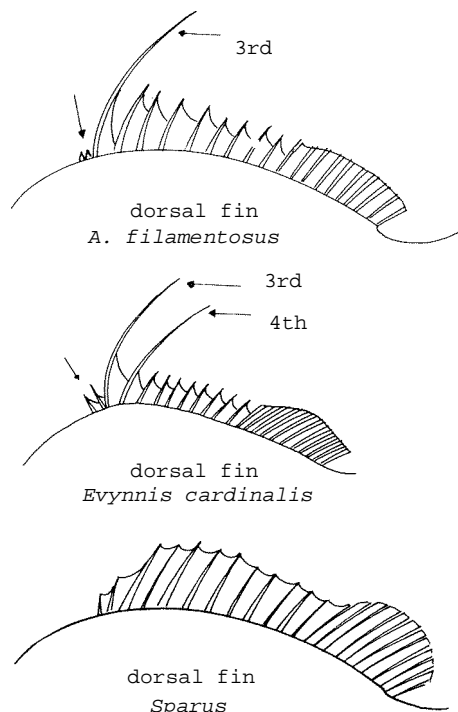
Colour: head and body mainly silvery with red iridescence, particularly on upper sides and head. Usually red on margin of upper part of gill cover; all fins red. Young fish with several vertical red bars on body.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Argyrops filamentosus: only the 3rd and sometimes the 4th dorsal fin spines elongated (3rd to 5th spines, and sometimes to 7th, elongated in *A. spinifer*); also, 2nd anal fin spine longer and stouter than 3rd spine.

Evynnis species: 1st and 2nd dorsal fin spines well developed, and only 3rd and 4th spines filamentous; also, head profile much less steep in *E. cardinalis*.

Sparus species: no elongated or filamentous spines in dorsal fin.



SIZE:

Maximum: 60 cm; common: 20 to 35 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

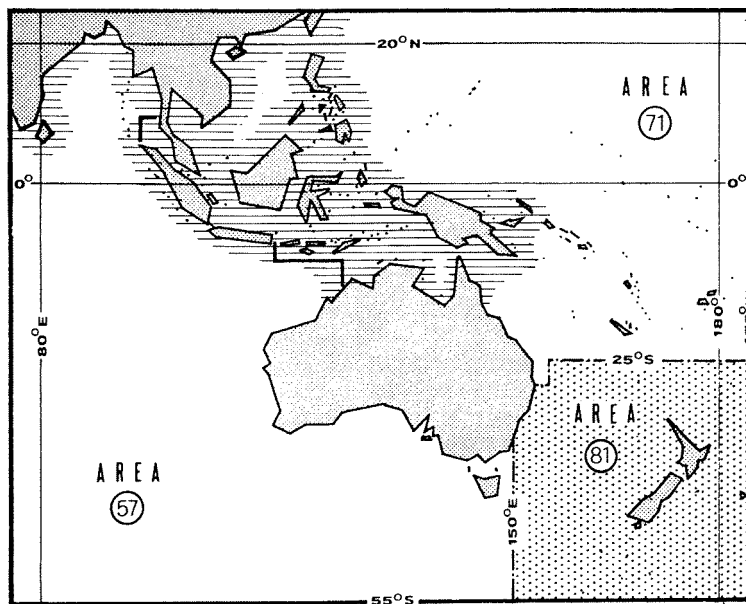
Throughout most of northern part of area southward to northern Australia; also, westward to East Africa.

Inhabits a wide range of bottoms, at depths of 5 to 100 m. Young fish of 5 to 10 cm are sometimes extremely abundant in very shallow water in sheltered bays. Larger fish occur in deeper water.

Feeds on bottom-living invertebrates.

PRESENT FISHING GROUNDS:

Shallow to moderate depths, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of Sparidae in 1972 was:

- area 57 (Eastern Indian Ocean: 1 500 tons (Australia only)
- area 71 (Western Central Pacific): 200 tons (Australia only)

Caught mainly with bottom trawls and set and handlines; also with stake traps and fish traps.

Marketed usually fresh, whole; small quantities are dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

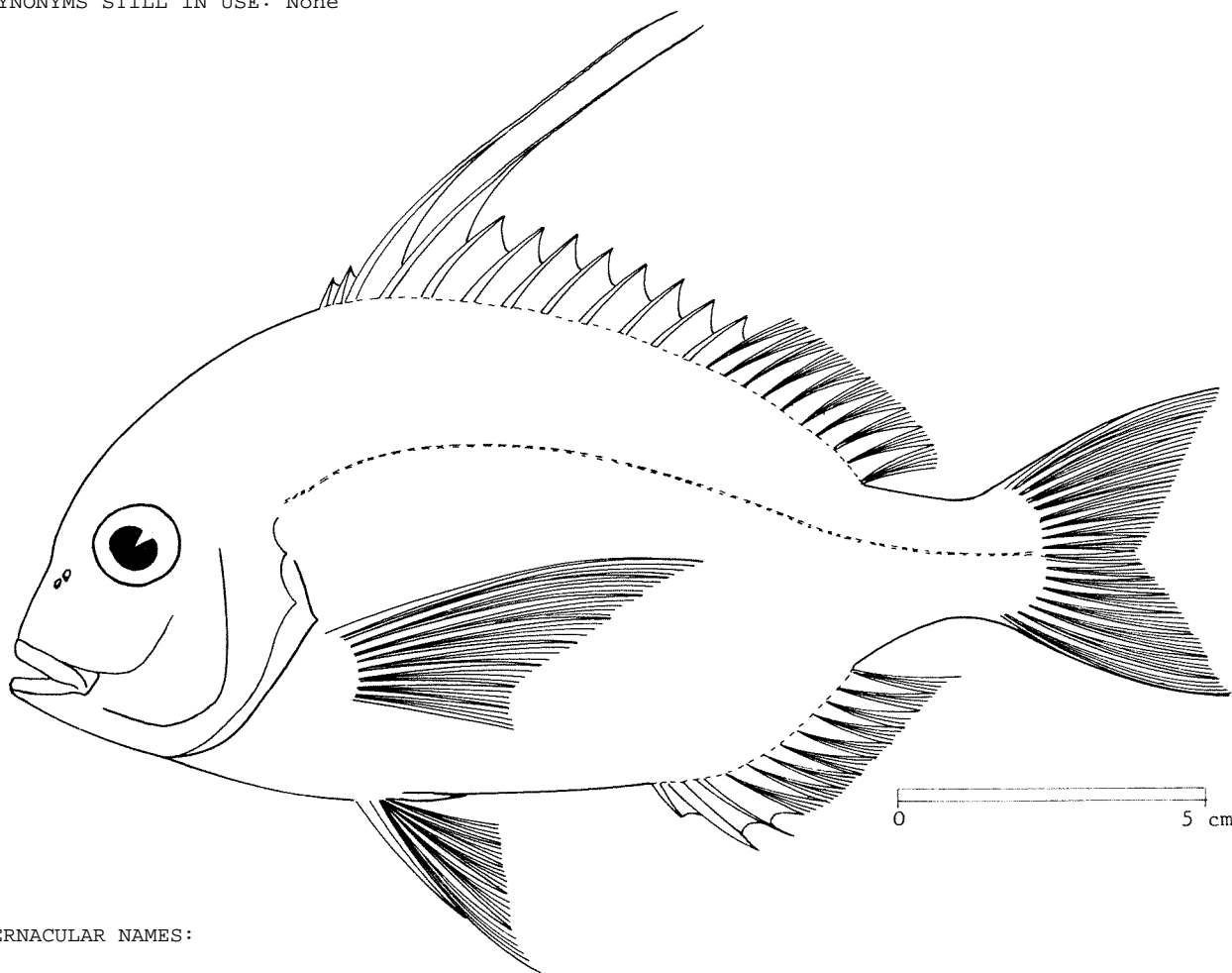
FISHING AREAS 57,71

(E Ind. Ocean)

(W Cent. Pacific)

Evynnis cardinalis (Lacepède, 1802)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Cardinal seabream
 Fr -
 Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body robust and deeper than head, strongly compressed, depth of head much greater than its length; upper profile of head oblique, often with a bulge near eye; eye moderate in size, close to front profile. Dorsal fin single, with 12 spines and 10 to 11 soft rays, the first 2 spines short but well developed, 3rd and 4th (and sometimes 5th) spines elongated as fine filaments, the remaining spines becoming slightly shorter toward tail; soft part of dorsal fin slightly higher than posterior part of spinous fin. Anal fin with 3 spines and 2 to 9 soft rays, 1st spine short, 2nd and 3rd about equal in length but 2nd a little shorter. Caudal fin slightly forked with pointed lobes. Scales large.

Colour: pale, silvery pink, but more red on head, upper sides, fins and especially on filaments of dorsal fin. Rows of pale blue spots along scale rows.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Evynnus japonicus: 3rd and 4th dorsal fin spines long but not filamentous.

Argyrops spinifer: front profile of head almost vertical; first 2 dorsal fin spines very short; also, dorsal fin spines 3 to 5 (sometimes 3 to 7) elongated as broad filaments, and in young fish, vertical red bars present on body.

Argyrops filamentosus: first 2 dorsal fin spines very short; also, only 3rd dorsal fin spine elongated.

Sparus species: lack elongated or filamentous spines in dorsal fin.

SIZE:

Maximum: 40 cm; common: 15 to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Northern part of South China Sea to Japan, including northern part of the Philippines.

Occurs over a wide range of bottom types from the surface to 100 m, but is more common close to reefs or on rough bottoms. Small fish are very abundant at some localities in shallow, sheltered bays; larger fish usually occur in deeper water.

PRESENT FISHING GROUNDS:

Shallow parts of the continental shelf throughout its range, especially close to reefs or over rough bottoms.

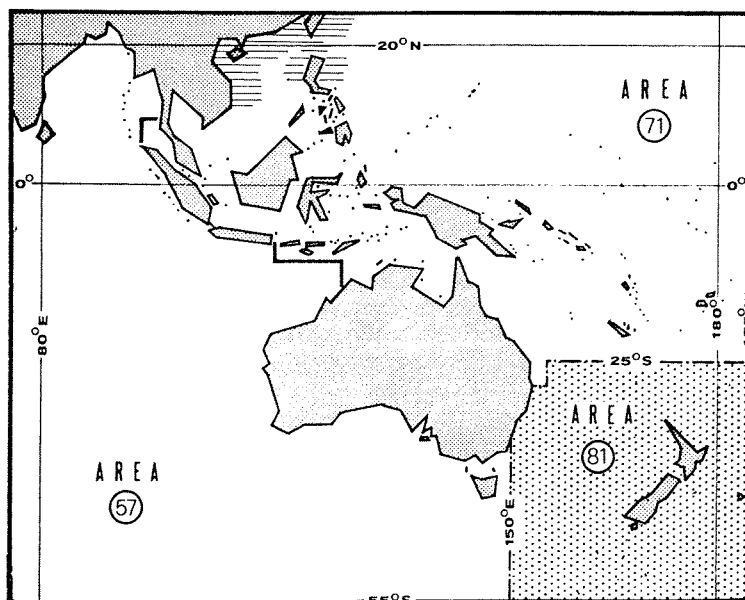
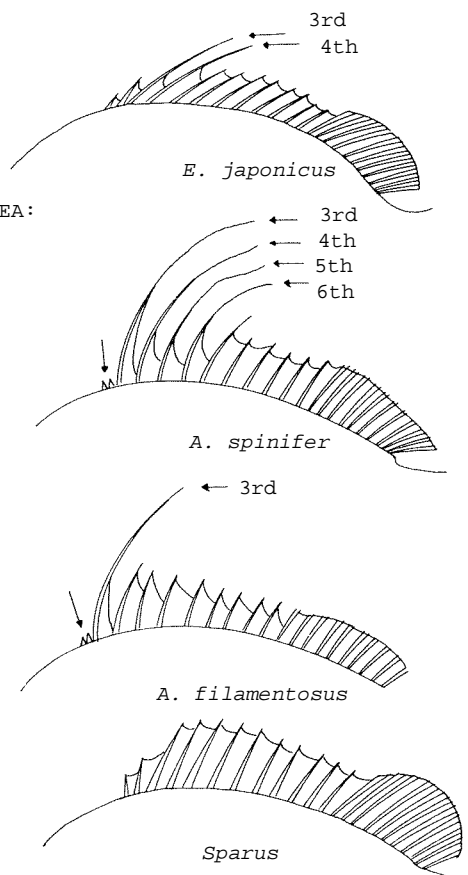
CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of Sparidae in 1972 was:

- area 57 (Eastern Indian Ocean): 1 500 tons (Australia only)
- area 71 (Western Central Pacific): 200 tons (Australia only)

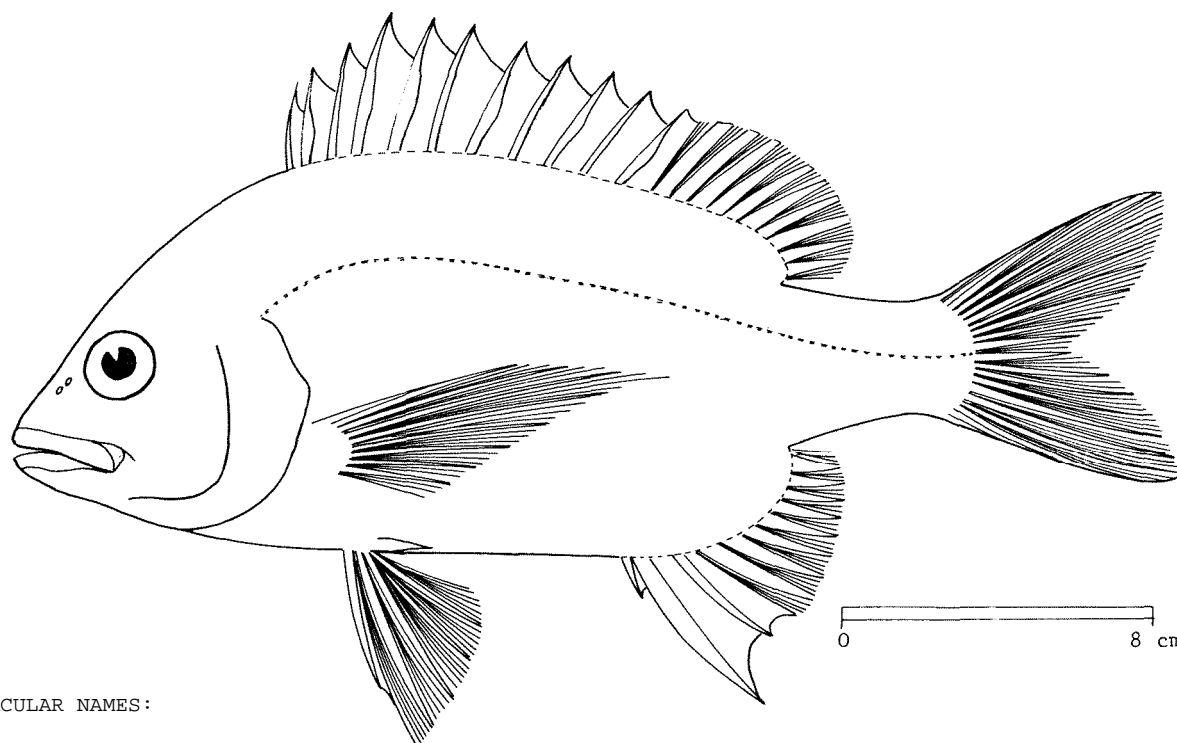
Caught mainly with bottom trawls, longlines and handlines.

Marketed mostly fresh, whole.



FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREAS 57, 71
(E Ind. Ocean)
(W Cent. Pacific)*Myllo berda* (Forsskål, 1775)SYNONYMS STILL IN USE: *Sparus berda* Forsskål, 1775

VERNACULAR NAMES:

FAO: En - Picnic seabream
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body fairly deep, compressed; head large, rather pointed, *its upper profile oblique, often with a bulge above eye*; eye moderate in size. Operculum with a small spine. Dorsal fin single with 11 spines and 11 to 12 soft rays; 1st spine nearly as long as 2nd, which is shorter than the 3rd; 3rd to 5th spines longest, but with no filaments or elongated spines; spines appear alternately broad and narrow on either side; soft part of dorsal fin equal to or lower than spiny part. Pelvic fins with a strong spine. Anal fin with 3 spines and 8 to 9 soft rays, the 1st spine short (much shorter than eye diameter), 2nd spine very long and strong, flattened laterally, 3rd spine shorter than 2nd, but 1st soft anal rays longer than 3rd spine. Caudal fin slightly forked with rounded lobes. Scales large; dorsal and anal fins with a scaly sheath.

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. Dorsal and anal fins with darker margins; dorsal fin spines often silvery; pectoral fins dusky yellow, pelvic and anal fins blackish. Caudal fin darker at margin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Mylio latus: pale spots along scale rows, a dark spot at origin of lateral line and pelvic and anal fins dusky at base, yellow at margin.

Mylio macrocephalus: all fins black or dusky.

Gymnocranius griseus: has vertical darker bands on body (especially in juveniles) and 2nd anal fin spine not longer or stouter than 3rd spine.

Haplogeny species: spiny and soft parts of dorsal fin separated by deep notch; also, caudal fin usually rounded.

Girella species: 14 to 15 spines in dorsal fin (10 in *M. berda*); also, spines in dorsal fin not appearing alternately broad and narrow.

Glaucosoma species: 2nd anal fin spine not stouter and longer than 3rd spine; also, caudal fin truncate.

SIZE:

Maximum: 80 cm; common: 30 to 50 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout northern part of area and southward to Queensland and northwest coast of Australia; also, westward to Red Sea and northward to Japan.

A bottom-living fish, found mainly on rough and muddy-sand grounds in coastal waters, especially around river mouths and in estuaries, from shallow water to depths of 50 m. Young fish usually occur in shallow, sheltered bays.

Feeds on a wide range of bottom-living animals including molluscs, crustaceans, worms and echinoderms.

PRESENT FISHING GROUNDS:

Coastal waters throughout its range.

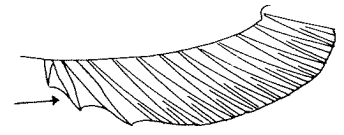
CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of Sparidae in 1472 was:

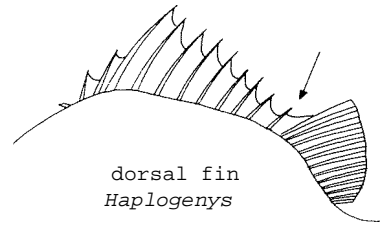
- area 57 (Eastern Indian Ocean): 1 500 tons (Australia only)
- area 71 (Western Central Pacific): 200 tons (Australia only)

Caught mainly with bottom trawls, handlines, gill nets and stake traps.

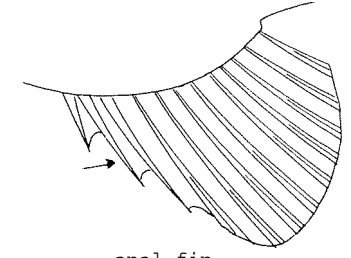
Marketed mostly fresh, whole; sometimes sold alive.



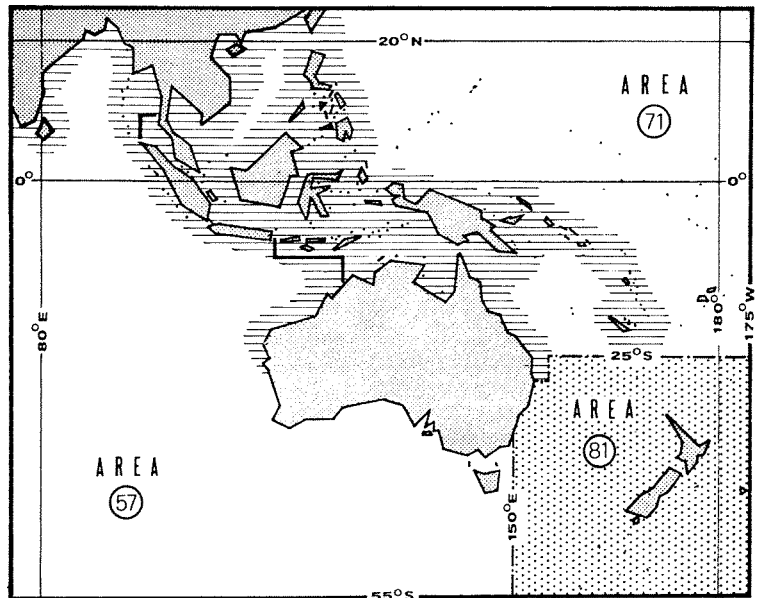
anal fin
Gymnocranius griseus



dorsal fin
Haplogeny



anal fin
Glaucosoma



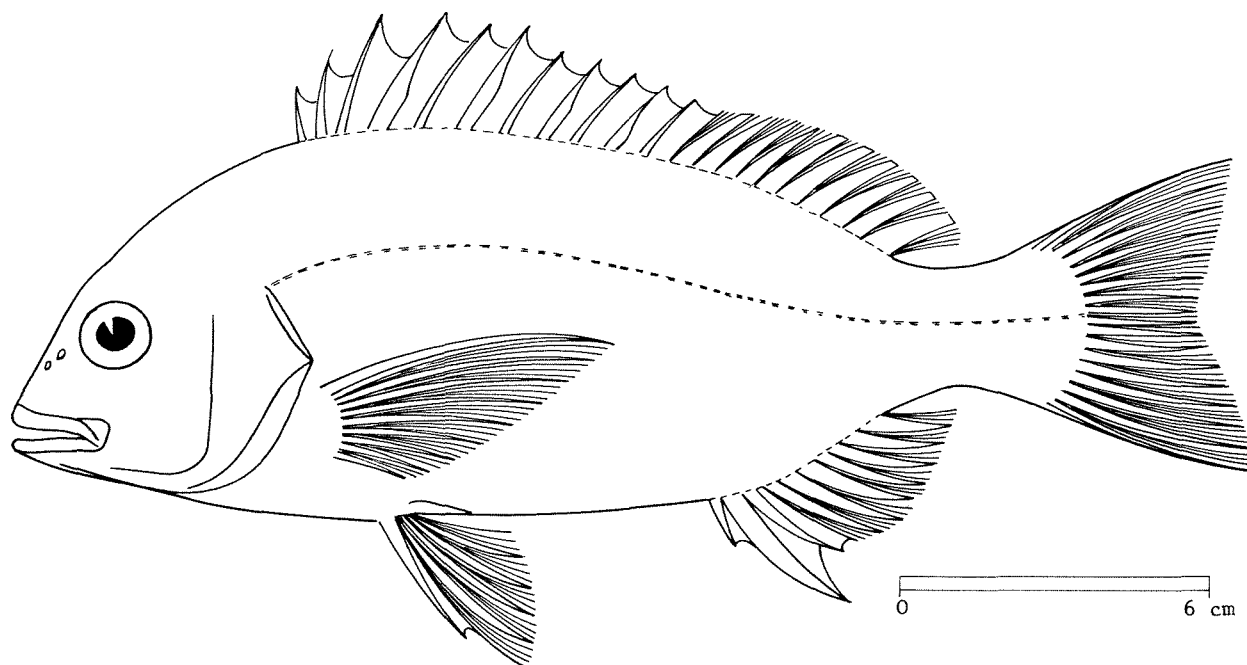
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREAS 57, 71
(E Ind. Ocean)
(W Cent. Pacific)

<i>Mylio latus</i> (Houttuyn, 1782)

STILL IN USE: *Sparus latus* Houttuyn, 1782
? *Sparus datnia* (Hamilton - Buchanan, 1822)



VERNACULAR NAMES:

FAO: En - Yellowfin seabream
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body fairly deep, compressed. Head large, rather pointed; snout profile oblique, with a slight bulge above eye; eye moderate in size. Operculum with a small spine. Dorsal fin single, with 11 to 13 spines and 10 to 11 soft rays, the 1st spine about 1/2 the length of 2nd which is shorter than 3rd, 4th spine longest; spines appear alternately broad and narrow on either side; soft rays about same length as last spine. Anal fin with 3 spines and 8 to 9 soft rays, 1st spine short, 2nd very stout and larger than 3rd; 1st anal soft rays longer than 3rd spine. Caudal fin deeply emarginate with rounded lobes. Scales large; soft dorsal and anal fins with a scaly sheath.

Colour: silver grey, darker above, belly usually yellowish. Scales with dark bases and silvery edges (especially above lateral line); often a dark band between eyes and a dark spot at origin of lateral line. Pelvic fins yellow, pectoral and anal fins dusky at base, yellow at margin. Belly and lower caudal fin lobe yellow.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Mylio macrocephalus: all fins black or dusky.

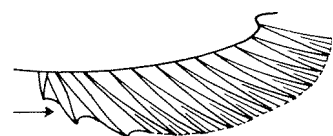
Mylio berda: pectoral fins yellow but pelvic and anal fins black or dusky; also, no silvery edges to scales and no dark spot at origin of lateral line.

Gymnocranius griseus: vertical darker bands on body (especially in juveniles) and 2nd anal fin spine not longer or stouter than 3rd spine.

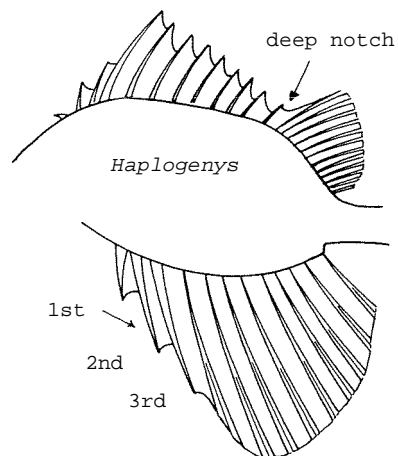
Haplogenyis species: spinous and soft parts of dorsal fin separated by a deep notch; also, caudal fin usually rounded.

Girella species: 14 to 15 spines in dorsal fin (11 to 13 in *M. latus*); also, spines in dorsal fin not appearing alternately broad and narrow.

Glaucosoma species: 2nd anal fin spine not stouter and longer than 3rd spine; also, caudal fin truncate.



anal fin
Gymnocranius griseus



Haplogenyis

1st

2nd

3rd

Glaucosoma

SIZE:

Maximum: 45 cm; common: 20 to 35 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

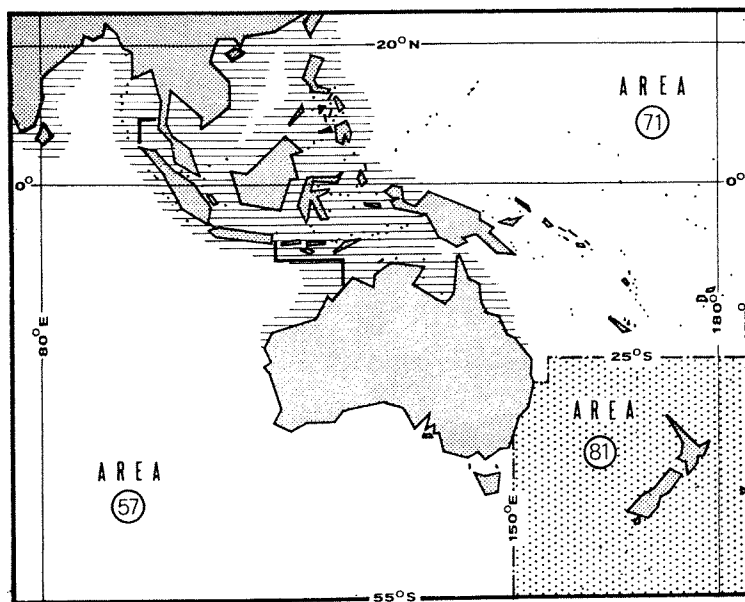
Throughout most of northern part of area and southward to northern coasts of Australia; also, westward to East Africa and northward to Japan.

Inhabits shallow coastal waters to depths of 50 m, and enters river mouths and estuaries.

Carnivorous, feeding on echinoderms, worms, crustaceans and molluscs.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of Sparidae in 1972 was:

area 57 (Eastern Indian Ocean): 1 500 tons (Australia only)

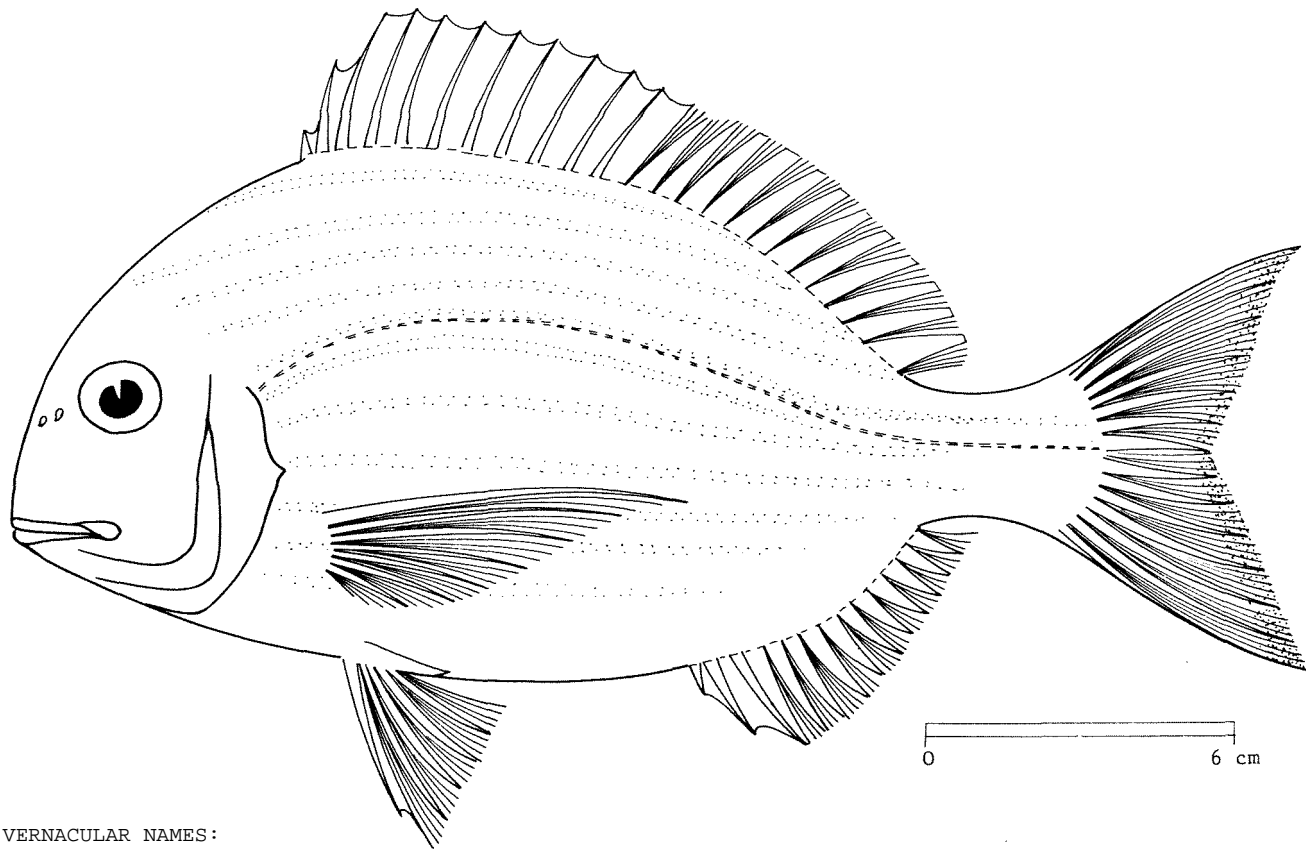
area 71 (Western Central Pacific): 200 tons (Australia only)

Caught mainly with bottom trawls, gill nets and lines; also with stake traps.

Marketed mostly fresh, whole; sometimes sold alive.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREAS 57, 71
(E Ind. Ocean)
(W Cent. Pacific)*Rhabdosargus sarba* (Forsskål, 1775)SYNONYMS STILL IN USE: *Sparus sarba* Forsskål, 1775

VERNACULAR NAMES:

FAO: En - Goldlined seabream
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body deeper than head, compressed; head large, its length about 1/4 of standard length; upper profile convex, most strongly arched from snout to origin of dorsal fin; eye moderate in size. Mouth almost horizontal and low, close to the almost straight ventral profile; 4 to 5 rows of molar teeth in posterior part of upper, jaw, 3 to 4 rows in lower jaw, the last molar in each jaw largest. Dorsal fin single, with 11 to 12 spines and 13 to 15 soft rays, 3rd to 5th spines the longest. Anal fin with 3 spines and 11 to 12 soft rays, 1st spine short, 2nd slightly longer than or equal to 3rd, 1st soft ray longer than 3rd spine. Caudal fin deeply emarginate. Scales cycloid (smooth); dorsal and anal fins with a scaly sheath.

Colour: overall colour silver grey; each scale has a golden centre, so as to form longitudinal lines on body; belly with a yellow band, less conspicuous in large fish; dorsal fin hyaline at base, dusky at margin; pectoral and pelvic fins yellow; anal fin with hyaline base, yellow toward margin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Mylio latus and *M. macrocephalus*: 2nd dorsal fin spine only 1/2 the length of 3rd spine (almost equal in *R. sarba*) and 2nd spine of anal fin much longer than 3rd spine; also, spines in dorsal fin appear alternately broad and narrow on each side.

Mylio berda: 2nd anal fin spine much longer than 3rd spine, and darker colouration without longitudinal rows of spots; also, spines in dorsal fin appear alternately broad and narrow.

Gymnocranius griseus: no horizontal rows of spots but has vertical bands on body and head (particularly in juveniles); also, dorsal fin with 10 spines and 10 soft rays (11 to 12 and 13 to 15 in *R. sarba*).

Girella species: 14 to 15 spines in dorsal fin (11 to 12 in *R. sarba*).

SIZE:

Maximum: 40 cm; common: 15 to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout most of northern part of area and southwards to New South Wales and northwestern coasts of Australia; also, westwards to East Africa and northwards to Japan.

A bottom-living coastal fish which often enters rivers and estuaries.

Spawning in Australia takes place near river mouths and after a short planktonic period the young fish move into estuaries where they spend a year before gradually moving into deeper water.

PRESENT FISHING GROUNDS:

Inshore waters and estuaries throughout its range.

CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

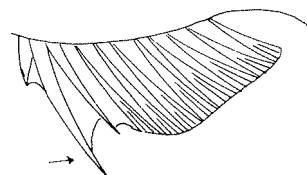
Separate statistics are not reported for this species. The total reported catch of Sparidae in 1972 was:

area 57 (Eastern Indian Ocean): 1 500 tons (Australia only)

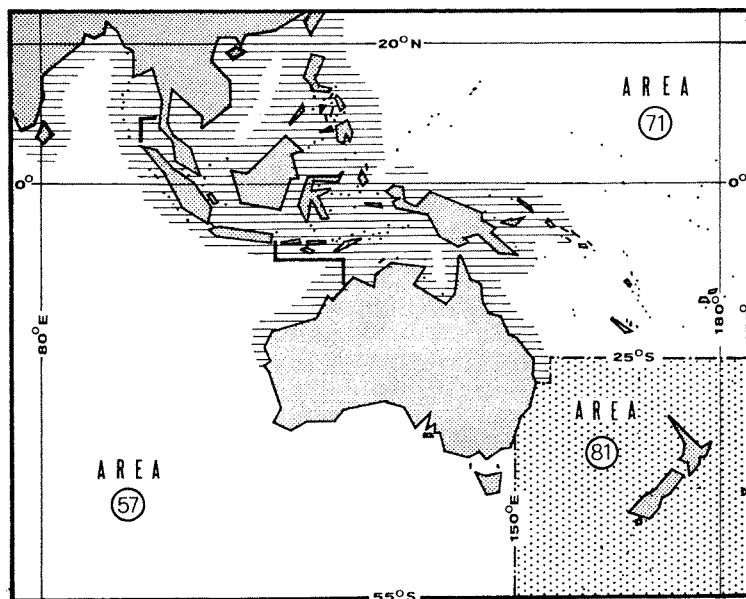
area 71 (Western Central Pacific): 200 tons (Australia only)

Caught mainly with bottom trawls, gillnets and stake traps; also fished for sport.

Marketed mostly fresh, whole.



Mylio
anal fin



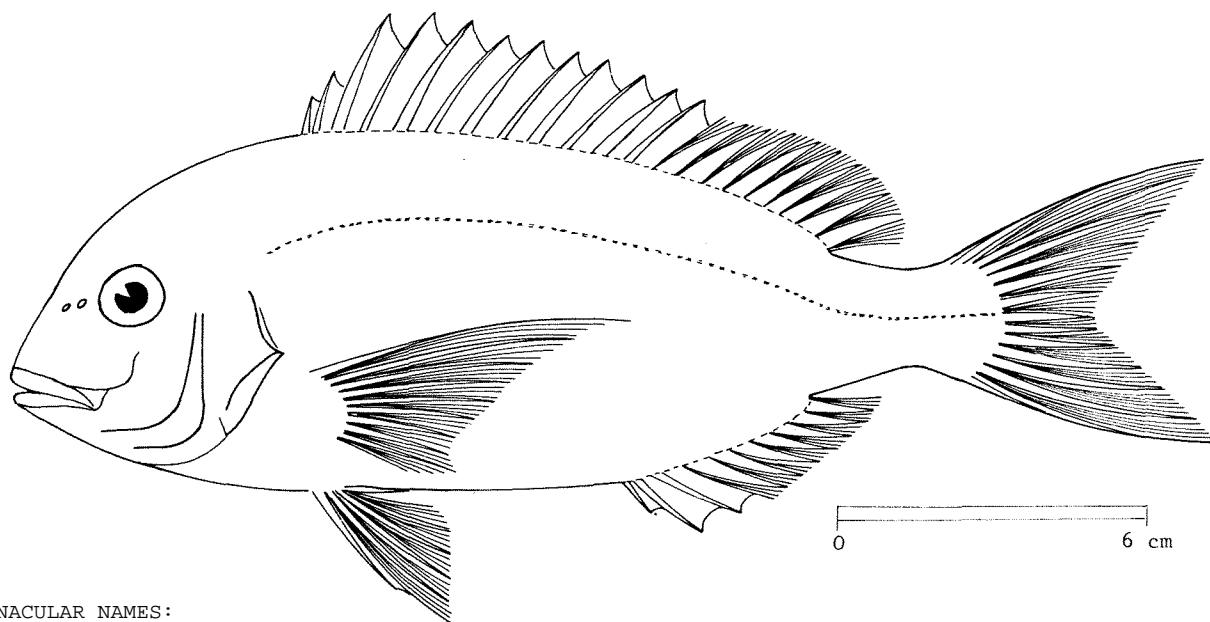
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREAS 57,71
(E Ind.Ocean)
(W Cent. Pacific)

Sparus major (Temminck & Schlegel, 1842)

SYNONYMS STILL IN USE: *Chrysophris major* Temminck & Schlegel, 1842
Pagrosomus major (Temminck & Schlegel, 1842)



VERNACULAR NAMES:

FAO: En - Silver seabream
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body robust, oblong, moderately compressed; upper profile of head convex with a bulge above eye in large specimens; eye moderate in size. Lower jaw slightly shorter than upper. Dorsal fin single, with 12 strong spines and 10 to 12 soft rays, the spines not elongated into filaments, 1st spine about 1/2 the length of 2nd, which is about 1/2 as long as 3rd, 3rd to 7th spines longest, other spines gradually decreasing in length along fin. Anal fin with 3 stout spines and 7 to 9 soft rays, 1st spine short, about 1/2 the length of 2nd; 2nd and 3rd spines about equal in length. Caudal fin forked with pointed lobes. Scales moderately large, absent from bases of soft dorsal and anal fins.

Colour: head and upper body red/brown, sides and belly silvery. Numerous small bright blue spots on upper sides. Fins red or faint red; caudal fin with a white lower margin.

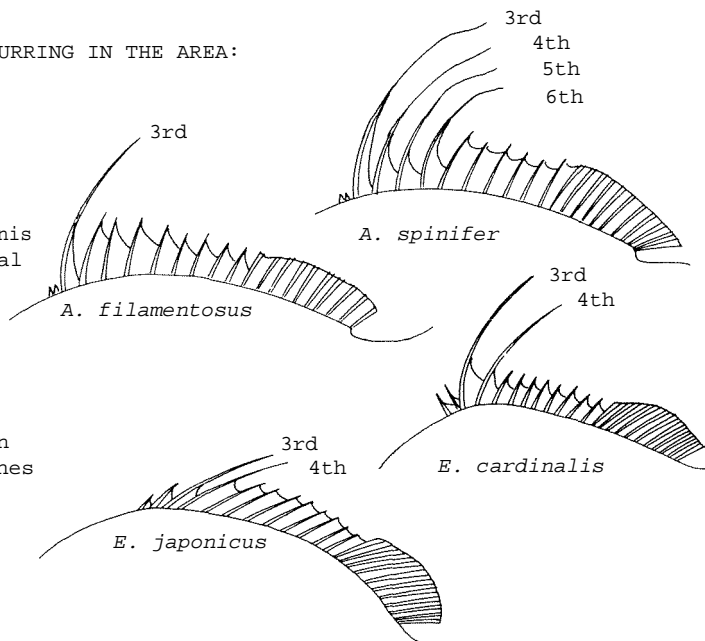
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Sparus auratus: difficult to separate on anatomical grounds. Occurs in Australia and New Zealand. Some authors include this species in *S. major*.

Argyrops spinifer, *A. filamentosus* and *Evynnis cardinalis*: at least some anterior spines of dorsal fin extended into long filaments.

Evynnis japonicus: 3rd to 4th dorsal fin spines much longer than other spines, though not filamentous.

Taius tumifrons: body mainly silvery, red on head and back; 3 golden yellow saddle-like blotches on back, and no blue spots on upper flanks.



SIZE:

Maximum: 70 cm; common: 20 to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

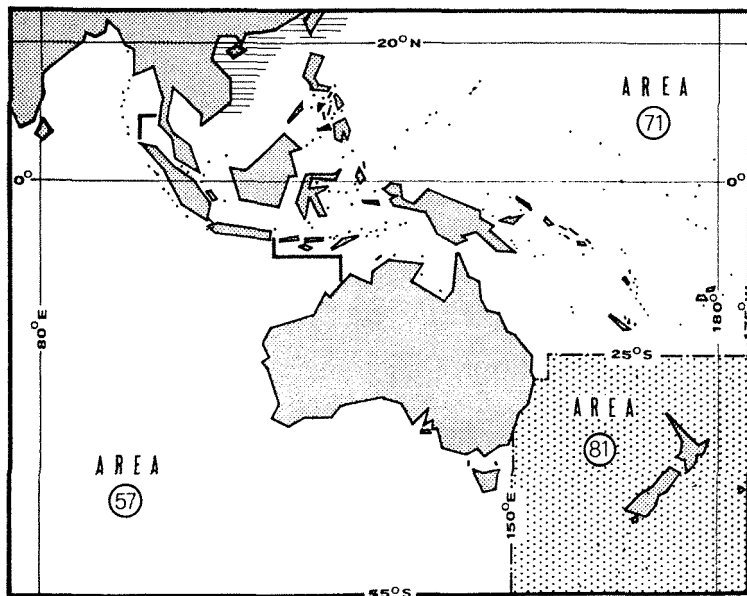
Northeastern part of South China Sea (excluding the Philippines); also, northward to Japan.

Bottom-living at depths of 10 to 150 m, often on rough grounds, but also on softer bottoms. Adult fish migrate into shallower parts of their depth range to spawn in late spring and summer; juvenile fish occur mainly in the shallower areas.

Feeds on a wide range of bottom-living invertebrates, including echinoderms, worms, molluscs and crustaceans; also on fishes.

PRESENT FISHING GROUNDS:

Throughout its range; often close to rough grounds. Probably over-fished in certain areas.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of Sparidae in 1972 was:

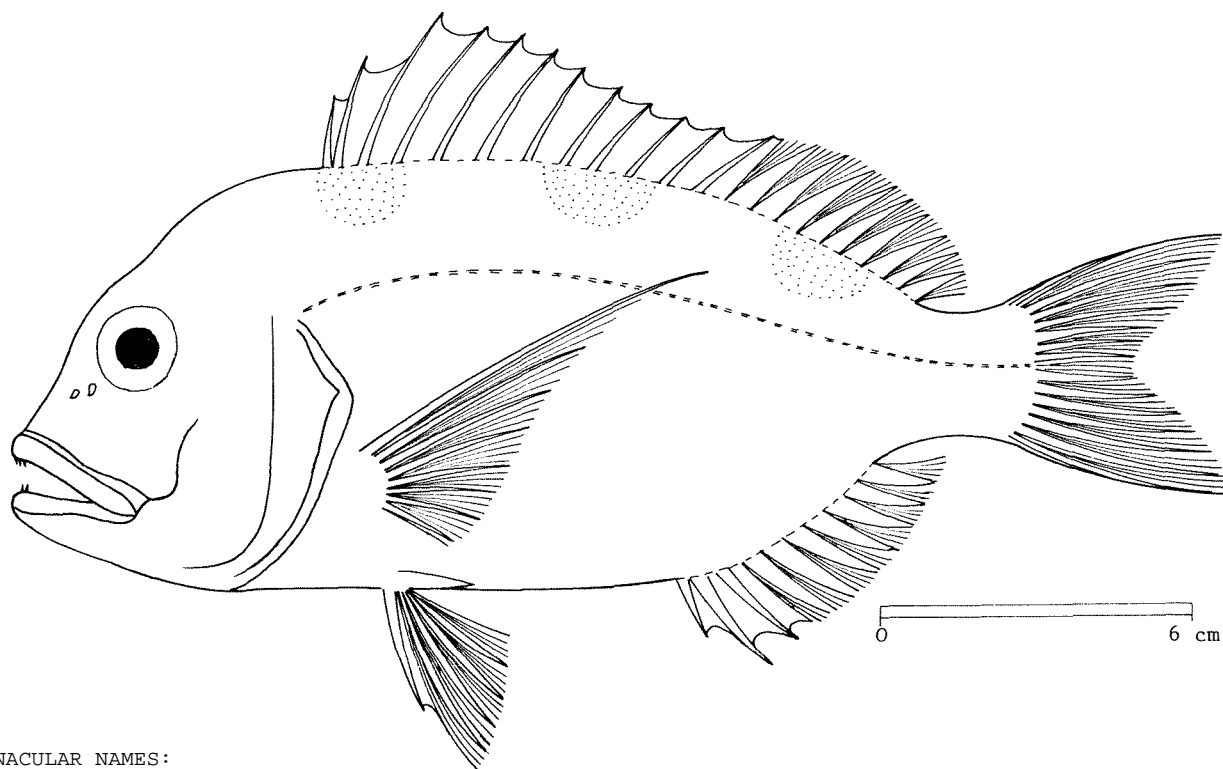
- area 57 (Eastern Indian Ocean): 1 500 tons (Australia only)
- area 71 (Western Central Pacific): 200 tons (Australia only)

Caught mainly with bottom trawls and bottom long lines.

A popular food fish throughout its range. It is particularly high priced in Japan where it is much sought for ceremonial banquets when it is eaten raw. It is also prepared into a wide range of food products.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPARIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Taius tumifrons* (Temminck & Schlegel, 1842)SYNONYMS STILL IN USE: *Dentex tumifrons* (Temminck & Schlegel, 1842)

VERNACULAR NAMES:

FAO: En - Yellowback seabream
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

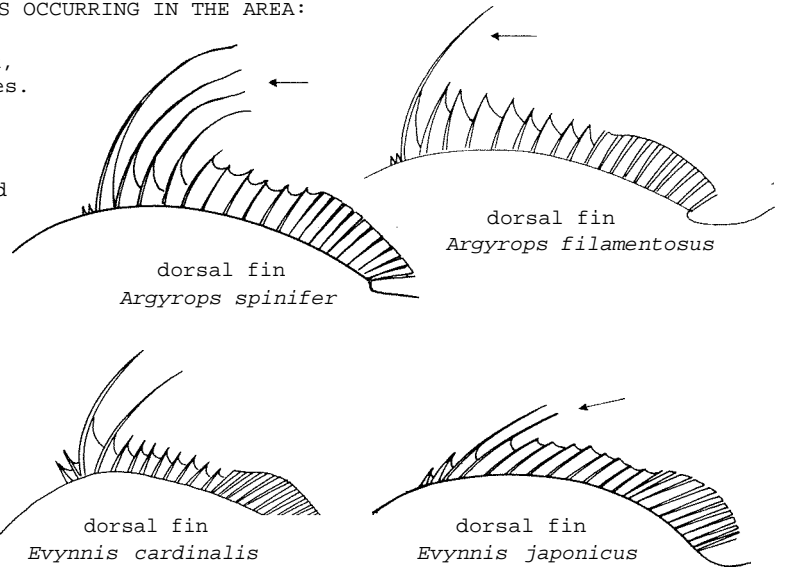
Body deep and compressed; head large, slightly deeper than long, its upper profile oblique, with prominent bulge near eye, especially in larger fish; eye moderate in size, close to front profile. Dorsal fin single, with 12 spines and 10 soft rays, none of the spines extended or filamentous; 3rd to 5th spines longest. Anal fin with 3 spines and 8 soft rays, 1st spine about 1/2 as long as 2nd which is equal to or slightly longer than 3rd. Caudal fin forked. Scales large; dorsal and anal fins with low scaly sheath.

Colour: back and upper sides orange/brown, lower sides and belly silvery; 3 golden/yellow saddle-like blotches on back, the 1st at origin of dorsal fin; dorsal, anal and caudal fins orange/red.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Sparus major: no yellow saddles on back, but small blue spots scattered on upper sides.

Argyrops spinifer, *A. filamentosus*, *Evynnis cardinalis* and *E. japonicus*: at least some anterior spines in dorsal fin elongated or filamentous.



SIZE:

Maximum: 40 cm; common: 15 to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

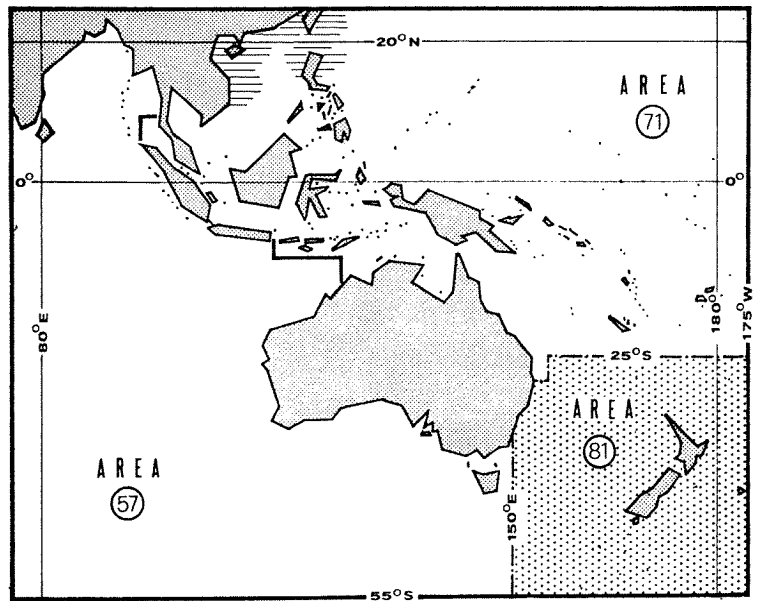
Northern part of South China Sea, including northern coasts of the Philippines; also, northward to Japan.

Lives on mud and muddy-sand bottoms, from depths of 50 to 250 m. Spawns in late spring.

Feeds on a wide range of bottom-living invertebrates and on fish.

PRESENT FISHING GROUNDS:

Deeper waters of the continental shelf; in northern part of South China Sea most abundant southeast of Hainan.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of Sparidae in 1972 was:

area 57 (Eastern Indian Ocean): 1 500 tons (Australia only)
area 71 (Western Central Pacific): 200 tons (Australia only)

Caught mainly with bottom trawls and bottom longlines.

Marketed mostly fresh, whole; also dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

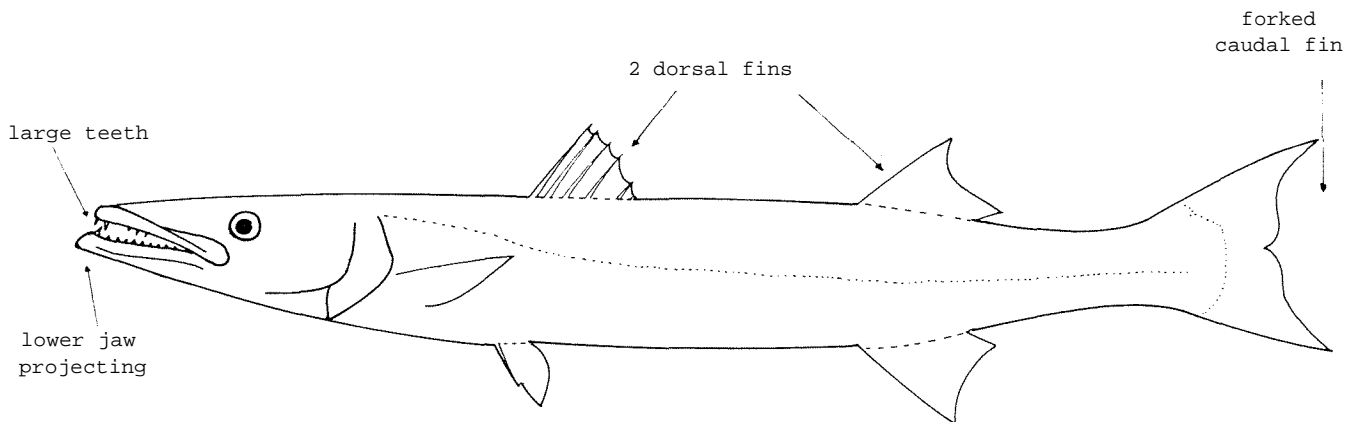
FISHING AREAS 57,71
(E Indian Ocean)
(W Central Pacific)

SPHYRAENIDAE

Barracudas

Body elongate, usually slightly compressed. Head very long, with long snout; mouth large, with lower jaw projecting beyond upper. Strong canine teeth in jaws and on palatines, of unequal size. Scales small, cycloid; lateral line well developed, nearly straight. Two widely separated dorsal fins, the first with 5 strong spines, usually beginning just behind pelvic fins; the second opposite anal fin; pelvic fins closer to pectoral fin base than to anal fin origin; caudal fin forked.

Colour: usually brown/blue or silver/grey, lighter below. Body sometimes with vertical bars. Fins sometimes yellow, black or grey.



SIMILAR FAMILIES OCCURRING IN THE AREA:

Other families with 2 short but widely spaced dorsal fins: lack such strong teeth in jaws and on palatines; lower jaw not projecting.

Key to Genera

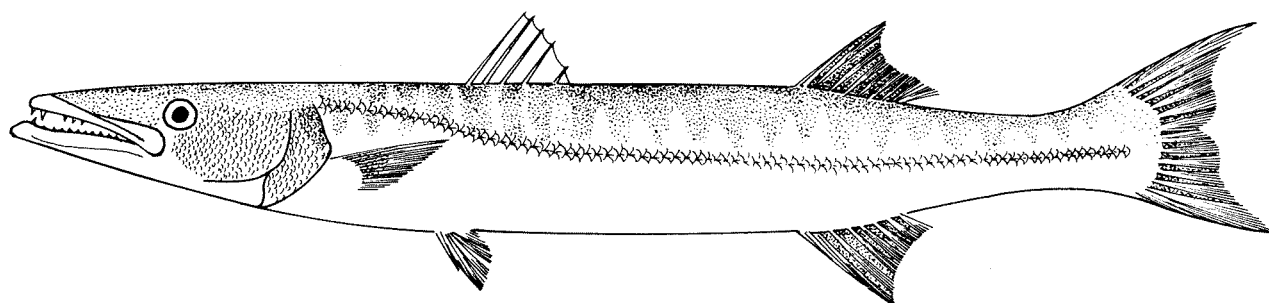
Sphyraena only

List of Species occurring in the Area
(Code numbers are given for those species
for which Identification Sheets are included)

<i>Sphpraena barracuda</i>	SPHY Sphy 1	<i>Sphpraena obtusata</i>	SPRY Sphy 4
<i>Sphyraena forsteri</i>	SPHY Sphy 2	<i>Sphyraena brachygnathus</i>	(doubtful)
<i>Sphyraena jello</i>	SPHY Sphy 3	<i>Sphyraena chrysotaenia</i>	(doubtful)

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPHYRAENIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Sphyraena barracuda* (Walbaum, 1792)SYNONYMS STILL IN USE: *Sphyraena picuda* Bloch & Schneider, 1801
Sphyraena commersonii Cuvier, 1829

0 30 cm

VERNACULAR NAMES:

FAO: En - Great barracuda
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

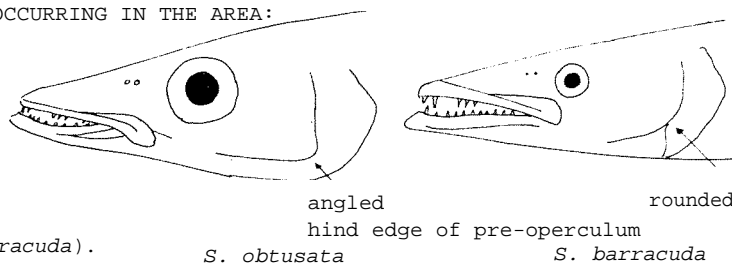
Body elongate, slightly compressed; head large, with long pointed snout and lower jaw projecting beyond upper jaw. Mouth large, maxilla (upper jaw) reaching to level of eye. Upper jaw with small teeth and 2 sharp canines in front, palatines with 5 or 6 large broad teeth becoming smaller toward back of jaw; lower jaw with single series of about 15 teeth on each side and 2 large teeth in front. Edge of pre-operculum rounded. Gill rakers minute. Lateral line with 75 to 90 scales; 11 or 12 scales above Lateral line at level of origin of 1st dorsal fin.

Colour: blue/grey above and silver below with more than 18 (usually more than 20) darker vertical bars on sides. Pectoral and pelvic fins white; upper part of 1st dorsal fin, anal fin and middle rays of caudal fin black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Sphyraena obtusata: has sharp angle to hind edge of pre-operculum (rounded in *S. barracuda*).

Sphyraena jello: has vertical black bars on body but maxilla (upper jaw) does not reach to level of eye; also, scales in lateral line 122 to 135 (75 to 90 in *S. barracuda*).



Other *Sphyraena* species in area: lack the combination of more than 20 vertical bars on each side of body and 75 to 90 scales in lateral line.

SIZE:

Maximum: 180 cm; common: 100 to 150

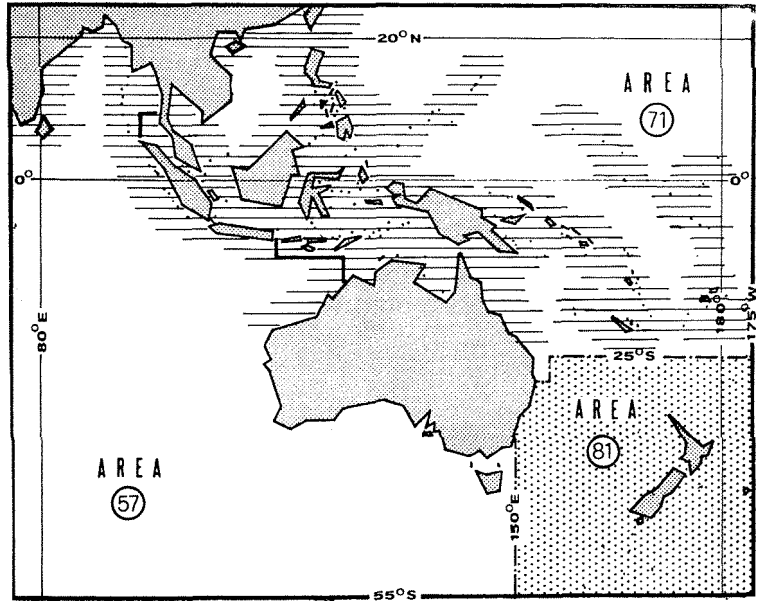
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Recorded throughout most of area covered; common elsewhere in Indo-Pacific.

Feeds predominantly on pelagic fishes.

PRESENT FISHING GROUNDS:

Caught in shallow coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of unclassified barracudas in 1972 was:

- area 57 (Eastern Indian Ocean): 900 tons (India only)
- area 71 (Western Central Pacific): 15 500 tons (Philippines: 13 100 tons)

Caught with trolling pines, less frequently with set nets and traps.

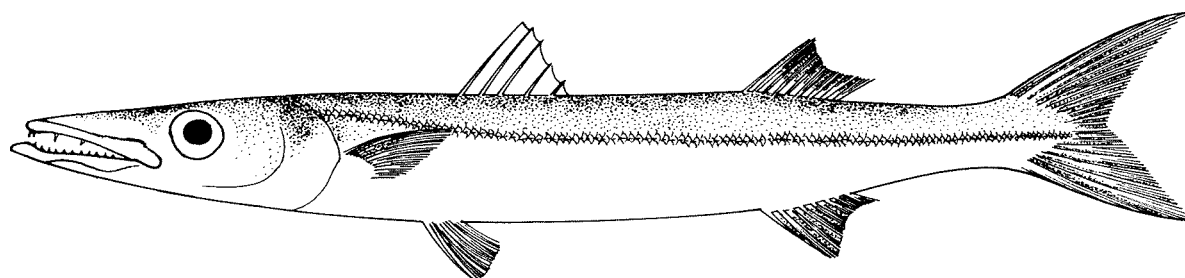
Marketed fresh; also dried-salted, fermented, or prepared as fish sauce.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPHYRAENIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Sphyraena forsteri* Cuvier, 1829

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Forster's barracuda
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate, slightly compressed; head large, with long pointed snout and lower jaw projecting beyond upper. Mouth large, maxilla (upper jaw) about reaching to level of front of eye. Upper jaw with a series of minute teeth and 2 sharp canines in front; lower jaw with a series of about 20 flattened, triangular teeth, those on middle and hind parts larger and directed slightly backward; a single backward-directed canine at front of lower jaw. Palatine with a few sharp, flattened, triangular teeth. Edge of pre-operculum rounded. Gill rakers minute. Lateral line with, 105 to 115 scales, 15 to 17 scale rows above lateral line at level of origin of 1st dorsal fin.

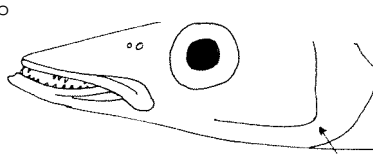
Colour: black above, silver below; inside of mouth dark grey. Dorsal and caudal fins black; pelvic fins white; pectoral and anal fins white.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Sphyraena obtusata: has sharp angle to hind edge of pre-operculum (rounded in *S. forsteri*); a yellow anal fin and 2 long gill rakers in addition to the minute gill rakers.

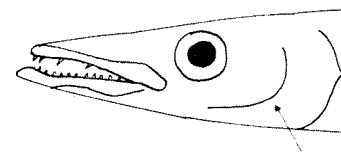
Sphyraena barracuda: has larger scales (75 to 90 scales in lateral line; 105 to 115 in *S. forsteri*) and vertically directed teeth.

Sphyraena jello: has about 20 dark vertical bars on body and all fins except pelvic black; also, scales in lateral line 122 to 135.



angled

hind edge of pre-operculum

S. obtusata

rounded

S. forsteri

SIZE:

Maximum: 60 cm; common: 20 to 30 cm

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

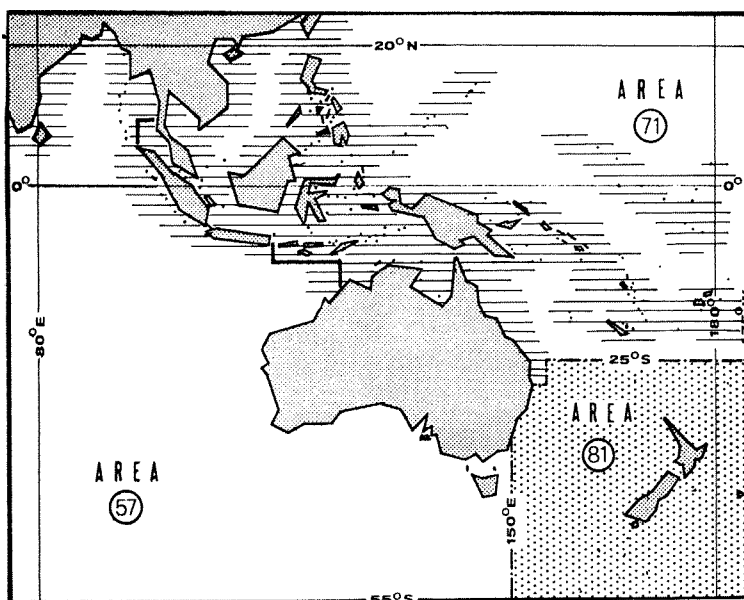
Recorded throughout most of area covered; common elsewhere in Indo-Pacific.

Found in coastal waters to a depth of 50 m.

Feeds predominantly on fish.

PRESENT FISHING GROUNDS:

Caught in coastal waters to depths of 50 m, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of unclassified barracudas in 1972 was:

area 57 (Eastern Indian Ocean): 900 tons (India only)

area 71 (Western Central Pacific): 15 500 tons (Philippines: 13 100 tons)

Caught with trawls, set nets and longlines.

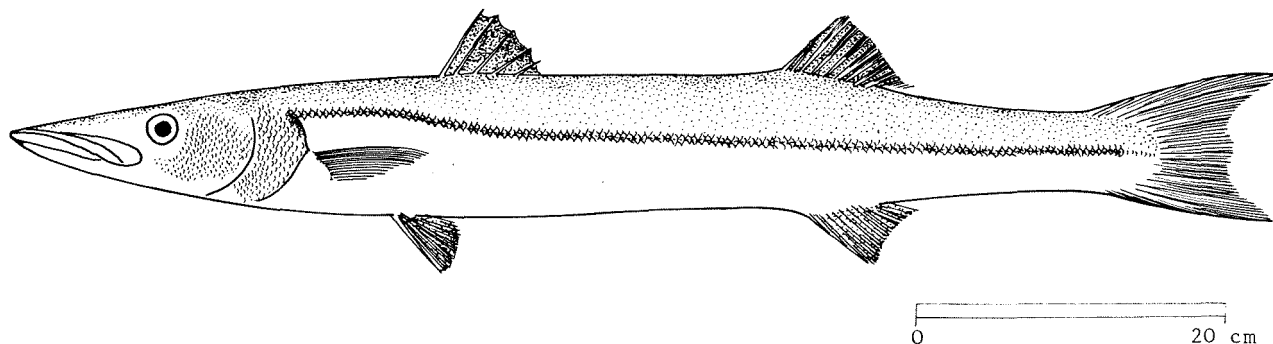
Marketed fresh; also dried-salted, fermented, or prepared as fish sauce.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPHYRAENIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Sphyraena jello* Cuvier, 1829

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Banded barracuda
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

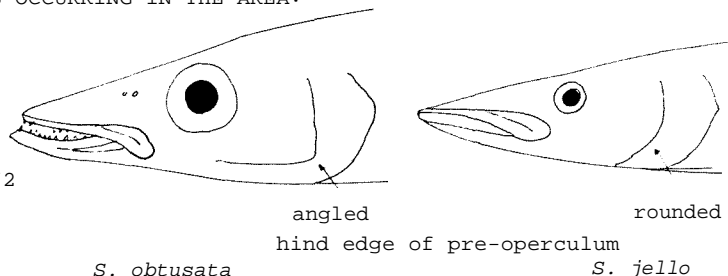
Body elongate, slightly compressed; head large, with long pointed snout and lower jaw projecting beyond upper. Mouth large, maxilla (upper jaw) not reaching to level of front of eye. Upper jaw with a single series of very small triangular teeth and 2 sharp triangular canines in front; lower jaw with triangular teeth, much larger than those in upper jaw, in a single series with hind teeth much longer than those in front; a single strong canine at front of lower jaw, which fits into a recess in upper jaw. Edge of pre-operculum rounded. Gill rakers minute. Lateral line with 122 to 135 scales; 17 to 18 scale rows above lateral line at level of origin of 1st dorsal fin.

Colour: black/brown above, silver below, with about 20 vertical black bars along sides; inside of mouth dark grey. All fins except pelvic black.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Sphyraena obtusata: has sharp angle to hind edge of pre-operculum (rounded in *S. jello*).

All other *Sphyraena* species in area: have either a shorter snout (about 2 to 2 1/2 times eye diameter; 3 times in *S. jello*) or a yellow anal fin (black in *S. jello* and *S. barracuda*).

*S. obtusata**S. jello*

SIZE:

Maximum: 150 cm; common: 50 to 100 cm.

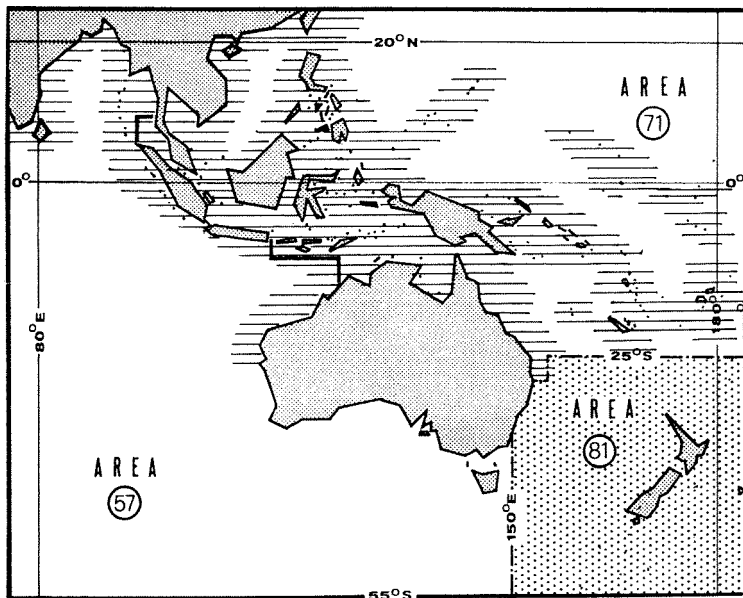
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Recorded throughout most of area covered; common elsewhere in Indo-Pacific.

Feeds predominantly on fishes and often swims near the surface.

PRESENT FISHING GROUNDS:

Caught in shallow coastal waters and estuaries, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of unclassified barracudas in 1972 was:

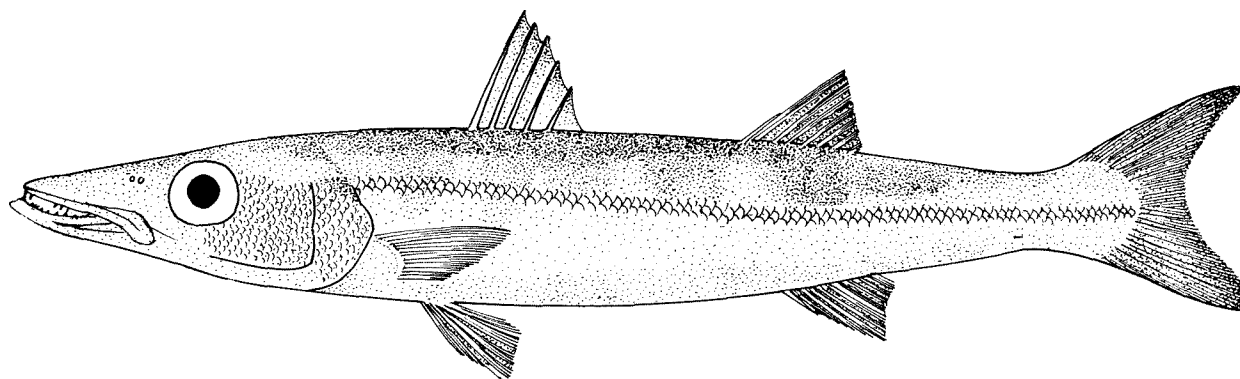
- area 57 (Eastern Indian Ocean): 900 tons (India only)
- area 71 (Western Central Pacific): 15 500 tons (Philippines: 13 100 tons)

Caught with trawls, set nets, trolling lines and traps.

Marketed fresh; also dried-salted, fermented, or prepared as fish sauce.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SPHYRAENIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Ceat. Pacific)*Sphyraena obtusata* Cuvier, 1829SYNONYMS STILL IN USE: *Sphyraena pinguis* Günther, 1874

VERNACULAR NAMES:

FAO: En - Obtuse barracuda
Fr -
Sp -

NATIONAL:

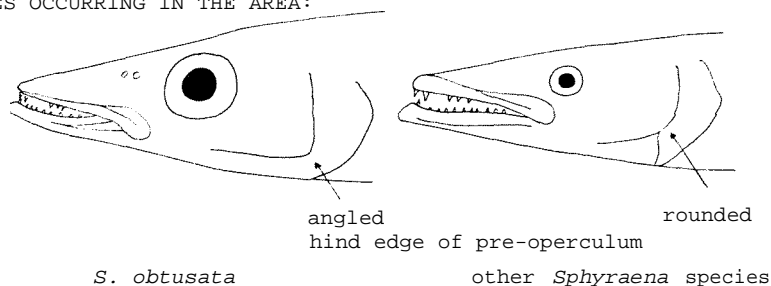
DISTINCTIVE CHARACTERS:

Body elongated, slightly compressed; head large, with long pointed snout and lower jaw projecting beyond upper. Mouth large, maxilla (upper jaw) not reaching to level of front of eye. Upper jaw with a series of minute teeth and 2 sharp canines in front; teeth in lower jaw slender, nearly vertical and well separated, a single canine at front. Palatines with a single row of a few sharp teeth followed by numerous minute teeth. Edge of pre-operculum triangular. Gill rakers minute except for 2 long rakers on 1st gill arch. Lateral line with 80 to 90 scales; 7 1/2 scale rows above lateral line at level of origin of 1st dorsal fin.

Colour: light brown above, silver below; inside of mouth yellow. 1st dorsal fin dusky with yellow tinge; pectoral and anal fins yellow; 2nd dorsal and caudal fins yellow with dark margin; pelvic fins white.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

All other *Sphyraena* species in area: have hind edge of pre-operculum rounded (an angle in *S. obtusata*); also, all gill rakers minute (2 longer gill rakers on 1st gill arch in *S. obtusata*).

*S. obtusata*other *Sphyraena* species

SIZE:

Maximum: 40 cm; common: 20 to 30 cm

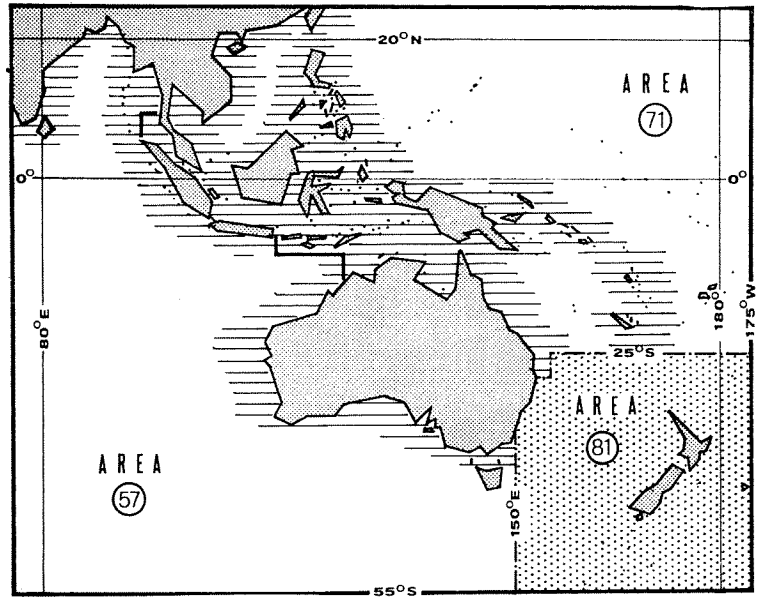
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Recorded throughout most of area covered; perhaps common throughout Indo-Pacific region, but identifications uncertain.

Feeds predominantly on small fish.

PRESENT FISHING GROUNDS:

Caught in shallow coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species. The total reported catch of unclassified barracudas in 1972 was:

area 57 (Eastern Indian Ocean): 900 tons (India only)
area 71 (Western Central Pacific): 15 500 tons (Philippines: 13 100 tons)

Caught with bottom trawls, set nets and longlines.

Marketed fresh; also dried-salted, fermented, or prepared as fish sauce.

FAO SPECIES IDENTIFICATION SHEETS

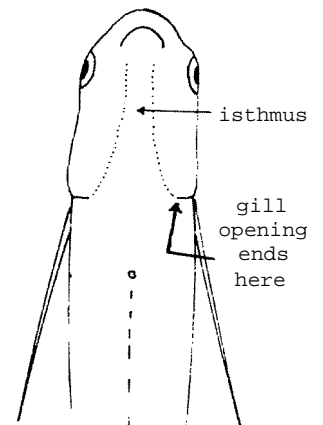
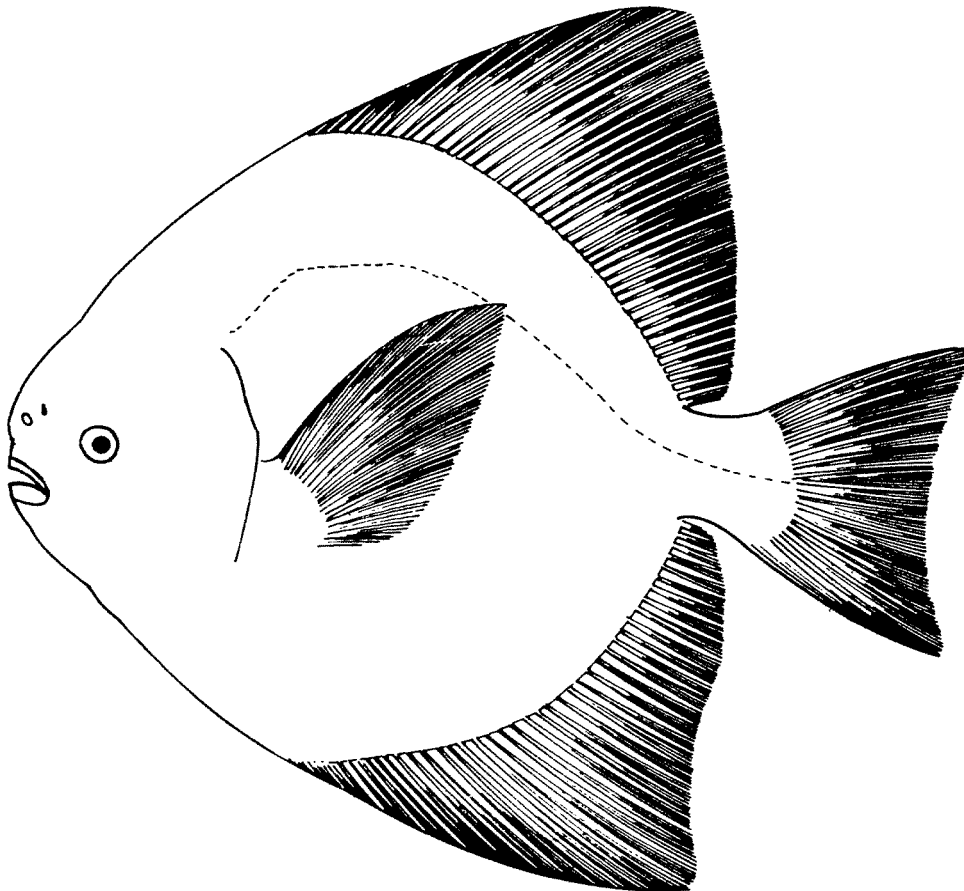
FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

STROMATEIDAE

Pomfrets

Body deep and compressed with single dorsal and anal fins; pelvic fins never present in adults, rarely in young. Teeth in jaws laterally compressed, either simple or with 3 to 5 cusps. No supra-maxillary bone; gill membranes broadly united to isthmus, the gill opening not reaching to under throat. Dorsal fin rays not preceded by stout spines, but in some species, 5 to 10 small blade-like spines are present before the fin. 30 to 50 anal fin rays. Vertical fins often falcate, their bases about equal in length.

Colour: light grey merging to silvery white on belly, sometimes with spots.

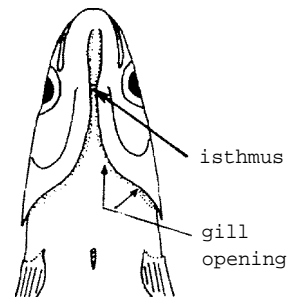


Stromateidae

SIMILAR FAMILIES OCCURRING IN THE AREA:

Ariommidae and Monodactylidae: gill membranes not broadly united to isthmus (gill openings continue to under throat).

Ephippidae, Platacidae, Scatophagidae: pelvic fins present; also, gill membranes not broadly united to isthmus (gill openings continue to under throat).



Ariommidae

FAO Sheets

STROMATEIDAE

Fishing Areas 57,71

Key to Genera

Pampus only

List of Species occurring in the Area
(Code numbers are given for those species
for which Identification Sheets are included)

Pampus argenteus
Pampus chinensis

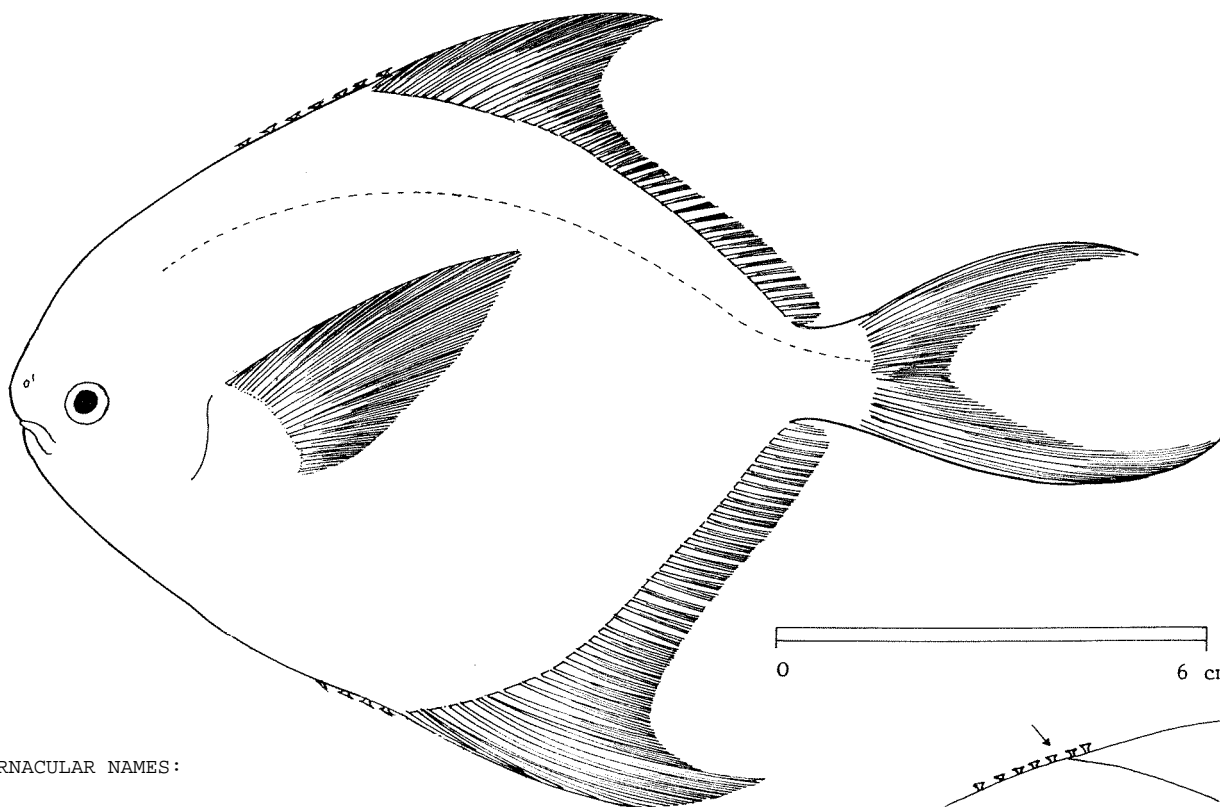
STROM Pamp 1
STROM Pamp 2

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: STROMATEIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Pampus argenteus* (Euphrasen, 1788)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

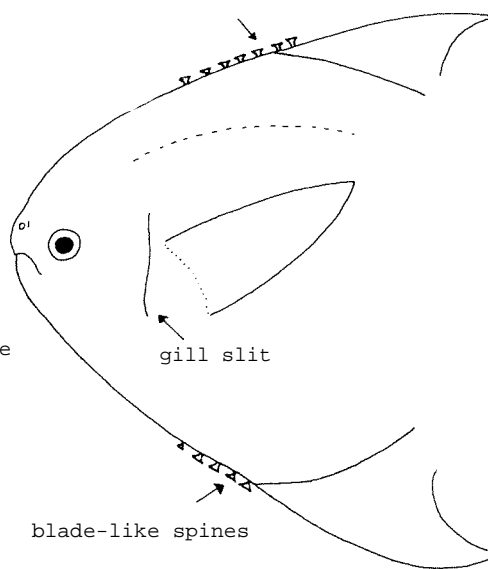
FAO: En - Silver pomfret
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body very deep and compressed, with firm flesh. Gill membrane broadly united to isthmus, the gill opening restricted to a vertical slit on side of body. Dorsal and anal fins preceded by a series of 5 to 10 blade-like spines with anterior and posterior points. No pelvic fins; dorsal fin single and falcate, as also anal fin; caudal fin deeply forked, the lower lobe longest.

Colour: back grey, merging to silvery white toward belly; very small black dots all over body; vertical fins with dark edges and all fins faintly yellow.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pampus chinensis: dorsal and anal fins not falcate, caudal fin less deeply forked; also, no blade-like spines before dorsal and anal fins.

SIZE:

Maximum: 50 cm; common: 20 to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

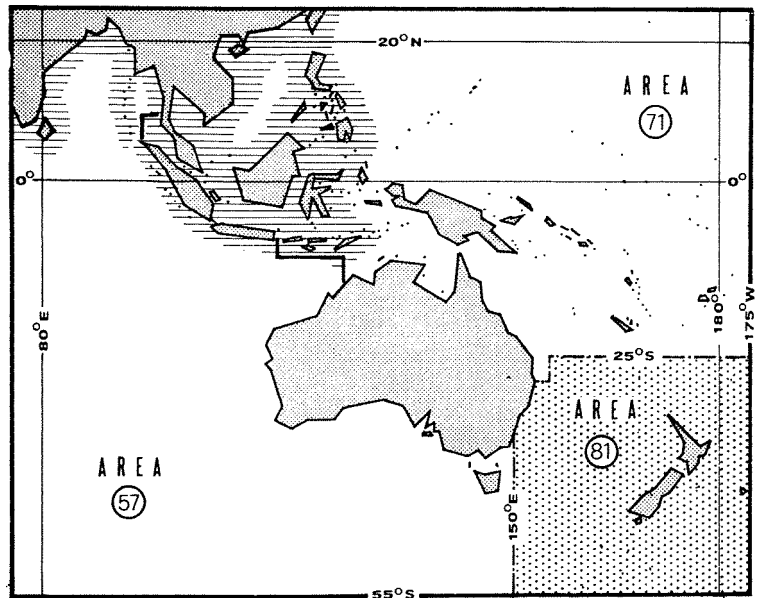
Coasts of India eastward to Hong Kong, but not recorded from New Guinea or Australia; also, westward to Persian Gulf and northward to Japan.

Inhabits waters over muddy bottoms down to 100 m. Usually found in schools; enters brackish waters.

Feeds predominantly on soft bottom-living and larger planktonic invertebrates.

PRESENT FISHING GROUNDS:

Coastal waters of the continental shelf.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not collected for this species.

Caught mainly with bottom trawls and traps.

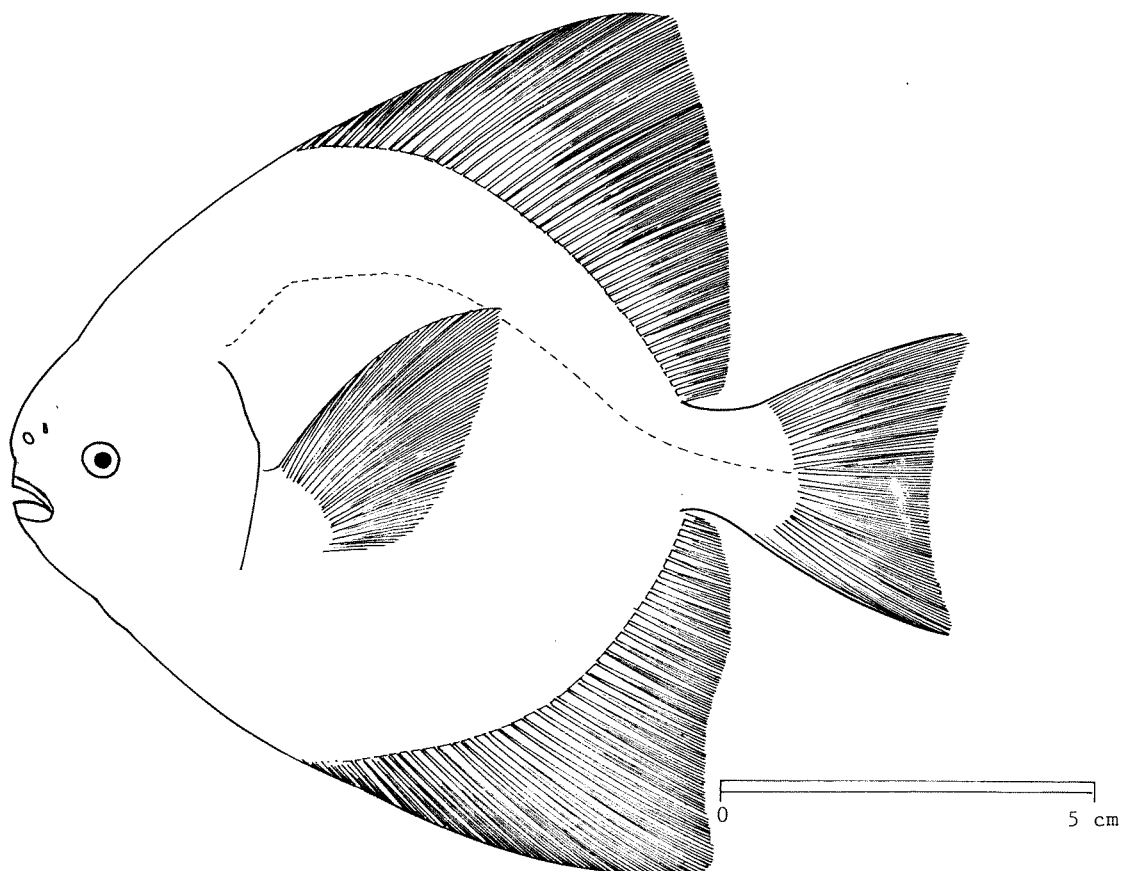
Marketed mainly fresh.

PAO SPECIES IDENTIFICATION SHEETS

FAMILY: STROMATEIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Pampus chinensis* (Euphrasen, 1788)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: In - Chinese pomfret
Fr -
Sp -

NATIONAL:

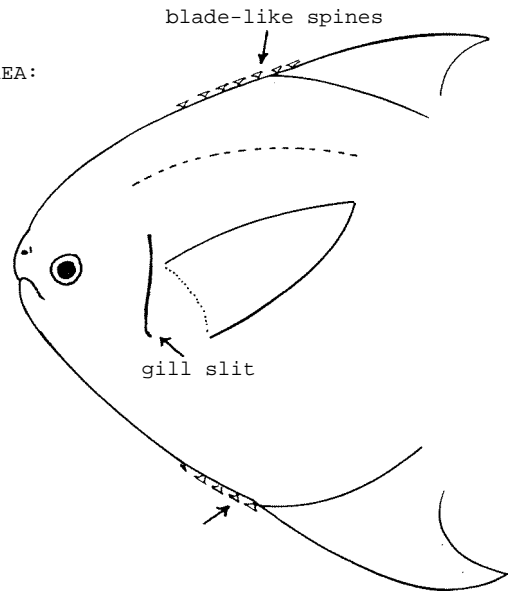
DISTINCTIVE CHARACTERS:

Body very deep and compressed, with firm flesh. Gill membranes broadly united to isthmus, the gill opening restricted to a vertical slit on side of body. No flat, blade-like spines before dorsal and anal fins. No pelvic fins; dorsal fin single, and dorsal and anal fins not falcate, but gradually diminishing in height posteriorly; caudal fin only slightly forked.

Colour: grey/brown on back, merging to silvery white toward belly; fins dusky.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pampus argenteus: dorsal and anal fins falcate and caudal fin strongly forked, the lower lobe longest; also, 5 to 10 blade-like spines before dorsal and anal fins.



P. argenteus

SIZE:

Maximum: 25 cm; common: 15 to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

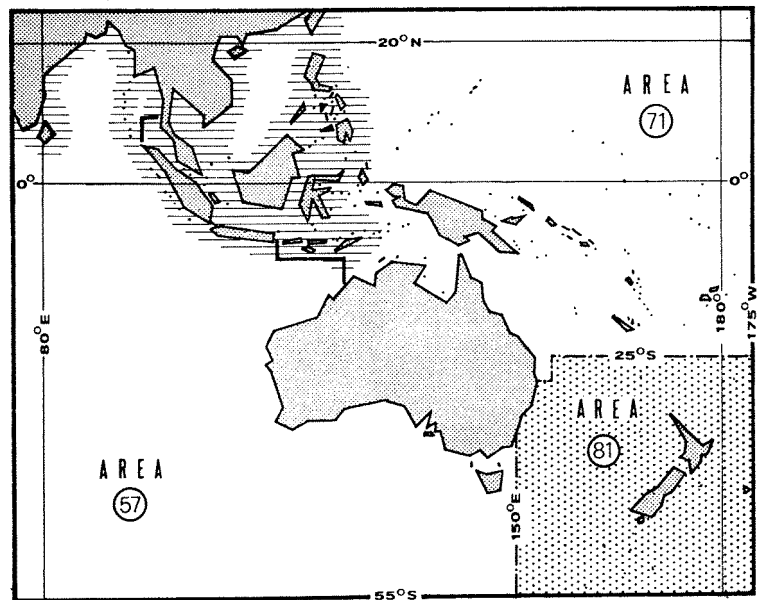
Coasts of India eastward to Hong Kong, but not recorded from New Guinea or Australia; also, westward to Persian Gulf and northward to Japan.

Inhabits waters over muddy bottoms of the continental shelf, down to 100 m; usually found in schools; enters brackish waters.

Feeds on small, soft bottom-living and larger planktonic invertebrates, such as salps.

PRESENT FISHING GROUNDS:

Coastal waters over the continental shelf.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not collected for this species.

Caught mainly with bottom trawls; also with traps.

Marketed mainly fresh.

FAO SPECIES IDENTIFICATION SHEETS

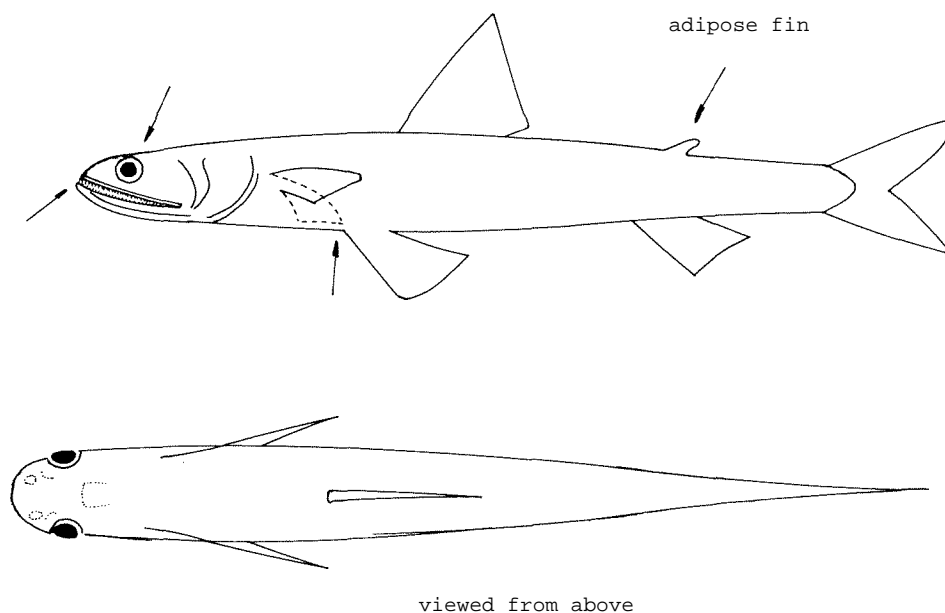
FISHING AREAS 57 ,71
(E Ind. Ocean)
(W Cent. Pacific)

SYNODONTIDAE

Lizardfishes

Body elongate, usually *cylindrical and with adipose fin*. Head usually *lizard-like*. Mouth large and terminal, with rows of numerous small, slender and pointed teeth visible even when mouth is closed; teeth also on palate 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.

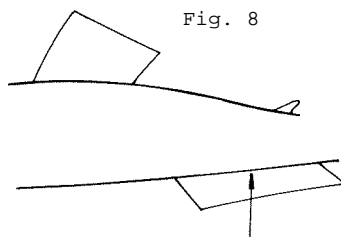
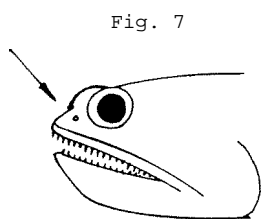
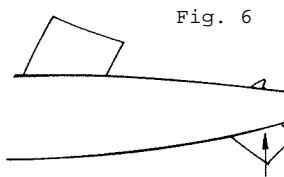
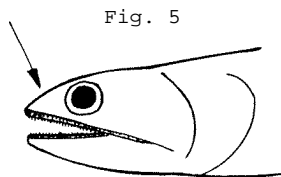
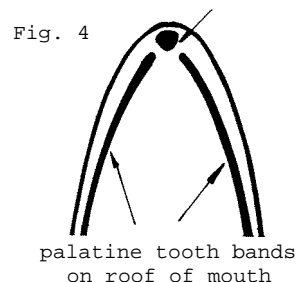
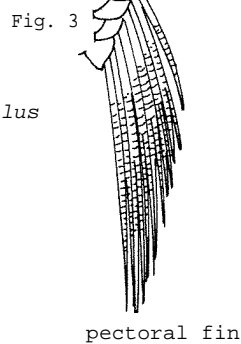
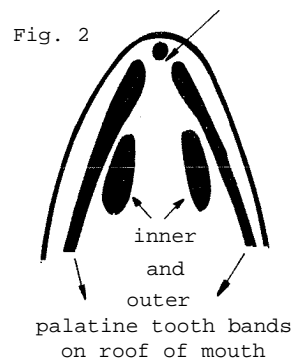
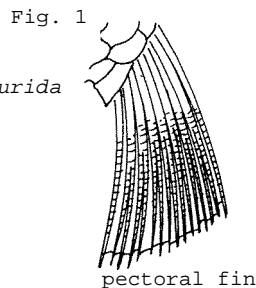


SIMILAR FAMILIES OCCURRING IN THE AREA:

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

- 1 a. 9 pelvic fin rays, inner barely longer than outer (Fig. 1); palatine teeth in 2 pairs of bands (Fig. 2) *Saurida*
- 1 b. 8 pelvic fin rays, inner much longer than outer (Fig. 3); palatine teeth in 1 pair of bands (Fig. 4)
- 2 a. Eye opposite about midpoint of upper jaw (Fig. 5); head depressed; anal fin base shorter than dorsal fin base (Fig. 6) *Synodus*
- 2 b. Eye nearer to anterior end of upper jaw (Fig. 7); head not depressed; anal fin base longer than dorsal fin base (Fig. 8) *Trachinocephalus*



List of Species occurring in the Area
(Code numbers are given for those species for which Identification Sheets are included)

- Saurida argentea*
Saurida elongata SYNOD Sauri 5
Saurida filamentosa
Saurida gracilis
Saurida isarankurai
Saurida longimanus
Saurida micropectoralis SYNOD Sauri 4
Saurida tumbil SYNOD Sauri 2
Saurida undosquamis SYNOD Sauri 1
Saurida wanieso SYNOD Sauri 3

- Synodus haulti*
Synodus indicus
Synodus japonicus
Synodus sageneus
Synodus similis
Synodus variegatus

Trachinocephalus myops

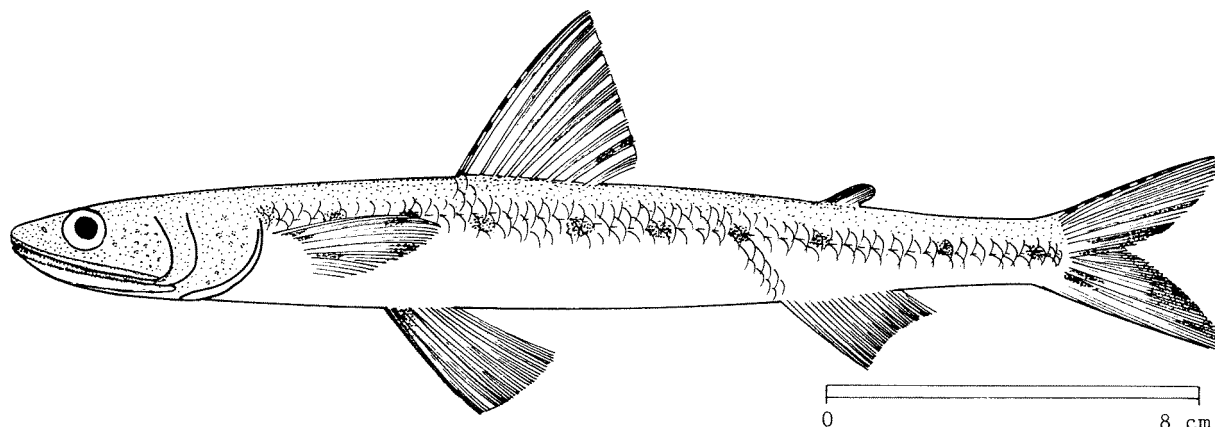
SYNOD Trach 1

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SYNODONTIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Saurida undosquamis* (Richardson, 1848)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

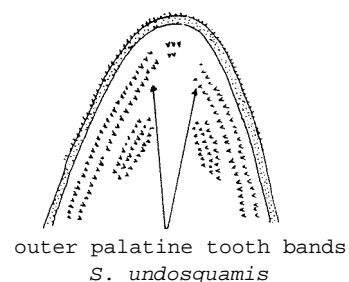
FAO: En - Brushtooth lizardfish
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate, cylindrical, with lizard-like head and adipose fin. 2 rows of teeth on anterior part of outer palatine tooth bands. Pectoral fins moderately long, reaching to level of pelvic fin base; pelvic fin rays almost equal in length.

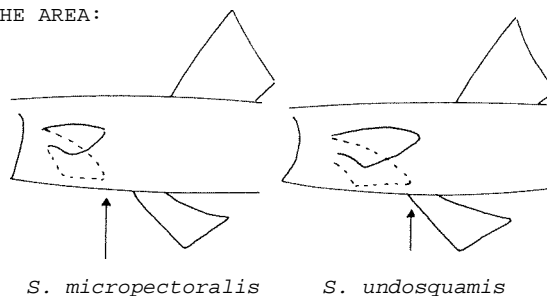
Colour: back and upper sides brown, lower sides and belly white; 4 to 7 dark dots on upper edge of caudal fin; a series of fairly distinct dark blotches along lateral line (less distinct in specimens from colder waters); stomach black; liver striped black and white.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Saurida micropectoralis: dark dots sometimes present on upper edge of caudal fin (though rather indistinct), but pectoral fins short (not reaching to level of pelvic fin base) and 3 or more rows of teeth on anterior part of outer palatines; also, belly white.

Other *Saurida* species: lack black dots on upper edge of caudal fin.



Synodus and *Trachinocephalus* species: inner rays of pelvic fins much longer than outer ones (3 times longer; equal in *Saurida*).

SIZE:

Maximum: about 40 cm;
common: 25 to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

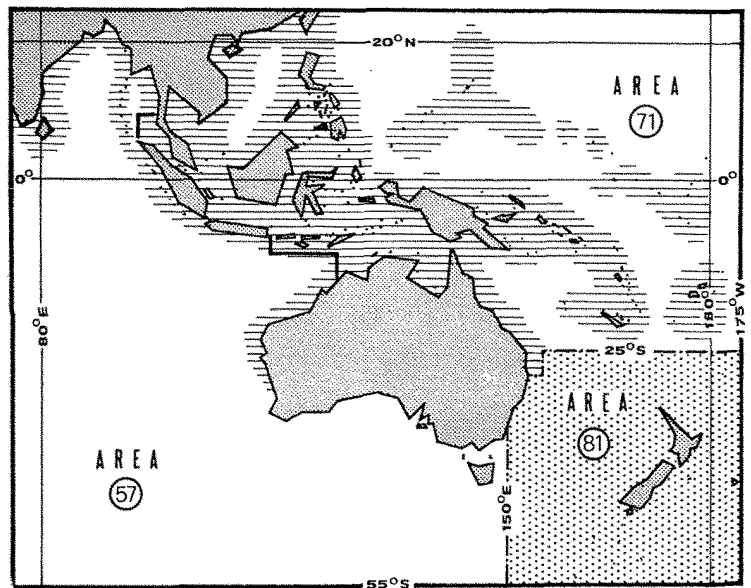
Throughout northern part of area and southward to Queensland (Australia); also, westward to East Africa.

Lives over muddy bottoms of the continental shelf, down to about 60 m.

Feeds on bottom-living invertebrates and fishes.

PRESENT FISHING GROUNDS:

Shallow, muddy bottoms of the continental shelf.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

The total reported catch for lizardfishes in 1972 was 20 000 tons (Malaysia only).

Caught with bottom trawls.

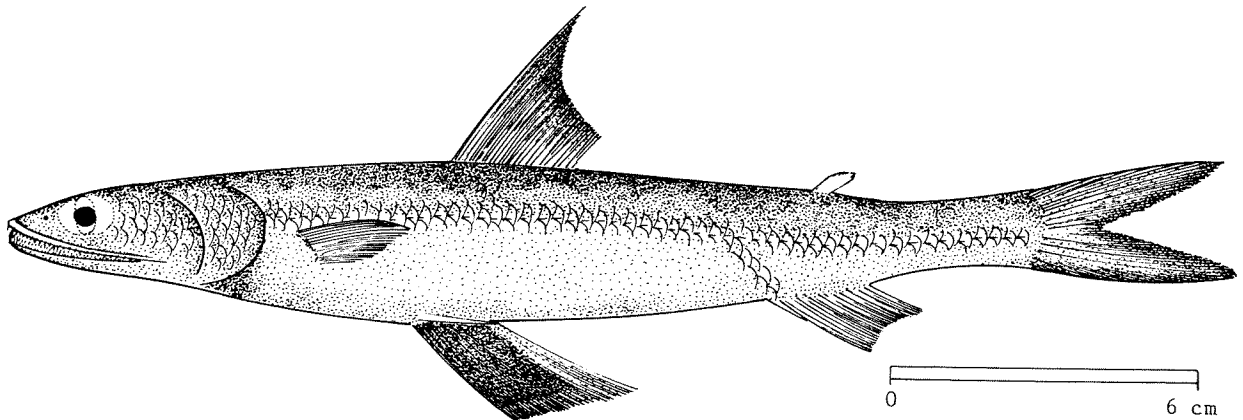
Marketed sometimes fresh; made mainly into fish cakes and fish balls.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SYNODONTIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Saurida tumbil* (Bloch, 1795)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

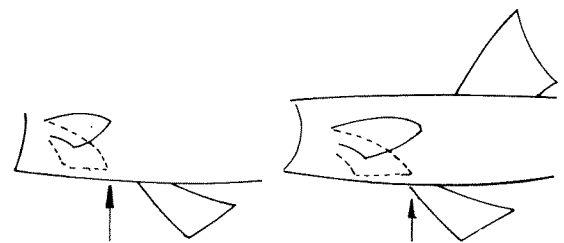
FAO: En - Greater lizardfish
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate, cylindrical, with lizard-like head and adipose fin. 3 or more rows of teeth on anterior part of outer palatine tooth bands. Pectoral fins just reaching to level of pelvic fin base; pelvic fin rays almost equal in length.

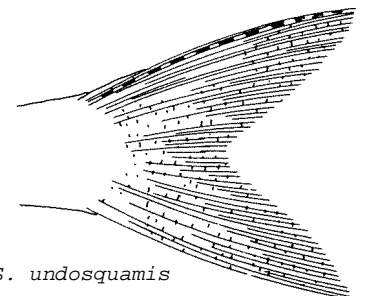
Colour: back and upper sides brown, lower sides and belly white; sometimes traces of faint darker cross-bars on back; inner side of pelvic fins dusky black, except for their margins; stomach white.

*S. micropectoralis*
*S. elongata**S. tumbil*

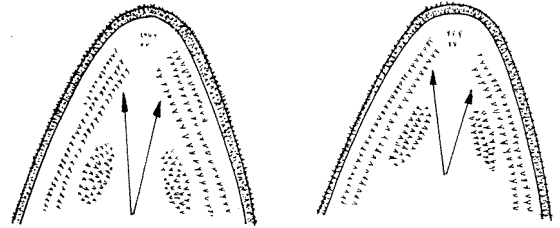
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Saurida micropectoralis and *S. elongata*: short pectoral fins, their tips not reaching to level of pelvic fin base.

Saurida undosquamis: a series of distinct dark spots on upper edge of caudal fin and a series of dark blotches along lateral line; also, stomach black.

*S. undosquamis*

Saurida wanieso and *S. filamentosa*: only 2 rows of teeth on anterior part of outer palatine tooth bands (3 or more rows in *S. micropectoralis*); adults of these species (*S. wanieso* from 30 cm upward, *S. filamentosa* from 20 cm upward) usually have 2nd dorsal fin ray (sometimes also 3rd and 4th) greatly elongated.



outer palatine tooth bands

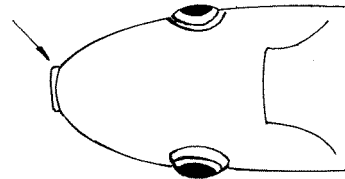
S. micropectoralis

S. wanieso
S. filamentosa

Saurida gracilis: dark cross-bars or a series of dark patches on all fins.

Saurida longimanus: very long pectoral fins (reaching far beyond level of first dorsal fin ray).

Saurida isarankurai: lower jaw clearly projecting beyond tip of snout; also, lower caudal fin lobe smaller than upper.



head viewed from above

S. isarankurai

Synodus and *Trachinocephalus* species: inner pelvic fin rays much longer than outer ones (3 times longer; equal in *Saurida*).

SIZE:

Maximum: 45 cm; common: 20 to 30

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

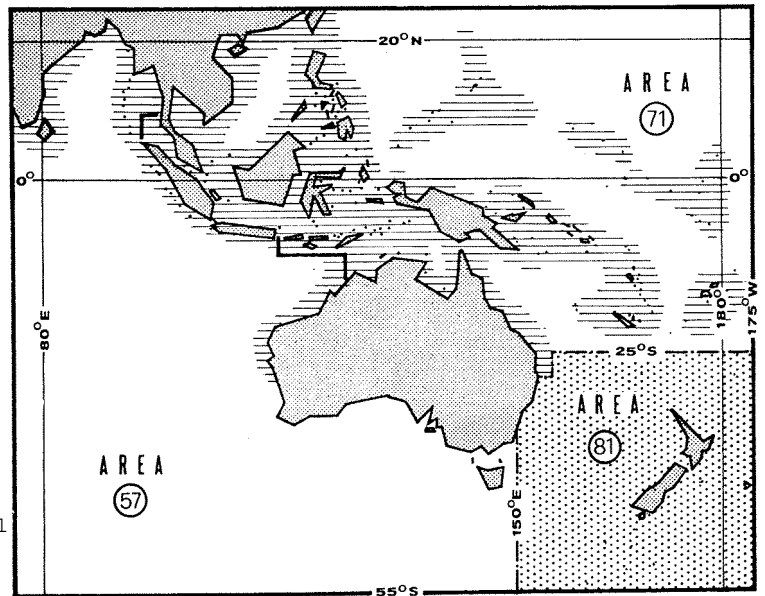
Throughout northern part of area and southward to New South Wales (Australia); also, westward to East Africa.

Lives over muddy bottoms of the continental shelf, down to about 100 m.

Feeds on bottom-living invertebrates (particularly worms) and fishes.

PRESENT FISHING GROUNDS:

Shallow muddy bottoms of the continental shelf.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

The total reported catch for lizardfishes in 1972 was 20 000 tons (Malaysia only).

Caught mainly with bottom trawls.

Marketed occasionally fresh; made mainly into fish cakes and fish balls.

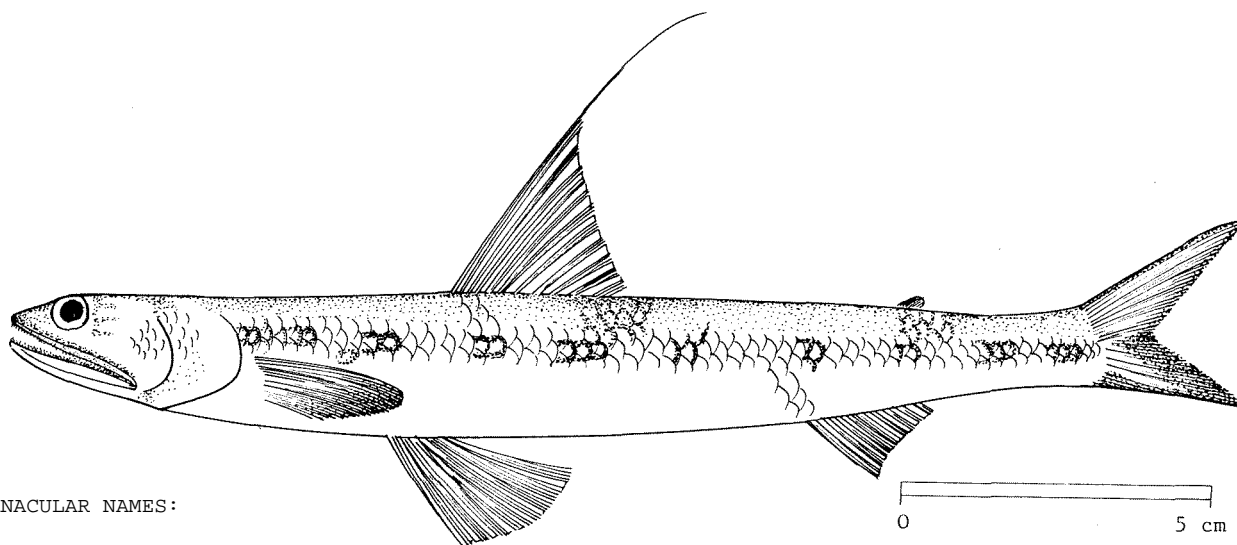
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SYNODONTIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

Saurida wanieso Shindo & Yamada, 1972

SYNONYMS STILL IN USE: *Saurida tumbil*: misidentification
? *Saurida filamentosa* Ogilby, 1910



VERNACULAR NAMES:

FAO: En - Wanieso lizardfish
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A large species, body elongate, cylindrical, with lizard-like head and adipose fin. 2 rows of teeth on anterior part of outer palatine tooth bands. 2nd dorsal fin ray (sometimes also 3rd and 4th) distinctly elongate in adult specimens (from 30 cm upward); pectoral fins moderately long, their tips reaching to level of pelvic fin origin; pelvic fin rays almost equal in length.

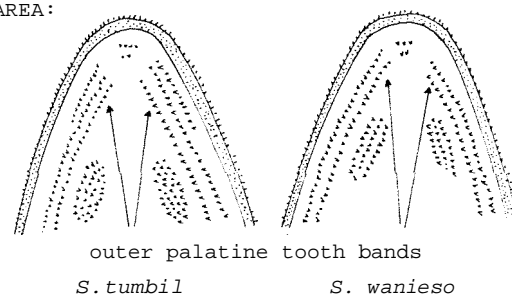
Colour: back and upper sides brown, lower sides and belly white; 9 to 10 dark blotches along lateral line, somewhat faint in adults, and traces of 3 to 4 cross-bars on back and sides; inner face of pectoral fin dusky; stomach white.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Saurida filamentosa: adults sometimes with elongate dorsal fin rays, but upper half of pectoral fin violet (inner face of pectoral fin dusky in *S. wanieso*).

Adults of other *Saurida* species: no elongate dorsal fin rays. They can be further distinguished as follows:

Saurida tumbil: 3 rows of teeth on anterior part of outer palatine tooth bands.



Saurida micropectoralis: pectoral fins short, not reaching to level of pelvic fin base.

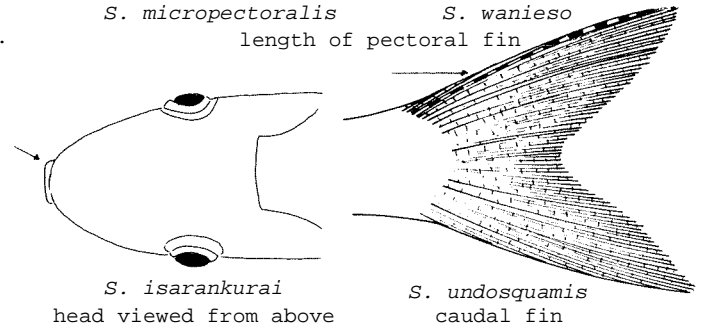
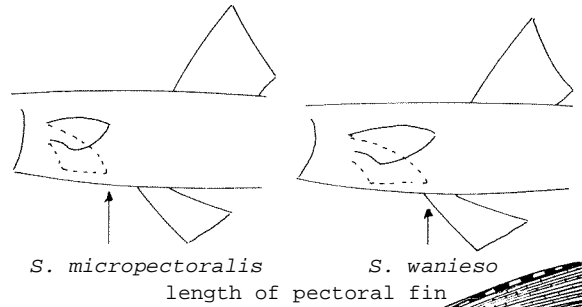
Saurida undosquamis: a series of distinct dark spots present on upper margin of caudal fin.

Saurida gracilis: cross-bars or a series of dark patches present on all fins.

Saurida longimanus: pectoral fins very long (reaching far beyond level of first dorsal fin ray).

Saurida isarankurai: lower jaw clearly projecting beyond tip of snout; also, lower lobe of caudal fin smaller than upper.

Synodus and *Trachinocephalus* species: inner pelvic fin rays much longer than outer ones (3 times longer; equal in *Saurida*).



SIZE:

Maximum: 65 cm; common: 35 to 45 cm

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

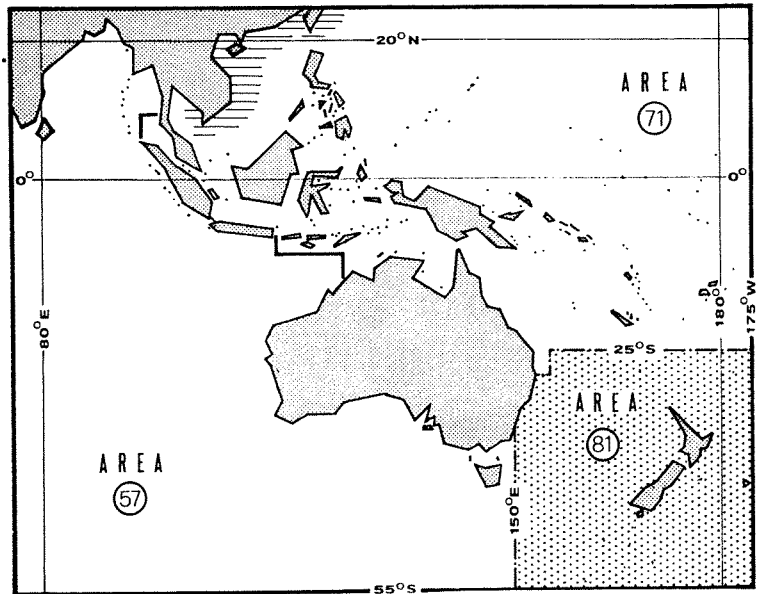
South China Sea and East China Sea.

Lives over muddy bottoms of the continental shelf, down to about 100 m.

Feeds on bottom-living invertebrates and fishes.

PRESENT FISHING GROUNDS:

Muddy grounds of the continental shelf.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

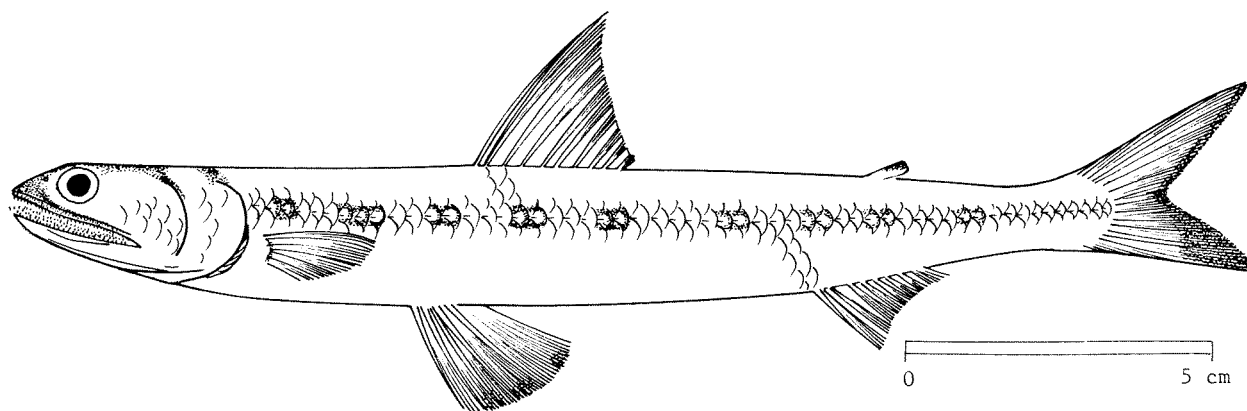
Separate statistics are not reported for this species.

Caught mainly with bottom trawls.

Marketed sometimes fresh; mainly made into fish cakes and fish balls.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SYNODONTIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Saurida micropectoralis* Shindo & Yamada, 1972SYNONYMS STILL IN USE: *Saurida elongata*: misidentification

VERNACULAR NAMES:

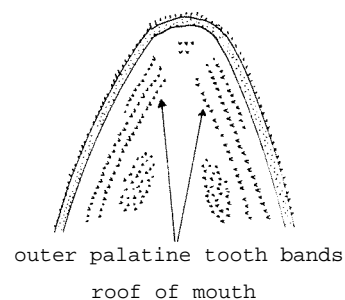
FAO: En - Shortfin lizardfish
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate, cylindrical, with lizard-like head and adipose fin. 3 or more rows of teeth on anterior part of outer palatine tooth band. Pectoral fins short, their tips not reaching to level of pelvic fin origin; pelvic fin rays almost equal in length.

Colour: back and upper sides brown, lower sides and belly white; 9 to 10 faint darker blotches along lateral line and sometimes traces of very indistinct cross-bars on back; occasionally, faint black dots also along upper edge of pectoral and caudal fins; upper portion of inner face of pectoral fins dark; stomach white.

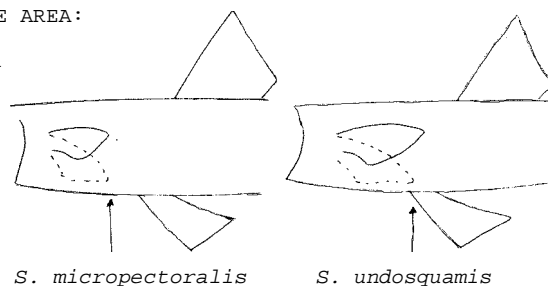


DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Saurida elongata: inner face of pectoral fins uniformly dark and no dark blotches on body.

Other *Saurida* species in area: pectoral fins longer (reaching to or beyond level of pelvic fin base).

Synodus and *Trachinocephalus* species: inner pelvic fin rays much longer than outer ones (3 times longer; equal in *Saurida*).



SIZE:

Maximum: 38 cm; common: 20 to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

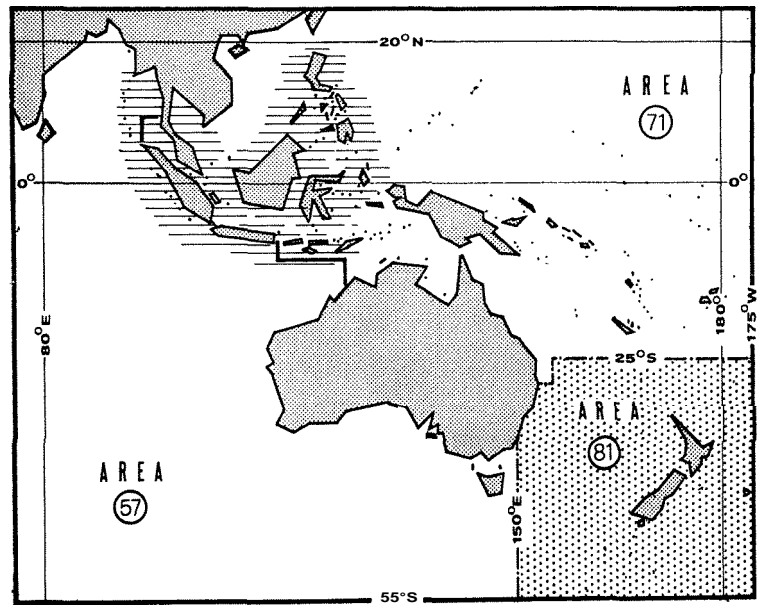
Andaman Sea and South China Sea, including the Philippine Islands, but not recorded from New Guinea and Australia.

Lives over muddy bottoms of the continental shelf down to about 60 m.

Feeds on bottom-living invertebrates and fishes.

PRESENT FISHING GROUNDS:

Shallow, muddy grounds of the continental shelf.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

The total reported catch for lizardfishes in 1972 was 20 000 tons (Malaysia only).

Caught with bottom trawls.

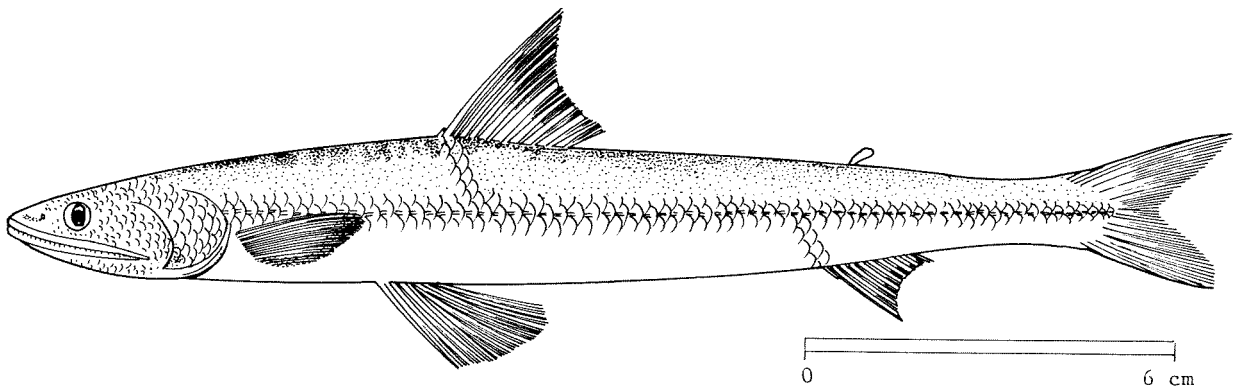
Marketed occasionally fresh; mainly made into fish cakes and fish balls.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SYNODONTIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Saurida elongata* (Temminck & Schlegel, 1846)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

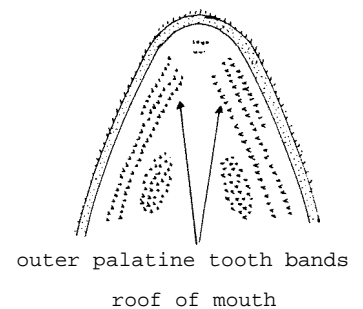
FAO: En - Slender lizardfish
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate, cylindrical, with lizard-like head and adipose fin. 3 or more rows of teeth on anterior part of outer palatine tooth bands. Pectoral fins short, not reaching to level of pelvic fin base; pelvic fin rays almost equal in length.

Colour: back and upper sides brown, lower sides and belly white; no blotches or cross-bars on back and sides; inner face of pectoral fins uniformly dark; stomach white.

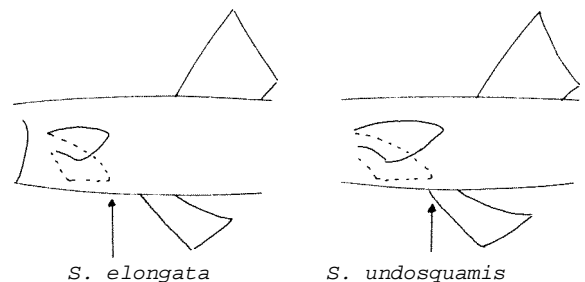


DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Saurida micropectoralis: 9 to 10 faint blotches along lateral line and only upper part of inner face of pectoral fin dark.

Other *Saurida* species in area: pectoral fins longer (reaching to or beyond level of pelvic fin base).

Synodus and *Trachinocephalus* species: inner pelvic fin rays much longer than outer ones (3 times longer; equal in *Saurida*).



SIZE:

Maximum: about 45 cm;
common: 25 to 38 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

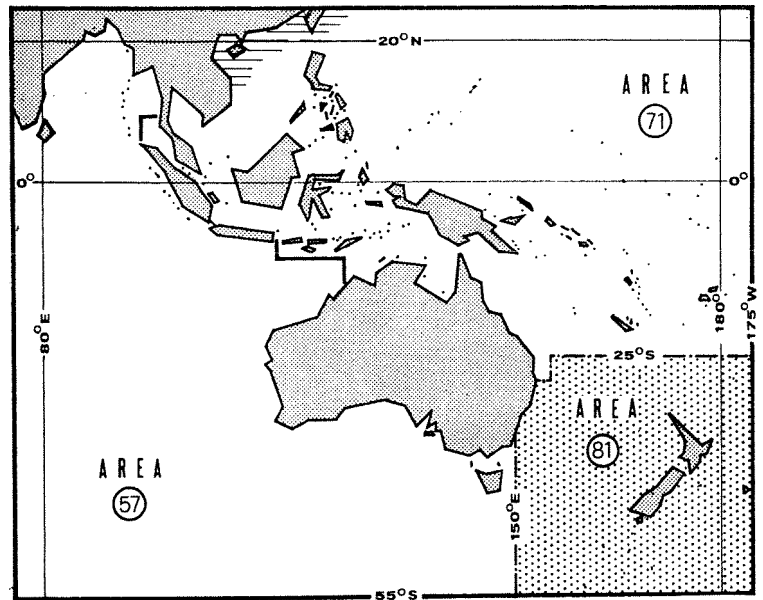
Northern part of South China Sea;
also, northward to Japan.

Lives over muddy bottoms in coastal
waters.

Feeds on small bottom-living
invertebrates and fishes.

PRESENT FISHING GROUNDS:

Muddy bottoms in coastal waters.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

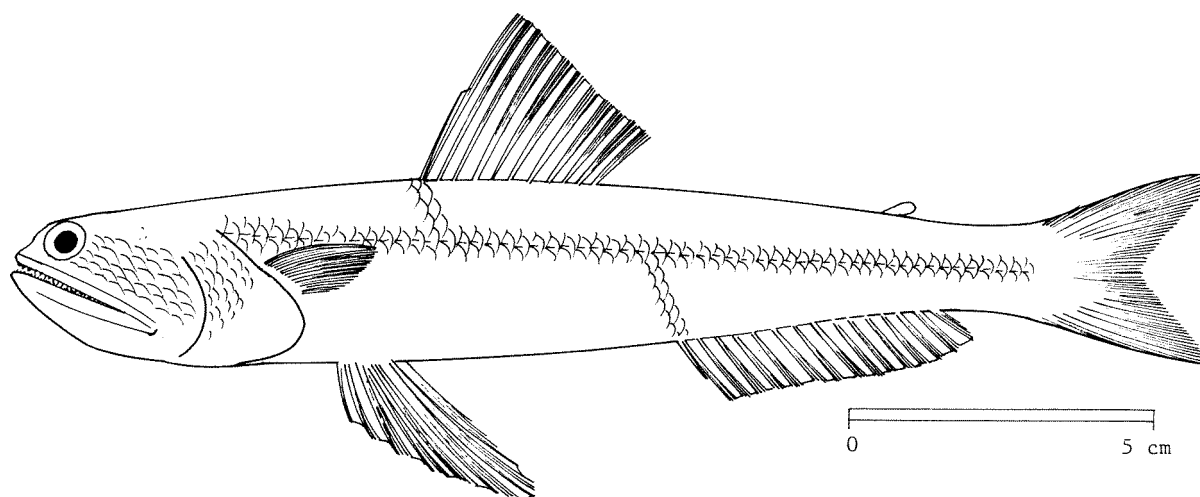
The total reported catch for lizardfishes in 1972 was 20 000 tons (Malaysia only).

Caught mainly with bottom trawls.

Marketed sometimes fresh; made into fish cakes and fish balls.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SYNODONTIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Trachinocephalus myops* (Bloch & Schneider, 1801)SYNONYMS STILL IN USE: *Trachinocephalus limbatus* (Eydoux & Souleyet, 1841)

VERNACULAR NAMES:

FAO: En - Bluntnose lizardfish
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

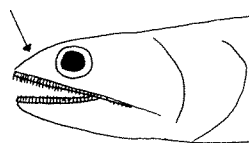
Body elongate, slightly compressed, with adipose fin; head not strongly depressed, but more or less lizard-like, with eyes placed near to tip of snout (snout shorter than eye diameter); mouth large, with small, close-set teeth; palatine teeth in a single band on each side. Inner pectoral fin rays about 3 times longer than outer ones; anal fin base distinctly longer than dorsal fin base.

Colour: head and back green/brown, upper flanks with blue/green and yellow longitudinal bands; lower flanks and belly white; fins pale yellow.

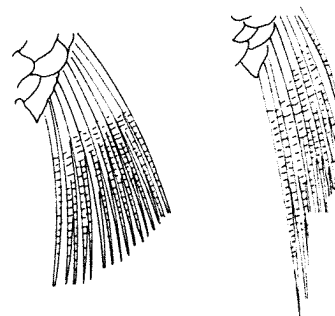
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Synodus species: snout longer equal to or larger than eye diameter), head depressed and the anal fin base equal to or shorter than dorsal fin base.

Saurida species: inner and outer pelvic fin rays almost equal in length.



Synodus

Saurida Trachinocephalus
shape of pelvic fin

SIZE:

Maximum: about 40 cm;
common: 20 to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout northern part of area and southward to New South Wales (Australia); also, westward to East Africa.

Lives over muddy bottoms of bays and coastal waters.

Feeds on small bottom-living invertebrates and fishes.

PRESENT FISHING GROUNDS:

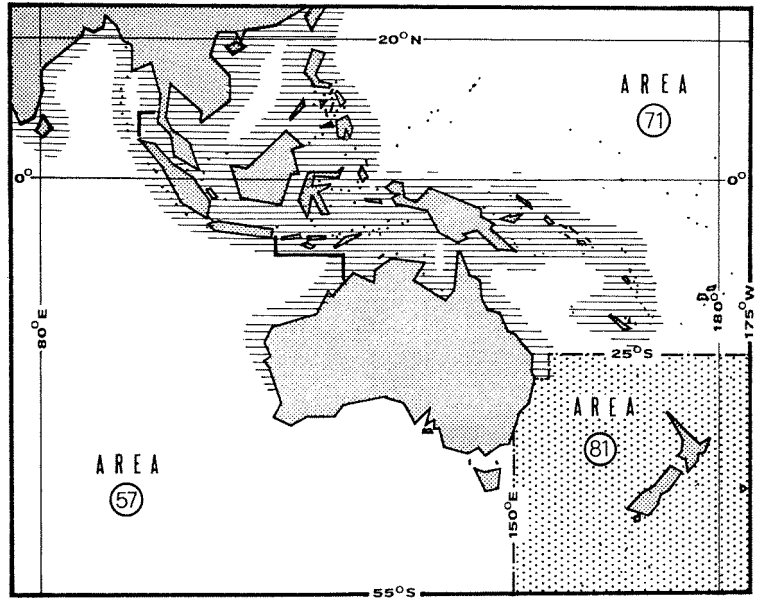
Shallow muddy grounds of the continental shelf.

CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

The total reported catch for lizardfishes in 1972 was 20 000 tons (Malaysia only).

Caught mainly with bottom trawls.

Made mostly into fish cakes and fish balls.



FAO SPECIES IDENTIFICATION SHEETS

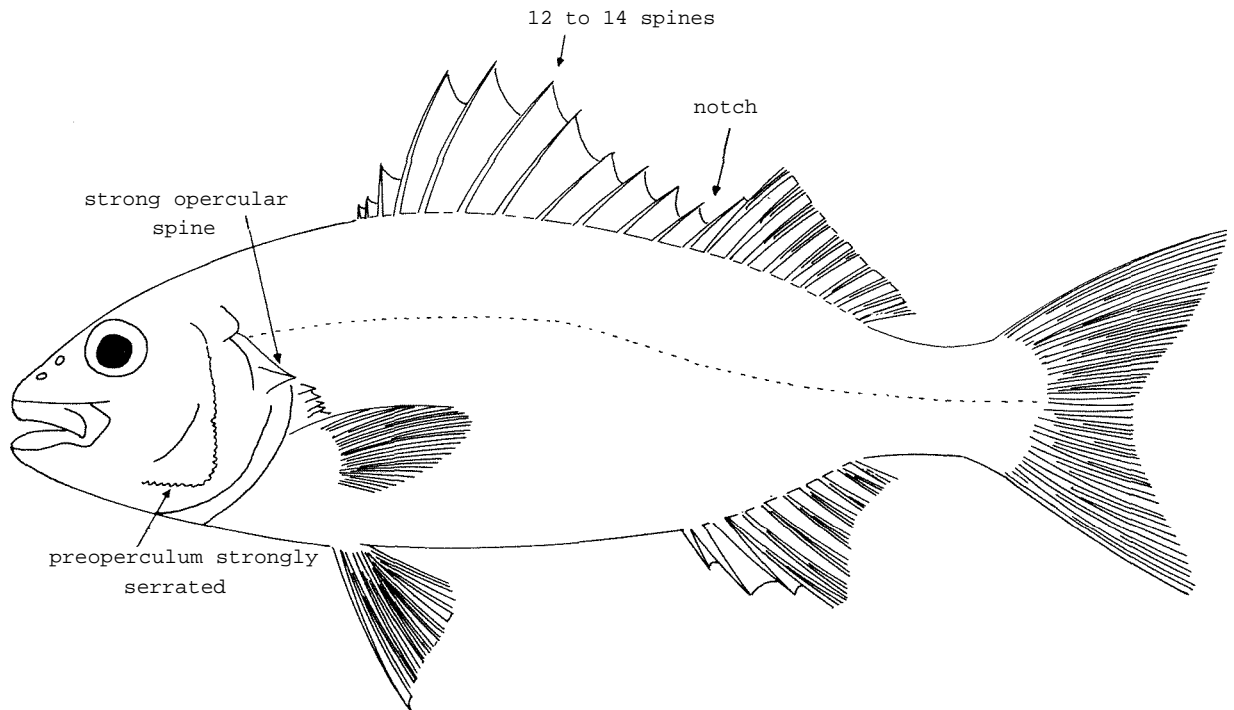
FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)

THERAPONIDAE

Therapons, therapon-perches

Small perch-like fishes with an oblong, compressed body. Mouth small or moderate, upper jaw not reaching beyond eye centre; jaw teeth in villiform bands, the outer series larger or enlarged and comprising conical, incisor-like, or 3-cusped teeth; vomer and palatine (roof of mouth) teeth small, or absent. Pre-operculum with sharply serrated edge; operculum with 1 or 2 strong spines. A single dorsal fin with spinous and soft portions sometimes partially separated by a notch and 12 to 14 strong spines, the 4th and 5th the longest; pelvic fin base behind base of pectoral fin, no axillary scale; caudal fin forked. Scales ctenoid (rough to touch), lateral line single, complete.

Colour: often, dark longitudinal bands on grey or brown body, and dark stripes on caudal fin.



SIMILAR FAMILIES OCCURRING IN THE AREA:

Serranidae: mouth large, upper jaw usually reaching to below hind margin of eye; also, caudal fin usually rounded and 3 spines on operculum.

Kuhliidae: have 10 dorsal spines (12 to 14 in Theraponidae).

Key to Genera

- 1 a. Head short, its length more than 4 times in standard length; outer teeth in both jaws enlarged, flattened and often with 3 cusps or lobes (Fig. 1) *Helotes*
- 1 b. Head longer, its length less than 4 times in standard length; outer teeth in both jaws with conical tips
- 2 a. Jaw teeth in a villiform band; gill membrane free from isthmus (Fig. 2) *Therapon*
- 2 b. Jaw teeth in 2 or 3 rows, outer series enlarged, brown-tipped; gill membrane joined to isthmus (Fig. 3) *Pelates*

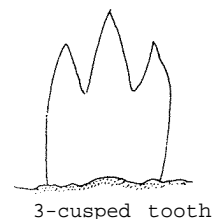


Fig. 1

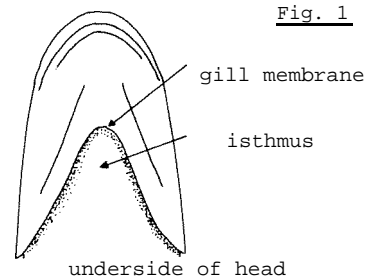


Fig. 2

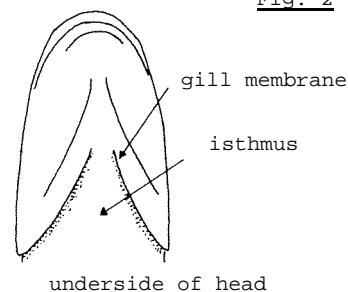


Fig. 3

List of Species occurring in the Area
(Code numbers are given for those species for which Identification Sheets are included)

<i>Helotes sexlineatus</i>	THER Helo 1	<i>Therapon argenteus</i>	
		<i>Therapon cancellatus</i>	
<i>Pelates oxyrhynchus</i>	THER Pela 1	<i>Therapon caudavittatus</i>	
<i>Pelates quadrilineatus</i>	THER Pela 2	<i>Therapon jarbua</i>	THER Ther 1
<i>Pelates romeri</i>		<i>Therapon puta</i>	
		<i>Therapon rosenberghi</i>	
<i>Therapon adamsoni</i>		<i>Therapon theraps</i>	THER Ther 2

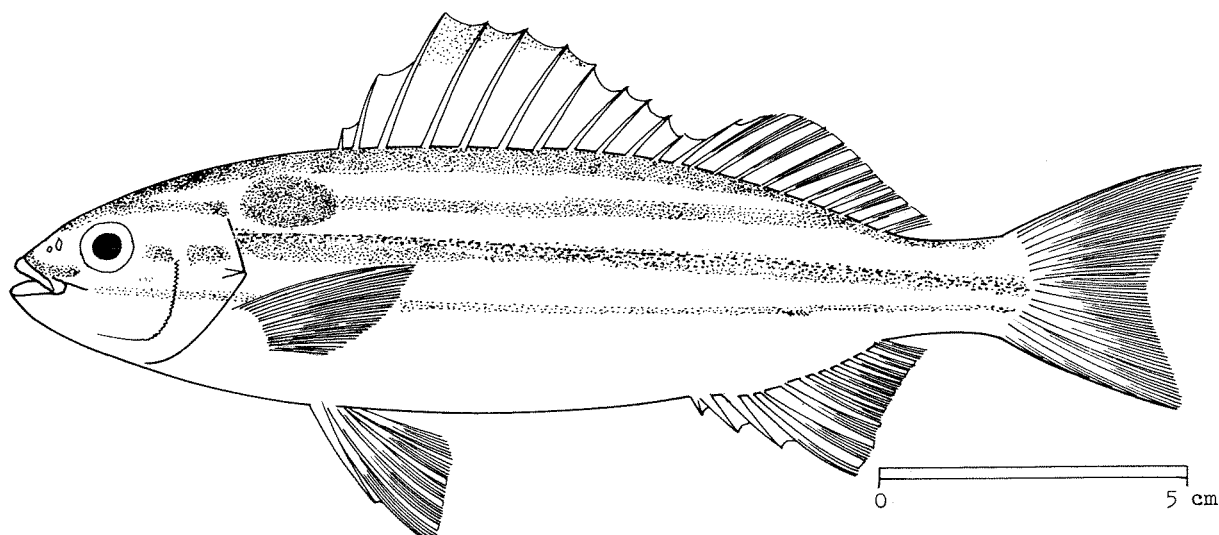
(also, some 15 nominal species from Australian waters, their status uncertain)

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: THERAPONIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Helotes sexlineatus* (Quoy & Gaimard, 1824)

SYNONYMS STILL IN USE: None



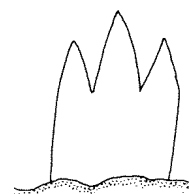
VERNACULAR NAMES

FAO: En - Sixlined therapon
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A small species, body elongate and compressed, head short, its length more than 4 times in standard length. Mouth small, slightly oblique, upper jaw ending well in advance of eye; jaw teeth in many series, compressed and with 3 cusps or lobes; palate toothless. Opercular spine strong, edge of pre-operculum serrated. Dorsal fin with 11 to 12 spines and 10 to 11 soft rays; 3rd spine longest; spinous and soft parts demarcated by a conspicuous notch; anal fin with 3 spines and 10 to 11 soft rays; 2nd spine about half the length of 3rd spine; caudal fin with a shallow fork. Scales small, ctenoid (rough), about 14 rows above lateral line.



3-cusped tooth

Colour: back light greenish brown, sides silvery white; body with 4 to 6 horizontal bands, 2 of which often indistinct; a blackish brown blotch behind upper end of gill opening; tip of spinous part of dorsal fin light grey.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pelates species: outer jaw teeth conical, brown-tipped, in 2 or 3 series; head longer, less than 4 times in standard length; also, scales larger, 10 to 13 rows above lateral line (about 14 in *H. sexlineatus*).

Therapon species: outer jaw teeth conical, little enlarged.

SIZE:

Maximum: 30 cm; common: 15 to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

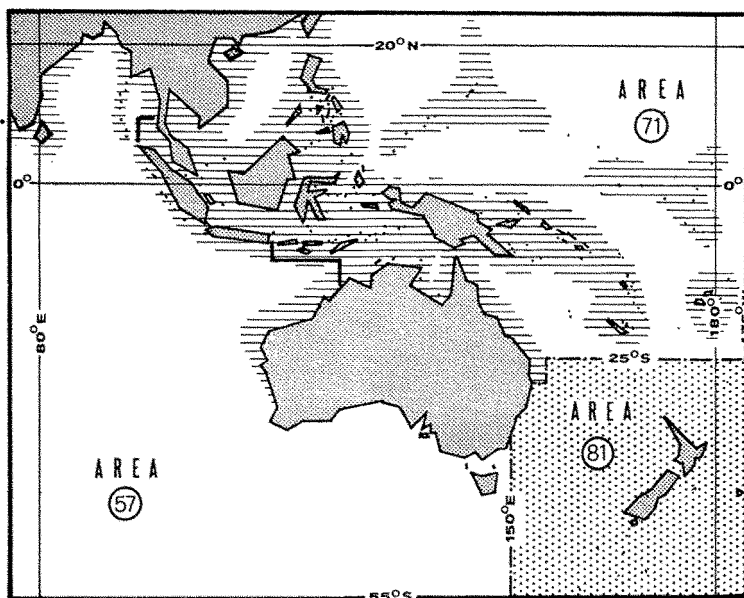
Throughout northern part of area and southward to New South Wales (Australia).

Found in inshore waters.

Feeds on invertebrates and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

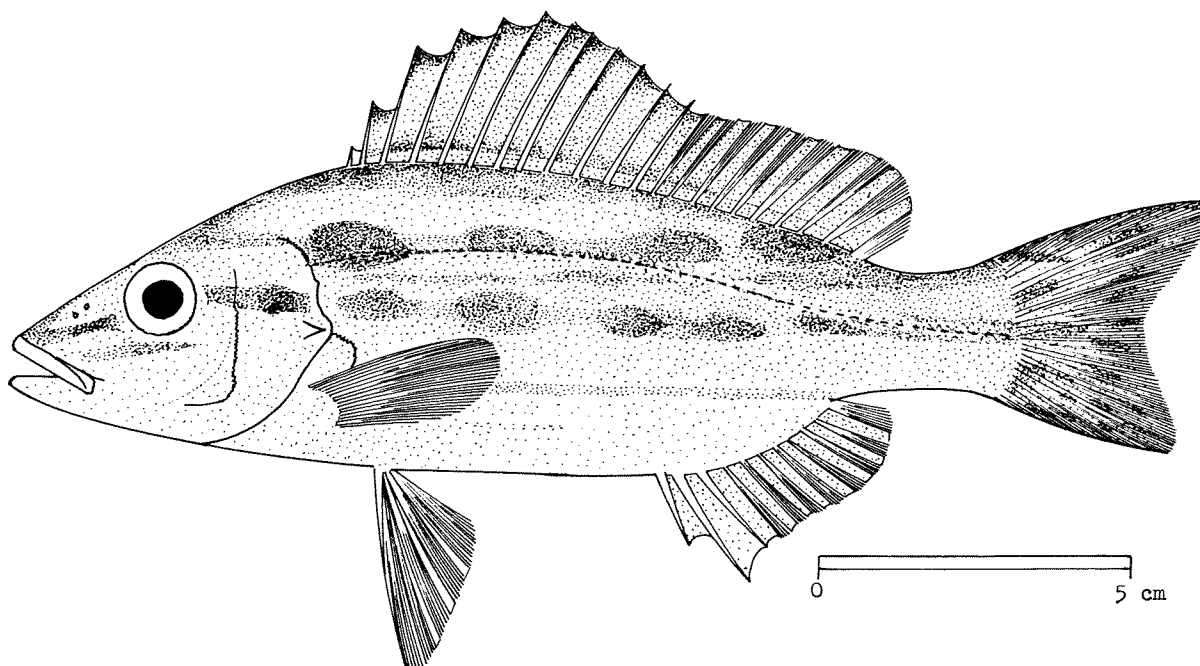
Separate statistics are not reported for this species.

Caught with all types of inshore fishing gear.

Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: THERAPONIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Pelates oxyrhynchus* (Temminck & Schlegel, 1842)SYNONYMS STILL IN USE: *Therapon oxyrhynchus*: Chan, 1968

VERNACULAR NAMES:

FAO: En - Blotched therapon
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A small species, body oblong and compressed, with a long, pointed snout. Mouth small, slightly oblique; upper jaw ending well in front of eye; jaw teeth compressed, with tips brown, conical, 3 series in upper jaw and 2 in lower jaw; vomer and palatine (roof of mouth) toothless. Opercular spine strong and pungent, edge of preoperculum serrated. Dorsal fin with 12 spines and 10 rays; 5th to 8th spines longest; spinous and soft parts not separated by a notch; anal fin with 3 spines and 8 rays, 2nd spine longer than 3rd; caudal fin with a shallow fork. Scales small, ctenoid (rough), 10 to 13 rows above lateral line.

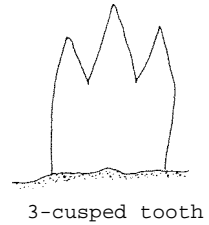
Colour: back light brown, sides paler; body with 4 to 5 brownish red bands and elongate, darker blotches along every other band; dorsal fin without dark blotches, but with a dusky black band along its base; membrane of soft part of dorsal fin and of caudal fin with irregular short dark blotches.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pelates quadrilineatus: snout short and rounded, body with distinct brown longitudinal bands.

Therapon species: outer jaw teeth hardly enlarged, not brown-tipped; also, mouth and gill cavity pale brown (red in *Pelates quadrilineatus*).

Helotes species: outer jaw teeth with 3 cusps or lobes and head short, 4 times in standard length; also, scales smaller, about 14 rows above lateral line (10 to 13 in *P. oxyrhynchus*).



SIZE:

Maximum: 30 cm; common: 15 to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

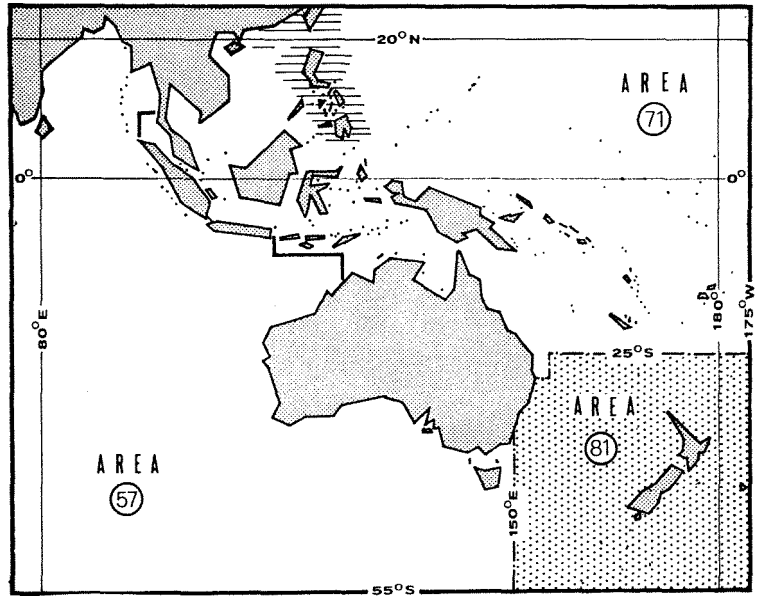
Philippines and South China Sea; also, northward to Japan.

Found in inshore waters, often brackish; the young enter freshwaters.

Feeds on invertebrates and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught with traps, handlines and other inshore fishing gear.

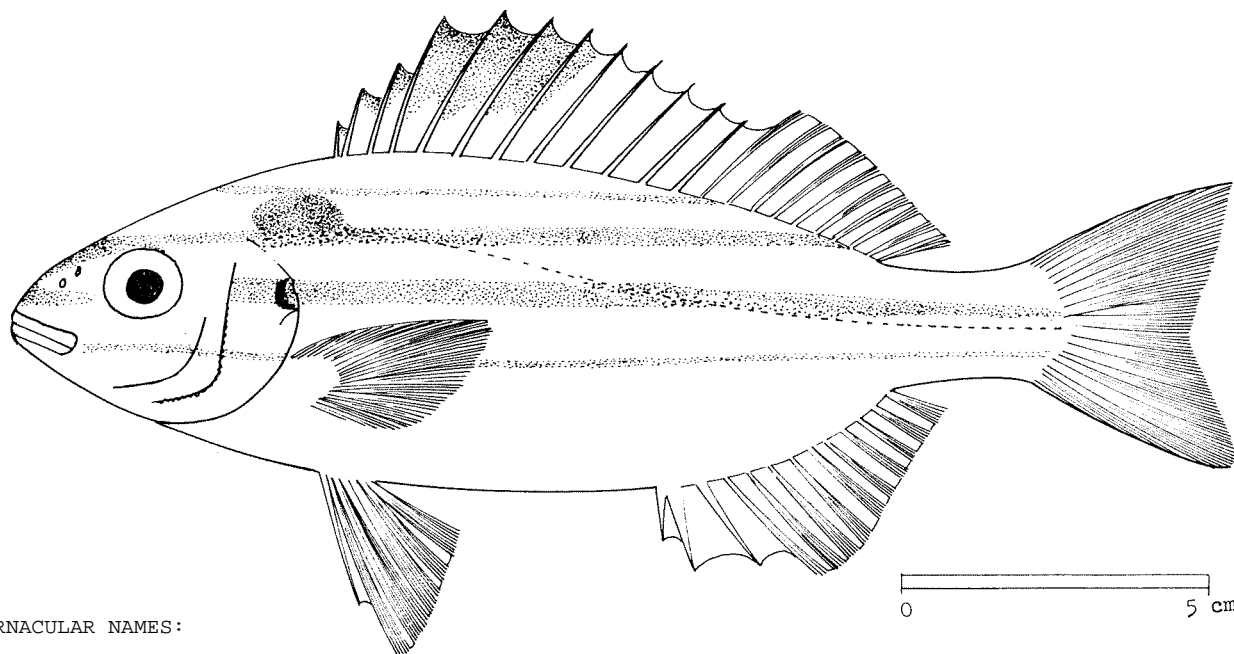
Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: THERAPONIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Pelates quadrilineatus* (Bloch, 1790)

SYNONYMS STILL IN USE: None



VERNACULAR NAMES:

FAO: En - Fourlined therapon
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A small species, body oblong and compressed. Mouth small, slightly oblique; upper jaw ending well in advance of eye; jaw teeth compressed, with tips brown, conical, 3 series in upper jaw and 2 in lower jaw; vomer and palatines (roof of mouth) toothless. Opercular spine strong, edge of preoperculum serrated. Dorsal fin with 12 spines and 10 soft rays; 5th to 9th spines longest; spinous and soft parts of fin separated by a very shallow notch; anal fin with 3 spines and 10 soft rays, the 2nd spine shorter than the 3rd; caudal fin with a shallow fork. Scales small, ctenoid (rough), 10 to 13 rows above lateral line.

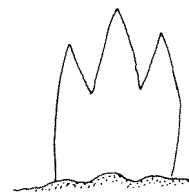
Colour: back light greyish green, sides silvery white; body with 4 to 6 dark brown longitudinal bands, the 3rd band widest, extending to base of median caudal fin ray; a blackish brown blotch behind upper end of gill opening; a large black blotch on spinous part of dorsal fin. Mouth and gill cavity bright red.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Helotes species: outer jaw teeth with 3 cusps or lobes and head short, 4 times in standard length; also, scales smaller, about 14 rows above lateral line (10 to 13 in *P. quadrilineatus*).

Therapon species: outer jaw teeth hardly enlarged, not brown-tipped; also, mouth and gill cavity pale brown (red in *Pelates quadrilineatus*).

Pelates oxyrhynchus: head pointed and no dark brown blotch at upper angle of gill opening.



3-cusped tooth

SIZE:

Maximum: 30 cm; common: 15 to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

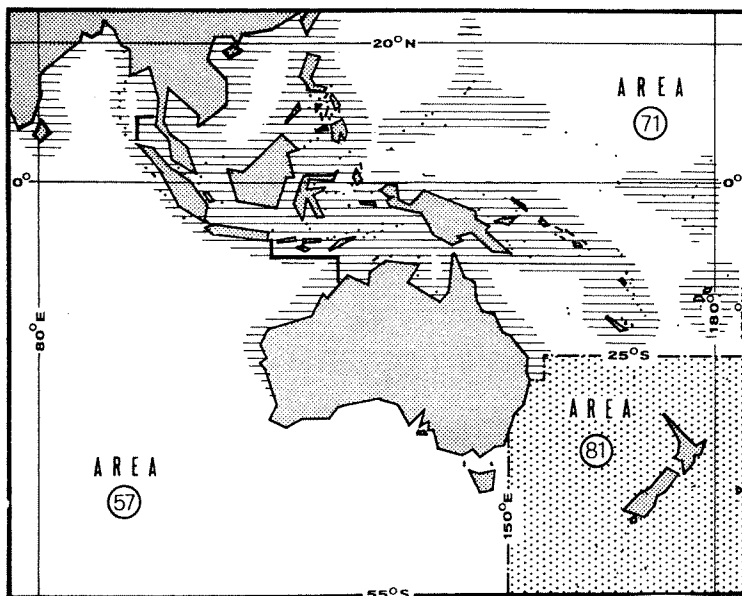
Throughout northern part of area and southward to New South Wales (Australia); also, northward to Hong Kong.

Found in inshore waters.

Feeds on invertebrates and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

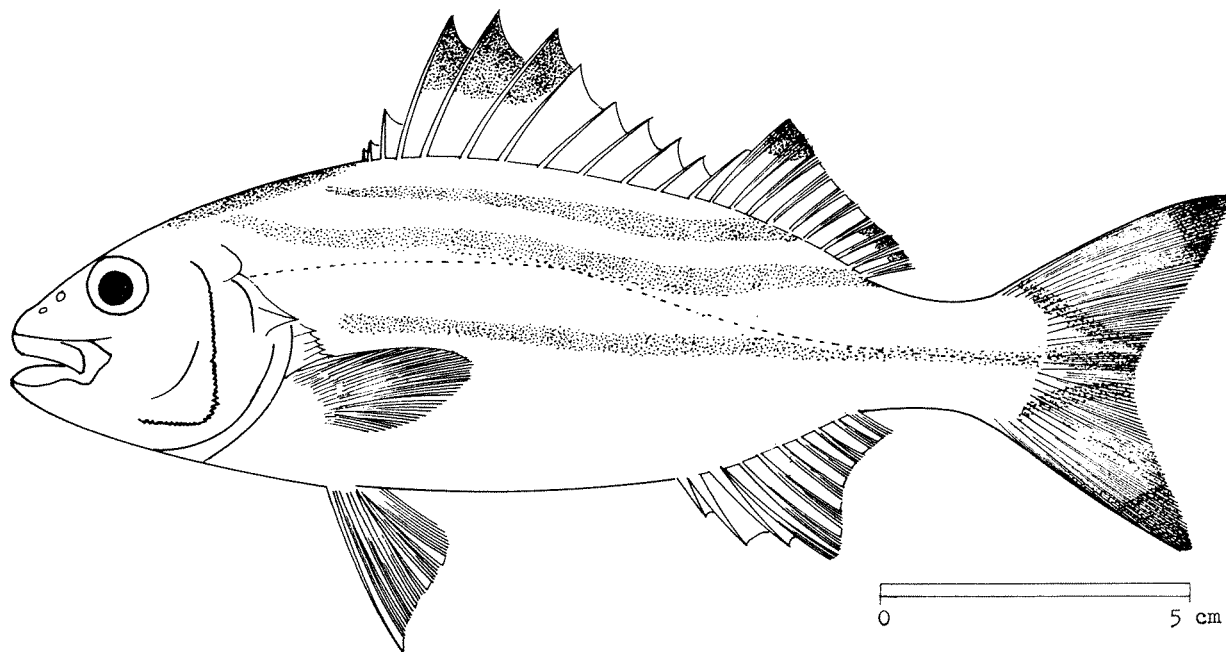
Separate statistics are not reported for this species.

Caught with handlines, traps and other inshore fishing gear.

Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: THERAPONIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Therapon Jarbua* (Forsskål, 1775)SYNONYMS STILL IN USE: *Holocentrus servus* Bloch, 1790

VERNACULAR NAMES:

FAO: En - Jarbua therapon
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A small species, body oblong and compressed. Mouth slightly oblique, upper jaw extending to below middle of eye; jaw teeth in villiform bands; vomer and palatines toothed. Operculum with strong and pungent spines; edge of pre-operculum strongly serrated. Dorsal fin with 11 to 12 strong spines and 10 soft rays, the 4th to 6th spines longest; spinous and soft parts separated by a deep notch; margin of soft part of dorsal fin straight or slightly emarginate; anal fin with 3 spines and 8 rays, the 2nd spine slightly shorter than the 3rd; margin of soft part emarginate; caudal fin slightly forked. Scales small, ctenoid (rough), about 14 to 16 rows above lateral line.

Colour: silvery greyish blue above, silvery white below; 3 to 4 dark brown curved stripes on body; spinous dorsal fin with a black blotch; soft dorsal fin with 2 small black blotches; caudal fin with dark tips and three horizontal or oblique lines.

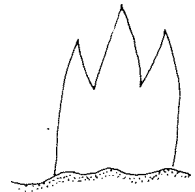
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Therapon theraps, *T. puta*: dark longitudinal bands on body straight and no teeth on roof of mouth; also, 7 to 8 scale rows above lateral line in *T. theraps*, 10 to 13 in *T. puta* (14 to 16 in *T. jarbua*).

Other *Therapon* species: spinous and soft portions of dorsal fin not separated by a deep notch, no prominent black blotch on spinous dorsal fin.

Pelates species: teeth brown-tipped and in 2 or 3 series; also, mouth and gill cavity red in *P. quadrilineatus*.

Helotes species: outer teeth in both jaws with 3 cusps or lobes; also, head short, more than 4 times in standard length.



3-cusped tooth

SIZE:

Maximum: 30 cm; common: 15 to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

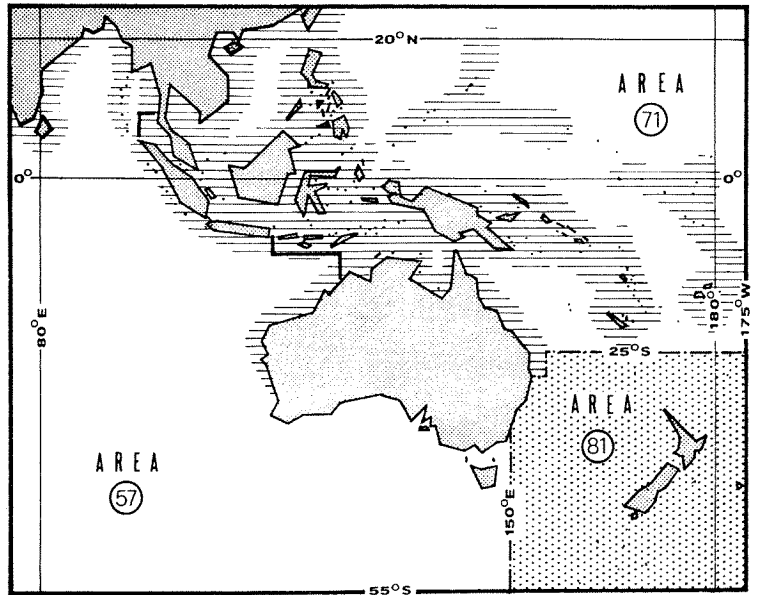
Throughout northern part of area and southward to Queensland (Australia); also, westward to East Africa and northward to Hong Kong.

Found in inshore waters, often brackish; the young enter freshwaters.

Feeds on invertebrates and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

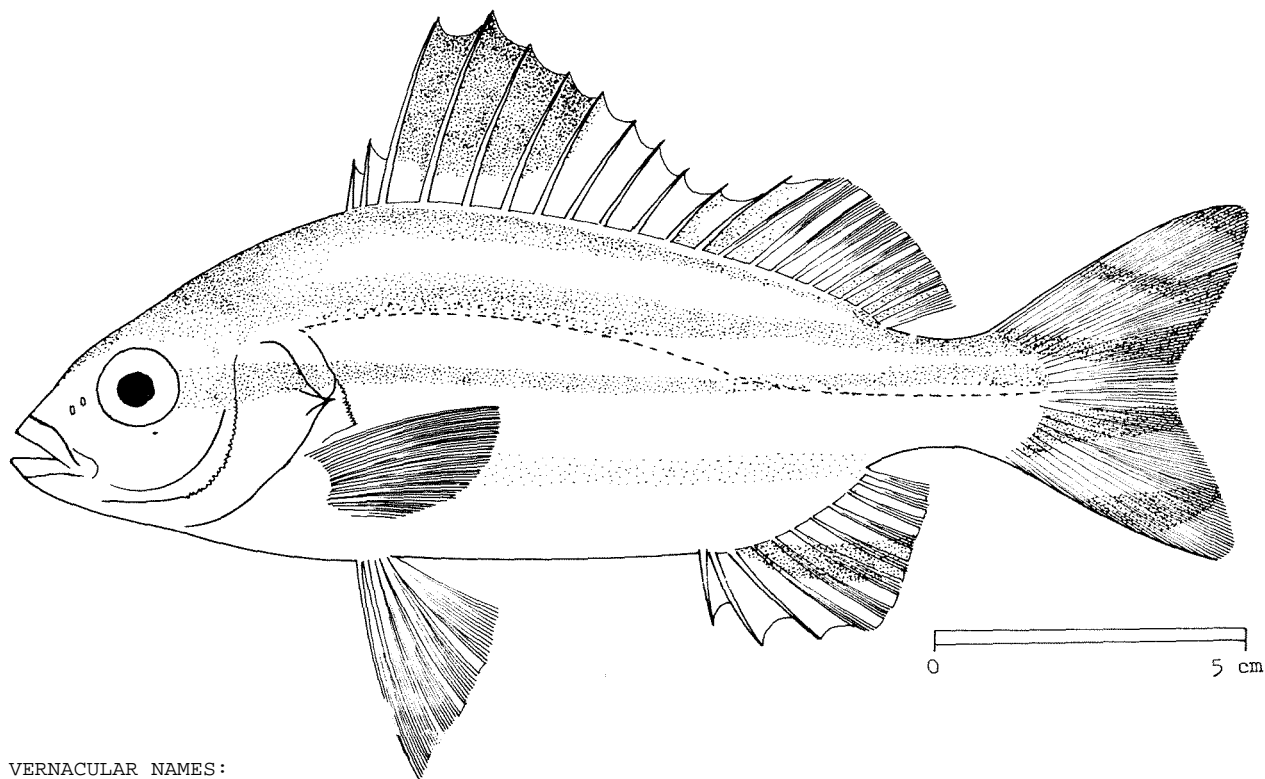
Separate statistics are not reported for this species.

Caught mainly with gillnets, traps and handlines.

Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: THERAPONIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Therapon theraps* Cuvier, 1829SYNONYMS STILL IN USE: *Eutherapon theraps*: Munro, 1955

VERNACULAR NAMES:

FAO: En - Largescaled therapon
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A small-sized species, body oblong and compressed. Mouth slightly oblique, upper jaw extending to below anterior third of eye; jaw teeth in villiform bands; vomer and palatines (roof of mouth, toothless). Opercular spine strong and pungent, edge of pre-operculum serrated. Dorsal fin with 12 strong spines and 10 rays; 3rd to 4th spines longest; spinous and soft parts of fin separated by a deep notch, outer margin of soft part slightly convex; anal fin with 3 spines and 8 rays, 2nd spine slightly shorter than 3rd, most of outer margin of soft portion truncate; caudal fin forked with round-tipped lobes. Scales large, ctenoid (rough), about 7 to 8 rows above lateral line.

Colour: back greenish brown, sides and belly silvery white; 4 dark longitudinal bands on flanks; large blackish brown blotch on spinous part of dorsal fin; a horizontal band on anal fin; 5 dark bands on caudal fin, the 3rd and 4th bordering median caudal fin ray.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA

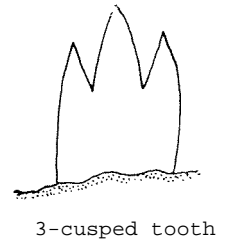
Therapon jarbua: dark bands on body curved, roof of mouth toothed and scales smaller, 14 to 16 rows above lateral line (only 7 to 8 in *T. theraps*).

Therapon puta: scales smaller, 10 to 13 rows above lateral line.

Other *Therapon* species: spinous and soft portions of dorsal fin not separated by a deep notch, no prominent black blotch on spinous dorsal fin.

Pelates species: teeth brown-tipped and in 2 or 3 series; also, mouth and gill cavity red in *P. quadrilineatus*.

Helotes species: outer teeth in both jaws with 3 cusps or lobes; also, head short, more than 4 times in standard length, and no longitudinal bands on caudal fin.



SIZE:

Maximum: 30 cm; common: 15 to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

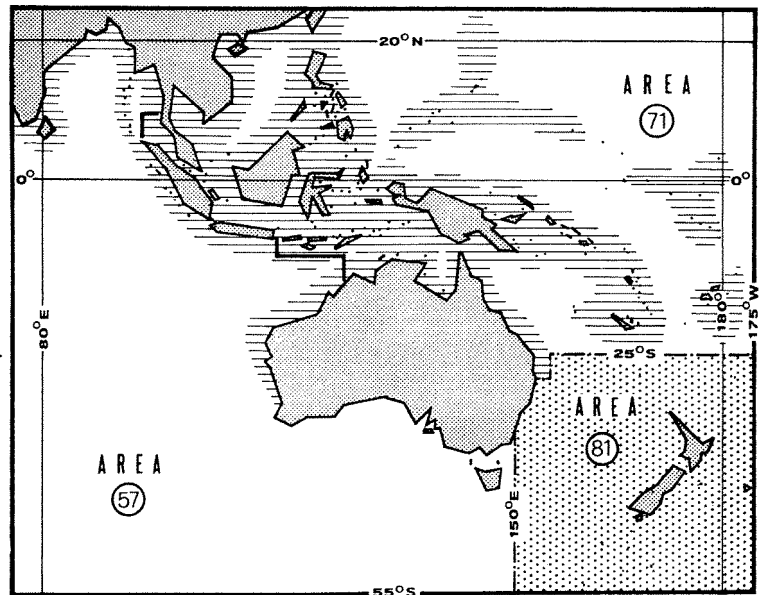
Throughout northern part of area and southward to Queensland (Australia); also, westward to East Africa and northward to Hong Kong.

Found in inshore waters, often brackish.

Feeds on invertebrates and fishes.

PRESENT FISHING GROUNDS:

Throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not reported for this species.

Caught mainly with gillnets, traps and handlines.

Marketed mostly fresh.

FAO SPECIES IDENTIFICATION SHEETS

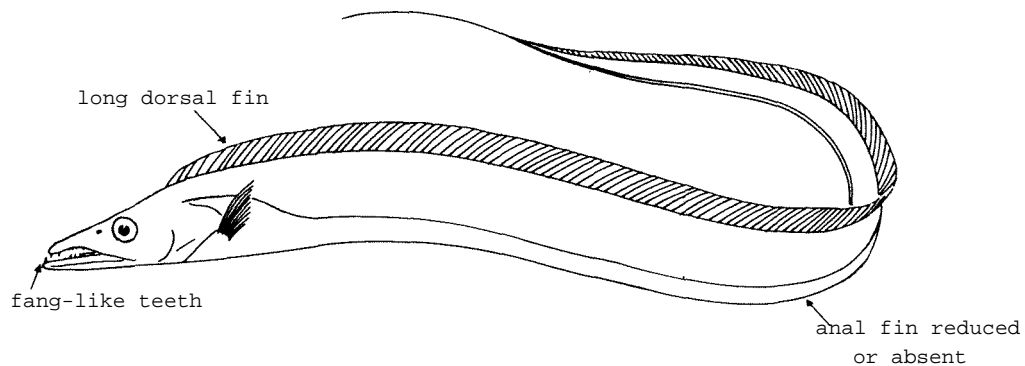
FISHING AREAS 57 ,71
(E Ind. Ocean)
(W Cent. Pacific)

TRICHIURIDAE

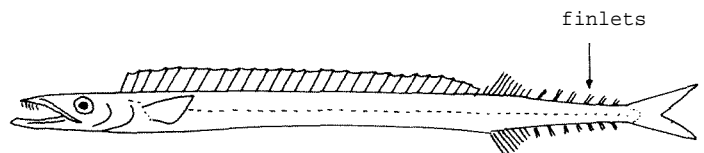
Hairtails, Cutlassfishes

Body very elongate and compressed, ribbon-like. Strong teeth in jaws, those at the front of upper jaw fang-like. Dorsal fin long, beginning shortly behind head, the anterior portion with spines and sometimes separated from the soft portion by a distinct notch, the spinous portion longer than the soft portion; pelvic fins reduced to a scale-like spine and one rudimentary ray, or absent altogether (*Trichiurus*, *Lepturacanthus*); anal fin with short spinules which may not be visible externally (*Trichiurus*); caudal fin small and forked or body tapering to a point (*Trichiurus*). Scales absent.

Colour: general colour silvery, a little darker along back.



SIMILAR FAMILIES OCCURRING IN THE AREA:



Gempylus

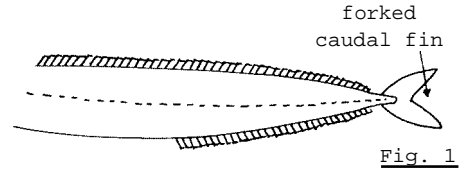
Gempylidae: soft dorsal and anal fins well defined, the rays decreasing in height posteriorly and followed by 2 to 6 dorsal finlets (except in *Epinnula*).

Trachipteridae: jaws short, without large fangs, and caudal fin up-turned.

Eel-like fishes (*Muraenesocidae*, etc.): body more cylindrical, caudal fin rounded (not forked or tapering), no spines in dorsal and anal fins.

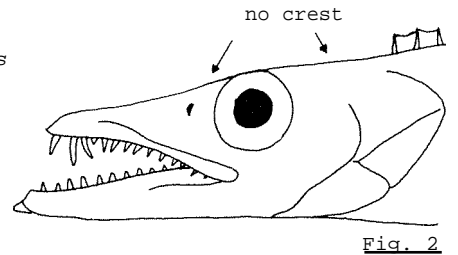
Key to Genera

1 a. Caudal fin present, forked (Fig. 1)



2 a. Head profile rising smoothly to dorsal fin origin, no bony crest present (Fig. 2)

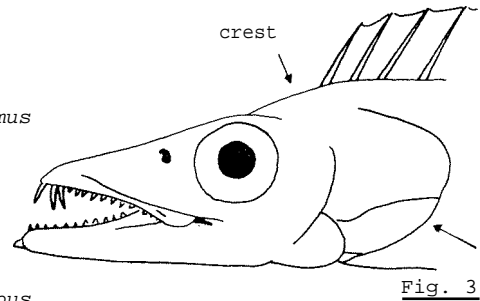
3 a. Spinous part of dorsal fin twice as long as soft part *Diplospinus*



3 b. Spinous part of dorsal fin about equal to soft part or much shorter

4 a. Dorsal spines and rays 91 to 95, the spinous and soft parts about equal in length *Aphanopus*

4 b. Dorsal spines and rays more than 120, the soft part of dorsal fin twice the length of spinous part *Benthodesmus*



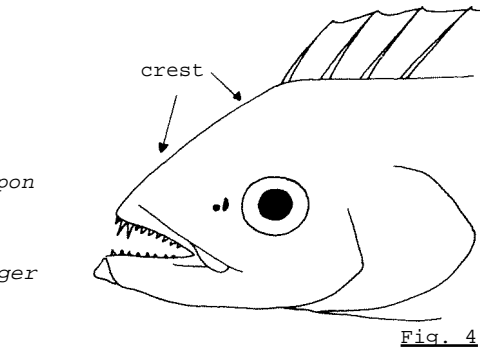
2 b. Head profile with prominent crest (Fig. 3)

5 a. Head crest on nape only (Fig. 3); area between eyes concave *Lepidopus*

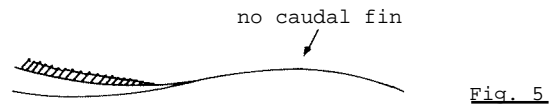
5 b. Head crest from snout to dorsal fin origin (Fig. 4); area between eyes convex

6 a. Body depth 12 to 13 times in its length .. *Evoxymetopon*

6 b. Body depth 20 to 28 times in its length *Assurger*



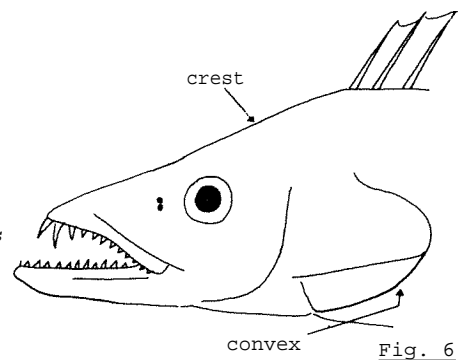
1 b. Caudal fin absent, body tapering to a point (Fig. 5)



7 a. Pelvic fins present (wing-like scales); lower hind border of gill cover convex (Fig. 6)

8 a. Body depth 14 to 18 times in its length .. *Eupleurograrus*

8 b. Body depth 20 to 24 times in its length *Tentoriceps*



7 b. Pelvic fins absent;
 lower hind margin of
 gill cover concave
 (Fig. 7)

9 a. Soft anal fin
 rays buried in
 skin; eye
 diameter 5 to
 7 times in
 head length *Trichiurus*

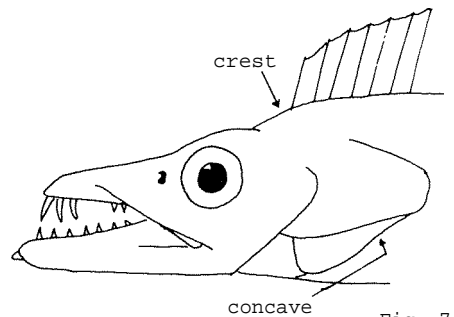


Fig. 7

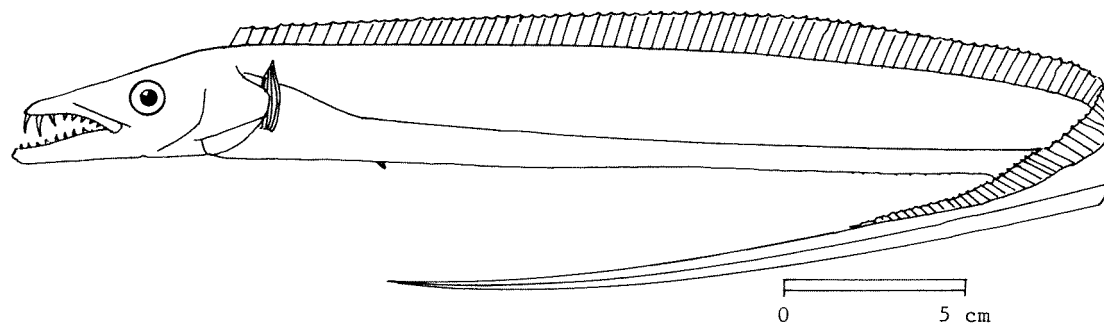
9 b. Soft anal fin
 rays pungent
 spinules; eye
 diameter 6 to
 10 times in
 head length ... *Lepturacanthus*

List of Species occurring in the Area
 (Code numbers are given for those species
 for which Identification Sheets are included)

<i>Assurger anzac</i>		<i>Evoxymetopon taeniatus</i>	
<i>Benthodesmus elongatus</i>		<i>Lepidopus caudatus</i>	
<i>Benthodesmus tenuis</i>		<i>Lepturacanthus savala</i>	TRICH Lept 1
<i>Eupleurogrammus intermedius</i>		<i>Trichiurus lepturus</i>	TRICH Trich 1
<i>Eupleurogrammus muticus</i>	TRICH Eupl 1		

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TRICHIURIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Eupleurogrammus muticus* (Gray, 1831)SYNONYMS STILL IN USE: *Trichiurus muticus* Gray, 1831

VERNACULAR NAMES:

FAO: En - Malayan hairtail
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

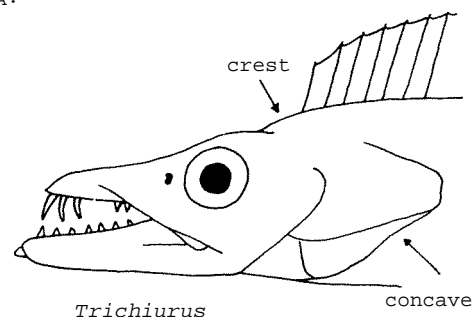
Body very elongate and strongly compressed, ribbon-like, tapering to a point (tip sometimes broken). Mouth large, with fang-like teeth. Eye diameter 6 to 8 times in head length; lower hind margin of gill cover convex. A single dorsal fin, with 3 spines and 143 to 147 soft rays, running from behind head almost to end of body; pectoral fins about as long as snout; pelvic fins present but reduced to wing-like scales; anal fin reduced to separate spines, which are buried in flesh in larger specimens, anal fin origin lying beneath 41st to 43rd soft dorsal rays; caudal fin absent.

Colour: (fresh) steely blue with metallic reflections; (dead) silvery grey.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

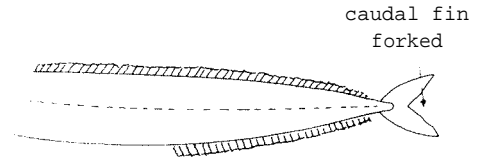
Eupleurogrammus intermedius: anal fin origin below 33rd to 37th soft dorsal fin rays (below 41st to 43rd in *E. muticus*); also, dorsal fin with 123 to 131 soft rays (143 to 147 in *E. muticus*).

Trichiurus lepturus: lower hind margin of gill cover concave and pelvic fins absent; also, eye larger (5 to 7 times in head length; 6 to 8 times in *E. muticus*).



Lepturacanthus savala: pelvic fins absent, but soft anal fin rays visible, not buried in skin; also, lower hind margin of gill cover concave.

Other trichiurid fishes: small forked caudal fin present.



caudal fin
forked

Evoxymetopon
Assurger

SIZE:

Maximum: 100 cm;
common: 60 to 90 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

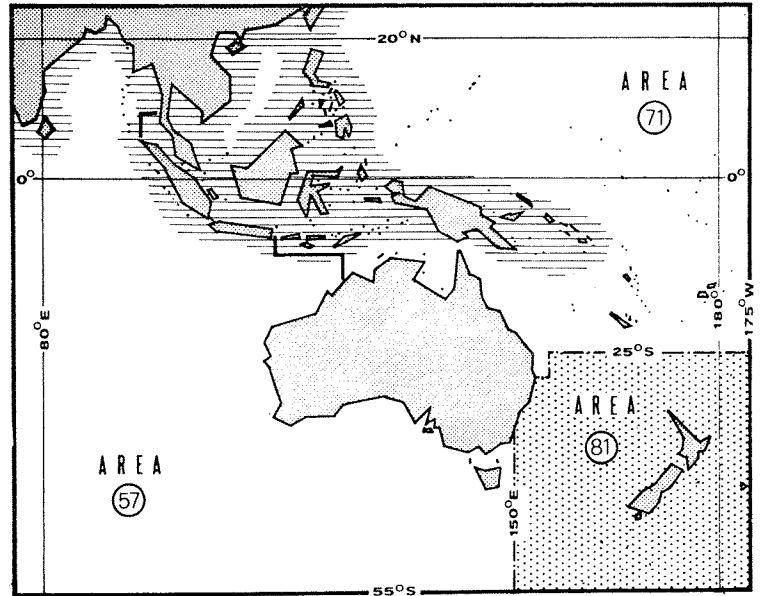
Most of northern part of area, but not southward to Australia.

Bottom-living as well as pelagic. Occurs to depths of at least 100 m.

Feeds on crustaceans and fishes.

PRESENT FISHING GROUNDS:

Coastal waters, to depths of 100 m.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics for this species are reported from the Philippines only (1972: 400 tons).

Caught mainly with bottom trawls, handlines, gill nets and traps.

Marketed mainly fresh; also dried-salted or prepared as fish balls.

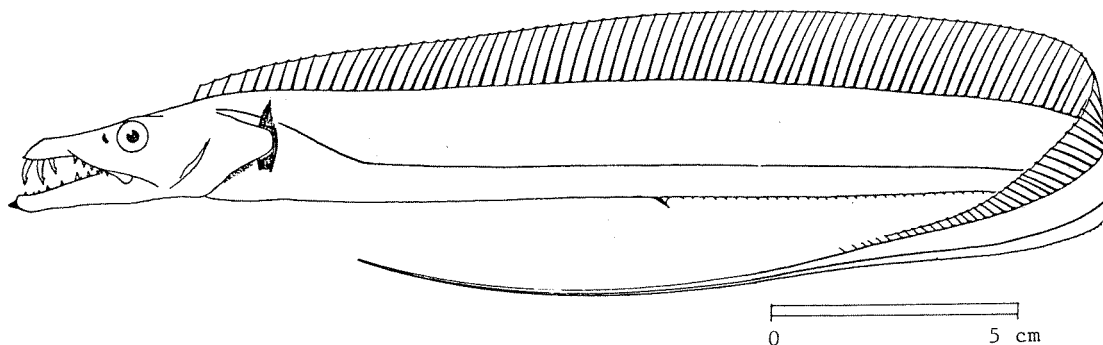
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TRICHIURIDAE

FISHING AREAS 57,71

(E Ind. Ocean)

(W Cent. Pacific)

Lepturacanthus savala (Cuvier, 1829)SYNONYMS STILL IN USE: *Trichiurus savala* Cuvier, 1829*Trichiurus armatus* Gray, 1831

VERNACULAR NAMES:

FAO: En - Smallhead hairtail

Fr -

Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body very elongate and strongly compressed, ribbon-like, tapering to a point (tip sometimes broken). Mouth large, with fang-like teeth. Eye diameter 6 to 10 times in head length. Lower hind margin of gill cover concave. A single dorsal fin, running from behind head almost to end of body; pectoral fins a little shorter than snout length; pelvic fins absent; anal fin reduced to a series of separate spines, but not buried in skin; caudal fin absent. Lateral line nearer to ventral profile than to dorsal profile.

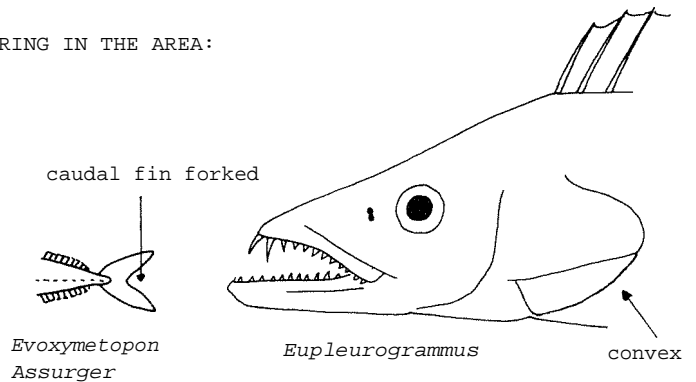
Colour: (fresh) steely blue with metallic reflections; (dead) silvery grey.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Trichiurus lepturus: soft anal fin rays not visible, buried in skin; also, eye larger (5 to 7 times in head length; 6 to 10 times in *L. savala*).

Eupleurogrammus species: pelvic fins present (as reduced wing-like scales); also, lower hind margin of gill cover convex.

Other trichiurid species: small forked caudal fin present.



SIZE:

Maximum: 100 cm;
common: 70 to 80 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

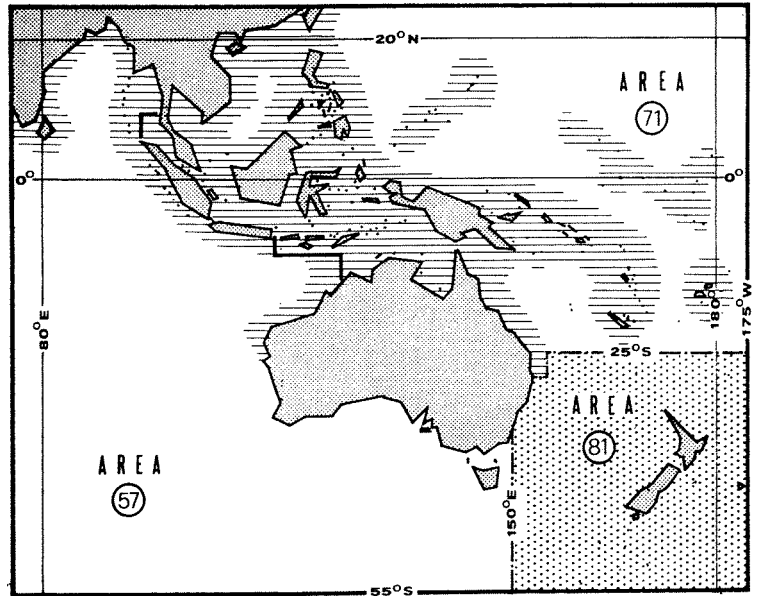
Northern part of area and southward to Queensland and north-western Australia.

Bottom-living as well as pelagic.

Feeds on crustaceans, cephalopods and fishes.

PRESENT FISHING GROUNDS:

Coastal waters and trawling grounds, down to 100 m.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

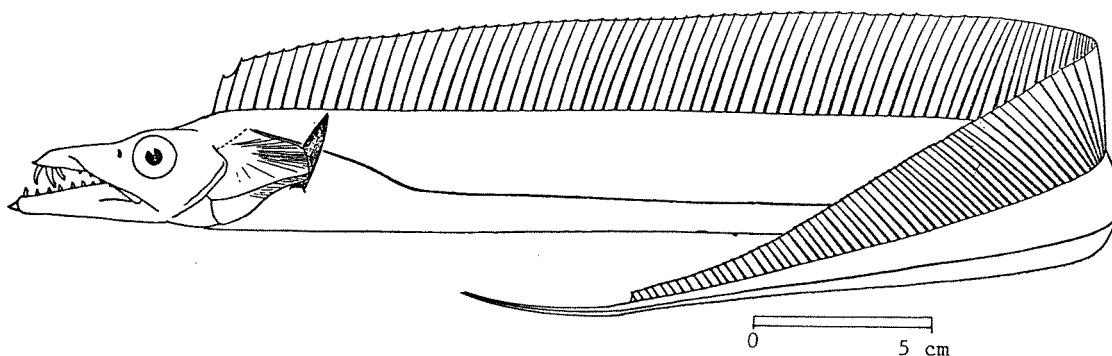
Separate statistics are not reported for this species.

Caught mainly with bottom trawls, handlines, gill nets and traps.

Marketed mostly fresh, also dried-salted or prepared as fish balls.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: TRICHIURIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Trichiurus lepturus* Linnaeus, 1758SYNONYMS STILL IN USE: *Trichiurus haumela* (Forsskål, 1775)
Trichiurus japonicus Temminck & Schlegel, 1844
Trichiurus lajor Bleeker, 1854

VERNACULAR NAMES:

FAO: En - Largehead hairtail
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body very elongate and strongly compressed, ribbon-like, tapering to a point (tip sometimes broken). Mouth large, with fang-like teeth. Eye diameter 5 to 7 times in head length; tower hind margin of gill cover concave. A single dorsal fin running from behind head almost to end of body; pectoral fins about as long as snout; pelvic fins absent; anal fin reduced to separate spines, which are buried in flesh in larger fish; caudal fin absent. Lateral line nearer to ventral profile than to dorsal profile.

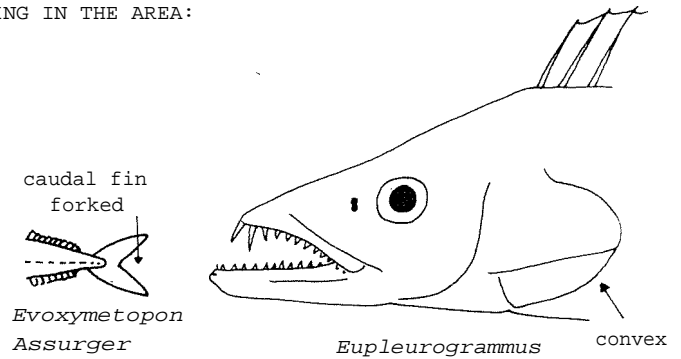
Colour: (fresh) steely blue with metallic reflections; (dead) silvery grey.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Lepturacanthus savala: soft anal fin rays visible, not buried in skin; also, eye smaller (6 to 10 times in head length; 5 to 7 times in *T. lepturus*).

Eupleurogrammus species: pelvic fins present (as reduced wing-like scales); also, lower hind margin of gill cover convex.

Other trichiurid fishes: small forked caudal fin present.



SIZE:

Maximum: 110 cm;
common: 70 to 90 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

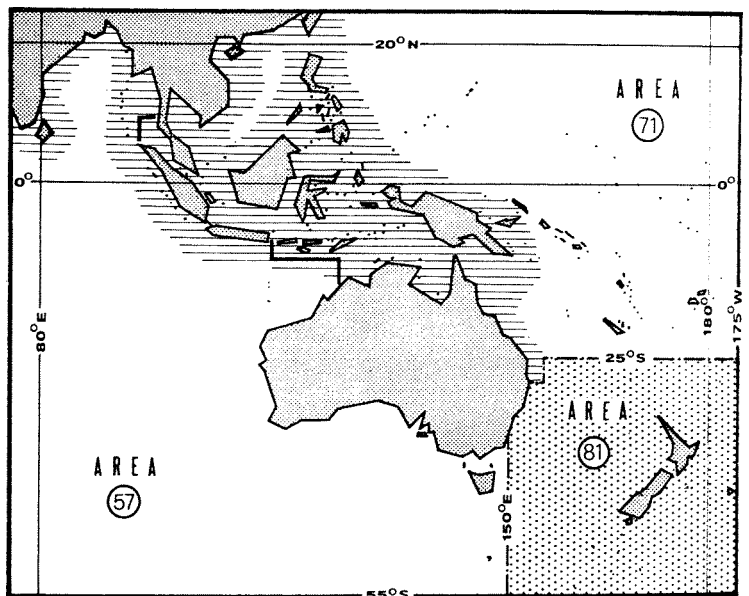
Most of northern part of area and southward to Queensland (perhaps also western Australia); also, westward to Africa and northward to Japan.

Both bottom-living and pelagic. Occurs to depths of at least 100 m, but usually shallower. Enters estuaries and may be found in extremely shallow water.

Feeds on crustaceans, cephalopods and fishes.

PRESENT FISHING GROUNDS:

Coastal waters and trawling grounds, down to 100 m.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

The total reported catch in 1972 was:

area 57 (Eastern Indian Ocean): 15 500 tons (Bangla Desh: 2 500 tons; India: 13 000 tons)
area 71 (Western Central Pacific): 12 300 tons (Malaysia: 1 200 tons; Philippines: 11 100 tons)

Caught mainly with bottom trawls, handlines, gill nets and traps.

Marketed mainly fresh; also dried-salted or prepared as fish balls.

INDEX OF NAMES

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Explanation of the System Used

Bold face italics	Valid scientific name (species and genera cross-indexed)
<i>Italics</i>	Invalid scientific names or misidentifications (species and genera cross-indexed)
ROMAN caps.	Family names
Roman l.c.	Vernacular names
Sheet Codes	Example - CENTRP Lat 1 Family Genus Species

<u>NAME</u>	<u>CODE</u>	<u>NAME</u>	<u>CODE</u>
Abalistes	BALI	alalunga Thunnus	SCOMBR Thun 1
Abalistes stellaris	BALI Abal 1	<i>Alausa ctenolepis</i>	CLUP Hils 4
abbreviatus, Cynoglossus	CYNO Cyno 1	albacares Thunnus	SCOMBR Thun 3
abbretriatus Gerres	GERR Gerr 1	Albacore	SCOMBR Thun 1
<i>abnormis Ilisha</i>	CLUP Ilish 2	albella, Sardinella	CLUP Sardl 6
Acanthocybium	SCOMBR	albida Daysciaena	SCIAEN Daysc 1
Achiroides	SOL	<i>albida Sciaena</i>	SCIAEN Daysc 1
<i>Achirus pavoninus</i>	SOL Pard 1	albiflora Nibea	SCIAEN Nib 1
acuta Dussumieria	CLUP Duss 1	<i>albulina Etrumus (Montalbania)</i>	CLUP Duss 1
<i>acuta Nibea</i>	SCIAEN Chrys 1	Aldrichetta	MUGIL
<i>acuta Pseudosciaena</i>	SCIAEN Chrys 1	Aldrichetta forsteri	MUGIL Aldr 1
<i>acutus, Carangoides</i>	CARAN Carang 3	Alectis	CARAN
<i>aereolatus Serranus</i>	SERRAN Epin 4	Alectis indicus	CARAN Alec 1
Aesopia	SOL	Alepes	CARAN
Aethaloperca	SERRAN	Alepes djeddaba	CARAN Alep 1
affinis Euthynnus	SCOMBR Euth 2	Alepes melanoptera	CARAN Alep 2
<i>affinis Ilisha</i>	CLUP Ilish 2	Allothunnus	SCOMBR
<i>affinis, Pseudorhombus</i>	BOTH Pseud 3	altivelis Cromileptes	SERRAN Cromil 1
<i>Agnostomus forsteri</i>	MUGIL Aldr 1	<i>altivelis Serranus</i>	SERRAN Cromil 1
<i>alalunga Germo</i>	SCOMBR Thun 1	Alutera	BALI

<u>NAME</u>	<u>CODE</u>	<u>NAME</u>	<u>CODE</u>
Alutera monoceros	BALI Alut 1	Argyrosomus miiuy	SCIAEN Argyr 5
ALUTERIDAE	BALI	<i>Argyrosomus nibe</i>	SCIAEN Atro 1
AMBASSIDAE	CENTRP	<i>Argyrosomus pawak</i>	SCIAEN Penn 4
Ambassis	CENTRP	<i>Argyrosomus (Pennahia) aneus</i>	SCIAEN Penn 3
<i>omblycephalus Johnius</i>	SCIAEN John 4	ARIIDAE	ARIID
<i>amblyceps Pseudosciaena</i>	SCIAEN Coll 1	Ariomma	ARIOM
<i>amblyuropterus Peilona</i>	CLUP Ilish 1	Ariomma indica	ARIOM Ariom 1
Amoy croaker	SCIAEN Argyr 2	ARIOMMIDAE	ARIOM
amoyensis Argyrosomus	SCIAEN Argyr 2	Arius	ARIID
<i>amoyensis Pseudosciaena</i>	SCIAEN Argyr 2	Arius caelatus	ARIID Ari 1
<i>Amphacanthus margaritiferus</i>	SIGAN Sigan 4	Arius maculatus	ARIID Ari 2
<i>Anchoviella bataviensis</i>	ENGR Stol 3	Arius sagor	ARIID Ari 3
<i>Anchoviella commersonii</i>	ENGR Stol 6	Arius thalassinus	ARIID Ari 4
<i>Anchoviella heteroloba</i>	ENGR Stol 1	Arius venosus	ARIID Ari 5
<i>Anchoviella indica</i>	ENGR Stol 5	<i>armatoides, Upeneus</i>	MULL Upen 5
<i>Anchoviella tri</i>	ENGR Stol 4	<i>amatus Trichiurus</i>	TRICH Lept 1
<i>Anchoviella zollingeri</i>	ENGR Stol 2	Arnoglossus	BOTH
Anchovies	ENGR	<i>arsius, Pseudorhombus</i>	BOTH Pseud 1
<i>aneus Argyrosomus</i>	SCIAEN Penn 3	Aseraggodes	SOL
<i>aneus Argyrosomus (Pennahia)</i>	SCIAEN Penn 3	Aspericorvina	SCIAEN
<i>aneus Pseudosciaena</i>	SCIAEN Penn 3	Aspericorvina jubata	SCIAEN Asper 1
<i>aneus Sciaena</i>	SCIAEN Penn 3	Assurger	TRICH
<i>annularis Lutjanus</i>	LUT Lut 10	<i>atricauda Clupea (Harengula)</i>	CLUP Sardl 4
Anodontostoma	CLUP	Atrobuca	SCIAEN
Anodontostoma chacunda	CLUP Anod 1	Atrobuca nibe	SCIAEN Atro 1
<i>ontaretica Sciaena</i>	SCIAEN Argyr 3	Atropus	CARAN
ANTHIIDAE	SERRAN	Atropus atropus	CARAN Atrop 1
Anyperodon	SERRAN	<i>atropus, Atropus</i>	CARAN Atrop 1
Aphareus	LUT	Atule	CARAN
APOLECTIDAE	FORM	<i>Atule djeddaba</i>	CARAN Alep 1
<i>Apolectus niger</i>	FORM Form 1	<i>Atule malam</i>	CARAN Alep 2
Aprion	LUT	<i>Atule pectoralis</i>	CARAN Alep 2
Aprion virescens	LUT Apri 1	aureus Chrysochir	SCIAEN Chrys 1
Apsilus	LUT	<i>auriflamma, Mulloidichthys</i>	MULL Mulld 1
<i>arabicus, Muraenesox</i>	MURSOC Mursox 2	aurolineatus, Gnathodentex	PENTAP Gnath 1
Areolated grouper	SERRAN Epin 4	australasicus Scomber	SCOMBR Scom 3
areolatus Epinephelus	SERRAN Epin 4	<i>australasicus Scomber</i>	SCOMBR Rast 2
argentata Pennahia	SCIAEN Penn 1	Australian anchovy	ENGR Engr 2
<i>argentatus Argyrosomus</i>	SCIAEN Penn 1	Australian pilchard	CLUP Sardop 1
<i>argentatus Johnius</i>	SCIAEN Penn 1	<i>australis Corvina</i>	SCIAEN John 1
argentea, Liza	MUGIL Liza 1	australis Engraulis	ENGR Engr 2
<i>argenteus Otolithes</i>	SCIAEN Otol 2	Auxis	SCOMBR
<i>argenteus Otolithes</i>	SCIAEN Otol 2	<i>Auxis hira</i>	SCOMBR Aux 1
argenteus Pampus	STROM Pamp 1	<i>Auxis maru</i>	SCOMBR Aux 2
argentimaculatus Lutjanus	LUT Lut 1	Auxis rochei	SCOMBR Aux 2
<i>argyreus Gerres</i>	GERR Gerr 3	<i>Auxis tapeinosoma</i>	SCOMBR Aux 1
<i>argyrogrammicus Pristipomoides</i>	LUT Prist 1	Auxis thazard	SCOMBR Aux 1
Argyrops	SPARID	<i>Auxis thynnoides</i>	SCOMBR Aux 2
Argyrops spinifer	SPARID Argy 1	awoara Epinephelus	SERRAN Epin 5
Argyrosomus	SCIAEN	<i>axillaris Corvina</i>	SCIAEN Kath 1
Argyrosomus amoyensis	SCIAEN Argyr 2	<i>axillaris Dhoma</i>	SCIAEN Kath 1
<i>Argyrosomus aneus</i>	SCIAEN Penn 3	axillaris Kathala	SCIAEN Kath 1
<i>Argyrosomus argentatus</i>	SCIAEN Penn 1	<i>axillaris, Mugil</i>	MUGIL Vala 2
<i>Argyrosomus bleekeri</i>	SCIAEN Argyr 2	<i>axillaris Pseudosciaena</i>	SCIAEN Kath 1
Argyrosomus hololepidotus	SCIAEN Argyr 3	<i>axillaris Sciaena</i>	SCIAEN Kath 1
Argyrosomus japonicus	SCIAEN Argyr 4	<i>axillaris Wak</i>	SCIAEN Kath 1
<i>Argyrosomus macrocephalus</i>	SCIAEN Penn 2		

NAME	CODE	NAME	CODE
Baelama anchovy	ENGR Thris 1	Blackspot emperor	LETH Leth 2
<i>baelama Engraulis</i>	ENGR Thris 1	Blackspot snapper	LUT Lut 3
baelama Thrissina	ENGR Thris 1	Blackspot threadfin	POLYN Poly 3
<i>baelarna Thrissocles</i>	ENGR Thris 1	Blacktip sardinella	CLUP Sardl 4
<i>baganensis Stolephorus</i>	ENGR Stol 4	bleekeri <i>Argyrosomus</i>	SCIAEN Argyr 2
bagio, Muraenesox	MURSOC Mursox 1	bleekeri Epinephelus	SERRAN Epin 6
Bahaba	SCIAEN	<i>bleekeri Sciaena</i>	SCIAEN Argyr 2
Bahaba chaptis	SCIAEN Baha 1	Bleeker's grouper	SERRAN Epin 6
<i>Bahaba flavolabiata</i>	SCIAEN Baha 2	blochii, Trachinotus	CARAN Trachn 2
Bahaba taipingensis	SCIAEN Baha 2	Bloch's gizzard-shad	CLUP Nem 1
Balistes	BALI	Blood snapper	LUT Lut 10
<i>Balistes stellatus</i>	BALI Abal 1	Blotched croaker	SCIAEN Nib 3
BALISTIDAE	BALI	Blotched grunt	POMAD Pomad 2
Banded barracuda	SPRY Sphy 3	Blotched therapon	THER Pela 1
barberinus, Parupeneus	MULL Paru 2	Blotched tiger-toothed croaker	SCIAEN Ptero 2
barracuda Sphyraena	SPRY Sphy 1	Blue and gold fusilier	LUT Caes 1
Barracudas	SPHY	Bluefin jack	CARAN Caranx 2
Batavian anchovy	ENGR Stol 3	Bluefish	POMAT Pomat 1
<i>bataviensis Anchoviella</i>	ENGR Stol 3	Bluefishes	POMAT
bataviensis Stolephorus	ENGR Stol 3	Blue-lined large-eye bream	PENTAP Gymno 2
<i>bathybius Synagris</i>	NEMIP Nem 1	Bluespot grey mullet	MUGIL Vala 2
bathybus Nemipterus	NEMIP Nem 1	Blue-spotted seabass	SERRAN Plect 1
Batrachocephalus	ARIID	Bluestreak emperor	LETH Leth 1
Bearded croaker	SCIAEN John 4	Bluntnose lizardfish	SYNOD Trach 1
belangerii Johnius	SCIAEN John 1	bohar Lutjanus	LUT Lut 2
Belanger's croaker	SCIAEN John 1	<i>Bola chaptis</i>	SCIAEN Baha 1
<i>belengeri Sciaena</i>	SCIAEN John 1	<i>Bola pama</i>	SCIAEN Otold 2
Bengal tongue sole	CYNO Cyno 3	Bombay-duck	HARP Harp 1
<i>bengalensis, Cynoglossus</i>	CYNO Cyno 3	Bombay-ducks	HARP
bensasi, Upeneus (Pennon)	MULL Upen 4	boops, Selar	CARAN Selar 1
Benthodesmus	TRICH	BOTHIDAE	BOTH
berda, Mylio	SPARID Myl 1	Bothus	BOTH
<i>berda, Sparus</i>	SPARID Myl 1	Bothus pantherinus	BOTH Both 1
biauritus Otolithoides	SCIAEN Otold 1	<i>Bothus poecilurus</i>	BOTH Engy 1
bifasciatus, Parupeneus	MULL Paru 1	<i>Brachirus orientalis</i>	SOL Eury 1
Bigeye croaker	SCIAEN Penn 3	<i>brachysoma Clupea (Harengula)</i>	CLUP Sardl 5
Bigeye ilisha	CLUP Ilish 4	<i>brachysoma Hilsa</i>	CLUP Hils 1
Bigeye scad	CARAN Selar 2	<i>brachysoma Pellona</i>	CLUP Ilish 3
Bigeye snapper	LUT Lut 7	brachysoma Rastrelliger	SCOMBR Rast 1
Bigeye tuna	SCOMBR Thun 5	brachysoma Sardinella	CLUP Sardl 5
Bigeyes	PRIAC	brevirostris Leiognathus	LEIOG Leiog 2
Big-head pennah croaker	SCIAEN Penn 2	<i>brevis Macrura</i>	CLUP Hils 1
Bigmouth breams	GLAUC	Bronze croaker	SCIAEN Otold 1
Bigmouth croaker	SCIAEN Ptero 1	Brown-banded seabass	SERRAN Cephal 2
Bigmouth grenadier anchovy	ENGR Coil 1	Brown-marbled grouper	SERRAN Epin 9
bilineata, Paraplagusia	CYNO Para 1	Brownstripe red snapper	LUT Lut 12
bilineatus, Cynoglossus	CYNO Cyno 2	brunneus Epinephelus	SERRAN Epin 7
bindus Leiognathus	LEIOG Leiog 1	<i>brunneus Otolithoides</i>	SCIAEN Otold 1
bipinnulatus, Elagatis	CARAN Elag 1	<i>brunneus Sciaenoides</i>	SCIAEN Otold 1
birtwistlei Johnius	SCIAEN Chrys 1	Brushtooth lizardfish	SYNOD Sauri 1
Black pomfret	FORM Form 1	Buccaneer anchovy	ENGR Stol 2
Black pomfrets	FORM	buccaneeri Stolephorus	ENGR Stol 2
Black-and-white snapper	LUT Mac 1	<i>bulan, Clupalosa</i>	CLUP Sardl 6
Black-banded trevally	CARAN Seriol 1	<i>bulan, Harengula</i>	CLUP Sardl 6
Blackfin crevalle	CARAN Alep 2	Bullet mackerel	SCOMBR Aux 2
Blackmouth croaker	SCIAEN Atro 1	Bulleyes	PRIAC
Blacksaddle goatfish	MULL Paru 6	burgeri Glaucosoma	GLAUC Glauc 1

<u>NAME</u>	<u>CODE</u>	<u>NAME</u>	<u>CODE</u>
<i>caetatus Arius</i>	ARIID Ari 1	<i>Chirocentrus hypselosoma</i>	CHIROC Chiroc 1
<i>caelatus Tachysurus</i>	ARIID Ari 1	Chirocentrus nudus	CHIROC Chiroc 2
<i>caerulaureus Caesio</i>	LUT Caes 1	choerozynchus Lethrinus	LETH Leth 1
<i>caeruleomaculatus, Mugil</i>	MUGIL Vala 2	<i>Chorinemus lysan</i>	CARAN Scom 1
Caesio	LUT	chryserydros, Parupeneus	MULL Paru 7
<i>Caesio caerulaureus</i>	LUT Caes 1	Chrysochir	SCIAEN
Cassio chrysozona	LUT Caes 2	Chrysochir aureus	SCIAEN Chrys 1
<i>Caesio erythrogaster</i>	LUT Caes 3	chrysophrys, Carangoides	CARAN Carang 1
calcarifer Lates	CENTRP Lat 1	<i>Chrysophrys major</i>	SPARID Spar 2
Cale-cale trevally	CARAN Ulua 1	chrysozona Caesio	LUT Caes 2
canadus Rachycentron	RACH Rach 1	<i>chrysozonus Rastrelliger</i>	SCOMBR Rast 3
conaliculatus Siganus	SIGAN Sigan 4	chui Nibea	SCIAEN Nib 2
CARANGIDAE	CARAN	Chu's croaker	SCIAEN Nib 2
Carangoides	CARAN	ciliarius, Carangoides	CARAN Carang 2
<i>Carangoides acutus</i>	CARAN Carang 3	cinereus, Muraenesox	MURSOC Mursox 2
Carangoides chrysophrys	CARAN Carang 1	<i>cinnabarinus, Parupeneus</i>	MULL Paru 5
Carangoides ciliarius	CARAN Carang 2	<i>civis Lutjanus</i>	LUT Lut 2
Carangoides equula	CARAN Carang 3	<i>Clupalosa bulan</i>	CLUP Sardl 6
Carangoides ferdau	CARAN Carang 4	Clupanodon	CLUP
Carangoides malabaricus	CARAN Carang 5	<i>Clupea (Alosa) macrura</i>	CLUP Hills 3
Caranx	CARAN	<i>Clupea (Alosa) platygaster</i>	CLUP Hills 1
<i>Caranx elacate</i>	CARAN Caranx 3	<i>Clupea (Alosa) toli</i>	CLUP Hills 4
Caranx ignobilis	CARAN Caranx 1	<i>Clupea (Amblygaster) leiogaster</i>	CLUP Sardl 10
Caranx metanpygus	CARAN Caranx 2	<i>Clupea (Amblygaster) sirm</i>	CLUP Sardl 9
Caranx sexfasciatus	CARAN Caranx 3	<i>Clupea (Harengula) atricauda</i>	CLUP Sardl 4
Caranx tille	CARAN Caranx 4	<i>Clupea (Harengula) brachysoma</i>	CLUP Sardl 5
Cardinal seabream	SPARID Evyn 1	<i>Clupea (Harengula) fimbriata</i>	CLUP Sardl 7
cardinalis, Evynnis	SPARID Evyn 1	<i>Clupea (Harengula) melanura</i>	CLUP Sardl 4
carutta Johnius	SCIAEN John 2	<i>Clupea (Harengula) pinguis</i>	CLUP Sardl 9
<i>carutta Sciaena</i>	SCIAEN John 2	Clupeichthys	CLUP
<i>caudalis, Upeneus</i>	MULL Upen 5	CLUPEIDAE	CLUP
Cavallas	CARAN	Clupeoides	CLUP
CENTROPOMIDAE	CENTRP	<i>coatesi Lutjanus</i>	LUT Lut 2
Cephatopholis	SERRAN	Cobia	RACH Rach 1
Cephatopholis miniatus	SERRAN Cephal 1	Cobias	RACH
Cephalopholis pachycentron	SERRAN Cephal 2	<i>coibor Nibea</i>	SCIAEN Nib 2
Cephalopholis sonnerati	SERRAN Cephal 3	Coilia	ENGR
Cephalopsetta	BOTH	Coilia dussumieri	ENGR Coil 2
cephalus, Mugil	MUGIL Mugil 1	Coilia macrognathus	ENGR Coil 1
Cestraeus	MUGIL	Coitor croaker	SCIAEN John 3
chacunda Anodontostoma	CLUP Anod 1	coitor Johnius	SCIAEN John 3
<i>chacunda Dorosoma</i>	CLUP Anod 1	<i>coitor Sciaena</i>	SCIAEN John 3
<i>Chacunda gizzard-shad</i>	CLUP Anod 1	<i>coitor Wak</i>	SCIAEN John 3
<i>Chaetodon orbis</i>	EPHIP Ehip 1	Collichthys	SCIAEN
<i>Chaetodon punctata</i>	DREP Drep 1	Collichthys crocea	SCIAEN Coll 1
CHANIDAE	CHAN	<i>Collichthys microdon</i>	SCIAEN Pan 1
Chanos	CHAN	commerson Scomberomorus	SCOMBR Scombm 1
Chanos chanos	CHAN Chan 1	<i>commersoni Cybium</i>	SCOMBR Scombm 1
chanos Chanos	CHAN Chan 1	commersoniana, Synaptura	SOL Syn 1
Chaptis bahaba	SCIAEN Baha 1	commersonianus, Scomberoides	CARAN Scom 1
chaptis Bahaba	SCIAEN Baha 1	<i>commersonii Anchoviella</i>	ENGR Stol 6
chaptis Bola	SCIAEN Baha 1	<i>commersonii, Sphyaena</i>	SPRY Sphy 1
Chascanopsetta	BOTH	commersonii Stolephorus	ENGR Stol 6
Chelidoperca	SERRAN	Commerson's anchovy	ENGR Stol 6
Chinaman snapper	LUT Glab 1	Commerson's sole	SOL Syn 1
chinensis Pampus	STROM Pamp 2	Common dolphinfish	CORY Cory 1
Chinese bahaba	SCIAEN Baha 2	Common mojarra	GERR Gerr 3
Chinese pomfret	STROM Pamp 2	Common pike-conger	MURSOC Mursox 1
CHIROCENTRIDAE	CHIROC	Common ponyfish	LEIOG Leiog 5
Chirocentrus	CHIROC	Common threadfin	POLYN Poly 2
Chirocentrus dorab	CHIROC Chiroc 1	Congresox	MURSOC

<u>NAME</u>	<u>CODE</u>	<u>NAME</u>	<u>CODE</u>
<i>Congresox talabanoides</i>	MURSOC Consox 2	<i>Daysciaena albida</i>	SCIAEN Daysc 1
<i>Congresox talabon</i>	MURSOC Consox 1	<i>Decapterus</i>	CARAN
<i>cordyla, Megalaspis</i>	CARAN Megal 1	<i>Decapterus lajang</i>	CARAN Deca 1
<i>Corica</i>	CLUP	<i>Decapterus macrosoma</i>	CARAN Deca 1
<i>Corvina australis</i>	SCIAEN John 1	<i>Decapterus maruadsi</i>	CARAN Deca 2
<i>Corvina axillaris</i>	SCIAEN Kath 1	Deep flounder	BOTH Pseud 3
<i>Corvina fauvellicii</i>	SCIAEN Nib 1	Deep pugnose ponyfish	LEIOG Sec 2
<i>Corvina lobata</i>	SCIAEN John 1	Deepbody mojarra	GERR Gerr. 1
<i>Corvina miles</i>	SCIAEN Nib 6	Deepbody sardinella	CLUP Sardl 5
<i>Corvina semiluctuosa</i>	SCIAEN Nib 1,5	Delagoa threadfin bream	NEM-IP Nem 2
<i>Coryphaena</i>	CORY	<i>delagoae Nemipterus</i>	NEMIP Nem 2
<i>Coryphaena equiselis</i>	CORY Cory 2	<i>Dendrophysa</i>	SCIAEN
<i>Coryphaena hippurus</i>	CORY Cory 1	<i>Dendrophysa dussumieri</i>	SCIAEN John 4
CORYPHAENIDAE	CORY	<i>Dendrophysa hooghliensis</i>	SCIAEN Daysc 1
<i>Coryphillus</i>	SOL	<i>Dendrophysa russelli</i>	SCIAEN Dend 1
<i>crassilabris, Parupeneus</i>	MULL Paru 1	<i>Dentex tumifrons</i>	SPARID Tai 1
<i>Crenimugil</i>	MUGIL	<i>Dhoma axillaris</i>	SCIAEN Kath 1
Crevalles	CARAN	<i>diacanthus Nibeia</i>	SCIAEN Proto 1
Croakers	SCIAEN	<i>diacanthus Protonibeia</i>	SCIAEN Proto 1
<i>crocea Collichthys</i>	SCIAEN Coll 1	<i>diacanthus Pseudosciaena</i>	SCIAEN Proto 1
<i>crocea Pseudosciaena</i>	SCIAEN Coll 1	<i>diacanthus Sciaena</i>	SCIAEN Proto 1
<i>Cromileptes</i>	SERRAN	Diamond-scaled grey mullet	MUGIL Liza 4
<i>Cromileptes altivelis</i>	SERRAN Cromil 1	<i>ditchela Pellona</i>	CLUP Pell 1
<i>Crossorhombus</i>	BOTH	<i>djeddaba, Alepes</i>	CARAN Alep 1
<i>crumenophthalmus Selar</i>	CARAN Selar 2	<i>djeddaba Atule</i>	CARAN Alep 1
<i>ctenolepis Alausa</i>	CLUP Ails 4	Djeddaba crevalle	CARAN Alep I
<i>cunnesius, Valamugil</i>	MUGIL Vala 1	<i>Doiichthys</i>	ARIID
Cutlassfishes	TRICH	<i>dolorosus Otolithus</i>	SCIAEN Ptero 1
<i>cuvieri Otolithes</i>	SCIAEN Otol 1	Dolphinfishes	CORY
<i>Cybiosarda</i>	SCOMBR	'Dolphins'	CORY
<i>Cybium commersoni</i>	SCOMBR Scombm 1	<i>dorab Chirocentrus</i>	CHIROC Chiroc 1
<i>Cybium guttatum</i>	SCOMBR Scombm 3	Dorab wolf-herring	CHIROC Chiroc 1
<i>Cybium lineolatum</i>	SCOMBR Scombm 2	<i>Dorosoma chacunda</i>	CLUP Anod 1
<i>cyclostomus, Parupeneus</i>	MULL Paru 7	<i>Dorosoma nasus</i>	CLUP Nem 1
CYNOGLOSSIDAE	CYNO	Doublebar goatfish	MULL Paru 1
<i>Cynoglossus</i>	CYNO	Doublelined tongue sole	CYNO Para 1
<i>Cynoglossus abbreviatus</i>	CYNO Cyno 1	Doublewhip threadfin bream	NEMIP Nem 8
<i>Cynoglossus bengalensis</i>	CYNO Cyno 3	<i>Drepane</i>	DREP
<i>Cynoglossus bilineatus</i>	CYNO Cyno 2	<i>Drepane punctata</i>	DREP Drep 1
<i>Cynoglossus cynoglossus</i>	CYNO Cyno 3	DREPANIDAE	DREP
<i>cynoglossus, Cynoglossus</i>	CYNO Cyno 3	Driftfishes	ARIOM
<i>Cynoglossus lingua</i>	CYNO Cyno 4	Drums	SCIAEN
<i>Cynoglossus luctosus</i>	CYNO Cyno 6	<i>dupliciocellatus, Pseudorhombus</i>	BOTH Pseud 2
<i>Cynoglossus macrolepidotus</i>	CYNO Cyno 5	Dusky hairfin anchovy	ENGR Seti 2
<i>Cynoglossus macrostomus</i>	CYNO Cyno 6	Dusky jack	CARAN Caranx 3
<i>Cynoglossus puncticeps</i>	CYNO Cyno 7	<i>dussumieri Coilia</i>	ENGR Coil 2
<i>Cynoglossus quadrilineata</i>	CYNO Cyno 2	<i>dussumieri Dendrophysa</i>	SCIAEN John 4
<i>Cynoglossus sumatranus</i>	CYNO Cyno 3	<i>dussumieri Johnieops</i>	SCIAEN Johps 1
<i>Cynoglossus trigammus</i>	CYNO Cyno 1	<i>dussumieri Johnius</i>	SCIAEN John 4
<i>cyprinoides Megalops</i>	MEGAL Megal 1	<i>dussumieri, Mugil</i>	MUGIL Liza 2
		<i>dussumieri Pellona</i>	CLUP Ilish 4
		<i>dussumieri Sciaena</i>	SCIAEN John 4
		<i>dussumieri Umbrina</i>	SCIAEN John 4
Daggertooth pike-conger	MURSOC Mursox 2	<i>Dussumieria</i>	CLUP
Darkband goatfish	MULL Upen 6	<i>Dussumieria acuta</i>	CLUP Duss 1
Dash-and-dot goatfish	MULL Paru 2	<i>Dussumieria elopsoides</i>	CLUP Duss 1
<i>datnia, Sparus</i>	SPARID Myl 2	<i>Dussumieria hasselti</i>	CLUP Duss 1
<i>daura Leiognathus</i>	LEIOG Leiog 3	<i>Dussumieria productissima</i>	CLUP Duss 1
<i>Dayella</i>	CLUP	<i>Dussumier's croaker</i>	SCIAEN Johps 1
<i>Daysciaena</i>	SCIAEN		

<u>NAME</u>	<u>CODE</u>	<u>NAME</u>	<u>CODE</u>
Eastern little tuna	SCOMBR Euth 2	<i>Eupleurogrammus</i>	TRICH
Ehirava	CLUP	<i>Eupleurogrammus muticus</i>	TRICH Eupl 1
elacate, Caranx	CARAN Caranx 3	Euryglossa	SOL
Elagatis	CARAN	<i>Euryglossa orientalis</i>	SOL Eury 1
Elagatis bipinnulatus	CARAN Elag 1	<i>Eutherapon theraps</i>	THER Ther 2
Eleutheronema	POLYN	Euthynnus	SCOMBR
Eleutheronema tetradactylum	POLYN Eleu 1	<i>Euthynnus affinis</i>	SCOMBR Euth 2
elevatus, Pseudorhombus	BOTH Pseud 3	<i>Euthynnus pelamis</i>	SCOMBR Kats 1
elongata Ilisha	CLUP Ilish 2	<i>Euthynnus yaito</i>	SCOMBR Euth 2
elongata Pellona	CLUP Ilish 2	Evoxymetopon	TRICH
elongata Saurida	SYNOD Sauri 5	Evynnus	SPARID
elongata Saurida	SYNOD Sauri 4	<i>Evynnus cardinalis</i>	SPARID Evyn 1
Elongate ilisha	CLUP Ilish 2	<i>extraneus Psenes</i>	ARIOM Ariom 1
elongaus, Epinephelus	SERRAN Epin 12		
elongatus Leiognathus	LEIOG Leiog 4	<i>falcatus, Trachinotus</i>	CARAN Trachn 2
elongatus, Myxus	MUGIL Myx 1	False trevallies	LACT
ELOPIDAE	ELOP	False trevally	LACT Lact 1
Elops	ELOP	fasciatus, Epinephelus	SERRAN Epin 8
<i>Elops hawaiiensis</i>	ELOP Elop 1	<i>fasciatus Johnius</i>	SCIAEN John 1
Elops machnata	ELOP Elop 1	fasciatus Leiognathus	LEIOG Leiog 6
<i>Elops saurus</i>	ELOP Elop 1	Faughn's mackerel	SCOMBR Rast 2
<i>Elopsoides Dussumieria</i>	CLUP Duss 1	faughni Rastrelliger	SCOMBR Rast 2
Emperor red snapper	LUT Lut 11	<i>fauvelii Otolithus</i>	SCIAEN Argyr 5
Emperors	LETH	<i>fauvelii Corvina</i>	SCIAEN Nib 1
ENGRAULIDAE	ENGR	ferdau, Carangoides	CARAN Carang 4
Engraulis	ENGR	Ferdau's cavalla	CARAN Carang 4
Engraulis australis	ENGR Engr 2	filamentosus Genes	GERR Gerr 2
<i>Engraulis baelama</i>	ENGR Thris 1	<i>filamentosa Pertica</i>	GERR Gerr 2
<i>Engraulis mystax</i>	ENGR Thrys 1	<i>filamentosa Saurida</i>	SYNOD Sauri 3
Engraved catfish	ARIID Ari 1	Filefishes	BALI
Engyprosopon	BOTH	<i>filigera Ilisha</i>	CLUP Ilish 4
Engyprosopon grandisquamis	BOTH Engy 1	<i>fimbriata Clupea (Harengula)</i>	CLUP Sardl 7
<i>Enneacentrus miniatus</i>	SERRAN Cephal 1	fimbriata Sardinella	CLUP Sardl 7
<i>Enneacentrus sonnerati</i>	SERRAN Cephal 3	Fivelined threadfin bream	NEMIP Nem 11
EPHIPPIDAE	EPHIP	Fivespot flounder	BOTH Pseud 7
Ephippus	EPHIP	Flathead grey mullet	MUGL Mugil 1
Ephippus orbis	EPHIP Ephip 1	<i>flavolabiata Bahaba</i>	SCIEN Baha 2
Epinephelus	SERRAN	<i>flavolabiata Nibea</i>	SCIAEN Baha 2
Epinephelus areolatus	SERRAN Epin 4	filovineatus, Mulloidichthys	MULL Mulld 1
Epinephelus awoara	SERRAN Epin 5	Formio	FORM
Epinephelus bleekeri	SERRAN Epin 6	Formio niger	FORM Form 1
Epinephelus brunneus	SERRAN Epin 7	FORMIONIDAE	FORM
<i>Epinephelus elongaus</i>	SERRAN Epin 12	<i>forsteri, Agnostomus</i>	MUGIL Aldr 1
Epinephelus fasciatus	SERRAN Epin 8	forsteri, Aldrichetta	MUGIL Aldr 1
Epinephelus fuscoguttatus	SERRAN Epin 9	forsteri Sphyræna	SPRY Sphy 2
Epinephelus megachir	SERRAN Epin 10	Forster's barracuda	SPHY Sphy 2
Epinephelus summana	SERRAN Epin 11	Fourfinger threadfin	POLYN Eleu 1
Epinephelus tauvina	SERRAN Epin 12	Fourlined theraon	THER Pela 2
equiselis Coryphaena	CORY Cory 2	Fourlined tongue sole	CYNO Cyno 2
equula, Carangoides	CARAN Carang 3	fraterculus, Parupeneus	MULL Paru 6
<i>Equulites novaehollandiae</i>	LEIOG Leiog 8	Frigate mackerel	SCOMBR Aux 1
equulus Leiognathus	LEIOG Leiog 5	Fringescale sardinella	CLUP Sardl 7
erumei Psettodes	PSET Pset 1	fulviflamma Lutjanus	LUT Lut 3
erythrogaeter Caesio	LUT Caes 3	fuscoguttatus, Epinephelus	SERRAN Epin 9
<i>erythropterus Lutjanus</i>	LUT Lut 10	<i>fuscolineata Umbrina</i>	SCIAEN John 4
Escualosa	CLUP	Fusiliers	LUT
Etelis	LUT		
Etrumeus	CLUP		
<i>Etrumeus (Montalbania) albulina</i>	CLUP Duss 1		

<u>NAME</u>	<u>CODE</u>	<u>NAME</u>	<u>CODE</u>
<i>galapagensis</i> , Yugil	MUGIL Mugil 1	Groupers	SERRAN
Gasterochisma	SCOMBR	Grunts	POMAD
Gazza	LEIOG	Gudusia	CLUP
Gazza minuta	LEIOG Gaz 1	<i>guttatum</i> Cybium	SCOMBR Scombm 3
<i>germo</i> alalunga	SCOMBR Thun 1	<i>guttatum</i> Indocybium	SCOMBR Scombm 3
<i>germo</i> Thunnus	SCOMBR Thun 1	guttatus <i>Scomberomorus</i>	SCOMBR Scombm 3
GERREIDAE	GERR	Gymcoaesio	LUT
Gerres	GERR	Gymnocranius	PENTAP
Gerres abbreviatus	GERR Gerr 1	Gymnocranius griseus	PENTAP Gymno 1
<i>Gerres argyreus</i>	GERR Gerr 3	Gymnocranius robinsoni	PENTAP Gymno 2
Gerres filamentosus	GERR Gerr 2	Gynnosarda	SCOMBR
<i>Gerres macracanthus</i>	GERR Gerr 2		
Genes oyena	GERR Gerr 3		
<i>Gerres punctatus</i>	GERR Gerr 2		
<i>gerroides</i> <i>Leiognathus</i>	LEIOG Leiog 3		
Giant catfish	ARIID Ari 4	Hairfin anchovy	ENGR Seri 1
Giant seaperch	CENTRP Lat 1	Hairtails	TRICH
gibbosa <i>Sardinella</i>	CLUP Sardl 8	Half-mourning croaker	
gibbus <i>Lutjanus</i>	LUT Lut 4	<i>hamiltonii</i> <i>Thrissocles</i>	ENGR Thrys 4
<i>gilberti</i> <i>Setipinna</i>	ENGR Seti 1	hamiltonii <i>Thryssa</i>	ENGR Thrys 4
Gizzard shads	CLUP	Hamilton's <i>thryssa</i>	ENGR Thrys 4
Glabrilutjanus	LUT	harak <i>Lethrinus</i>	LETH Leth 2
Glabrilutjanus nematophorus	LUT Glab 1	Hardtail scad	CARAN Megal 1
Glaucosoma	GLAUC	<i>Harengula bulan</i>	CLUP Sardl 6
Glaucosoma burgeri	GLAUC Glauc 1	<i>Harengula kunzei</i>	CLUP Herk 1
GLAUCOSOMIDAE	GLAUC	<i>Harengula moluccensis</i>	CLUP Herk 1
Gnathanodon	CARAN	<i>Harengula ovalis</i>	CLUP Herk 1
Gnathodentex	PENTAP	<i>Harengula punctata</i>	CLUP Herk 1
Gnathodentex aurolineatus	PENTAP Gnath 1	<i>Harengula vittata</i>	CLUP Sardl 4
Gnathodentex mossambicus	PENTAP Gnath 2	Harpadon	HARP
Gnathodon speciosus	CARAN Gnath 1	Harpadon nehereus	HARP Harp 1
Goatee croaker	SCIAEN Dend 1	HARPADONTIDAE	HARP
Goatfishes	MULL	<i>hasselti</i> <i>Dussumieria</i>	CLUP Duss 1
Goldband fusilier	LUT Caes 2	hasta , <i>Pomadasys</i>	POMAD Pomad 1
Goldband goatfish	MULL Upen 1	<i>hasta</i> , <i>Pristipoma</i>	POMAD Pomad 1
Golden threadfin bream	NEMIP Nem 13	<i>haumela</i> <i>Trichiurus</i>	TRICH Trich 1
Golden toothless trevally	CARAN Gnath 1	<i>hawaiensis</i> <i>Elops</i>	ELOF Elop 1
Goldlined seabream	SPARID Rhab 1	Helotes	THER
Goldsaddle goatfish	MULL Paru 7	Helotes sexlineatus	THER Helo 1
Gold-spotted grenadier anchovy	ENGR Coil 2	Hemipimelodus	ARIID
Goldstripe ponyfish	LEIOG Leiog 3	heptacanthus , <i>Parupeneus</i>	MUL Paru 5
Goldstripe sardinella	CLUP Sardl 8	<i>heptadactylus</i> , <i>Polydactylus</i>	POLYN Poly 4
<i>goma</i> <i>Sciaena</i>	SCIAEN Proto 1	heptadactylus , <i>Polynemus</i>	POLYN Poly 4
Gonialosa	CLUP	Herklotsichthys	CLUP
<i>Gonostoma javanicus</i>	CLUP Anod 1	Herklotsichthys punctatus	CLUP Herk 1
Gracilia	SERRAN	<i>Herklotsichthys vittatus</i>	CLUP Sardl 4
<i>Gracilimugil ramsayi</i>	MUGIL Liza 1	Herrings	CLUP
Grammatobothus	BOTH	<i>heteroloba</i> <i>Anchoviella</i>	ENGR Stol 1
Grammatobothus polyophthalmus	BOTH Gram 1	heterolobus <i>Stolephorus</i>	ENGR Stol 1
Grammatorcynus	SCOMBR	Heteromycteris	SOL
grandisquamis , <i>Engyprosopon</i>	BOTH Engy 1	hexodon <i>Nemipterus</i>	NEMIP Nem 3
grandoculis , <i>Monotaxis</i>	PENTAP Mono 1	<i>hexodon</i> <i>Synagris</i>	NEMIP Nem 3
Greasy grouper	SERRAN Epin 12	<i>hilleri</i> , <i>Polynemus</i>	POLYN Poly 5
Great barracuda	SPHY Sphy 1	Hilsa	CLUP
Greater lizardfish	SYNOD Sauri 2	<i>Hilsa brachysoma</i>	CLUP Hils 1
Green jobfish	LUT Apr 1	Hilsa ilisha	CLUP Hils 2
Greenback grey mullet	MUGIL Liza 2	<i>Hilsa kanagurta</i>	CLUP Hils 1
Grey bigmouth bream	GLAUC Glauc 1	Hilsa kelee	CLUP Hils 1
Grey large-eye bream	PENTAP Gymno 1	Hilsa macrura	CLUP Hils 3
Grey mullets	MUGIL	<i>Htilsa palasah</i>	CLUP Hils 2
griseus , <i>Gymnocranius</i>	PENTAP Gymno 1	Hilsa shad	CLUP Hils 2

<u>NAME</u>	<u>CODE</u>	<u>NAME</u>	<u>CODE</u>
<i>Hilsa toli</i>	CLUP Hils 4	Indo-Pacific Spanish mackerel	SCOMBR Scombm 3
<i>hippums Coryphaena</i>	CORY Cory 1	Indo-Pacific tarpon	MEGAL Megal 1
<i>hira Auxis</i>	SCOMBR Aux 1	<i>Indocybium guttatum</i>	SCOMBR Scombm 3
<i>hoeveni Pellona</i>	CLUP Pell 1	<i>Indocybium lineolatum</i>	SCOMBR Scombm 2
<i>Holocentrus servus</i>	THER Ther 1	<i>insidiator Leiognathus</i>	LEIOG Sec 1
<i>hololepidotus Argyrosomus</i>	SCIAEN Argyr 3	<i>insidiator Secutor</i>	LEIOG Sec 1
Honey-comb grouper	SERRAN Epin 10	<i>insularis Stolephorus</i>	ENGR Stol 3
<i>hooghliensis Dendrophysa</i>	SCIAEN Daysc 1		
<i>humilis, Solea</i>	SOL Sol 2		
Humpback red snapper	LUT Lut 4	Jacks	CARAN
Humpback seabass	SERRAN Cromil 1	<i>janthinuropterus Lutjanus</i>	LUT Lut 5
Humpnose large-eye bream	PENTAP Mono 1	Japanese meagre	SCIAEN Argyr 4
Hyperlophus	CLUP	Japanese threadfin bream	NEMIP Nem 4
<i>hypselosoma Chirocentrus</i>	CHIROC Chiroc 1	<i>japonica Nibea</i>	SCIAEN Argyr 4
<i>hypselosoma Sardinella</i>	CLUP Sardl 5	<i>japonicas Argyrosomus</i>	SCIAEN Argyr 4
		<i>japonicas Argyrosomus</i>	SCIAEN Argyr 4
		<i>japonicas, Mugil</i>	MUGIL Mugil 1
		<i>japonicas Nemipterus</i>	NEMIP Nem 4
<i>ignobilis, Caranx</i>	CARAN Caranx 1	<i>japonicas Scomber</i>	SCOMBR Scm 3
<i>iharae Nibea</i>	SCIAEN Penn 1	<i>japonicas Synagris</i>	NEMIP Nem 4
Ilisha	CLUP	<i>japonicas Trichiurus</i>	TRICH Trich 1
<i>Ilisha abnormis</i>	CLUP Ilish 2	Jarbuva theraupon	THER Ther 1
<i>Ilisha affinis</i>	CLUP Ilish 2	jarbuva, Theraupon	THER Ther 1
Ilisha elongata	CLUP Ilish 2	Javan flounder	BOTH Pseud 4
<i>Ilisha filigera</i>	CLUP Ilish 4	Javan ilisha	CLUP Ilish 1
ilisha Hilsa	CLUP Hils 2	<i>javanicus Gonostoma</i>	CLUP Anod 1
<i>Ilisha indica</i>	CLUP Ilish 3	<i>javanicus, Mugil</i>	MUGIL Liza 2
<i>Ilisha macrophthalma</i>	CLUP Ilish 4	javanicus, Pseudorhombus	BOTH Pseud 4
Ilisha megaloptera	CLUP Ilish 4	javus Siganus	SIGAN Sigan 3
Ilisha melastoma	CLUP Ilish 3	<i>javus Teuthis</i>	SIGAN Sigan 3
<i>Ilisha motius</i>	CLUP Ilish 3	jello Sphyraena	SPRY Sphy 3
Ilisha pristigastroides	CLUP Ilish 1	Jobfishes	LUT
<i>ilisha Tenualosa</i>	CLUP Hils 2	johni Lutjanus	LUT Lut 6
<i>imbricata Nibea</i>	SCIAEN Argyr 5	Johnieops	SCIAEN
<i>imbricatus Miichthys</i>	SCIAEN Argyr 5	Johnieops dussumieri	SCIAEN Johps 1
Indian anchovy	ENGR Stol 5	Johnieops sina	SCIAEN Johps 2
Indian driftfish	ARIOM Ariom 1	Johnieops vogleri	SCIAEN Johps 3
Indian goatfish	MULL Paru 4	Johnius	SCIAEN
Indian halibut	PSET Pset 1	<i>Johnius amblycephalus</i>	SCIAEN John 4
Indian halibuts	PSET	<i>Johnius argentatus</i>	SCIAEN Penn 1
Indian ilisha	CLUP Ilish 3	<i>Johnius (Aspericorvina) melanobrachium</i>	SCIAEN Asper 1
Indian mackerel	SCOMBR Rast 3	Johnius belangerii	SCIAEN John 1
Indian oil-sardinella	CLUP Sardl 3	<i>Johnius birtwistlei</i>	SCIAEN Chrys 1
Indian pellona	CLUP Pell 1	Johnius carutta	SCIAEN John 2
Indian pike-conger	MURSOC Consox 2	Johnius coitor	SCIAEN John 3
Indian threadfin	POLYN Poly 1	Johnius dussumieri	SCIAEN John 4
<i>indica Anchoviella</i>	ENGR Stol 5	<i>Johnius fasciatus</i>	SCIAEN John 1
indica Ariomma	ARIOM Ariom 1	<i>Johnius jubatus</i>	SCIAEN Asper 1
<i>indica Ilisha</i>	CLUP Ilish 3	<i>Johnius maculatus</i>	SCIAEN Nib 3
<i>indica Pellona</i>	CLUP Ilish 3	<i>Johnius osseus</i>	SCIAEN John 5
indicus, Alectis	CARAN Alec 1	<i>Johnius semiluctuosus</i>	SCIAEN Nib 5
<i>indicus Opisthopterus</i>	CLUP Opis 1	<i>Johnius soldado</i>	SCIAEN Nib 6
indicus, Parupeneus	MULL Paru 4	Johnius trachycephalus	SCIAEN John 5
<i>indicus, Polydactylus</i>	POLYN Poly 1	John's snapper	LUT Lut 6
indicus, Polynemus	POLYN Poly 1	jubata Aspericorvina	SCIAEN Asper 1
<i>indicus Psenes</i>	ARIOM Ariom 1	<i>jubatus Johnius</i>	SCIAEN Asper 1
indicus Stolephorus	ENGR Stol 5	<i>jussieu Sardinella</i>	CLUP Sardl 8

<u>NAME</u>	<u>CODE</u>	<u>NAME</u>	<u>CODE</u>
<i>kallopterus Lethrinus</i>	LETH Leth 3	<i>Leiognathus insidiator</i>	LEIOG Sec 1
<i>kanagurta Hilsa</i>	CLUP Hils 1	Leiognathus leuciscus	LEIOG Leiog 8
kanagurta Rastrelliger	SCOMBR Rast 3	<i>Leiognathus ruconius</i>	LEIOG Sec 2
Karut croaker	SCIAEN John 2	Leiognathus smithursti	LEIOG Leiog 9
Kathala	SCIAEN	Leiognathus sp. (undescribed)	LEIOG Leiog 7
Kathala axillaris	SCIAEN Kath 1	Leiognathus splendens	LEIOG Leiog 10
Kathala croaker	SCIAEN Kath 1	<i>Leiognathus stercorarius</i>	LEIOG Leiog 4
Katsuwonus	SCOMBR	<i>Leiognathus virgatus</i>	LEIOG Leiog 1
Katsuwonus pelamis	SCOMBR Kats 1	lentjan Lethrinus	LETH Leth 4
kelee Hilsa	CLUP Hils 1	Leopard flounder	BOTH Both 1
<i>kelee Macrura</i>	CLUP Hils 1	leopardus, Plectropomus	SERRAN Plect 1
Kelee shad	CLUP Hils 1	Lepidopus	TRICH
Ketengus	ARIID	leptolepis, Selaroides	CARAN Selard 1
<i>Kishinoella tonggol</i>	SCOMBR Thun 6	Lepturacanthus	TRICH
Konosirus	CLUP	Lepturacanthus savala	TRICH Lept 1
<i>kunzei Harengula</i>	CLUP Herk 1	lepturus Trichiurus	TRICH Trich 1
Kuweh trevally	CARAN Atrop 1	Lesser tiger-toothed croaker	SCIAEN Otol 1
		LETHRINIDAE	LETH
		Lethrinus	LETH
		Lethrinus choerorynchus	LETH Leth 1
		Lethrinus harak	LETH Leth 2
		Lethrinus kallopterus	LETH Leth 3
		Lethrinus lentjan	LETH Leth 4
		Lethrinus miniatus	LETH Leth 5
		Lethrinus nematacanthus	LETH Leth 6
		Lethrinus ornatus	LETH Leth 7
		<i>Lethrinus rhodopterus</i>	LETH Leth 2
		<i>Lethrinus rostratus</i>	LETH Leth 5
		leuciscus Leiognathus	LEIOG Leiog 8
		<i>leuciscus Otolithus</i>	SCIAEN Penn 3
		<i>limbatus Trachinocephalus</i>	SYNOD Trich 1
		Lined silver grunt	POMAD Pomad 1
		<i>lineolatum Cybium</i>	SCOMBR Scombm 2
		<i>lineolatum, Indocybium</i>	SCOMBR Scombm 2
		lineolatus Lutjanus	LUT Lut 7
		lineolatus Scomberomorus	SCOMBR Scombm 2
		lingua Cynoglossus	CYNO Cyno 4
		<i>lini Otolithes (Bahaba)</i>	SCIAEN Baha 2
		Liza	MUGIL
		Liza argentea	MUGIL Liza 1
		Liza subviridis	MGIL Liza 2
		Liza tade	MUGIL Liza 3
		Liaa vaigiensis	MUGIL Liza 4
		Lizardfishes	SYNOD
		<i>lobata Corvina</i>	SCIAEN John 1
		Long tongue sole	CYNO Cyno 4
		Longbarbed goatfish	MULL Paru 3
		Longface emperor	LETH Leth 5
		Longfin cavalla	CARAN Karang 2
		Longfin grey mullet	MUGIL Vala 1
		Longfin mojarra	GERR Pent 1
		longiceps Sardinella	CLUP Sardl 3
		<i>longimanus Mugil</i>	MUGIL Vala 1
		longimanus Pentaprion	GERR Pent 1
		Longjaw thryssa	ENGR Thrys 3
		Longnose cavalla	CARAN Karang 1
		Longspine emperor	LETH Leth 6
		Longspine seabream	SPARID Argy 1
		Longtail shad	CLUP Hils 3
		Longtail tuna	SCOMBR Thun 6
		louti Variola	SERRAN Variol 1
		<i>luctosus Cynoglossus</i>	CYNO Cyno 6
LACTARIIDAE	LACT		
Lactarius	LACT		
Lactarius lactarius	LACT Lact 1		
lactarius Lactarius	LACT Lact 1		
Ladyfishes	ELOP		
Laeops	BOTH		
<i>lajang, Decapterus</i>	CARAN Deca 1		
<i>lajor Trichiurus</i>	TRICH Trich 1		
lanceolatus, Promicrops	SERRAN Promic 1		
<i>lanceolatus, Serranus</i>	SERRAN Promic 1		
Large yellow croaker	SCIAEN Coll 1		
Large-eye breams	PENTAP		
Largehead hairtail	TRICH Trich 1		
Largescale flounder	BOTH Engy 1		
Largescale tongue sole	CYNO Cyno 5		
Largescaled therapon	THER Ther 2		
Largetooth flounder	BOTH Pseud 1		
<i>lateoides Otolithes</i>	SCIAEN Ptero 1		
lateoides Pterolithus	SCIAEN Ptero 1		
Lateolabrax	SERRAN		
Lates	CENTRP		
Lates calcarifer	CENTRP Lat 1		
Lattice monocle bream	NEMIP Scol 1		
latus, Mylio	SPARID Myl 2		
<i>latus, Sparus</i>	SPARID Myl 2		
Layang scad	CARAN Deca 1		
Leaf-tail croaker	SCIAEN John 5		
Leatherjackets	BALI		
Left-eye flounders	BOTH		
<i>leiogaster Clupea (Amblygaster)</i>	CLUP Sardl 10		
leiogaster Sardinella	CLUP Sardl 10		
<i>leiogastroides Sardinella</i>	CLUP Sardl 9		
LEIOGNATHIDAE	LEIOG		
Leiognathus	LEIOG		
Leiognathus bindus	LEIOG Leiog 1		
Leiognathus brevirostris	LEIOG Leiog 2		
Leiognathus daura	LEIOG Leiog 3		
Leiognathus elongatus	LEIOG Leiog 4		
Leiognathus equulus	LEIOG Leiog 5		
Leiognathus fasciatus	LEIOG Leiog 6		
Leiognathus gerroides	LEIOG Leiog 3		

NAME	CODE	NAME	CODE
<i>luteus Parupeneus</i>	MULL Paru 5,7	maculatus Pomadasys	POMAD Pomad 2
LUTJANIDAE	LUT	maculatus Pterotolithus	SCIAEN Ptero 2
Lutjanus	LUT	<i>maculatus Tachysurus</i>	ARIID Ari 2
<i>Lutjanus annularis</i>	LUT Lut 10	<i>major Chrysophrys</i>	SPARID Spar 2
Lutjanus argentimaculatus	LUT Lut 1	<i>major Pagrosomus</i>	SPARID Spar 2
Lutjanus bohar	LUT Lut 2	major Sparus	SPARID Spar 2
<i>Lutjanus civis</i>	LUT Lut 2	Malabar cavalla	CARAN Carang 5
<i>Lutjanus coatesi</i>	LUT Lut 2	Malabar red snapper	LUT Lut 8
<i>Lutjanus erythropterus</i>	LUT Lut 10	Malabar thryssa	ENGR Thrys 5
Lutjanus fulviflamma	LUT Lut 3	Malabar tongue sole	CYNO Cyno 6
Lutjanus gibbus	LUT Lut 4	<i>malabarica Thrissocles</i>	ENGR Thrys 5
Lutjanus janthinuropterus	LUT Lut 5	malabarica Thryssa	ENGR Thrys 5
Lutjanus johni	LUT Lut 6	malabaricus Carangoides	CARAN Carang 5
Lutjanus lineolatus	LUT Lut 7	malabaricus Lutianus	LUT Lut 8
Lutjanus malabaricus	LUT Lut 8	<i>malam Atule</i>	CARAN Alep 2
Lutjanus russelli	LUT Lut 9	Malayan flounder	BOTH Pseud 5
Lutjanus sanguineus	LUT Lut 10	Malayan hairtail	TRICH Eupl 1
Lutjanus sebae	LUT Lut 11	malayanus Pseudorhombus	BOTH Pseud 5
Lutjanus vitta	LUT Lut 12	<i>mandibularis Ulua</i>	CARAN Ulua 1
Lycothrissa	ENGR	Mangrove red snapper	LUT Lut 1
<i>lysan Chorinemus</i>	CARAN Seom 1	<i>margaritiferus Amphacanthus</i>	SIGAN Sigan 4
		marginatus Nemipterus	NEMIP Nem 5
		<i>marmorata Paraplagusia</i>	CYNO Para 1
		<i>maru Auxis</i>	SCOMBR Aux 2
		maruadi Decapterus	CARAN Deca 2
maccoyii Thunnus	SCOMBR Thun 4	<i>mebachi Parathunnus</i>	SCOMBR Thun 5
<i>maccoyii Thunnus thynnus</i>	SCOMBR Thun 4	megachir Epinephelus	SERRAN Epin 10
machnata Elops	ELOP Elop 1	<i>megachir Serranus</i>	SERRAN Epin 10
Mackerels	SCOMBR	Megalaspis	CARAN
Macolor	LUT	Megalaspis cordyla	CARAN Megal 1
<i>Macolor macolor</i>	LUT Mac 1	Megalonihea	SCIAEN
<i>macolor Macolor</i>	LUT Mac 1	MEGALOPIDAE	MEGAL
Macolor niger	LUT Mac 1	Megalops	MEGAL
<i>macracanthus Gerres</i>	GERR Gerr 2	Megalops cyprinoides	MEGAL Megal 1
macracanthus Priacanthus	PRIAC Priac 1	megaloptera Ilisha	CLUP Ilish 4
<i>macrocephalus Argyrosomus</i>	SCIAEN Penn 2	melampyus Caranx	CARAN Caranx 2
macrocephalus Pennahia	SCIAEN Penn 2	<i>melanobranchium Johnius (Aspericorvina)</i>	SCIAEN Asper 1
macrognathus Coilia	ENGR Coil 1	melanochir Setipirna	ENGR Seti 2
<i>macrognathus Opisthopterus</i>	CLUP Opis 1	melanoptera Alepes	CARAN Alep 2
macrolepidotus Cynoglossus	CYNO Cyno 5	<i>melanura Clupea (Harengula)</i>	CLUP Sardl 4
macronema Parupeneus	MULL Paru 3	melanura Sardinella	CLUP Sardl 4
<i>macrophthalmia Ilisha</i>	CLUP Ilish 4	melastoma Ilisha	CLUP Ilish 3
macrophthalmus Pennahia	SCIAEN Penn 3	mentalis Ulua	CARAN Ulua 1
<i>macropterus Neothunnus</i>	SCOMBR Thun 3	mesoprion Nemipterus	NEMIP Nem 6
macrosoma Decapterus	CARAN Deca 1	<i>mesoprion Synagris</i>	NEMIP Nem 6
Macrospinosa	SCIAEN	metopias Nemipterus	NEMIP Nem 7
macrostomus Cynoglossus	CYNO Cyno 6	<i>metopias Synagris</i>	NEMIP Nem 7
<i>Macrura brevis</i>	CLUP Hils 1	<i>microdon Collichthys</i>	SCIAEN Pan 1
<i>maerura Clupea (Alosa)</i>	CLUP Hils 3	<i>microdon Otolithoides</i>	SCIAEN Pan 1
macrura Hilsa	CLUP Hils 3	microdon Panna	SCIAEN Pan 1
<i>Macrura kelee</i>	CLUP Hils 1	<i>microdon Sciaenoides</i>	SCIAEN Pan 1
<i>Macrura macrura</i>	CLUP Hils 3	micropectoralis Saurida	SYNOD Sauri 4
<i>macrura Macrura</i>	CLUP Hils 3	<i>miichthyoides Nibea</i>	SCIAEN Argyr 2
<i>Macrura sinensis</i>	CLUP Hils 4	<i>Miichthys imbricatus</i>	SCIAEN Argyr 5
maculata Nibea	SCIAEN Nib 3	<i>Miichthys miiuy</i>	SCIAEN Argyr 5
maculata Sillago	SILL Sill 1	miiuy Argyrosomus	SCIAEN Argyr 5
<i>maculatum Plectropoma</i>	SERRAN Plect 1	<i>Mi-iuy croaker</i>	SCIAEN Argyr 5
maculatus Arius	ARIID Ari 2	<i>miiuy Miichthys</i>	SCIAEN Argyr 5
<i>maculatus Johnius</i>	SCIAEN Nib 3	<i>miles Corvina</i>	SCIAEN Nib 6
<i>maeulatus Otolithes</i>	SCIAEN Ptero 2	militaris Osteogeniosus	ARIID Ost 1
<i>maeulatus Otolithus</i>	SCIAEN Ptero 2	Milk trevallies	LACT

<u>NAME</u>	<u>CODE</u>	<u>NAME</u>	<u>CODE</u>
Milkfish	CHAN Chan 1	<i>nasus Dorosoma</i>	CLUP Nem 1
Milkfishes	CHAN	nasus Nematalosa	CLUP Nem 1
miniatus Cephalopholis	SERRAN Cephal 1	<i>nasus Sciaena (Corvina)</i>	SCIAEN John 1
<i>miniatus Enneacentrus</i>	SERRAN Cephal 1	Naucrates	CARAN
miniatus Lethrinus	LETH Leth 5	Nedystoma	ARIID
minuta Gazza	LEIOG Gaz 1	nehereus Harpadon	HARP Harp I
Mojarras	GERR	nematacanthus Lethrinus	LETH Letb 6
<i>moluccensis Harengula</i>	CLUP Herk 1	Nematalosa	CLUP
moluccensis Upeneus (Upeneus)	MULL Upen 1	Nematalosa nasus	CLUP Nem 1
MONACANTHIDAE	BALI	nematophorus Glabrilutjanus	LUT Glab 1
Monacanthus	BALI	nematophorus Nemipterus	NEMIP Nem 8
monoeros Alutera	BALI Alut 1	<i>nematophorus Synagris</i>	NEMIP Nem 8
Monocle breams	NEMIP	NEMIPTERIDAE	NEMIP
Monotaxis	PENTAD	Nemipterus	NEMIP
Monotaxis grandoeulis	PENTAD Mono 1	Nemipterus bathybus	NEMIP Nem 1
Moontail seabass	SERRAN Variol 1	Nemipterus delagoae	NEMIP Nem 2
mossambicus Gnathodentex	PENTAD Gnath 2	Nemipterus hexodon	NEMIP Nem 3
<i>motius Ilisha</i>	CLUP Ilish 3	Nemipterus japonicus	NEMIP Nem 4
Mottled brown seabass	SERRAN Promic 1	Nemipterus marginatus	NEMIP Nem 5
Moustached thryssa	ENGR Thrys 1	Nemipterus mesoprion	NEMIP Nem 6
Mozambique large-eye bream	PENTAD Gnath 2	Nemipterus metopias	NEMIP Nem 7
Mud grouper	SERRAN Epin 7	Nemipterus nematophorus	NEMIP Nem 8
Mugil	MUGIL	Nemipterus nenarus	NEMIP Nem 9
<i>Mugil axillaris</i>	MUGIL Vala 2	Nemipterus peronii	NEMIP Nem 10
<i>Mugil caeruleomaculatus</i>	MUGIL Vala 2	Nemipterus tambuloides	NEMIP Nem 11
Mugil cephalus	MUGIL Mugil 1	Nemipterus tolu	NEMIP Nem 12
<i>Mugil dussumieri</i>	MUGIL Liza 2	Nemipterus virgatus	NEMIP Nem 13
<i>Mugil galapagensis</i>	MUGIL Mugil 1	nemurus Nemipterus	NEMIP Nem 9
<i>Mugil japonicus</i>	MUGIL Mugil 1	<i>nemurus Synagris</i>	NEMIP Nem 9
<i>Mugil javanicus</i>	MUGIL Liza 2	<i>neopilchardus Sardinops</i>	CLUP Sardop 1
<i>Mugil longimanus</i>	MUGIL Vala 1	neopilchardus Sardinops sagax	CLUP Sardop 1
<i>Mugil planiceps</i>	MUGIL Liza 3	<i>Neohunnus macropterus</i>	SCOMBR Thun 3
<i>Mugil strongylocephalus</i>	MUGIL Vala 1	<i>Netuma thalassinus</i>	ARIID Ari 4
<i>Mugil sundanensis</i>	MUGIL Liza 2	Notched threadfin bream	NEMIP Nem 12
<i>Mugil vaigiensis</i>	MUGIL Liza 4	<i>novaehollandiae Equulites</i>	LEIOG Leiog 8
MUGILIDAE	XUGIL	<i>novaehollandiae Sciaena</i>	SCIAEN John 1
MULLIDAE	MULL	<i>nibe Argyrosomus</i>	SCIAEN Atro 1
Mulloidichthys	MULL	nibe Atrobucca	SCIAEN Atro 1
<i>Mulloidichthys auriflamma</i>	MULL Mulld 1	<i>nibe Nibe</i>	SCIAEN Atro 1
Mulloidichthys flavolineatus	MULL Mulld 1	Nibe	SCIAEN
<i>Mulloidichthys samoensis</i>	MULL Mulld 1	<i>Nibe acuta</i>	SCIAEN Chrys 1
<i>multiradiatus Polydactylus</i>	POLYN Poly 4	Sibe	SCIAEN Nib 1
MURAENESOCIDAE	MURSOC	Sibe chuff	SCIAEN Nib 2
Muraenesox	MURSOC	<i>Nibe coibor</i>	SCIAEN Nib 2
<i>Muraenesox arabicus</i>	MURSOC Mursox 2	<i>Nibe diacanthus</i>	SCIAEN Prato 1
Muraenesox bagio	MURSOC Mursox 1	<i>Nibe flavolabiata</i>	SCIAEN Baha 2
Muraenesox cinereus	MURSOC Mursox 2	<i>Nibe iharae</i>	SCIAEN Penn 1
<i>Muraenesox talabanoides</i>	MURSOC Consox 2	<i>Nibe imbricata</i>	SCIAEN Argyr 5
<i>Muraenesox talabon</i>	MURSOC Consox 1	<i>Nibe japonica</i>	SCIAEN Argyr 4
<i>Muraenesox yamaguchiensis</i>	MURSOC Mursox 1	Nibe maculata	SCIAEN Nib 3
muticus Eupleurogrammus	TRICH Eupl 1	<i>Nibe miichthyoides</i>	SCIAEN Argyr 2
<i>muticus Trichiurus</i>	TRICH Eupl 1	<i>Ntibe nibe</i>	SCIAEN Atro 1
Mylio	SPARID	<i>Nibe pingi</i>	SCIAEN Atro 1
Mylio berda	SPARID Myl 1	Ntibe semifasciata	SCIAEN Nib 4
Mylio latus	SPARID Myl 2	Sibe semiluctuosa	SCIAEN Nib 5
myops Trachinocephalus	SYNOD Trach 1	Sibe Soldado	SCIAEN Nib 6
<i>mystax Engraulis</i>	ENGR Thrys 1	<i>Nibe taipingensis</i>	SCIAEN Baha 2
<i>mystax Thriisocles</i>	ENGR Thrys 1	<i>niger Apolectus</i>	FORM Form I
mystax Thryssa	ENGR Thrys 1	niger Formio	FORM Form 1
Myxus	MUGIL	niger Macolor	LUT Mac 1
Myxus elongatus	MUGIL Myx 1	<i>niger Parastromateus</i>	FORM Form 1
Narrow-barred Spanish Mackerel	SCOMBR Scombm 1	nigrofasciata Seriolina	CARAN Serial 1

<u>NAME</u>	<u>CODE</u>	<u>NAME</u>	<u>CODE</u>
<i>nigrofasciatus lonichthys</i>	CARAN Seriol 1	<i>Otolithes maculatus</i>	SCIAEN Ptero 2
Niphon	SERRAN	<i>ovalis Harengula</i>	CLUP Herk 1
nudus Chirocentrus	CHIROC Chiroc 2	ovata Solea	SOL Sol 2
		Ovate sole	SOL Sol 2
		<i>ovatus Trachinotus</i>	CARAN Trachn 2
		Oxeye scad	CARAN Selar 1
		oxymonacanthus	BALI
obesus Thunnus	SCOMBR Thun 5	oxyrhynchus Pelates	THER Pela 1
obtusata Sphyaena	SPRY Sphy 4	<i>oxyrhynchus Therapon</i>	THER Pela 1
Obtuse barracuda	SPHY Sphy 4	oyena Gerres	GERR Gerr 3
Ocellated flounder	BOTH Pseud 2		
Ochreband goatfish	MULL Upen 5		
Odalechilus	MUGIL	pachycentron Cephalopholis	SERRAN Cephal 2
<i>Odontoglyphus tofu</i>	NEMIP Nem 12	Pacific little tuna	SCOMBR Euth 2
oligodon Pseudorhombus	BOTH Pseud 6	<i>Pagrosomus major</i>	SPARID Spar 2
<i>operculare Pomadasys</i>	POMAD Pomad 3	Painted sweetlip	POMAD Plect 1
<i>operculare Pristipoma</i>	POMAD Pomad 3	<i>palasah Hilsa</i>	CLUP Hills 2
opercularis Pomadasys	POMAD Pomad 3	Palefanned threadfin bream	NEMIP Nem 5
<i>ophiceps Sciaena</i>	SCIAEN Chrys 1	<i>pama Bola</i>	SCIAEN Otold 2
Opisthopterus	CLUP	Pampus chinensis	STROM Pamp 2
<i>Opisthopterus indicus</i>	CLUP Opis 1	<i>Pama croaker</i>	SCIAEN Otold 2
<i>Opisthopterus macrognathos</i>	CLUP Opis 1	pama Otolithoides	SCIAEN Otold 2
Opisthopterus tardoore	CLUP Opis 1	<i>Pama pama</i>	SCIAEN Otold 2
<i>Opisthopterus tartoor</i>	CLUP Opis 1	<i>pama Pama</i>	SCIAEN Otold 2
<i>oramin Siganus</i>	SIGAN Sigam 4	<i>pama Sciaenoides</i>	SCIAEN Otold 2
Orangefin ponyfish	LEIOG Leiog 1	Pampus	STROM
Orangemouth thryssa	ENGR Thrys 2	Pampus argenteus	STROM Pamp 1
Orange-spotted emperor	LETH Leth 3	Panna	SCIAEN
<i>orbis Chaetodon</i>	EPHIP Ehip 1	<i>Panna croaker</i>	SCIAEN Pan 1
orbis Ehippippus	EPHIP Ehip 1	Panna microdon	SCIAEN Pan 1
Oriental bonito	SCOMBR Sarda 2	pantherinus Bothus	BOTH Both 1
Oriental sole	SOL Eury 1	Parabothus	BOTH
<i>orientalis Brachirus</i>	SOL Eury 1	Paracaesio	LUT
orientalis Euryglossa	SOL Eury 1	Paradise threadfin	POLYN Poly 5
orientalis Sarda	SCOMBR Sarda 2	paradiseus Polynemus	POLYN Poly 5
<i>orientalis Synaptura</i>	SOL Eury 1	Paralichthys	BOTH
Ornate emperor	LETH Leth 7	Paralutarius	BALI
Ornate threadfin bream	NEMIP Nem 3	Paraplagusia	CYNO
ornatus Lethrinus	LETH Leth 7	Paraplagusia bilineata	CYNO Para 1
<i>osseus Johnius</i>	SCIAEN John 5	<i>Paraplagusia marmorata</i>	CYNO Para 1
Osteogeniosus	ARIID	Parasclopsis	NEMIP
Osteogeniosus militaris	ARIID Ost 1	<i>Parastromateus niger</i>	FORM Form 1
Otolithes	SCIAEN	<i>Parathunnus mebachi</i>	SCOMBR Thun 5
<i>Otolithes argenteus</i>	SCIAEN Otol 2	<i>Parathunnus sibi</i>	SCOMBR Thun 5
<i>Otolithes (Bahaba) lini</i>	SCIAEN Baha 2	Pardachirus	SOL
Otolithes cuvieri	SCIAEN Otol 1	Pardachirus pavoninus	SOL Pard 1
<i>Otolithes lateoides</i>	SCIAEN Ptero 1	Parupeneus	MULL
<i>Otolithes maeulatus</i>	SCIAEN Ptero 2	Parupeneus barberinus	MULL Paru 2
Otolithes ruber	SCIAEN Otol 2	Parupeneus bifasciatus	MULL Paru 1
<i>Otolithes ruber</i>	SCIAEN Otol 1	Parupeneus chryserydros	MULL Paru 7
Otolithoides	SCIAEN	<i>Parupeneus cinnabarinus</i>	MULL Paru 5
Otolithoides biauritus	SCIAEN Otold 1	<i>Parupeneus crassilabris</i>	MULL Paru 1
<i>Otolithoides brunneus</i>	SCIAEN Otold 1	<i>Parupeneus cyclostomus</i>	MULL Paru 7
<i>Otolithoides microdon</i>	SCIAEN Pan 1	Parupeneus fraterculus	MULL Paru 6
Otolithoides pama	SCIAEN Otold 2	Parupeneus heptacanthus	MULL Paru 5
<i>Otolithoides siamensis</i>	SCIAEN John 5	Parupeneus indicus	MULL Paru 4
<i>Otolithes argenteus</i>	SCIAEN Otol 2	<i>Parupeneus luteus</i>	MULL Paru 5,7
<i>Otolithes dolorosus</i>	SCIAEN Ptero 1	Parupeneus macronema	MULL Paru 3
<i>Otolithes fauvelii</i>	SCIAEN Argyr 5	<i>Parupeneus pleurospilus</i>	MULL Paru 5
<i>Otolithes leuciscus</i>	SCIAEN Penn 3		

<u>NAME</u>	<u>CODE</u>	<u>NAME</u>	<u>CODE</u>
<i>Parupeneus signatus</i>	MULL Paru 6	<i>pleurospilus Parupeneus</i>	MULL Paru 5
<i>Parupeneus spilurus</i>	MULL Paru 6	<i>poecilurus Bothus</i>	BOTH Engy 1
<i>Parupeneus trifasciatus</i>	MULL Paru 1	<i>Polydactylus heptadactylus</i>	POLYN Poly 4
<i>pavoninus Achirus</i>	SOL Pard 1	<i>Polydactylus indices</i>	POLYN Poly 1
pavoninus Pardachirus	SOL Pard 1	<i>Polydactylus multiradiatus</i>	POLYN Poly 4
<i>pawak Argyrosomus</i>	SCIAEN Penn 4	<i>Polydactylus plebeius</i>	POLYN Poly 2
<i>Pawak croaker</i>	SCIAEN Penn 4	<i>Polydactylus sextarius</i>	POLYN Poly 3
pawak Pennahia	SCIAEN Penn 4	POLYNEMIDAE	POLYN
<i>Peacock sole</i>	SOL Pard 1	Polynemus	POLYN
<i>pectoralis Atule</i>	CARAN Alep 2	Polynemus heptadaatylus	POLYN Poly 4
<i>pelamis Euthynnus</i>	SCOMBR Kats 1	<i>Polynemus hilleri</i>	POLYN Poly 5
pelamis Katsuwonus	SCOMBR Kats 1	Polynemus indices	POLYN Poly 1
Pelates	THER	Polynemus paradiseus	POLYN Poly 5
Pelates oxyrhynchus	THER Pela 1	Polynemus plebeius	POLYN Poly 2
Pelates quadrilineatus	THER Pela 2	Polynemus sextarius	POLYN Poly 3
Pellona	CLUP	polyophthalmus Grammatobothus	BOTH Gram 1
<i>Pellona amblyuropterus</i>	CLUP Ilish 1	<i>polyspilus Pseudorhombus</i>	BOTH Pseud 1
<i>Pellona brachysoma</i>	CLUP Ilish 3	POMADASYIDAE	POMAD
Pellona ditchela	CLUP Pell 1	Pomadasyys	POMAD
<i>Pellona dussumieri</i>	CLUP Ilish 4	Pomadasyys hasta	POMAD Pomad 1
<i>Pellona elongata</i>	CLUP Ilish 2	Pomadasyys maculatus	POMAD Pomad 2
<i>Pellona hoeveni</i>	CLUP Pell 1	<i>Pomadasyys operculare</i>	POMAD Pomad 3
<i>Pellona indica</i>	CLUP Ilish 3	Pomadasyys opercularis	POMAD Pomad 3
<i>Pellona xanthoptera</i>	CLUP Ilish 4	POMATOMIDAE	POMAT
Pennahia	SCIAEN	Pomatomus	POMAT
Pennahia argentata	SCIAEN Penn 1	Pomatomus saltator	POMAT Pomat 1
Pennahia macrocephalus	SCIAEN Penn 2	<i>Pomfrets</i>	STROM
Pennahia macrophthalmus	SCIAEN Penn 3	<i>Pompano dolphinfish</i>	CORY Cory 2
Pennahia pawak	SCIAEN Penn 4	<i>Pompanos</i>	CARAN
PENTAPODIDAE	PENTAP	<i>Ponyfishes</i>	LEIOG
Pentapodus	PENTAP	<i>Porgies</i>	SPARID
Pentaprion	GERR	Potaumalosa	CLUP
Pentaprion longimanus	GERR Pent 1	PRIACANTHIDAE	PRIAC
<i>perforata Sardinella</i>	CLUP Sardl 6	Priacanthus	PRIAC
peronii Nemipterus	NEMIP Nem 10	Priacanthus macracanthus	PRIAC Priac 1
<i>peronii Synagris</i>	NEMIP Nem 10	Priacanthus tayenus	PRIAC Priac 2
<i>Pertica filamentosa</i>	GERR Gerr 2	<i>Prickly croaker</i>	SCIAEN Asper 1
Phyllichthys	SOL	pristigastroides Ilisha	CLUP Ilish 1
<i>Picnic seabream</i>	SPARID Myl 1	<i>Pristipoma hasta</i>	POMAD Pomad 1
pictus Plectorhynchus	POMAD Plect 1	<i>Pristipoma operculare</i>	POMAD Pomad 3
<i>pictus Spilotichthys</i>	POMAD Plect 1	Pristipomoides	LUT
<i>picuda Sphyraena</i>	SPHY Sphy 1	<i>Pristipomoides argyrogrammicus</i>	LUT Prist 1
<i>Pike-congers</i>	MURSOC	Pristipomoides types	LUT Prist 1
<i>pingi</i>	SCIAEN Atro 1	<i>productissima Dussumieria</i>	CLUP Duss 1
<i>pinguis Clupea (Harengula)</i>	CLUP Sardl 9	Promicrops	SERRAN
<i>pinguis Sphyraena</i>	SPHY Sphy 4	Promicrops lanceolatus	SERRAN Promic 1
Pinjalo	LUT	Protonibea	SCIAEN
Pinialo pinialo	LUT Pinj 1	Protonibea diacanthus	SCIAEN Proto 1
pinjalo Pinjalo	LUT Pinj 1	Psammooperca	CENTRP
<i>Pinjalo snapper</i>	LUT Pinj 1	<i>Psenes extraneus</i>	ARIOM Ariom 1
<i>planiceps Mugil</i>	MUGIL Liza 3	<i>Psenes indicus</i>	ARIOM Ariom 1
<i>platygaster Clupea (Alosa)</i>	CLUP Hills 1	Psettina	BOTH
<i>plebeius Polydactylus</i>	POLYN Poly 2	Psettodes	PSET
plebeius Polynemus	POLYN Poly 2	Psettodes erumei	PSET Pset 1
PLECTORHYNCRIDAE	POMAD	PSETTODIDAE	PSET
Plectorhynchus	POMAD	Pseudaluteres	BALI
Plectorhynchus pictus	POMAD Plect 1	<i>pseudoheterolobus Stolephorus</i>	ENGR Stol 1
<i>Plectropoma maculatum</i>	SERRAN Plect 1	Pseudopriacanthus	PRIAC
Plectropornus	SERRAN	Pseudorhombus	BOTH
Plectropomus leopardus	SERRAN Plect 1	<i>Pseudorhombus affinis</i>	BOTH Pseud 3
Plectropomus truncatus	SERRAN Plect 2	Pseudorhombus arsius	BOTH Pseud 1

NAME	CODE	NAME	CODE
<i>Pseudorhonabus dupliciocellatus</i>	BOTH Pseud 2	<i>rhodopterus Lethrinus</i>	LETH Leth 2
<i>Pseudorhombus elevatus</i>	BOTH Pseud 3	Rhoniscus	POMAD
<i>Pseudorhombus javanicus</i>	BOTH Pseud 4	robinsoni Gymnocranius	PENTAP Gymno 2
<i>Pseudorhombus malayanus</i>	BOTH Pseud 5	rochei Auxis	SCOMBR Aux 2
<i>Pseudorhombus oligodon</i>	BOTH Pseud 6	<i>rostratus Lethrinus</i>	LETH Leth 5
<i>Pseudorhombus polyspilus</i>	BOTH Pseud 1	Rosy threadfin bream	NEMIP Nem 10
<i>Pseudorhonbus quinquocellatus</i>	BOTH Pseud 7	Roughscale flounder	BOTH Pseud 6
<i>Pseudosciaena acuta</i>	SCIAEN Chrys 1	Round scad	CARAN Deca 2
<i>Pseudoseiaena aneus</i>	SCIAEN Penn 3	<i>Tuber Otolithes</i>	SCIAEN Otol 1
<i>Pseudosciaena axillaris</i>	SCIAEN Kath 1	ruber Ototithes	SCIAEN Otol 2
<i>Pseudoseiaena amblyceps</i>	SCIAEN Coll 1	<i>ruconius Leiognathus</i>	LEIOG Sec 2
<i>Pseudosciaena amoyensis</i>	SCIAEN Argyr 2	ruconius Secutor	LEIOG Sec 2
<i>Pseudosciaena crocea</i>	SCIAEN Coll 1	Runners	CARAN
<i>Pseudosciaena diacanthus</i>	SCIAEN Proto 1	russelli Dendrophysa	SCIAEN Dend 1
<i>Pseudosciaena soldado</i>	SCIAEN Nib 6	russelli Lutjanus	LUT Lut 9
Psilcephalus	BALI	<i>russelli Sciaena</i>	SCIAEN Dend 1
Pterotolithus	SCIAEN	<i>russelli Umbrina</i>	SCIAEN Dend 1
<i>Pterotolithus lateoides</i>	SCIAEN Ptero 1	Russel's snapper	LUT Lut 9
<i>Pterotolithus maculatus</i>	SCIAEN Ptero 2		
Pugnose ponyfish	LEIOG Sec 1		
<i>punctata Chaetodon</i>	DREP Drep 1		
punctata Drepane	DREP Drep 1	sagor Arius	ARIID Ari 3
<i>punctata Harengula</i>	CLUP Herk 1	Sagor catfish	ARIID Ari 3
<i>punctatus Gerres</i>	GERR Gerr 2	<i>sagor Tachysurus</i>	ARIID Ari 3
punctatus Herklotsichthys	CLUP Herk 1	saltator Pomatomus	POMAT Pomat 1
puncticeps Cynoglossus	CYNO Cyno 7	<i>saltator Temnodon</i>	POMAT Pomat 1
Purple-spotted bigeye	PRIAC Priac 2	<i>samoensis Mulloidichthys</i>	MULL Mulld 1
		Sand grey mullet	MUGIL Myx 1
<i>quadrilineata Cynoglossus</i>	CYNO Cyno 2	sanguineus Lutjanus	LUT Lut 10
quadrilineatus Pelates	THER Pela 2	sarba Rhabdosargus	SPARID Rhab 1
Queenfishes	CARAN	<i>sarba Sparus</i>	SPARID Rhab 1
quinquocellatus Pseudorhombus	BOTH Pseud 7	Sarda	SCOMBR
		Sarda orientalis	SCOMBR Sarda 2
		<i>Sarda orientalis serventyi</i>	SCOMBR Sarda 2
		Sardinella	CLUP
		Sardinella albella	CLUP Sardl 6
		Sardinella brachysoma	CLUP Sardl 5
		Sardinella fimbriata	CLUP Sardl 7
		Sardinella gibbosa	CLUP Sardl 8
		<i>Sardinella hypselosoma</i>	CLUP Sardl 5
		<i>Sardinella jussieu</i>	CLUP Sardl 8
		Sardinella leiogaster	CLUP Sardl 10
		<i>Sardinella leiogastroides</i>	CLUP Sardl 9
		Sardinella longiceps	CLUP Sardl 3
		Sardinella melanura	CLUP Sardl 4
		<i>Sardinella perforata</i>	CLUP Sardl 6
		Sardinella sirm	CLUP Sardl 9
		<i>Sardinella tembang</i>	CLUP Sardl 8
		Sardines	CLUP
		Sardinops	CLUP
		Sardinops neopilchardus	CLUP Sardop 1
		Sardinops sagax neopilchardus	CLUP Sardop 1
		Saurida	SYNOD
		<i>Saurida elongata</i>	SYNOD Sauri 4
		Saurida elongata	SYNOD Sauri 5
		<i>Saurida filamentosa</i>	SYNOD Sauri 3
		Saurida micropectoralis	SYNOD Sauri 4
		Saurida tumbil	SYNOD Sauri 2
		<i>Saurida tumbil</i>	SYNOD Sauri 3
		Saurida undosquamis	SYNOD Sauri 1
Rabbitfishes	SIGAN		
RACHYCENTRIDAE	RACH		
Rachycentron	RACH		
Rachycentron canadus	RACH Rach 1		
Raconda	CLUP		
Rainbow runner	CARAN Elag 1		
Rainbow sardine	CLUP Duss 1		
<i>ramsayi Gracilimugil</i>	MUGIL Liza 1		
Ramsay's grey mullet	MUGIL Liza 1		
Rastrelliger	SCOMBR		
Rastrelliger brachysoma	SCOMBR Rast 1		
Rastrelliger chrysozonus	SCOMBR Rast 3		
Rastrelliger faughni	SCOMBR Rast 2		
Rastrelliger kanagurta	SCOMBR Rast 3		
Red bigeye	PRIAC Priac 1		
Red-banded grouper	SERRAN Epin 8		
Redfilament threadfin bream	NEMIP Nem 6		
Redspine threadfin bream	NEMIP Nem 9		
Redspot emperor	LETH Leth 4		
Reeve's croaker	SCIAEN Chrys 1		
Rhabdosargus	SPARID		
Rhabdosargus sarba	SPARID Rhab 1		
Rhinomugil	MUGIL		

<u>NAME</u>	<u>CODE</u>	<u>NAME</u>	<u>CODE</u>
Saurida wanieso	SYNOD Sauri 3	semiluctuosa Nibea	SCIAEN Nib 5
<i>saurus Elops</i>	ELOP Elop 1	<i>semiluctuosa Sciaena</i>	SCIAEN Nib 5
savala Lepturacanthus	TRICH Lept 1	<i>semiluctuosus Johnius</i>	SCIAEN Nib 5
<i>savala Trichiurus</i>	TRICH Lept 1	Sergeantfishes	RACH
Scads	CARAN	Seriola	CARAN
Scavengers	LETH	Seriolina	CARAN
<i>schlegeli Sciaena</i>	SCIAEN Penn 1	Seriolina nigrofasciata	CARAN Seriol 1
<i>Sciaena albida</i>	SCIAEN Daysc 1	SERRANIDAE	SERRAN
<i>Sciaena aneus</i>	SCIAEN Penn 3	<i>Serranus aereolatus</i>	SERRAN Epin 4
<i>Sciaena antartica</i>	SCIAEN Argyr 3	<i>Serranus altivelis</i>	SERRAN Cromil 1
<i>Sciaena axillaris</i>	SCIAEN Kath 1	<i>Serranus lanceolatus</i>	SERRAN Promic 1
<i>Sciaena belengeri</i>	SCIAEN John 1	<i>Serranus megachir</i>	SERRAN Epin 10
<i>Sciaena bleekeri</i>	SCIAEN Argyr 2	<i>serventyi Sarda orientalis</i>	SCOMBR Sarda 2
<i>Sciaena carutta</i>	SCIAEN John 2	<i>servus Holocentrus</i>	THER Ther 1
<i>Sciaena coitor</i>	SCIAEN John 3	Setipinna	ENGR
<i>Sciaena (Corvina) nasus</i>	SCIAEN John 1	<i>Setipinna gilberti</i>	ENGR Seti 1
<i>Sciaena diacanthus</i>	SCIAEN Proto 1	Setipinna melanochir	ENGR Seti 2
<i>Sciaena dussumieri</i>	SCIAEN John 4	Setipinna taty	ENGR Seti 1
<i>Sciaena goma</i>	SCIAEN Proto 1	<i>setirostris Thrissocles</i>	ENGR Thrys 3
<i>Sciaena novaehollandiae</i>	SCIAEN John 1	setirostris Thyrysa	ENGR Thrys 3
<i>Sciaena ophiceps</i>	SCIAEN Chrys 1	Sevenfinger threadfin	POLYN Poly 4
<i>Sciaena russelli</i>	SCIAEN Dend 1	sexfasciatus Caranx	CARAN Caranx 3
<i>Sciaena schlegeli</i>	SCIAEN Penn 1	sexlineatus Helotes	THER Helo 1
<i>Sciaena semiluctuosa</i>	SCIAEN Nib 5	<i>sextarius Polydactylus</i>	POLYN Poly 3
<i>Sciaena siamensis</i>	SCIAEN Johps 3	sextarius POLynemus	POLYN Poly 3
<i>Sciaena sina</i>	SCIAEN Johps 3	Shads	CLUP
SCIAENIDAE	SCIAEN	Sharpnose croaker	SCIAEN Nib 4
<i>Sciaenoides brunneus</i>	SCIAEN Otold 1	Sharptooth snapper	LUT Prist 1
<i>Sciaenoides microdon</i>	SCIAEN Pan 1	Sharp-toothed hammer croaker	SCIAEN Johps 3
<i>Sciaenoides pama</i>	SCIAEN Otold 2	Short-bodied mackerel	SCOMBR Rast 1
Scolopsis	NEMIP	Shortfin lizardfish	SYNOD Sauri 4
Scolopsis taeniopterus	NEMIP Scol 1	Shorthead anchovy	ENGR Stol 1
Scolopsis vosmeri	NEMIP Scol 2	Shortnose ponyfish	LEIOG Leiog 2
Scomber	SCOMBR	<i>siamensis Otolithoides</i>	SCIAEN John 5
<i>Scomber australasicus</i>	SCOMBR Rast 2	<i>siamensis Sciaena</i>	SCIAEN Johps 3
Scomber australasicus	SCOMBR Scom 3	<i>sibi Parathunnus</i>	SCOMBR Thun 5
<i>Scomber japonicus</i>	SCOMBR Scom 3	Sicamugil	MUGIL
Scomberoides	CARAN	Sicklefishes	DREP
Scomberoides commersonianus	CARAN Scom 1	SIGANIDAE	SIGAN
Scomberomorus	SCOMBR	Siganus	SIGAN
Scomberomorus commerson	SCOMBR Scombm 1	Siganus canaliculatus	SIGAN Sigan 4
Scomberomorus guttatus	SCOMBR Scombm 3	Siganus javus	SIGAN Sigan 3
Scomberomorus lineolatus	SCOMBR Scombm 2	<i>Siganus oramin</i>	SIGAN Sigan 4
SCOMBRIDAE	SCOMBR	<i>signatus Parupeneus</i>	MULL Paru 6
Scombrops	POMAT	sihama Sillago	SILL Sill 2
<i>scratchleyi Thrissocles</i>	ENGR Thrys 5	SILLAGINIDAE	SILL
Sea catfishes	ARIID	Sillaginodes	SILL
Seabasses	SERRAN	Sillaginopodys	SILL
Seabreams	SPARID	Sillaginopsis	SILL
Seaperches	CENTRP	Sillago	SILL
sebae Lutjanus	LUT Lut 11	Sillago maculata	SILL Sill 1
Secutor	LEIOG	Sillago sihama	SILL Sill 2
Secutor insidiator	LEIOG Sec 1	Sillagos	SILL
Secutor ruconius	LEIOG Sec 2	Silver-biddies	GERR
seheli Valamugil	MUGIL Vala 2	Silver pennah croaker	SCIAEN Penn 1
Selar	CARAN	Silver pomfret	STROM Pamp 1
Selar boops	CARAN Selar 1	Silver seabream	SPARID Spar 2
Selar crumenophthalmus	CARAN Selar 2	Silver sillago	SILL Sill 2
Selaroides	CARAN	Sin croaker	SCIAEN Johps 2
Selaroides leptolepis	CARAN Selard 1	sina Johnieops	SCIAEN Johps 2
semifasciata Nibea	SCIAEN Nib 4	<i>sina Sciaena</i>	SCIAEN Johps 3
<i>semiluctuosa Corvina</i>	SCIAEN Nib 1,5	<i>sina Wak</i>	SCIAEN Johps 2

NAME	CODE	NAME	CODE
<i>sinensis Macrura</i>	CLUP Hils 4	Spinefeet	SIGAN
<i>sinensis Tenualosa</i>	CLUP Hils 4	<i>spinifer Argyrops</i>	SPARID Argy 1
<i>sirm Clupea (Amblygaster)</i>	CLUP Sardl 9	<i>spinifer Sparus</i>	SPARID Argy 1
<i>sirm Sardinella</i>	CLUP Sardl 9	<i>splendens Leiognathus</i>	LEIOG Leiog 10
Sixlined therapon	THER Helo 1	Splendid ponyfish	LEIOG Leiog 10
Skipjack tuna	SCOMBR Kats 1	Spotted catfish	ARIID Ari 2
Slender goldband goatfish	MULL Mulld 1	Spotted croaker	SCIAEN Proto 1
Slender lizardfish	SYNOD Sauri 5	Spotted golden goatfish	MULL Paru 5
Slender ponyfish	LEIOG Leiog 4	Spotted herring	CLUP Herk 1
Slender threadfin bream	NEMIP Nem 7	Spotted sardinella	CLUP Sardl 9
Slimy mackerel	SCOMBR Scom 3	Spotted sicklefish	DREP Drep 1
Slipmouths	LEIOG	<i>Spratelloides</i>	CLUP
Smallhead hairtail	TRICH Lept 1	<i>Sprattus</i>	CLUP
Smallspotted grunt	POMAD Pomad 3	Squaretail seabass	SERRAN Plect 2
<i>smithursti Leiognathus</i>	LEIOG Leiog 9	Starry triggerfish	BALI Abal 1
Smithurst's ponyfish	LEIOG Leiog 9	<i>stellaris Abalistes</i>	BALI Abal 1
Smoothbelly sardinella	CLUP Sardl 10	<i>stellatus Balistes</i>	BALI Abal 1
Snappers	LUT	<i>stercorarius Leiognathus</i>	LEIOG Leiog 4
Snubnose pompano	CARAN Trachn 2	<i>Stolephorus</i>	ENGR
<i>soldado Johnius</i>	SCIAEN Nib 6	<i>Stolephorus baganensis</i>	ENGR Stol 4
<i>soldado Nibea</i>	SCIAEN Nib 6	<i>Stolephorus bataviensis</i>	ENGR Stol 3
<i>soldado Pseudosciaena</i>	SCIAEN Nib 6	<i>Stolephorus buccaneeri</i>	ENGR Stol 2
<i>soldado Wak</i>	SCIAEN Nib 6	<i>Stolephorus commersonii</i>	ENGR Stol 6
Soldier catfish	ARIID Ost 1	<i>Stolephorus heterolobus</i>	ENGR Stol 1
Soldier croaker	SCIAEN Nib 6	<i>Stolephorus indicus</i>	ENGR Stol 5
<i>Solea</i>	SOL	<i>Stolephorus insularis</i>	ENGR Stol 3
<i>Solea humilis</i>	SOL Sol 2	<i>Stolephorus pseudoheterolobus</i>	ENGR Stol 1
<i>Solea ovata</i>	SOL Sol 2	<i>Stolephorus tri</i>	ENGR Stol 4
<i>Soleichthys</i>	SOL	Streaked Spanish mackerel	SCOMBR Scombm 2
SOLEIDAE	SOL	Streaked spinefoot	SIGAN Sigan 3
Soles	SOL	Striped large-eye bream	PENTAP Gnath 1
<i>sonnerati Cephalopholis</i>	SERRAN Cephal 3	Striped ponyfish	LEIOG Leiog 6
<i>sonnerati Enneacentrus</i>	SERRAN Cephal 3	STROMATEIDAE	STROM
Southern bluefin tuna	SCOMBR Thun 4	<i>strongylocephalus Mugil</i>	MUGIL Vala 1
Southern meagre	SCIAEN Argyr 3	<i>subviridis Liza</i>	MUGIL Liza 2
Spadefish	EPHIP Ephip 1	<i>sulphureus Upeneus (Upeneus)</i>	MULL Upen 2
Spadefishes	EPHIP	<i>sumatranus Cynoglossus</i>	CYNO Cyno 3
SPARIDAE	SPARID	Summan grouper	SERRAN Epin 11
<i>Sparus</i>	SPARID	<i>summana Epinephelus</i>	SERRAN Epin 11
<i>Sparus berda</i>	SPARID Myl 1	<i>sundaieus Upeneus (Pennon)</i>	MULL Upen 5
<i>Sparus datnia</i>	SPARID Myl 2	<i>sundanensis Mugil</i>	MUGIL Liza 2
<i>Sparus latus</i>	SPARID Myl 2	Sweetlips	POMAD
<i>Sparus major</i>	SPARID Spar 2	Symphurus	CYNO
<i>Sparus sarba</i>	SPARID Rhab 1	<i>Symphysanodon</i>	LUT
<i>Sparus spinifer</i>	SPARID Argy 1	<i>Synagris bathybius</i>	NEMIP Nem 1
<i>speciosus Gnathodon</i>	CARAN Gnath 1	<i>Synagris hexodon</i>	NEMIP Nem 3
Speckled tongue sole	CYNO Cyno 7	<i>Synagris japonicus</i>	NEMIP Nem 4
<i>speigleri Vatamugil</i>	MUGIL Vala 3	<i>Synagris mesoprion</i>	NEMIP Nem 6
Speigler's grey mullet	MUGIL Vala 3	<i>Synagris metopias</i>	NEMIP Nem 7
<i>Sphyaena</i>	SPHY	<i>Synagris nematophorus</i>	NEMIP Nem 8
<i>Sphyaena barracuda</i>	SPHY Sphy 1	<i>Synagris nemurus</i>	NEMIP Nem 9
<i>Sphyaena commersonii</i>	SPHY Sphy 1	<i>Synagris peronii</i>	NEMIP Nem 10
<i>Sphyaena forsteri</i>	SPHY Sphy 2	<i>Synagrtis tofu</i>	NEMIP Nem 12
<i>Sphyaena jello</i>	SPHY Sphy 3	<i>Synagrtis virgatus</i>	NEMIP Nem 13
<i>Sphyaena obtusata</i>	SPHY Sphy 4	<i>Synaptura</i>	SOL
<i>Sphyaena picuda</i>	SPHY Sphy 1	<i>Synaptura commersoniana</i>	SOL Syn 1
<i>Sphyaena pinguis</i>	SPHY Sphy 4	<i>Synaptura orientalis</i>	SOL Eury 1
SPHYRAENIDAE	SPHY	<i>Synaptura zebra</i>	SOL Zeb 1
<i>Spilotichthys pictus</i>	POMAD Plect 1	SYNODONTIDAE	SYNOD
<i>spilurus Parupeneus</i>	MULL Paru 6	<i>Synodus</i>	SYNOD
Spined anchovy	ENGR Stol 4		

<u>NAME</u>	<u>CODE</u>	<u>NAME</u>	<u>CODE</u>
TACHYSURIDAE	ARIID	<i>Thrissocles baelama</i>	ENGR Thris 1
<i>Tachysurus caelatus</i>	ARIID Ari 1	<i>Thrissocles hamiltonii</i>	ENGR Thrys 4
<i>Tachysurus maculatus</i>	ARIID Ari 2	<i>Thrissocles malabrica</i>	ENGR Thrys 5
<i>Tachysurnas sagor</i>	ARIID Ari 3	<i>Thrissocles raystax</i>	ENGR Thrys 1
<i>Tachysurus thalassinus</i>	ARIID Ari 4	<i>Thrissocles scratchleyi</i>	ENGR Thrys 5
<i>Tachysurus venosus</i>	ARIID Ari 5	<i>Thrissocles setirostris</i>	ENGR Thrys 3
Tade grey mullet	MUGIL Liza 3	<i>Thrissocles vitirostris</i>	ENGR Thrys 2
tade Mugil	MUGIL Liza 3	Thryssa	ENGR
Taeniopsetta	BOTH	Thryssa hamiltonii	ENGR Thrys 4
taeniopterus Scolopsis	NEMIP Scol 1	Thryssa malabarica	ENGR Thrys 5
taipingensis Bahaba	SCIAEN Baha 2	Thryssa mystax	ENGR Thrys 1
taipingensis Nibea	SCIAEN Baha 2	Thryssa setirostris	ENGR Thrys 3
Taius	SPARID	Thryssa vitirostris	ENGR Thrys 2
Taius tumifrons	SPARID Tai 1	Thunnus	SCOMBR
talabanoides Congresox	MURSOC Consox 2	Thunnus alalunga	SCOMBR Thun 1
talabanoides muraenesox	MURSOC Consox 2	Thunnus albacares	SCOMBR Thun 3
talabon Congresox	MURSOC Consox 1	Thunnus germo	SCOMBR Thun 1
talabon Muraenesox	MURSOC Consox 1	Thunnus maccoyii	SCOMBR Thun 4
Talang queenfish	CARAN Scm 1	Thunnus obesus	SCOMBR Thun 5
tambuloides Nemipterus	NEMIP Nem 11	Thunnus thynnus maccoyii	SCOMBR Thun 4
Tangia	LUT	Thunnus tonggol	SCOMBR Thun 6
tapeinosoma Auxis	SCOMBR Aux 1	thynnoides Auxis	SCOMBR Aux 2
Tardoore	CLUP Opis 1	Tiger-toothed croaker	SCIAEN Otol 2
tardoore Opisthopterus	CLUP Opis 1	tille Caranx	CARAN Caranx 4
Tarphops	BOTH	Tille jack	CARAN Caranx 4
Tarpons	MEGAL	tingi Wak	SCIAEN Johps 3
tartoor Opisthopterus	CLUP Opis 1	toli Clupea (Alosa)	CLUP Hils 4
Tasselfishes	POLYN	toli Hilsa	CLUP Hils 4
taty Setipinna	ENGR Seti 1	Toli shad	CLUP Hils 4
tauvina Epinephelus	SERRAN Epin 12	tolu Nemipterus	NEMIP Nem 12
tayenus Priacanthus	PRIAC Priac 2	tolu Odontoglyphus	NEMIP Nem 12
tembang Sardinella	CLUP Sardl 8	tolu Synagris	NEMIP Nem 12
Temnodon saltator	POMAT Pomat 1	Tomato seabass	SERRAN Cephal 3
Tenpounder	ELOP Elop 1	tonggol Kishinoella	SCOMBR Thun 6
Tenpounders	ELOP	tonggol Thunnus	SCOMBR Thun 6
Tenualosa ilisha	CLUP Hils 2	Tongue soles	CYNO
Tenualosa sinensis	CLUP Hils 4	Toothed ponyfish	LEIOG Gaz 1
Tephrinectes	BOTH	Trachinocephalus	SYNOD
tetradactylum Eleutheronema	POLYN Eleu 1	<i>Trachinocephalus limbatus</i>	SYNOD Trach 1
Tetranesodon	ARIID	Trachinocephalus myops	SYNOD Trach 1
Teuthis javus	SIGAN Sigan 3	Trachinotus	CARAN
thalassinus Arius	ARIID Ari 4	Trachinotus blochii	CARAN Trachn 2
thalassinus Netuma	ARIID Ari 4	<i>Trachinotus falcatus</i>	CARAN Trachn 2
thalassinus Tachysurus	ARIID Ari 4	<i>Trachinotus ovatus</i>	CARAN Trachn 2
thasard Auxis	SCOMBR Aux 1	Trachurus	CARAN
Therapon	THER	trachycephalus Johnius	SCIAEN John 5
Therapon jarbua	THER Ther 1	tragula Upeneus (Pennon)	MULL Upen 6
Therapon oxyrhynchus	THER Pela 1	Trevallies	CARAN
Therapon perches	THER	tri Anchoviella	ENGR Stol 4
Therapon theraps	THER Ther 2	tri Stolephorus	ENGR Stol 4
THERAPONIDAE	THER	TRICHIURIDAE	TRICH
Therapons	THER	Trichiurus	TRICH
theraps Eutherapon	THER Ther 2	<i>Trichiurus armatus</i>	TRICH Lept 1
theraps Therapon	THER Ther 2	<i>Trichiurus haumella</i>	TRICH Trich 1
Threadfin breams	NEMIP	<i>Trichiurus japonicus</i>	TRICH Trich 1
Threadfin trevally	CARAN Alec 1	<i>Trichiurus lajor</i>	TRICH Trich 1
Threadfins	POLYN	Trichiurus lepturus	TRICH Trich 1
Threelined tongue sole	CYNO Cyno 1	<i>Trichiurus muticus</i>	TRICH Eupl 1
Threespot flounder	BOTH Gram 1	<i>Trichiurus savala</i>	TRICH Lept 1
Thrissina	ENGR	<i>trifasciatus Parupeneus</i>	MULL Paru 1
Thrissina baelama	ENGR Thris 1	Triggerfishes	BALI

<u>NAME</u>	<u>CODE</u>	<u>NAME</u>	<u>CODE</u>
<i>trigrammus Cynoglossus</i>	CYNO Cyno 1	<i>vittatus Herklotsichthys</i>	CLUP Sardl 4
Trisotropis	SERRAN	vittatus Upeneus (Upeneus)	MULL Upen 3
Tropidinius	LUT	vogleri Johnieops	SCIAEN Johps 3
Trumpeter sillago	SILL Sill 1	vosmeri Scolopsis	NEMIP Scol 2
truncatus Plectropomus	SERRAN Plect 2		
tumbil Saurida	SYNOD Sauri 2	<i>Wak axillaris</i>	SCIAEN Kath 1
tumbil Saurida	SYNOD Sauri 3	<i>Wak coitor</i>	SCIAEN John 3
<i>tumifrons Dentex</i>	SPARID Tai I	<i>Wak sina</i>	SCIAEN Johps 2
tumifrons taius	SPARID Tai 1	<i>Wak soldado</i>	SCIAEN Nib 6
Tunas	SCOMBR	<i>Wak tingi</i>	SCIAEN Johps 3
Two-bearded croaker	SCIAEN Daysc 1	Wanieso lizardfish	SYNOD Sauri 3
Twospot red snapper	LUT Lut 2	wanieso Saurida	SYNOD Sauri 3
typus Pristipomoides	LUT Prist 1	Whipfin mojarra	GERR Gerr 2
		Whipfin ponyfish	LEIOG Leiog 8
Ulua	CARAN	White flower croaker	SCIAEN Nib 1
<i>Ulua mandibolaris</i>	CARAN Ulua 1	White sardinella	CLUP Sardl 6
Ulua mentalis	CARAN Ulua 1	Whitecheek monocle bream	NEMIP Scol 2
Umbrina	SCIAEN	Whitefin cavalla	CARAN Carang 3
<i>Umbrina dussumieri</i>	SCIAEN John 4	Whitefin wolf-herring	CHIROC Chiroc 2
<i>Umbrina fuscolineata</i>	SCIAEN John 4	Whitespotted spinefoot	SIGAN Sigan 4
<i>Umbrina russelli</i>	SCIAEN Dend 1	Whitings	SILL
undosquamis Saurida	SYNOD Sauri 1	Wolf-herrings	CHIROC
Unicorn filefish	BALI Alut I		
Upeneichthys	MULL		
Upeneus	MULL	<i>xanthoptera Pellona</i>	CLUP Ilish 4
<i>Upeneus armatoides</i>	MULL Upen 5		
<i>Upeneus caudalis</i>	MULL Upen 5	<i>yaito Euthynnus</i>	SCOMBR Euth 2
Upeneus (Pennon) bensasi	MULL Upen 4	<i>yamaguchiensis Muraenesox</i>	MURSOC Mursox 1
Upeneus (Pennon) sondaicus	MULL Upen 5	Yellow eye grey mullet	MUGIL Aldr 1
Upeneus (Pennon) tragula	MULL Upen 6	Yellow goatfish	MULL Upen 2
Upeneus (Upeneus) moluccensis	MULL Upen 1	Yellow grouper	SERRAN Epin 5
Upeneus (Upeneus) sulphureus	MULL Upen 2	Yellow pike-conger	MURSOC Consox 1
Upeneus (Upeneus) vittatus	MULL Upen 3	Yellowback seabream	SPARID Tai 1
Uraspis	CARAN	Yellowbelly threadfin bream	NEMIP Nem 1
		Yellowfin goatfish	MULL Upen 4
vaigiensis Lisa	MUGIL Liza 4	Yellowfin jack	CARAN Caranx 1
<i>vaigiensis Mugil</i>	MUGIL Liza 4	Yellowfin seabream	SPARID Myl 2
<i>Valamugil</i>	MUGIL	Yellowfin tuna	SCOMBR Thun 3
Valamugil cunnesius	MUGIL Vala 1	Yellowspot ponyfish	LEIOG Leiog 7
Valamugil seheli	MUGIL Vala 2	Yellowstreaked snapper	LUT Lut 5
Valamugil speigleri	MUGIL Vala 3	Yellowstripe trevally	CARAN Selard 1
Variola	SERRAN	Yellowstriped goatfish	MULL Upen 3
Variola louti	SERRAN Variol 1	Yellowtail fusilier	LUT Caes 3
Veined catfish	ARIID Ari 5		
venosus Arius	ARIID Ari 5	<i>Zebra sole</i>	SOL Zeb 1
<i>venosus Tachysurus</i>	ARIID Ari 5	<i>Zebra Synaptura</i>	SOL Zeb 1
Vermilion seabass	SERRAN Cephal 1	zebra Zebrias	SOL Zeb 1
virescens Aprion	LUT Apri 1	Zebrias	SOL
<i>virgatus Leiognathys</i>	LEIOG Leiog 1	Zebrias zebra	SOL Zeb 1
virgatus Nemipterus	NEMIP Nem 13	<i>zollingeri Anchoviella</i>	ENGR Stol 2
<i>virgatus Synagris</i>	NEMIP Nem 13	<i>Zonichthys nigrofasciatus</i>	CARAN Seriol 1
<i>vitirostris Thrissocles</i>	ENGR Thrys 2		
vitirostris Thryssa	ENGR Thrys 2		
vitta Lutjanus	LUT Lut 12		
<i>vittata Harengula</i>	CLUP Sardl 4		

