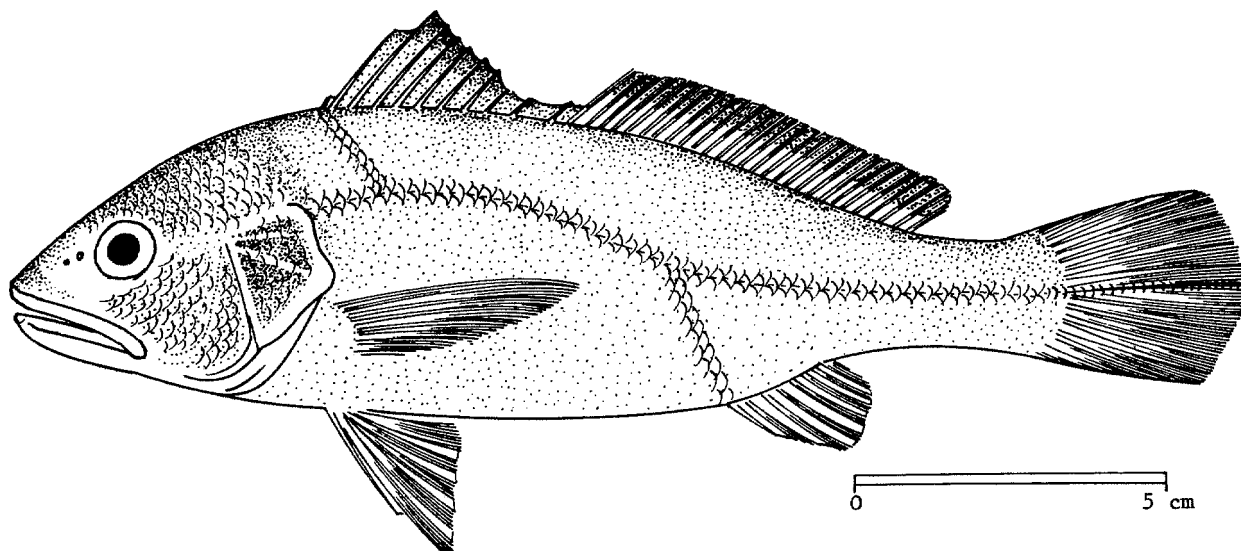


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Pennahia argentata* (Houttuyn, 1782)

SYNONYMS STILL IN USE: *Johnius argentatus*: Fowler, 1933
Argyrosomus argentatus: Lin, 1938; Chu, Lo & Wu, 1963
Sciaena schlegeli Bleeker, 1879
Nibea iharae Jordan & Metz, 1913; Lin, 1940



VERNACULAR NAMES:

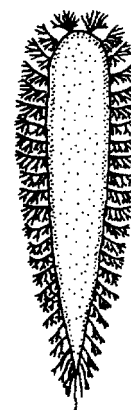
FAO: En - Silver pennah croaker
 Fr -
 Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly small, rather deep-bodied species with a large, terminal, oblique mouth; upper jaw reaching to below hind border of eye, lower jaw less than 1/2 of head length. Teeth well differentiated into large and small in both jaws; no outstanding canine teeth. Lower gill rakers 8 to 9. Swimbladder carrot-shaped, with 25 to 27 pairs of arborescent appendages, branching regularly, without dorsal limb, the first not entering the head, the posterior simple and parallel to the tubular end of the swimbladder. Dorsal fin with 9 to 10 spines, followed by a low notch, second part of the fin with 1 spine and 25 to 28 soft rays; pectoral fin rather long, up to 1/4 of standard length; anal fin with 2 spines and 7 to 8 soft rays, the 2nd spine rather weak; caudal fin bluntly rhomboid. Scales cycloid (smooth) on snout, elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin.

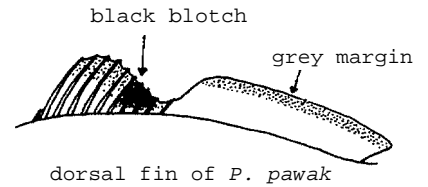
Colour: no distinctive markings.



swimbladder
ventral view

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pennahia parwak: pectoral fin shorter (20 to 23% of standard length; 25 to 26% in *P. argentata*) and fewer soft dorsal fin rays (23 to 25; 15 to 28 in *P. argentata*); also, a black blotch on spinous part of dorsal fin.



Pennahia macrophthalmus, *P. macrocephalus*: more lower gill rakers (10 to 13; 8 to 9 in *P. argentata*).

SIZE:

Maximum: 28 cm; common: 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

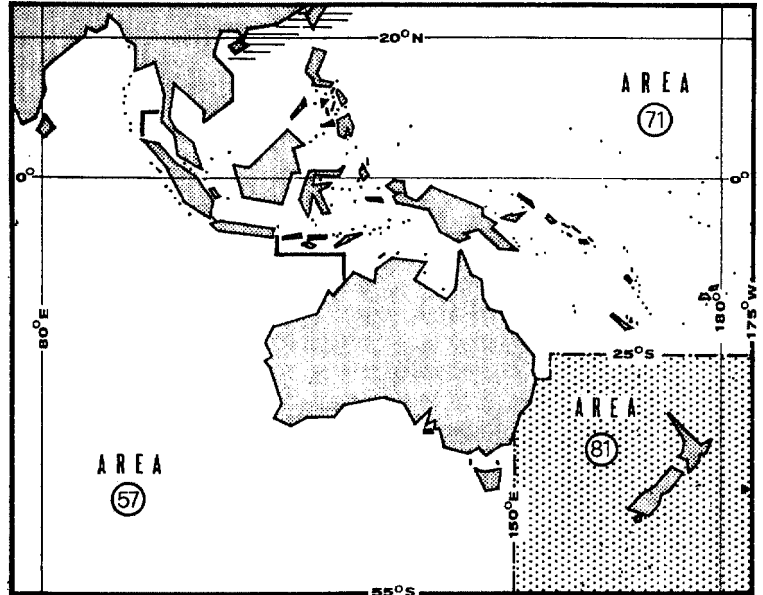
Chinese and Japanese waters.

Found in coastal waters, down to 40 m.

Feeds on small fishes and invertebrates.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not recorded for this species within the area. The total reported catch of unclassified croakers and drums in 1972 was:

area 57 (Eastern Indian Ocean): 41 900 tons (India only)
area 71 (Western Central Pacific): 21 400 tons (Philippines: 16 900 tons;
Malaysia: 4 500 tons)

Caught with bottom trawls, gill nets and handlines.

Marketed fresh; also dried-salted; swimbladder dried.

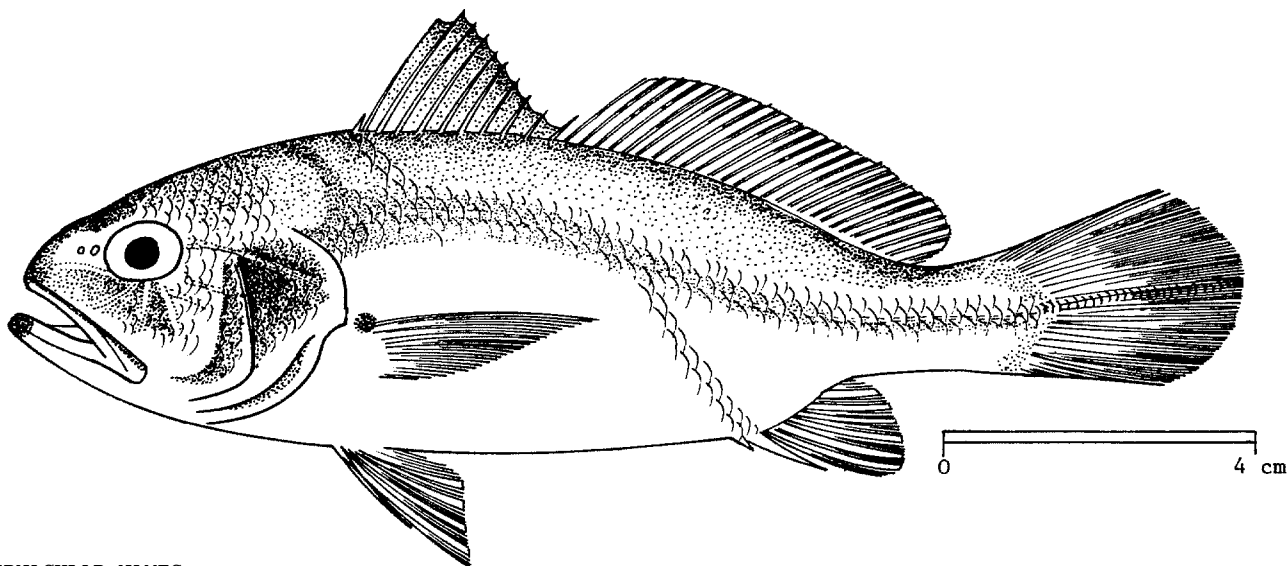
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

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

Pennahia macrocephalus (Tang, 1937)

SYNONYMS STILL IN USE: *Argyrosomus macrocephalus*: Chu, Lo & Wu, 1963



VERNACULAR NAMES:

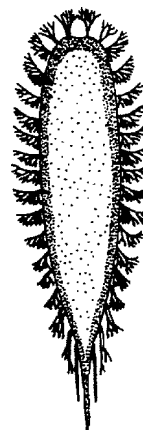
FAO: En - Big-head pennah croaker
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly small, rather deep-bodied species, with a large, terminal, oblique mouth; upper jaw reaching to below hind part of eye, lower jaw at least 1/2 of head length. Teeth well differentiated into large and small in both jaws, the large forming outer series in upper jaw, inner series in lower; no outstanding canine teeth. Lower gill rakers 12 to 13. Swimbladder carrot-shaped, with about 18 pairs of arborescent appendages, none entering the head, the last a simple tube parallel to the tubular end of the swimbladder. Dorsal fin with 10 spines, followed by a low notch, second part of the fin with 1 spine and 27 to 29 soft rays; pectoral fin rather long, up to 1/4 of standard length; anal fin with 2 spines and 7 soft rays, the 2nd spine weak; caudal fin bluntly rhomboid. Scales cycloid (smooth) on snout, elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin.

Colour: counter-shaded from metallic blue above to white below. Lining of mouth and gill cover dark grey. A black spot at tip of lower jaw and one above base of pectoral fin. Pectoral, pelvic and anal fins yellowish.

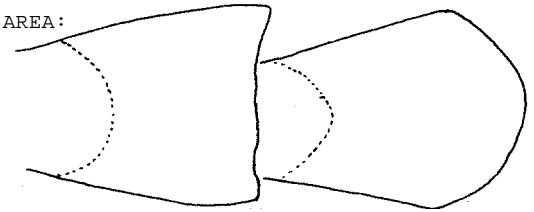


swimbladder
ventral view

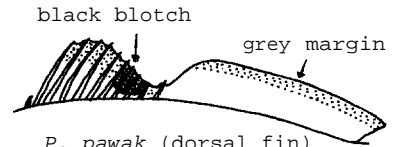
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pennahia macrophthalmus: caudal fin truncate and fewer soft dorsal fin rays (23 to 25; 27 to 29 in *P. macrocephalus*).

Pennahia pawak, *P. argentata*: fewer lower gill rakers (8 to 9; 12 to 13 in *P. macrocephalus*); also, a black blotch on spinous part of dorsal fin in *P. pawak*.



caudal fin
P. macrophthalmus *P. macrocephalus*



P. pawak (dorsal fin)

SIZE:

Maximum: 22 cm; common: 15 to 18 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

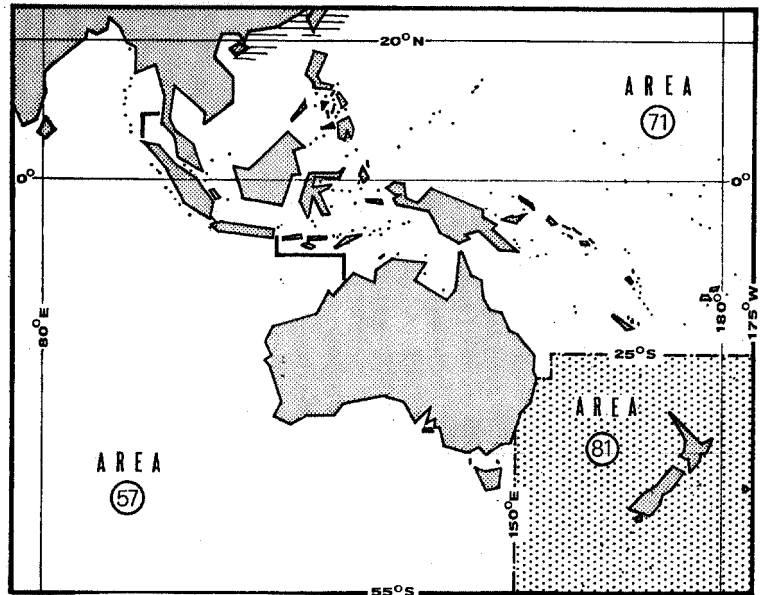
Only known from Chinese waters.

Found in coastal waters, down to 40 m.

Feeds on small invertebrates and fishes.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not recorded for this species within the area. The total reported catch of unclassified croakers and drums in 1972 was:

area 57 (Eastern Indian Ocean): 41 900 tons (India only)
area 71 (Western Central Pacific): 21 400 tons (Philippines: 16 900 tons;
Malaysia: 4 500 tons)

Caught with bottom trawls, gill nets and handlines.

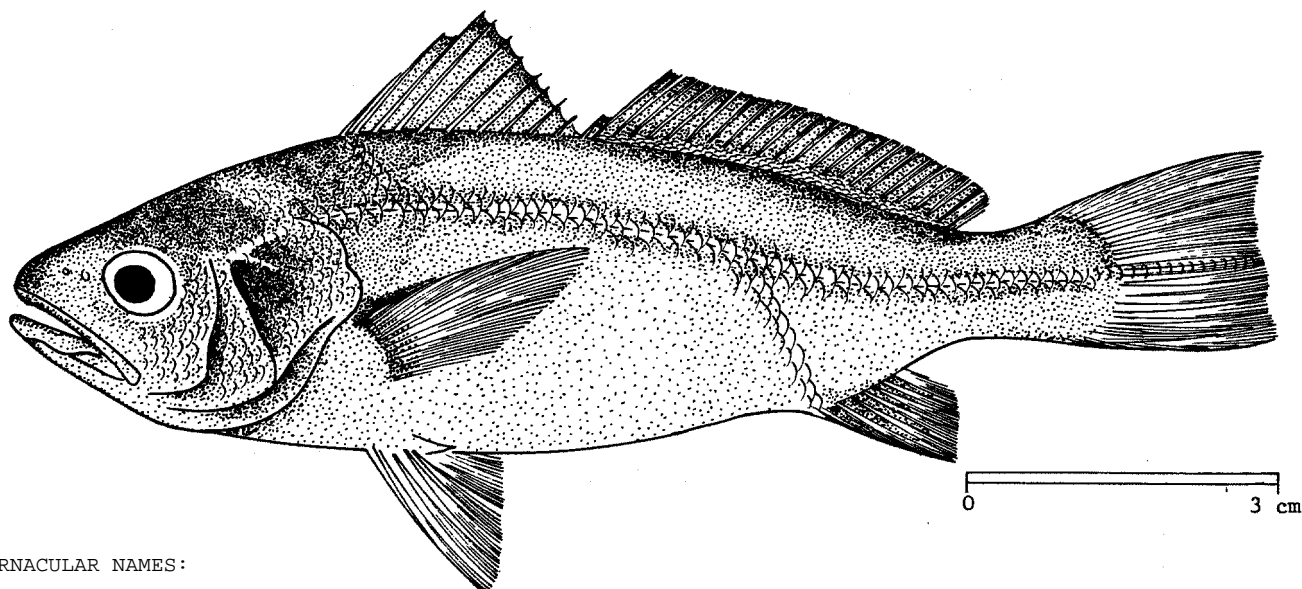
Marketed fresh; also dried-salted; swimbladder dried.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Pennahia macrophthalmus* (Bleeker, 1850)

SYNONYMS STILL IN USE: *Otolithus leuciscus* Günther, 1872
Sciaena aneus (not of Bloch): Day, 1876
Pseudosciaena aneus (not of Bloch): Bleeker, 1877;
 Weber & de Beaufort, 1936
Argyrosomus (Pennahia) aneus: Fowler, 1926
Argyrosomus aneus: Chu, Lo & Wu, 1963



VERNACULAR NAMES:

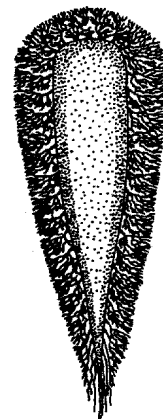
FAO: En - Bigeye croaker
 Fr
 Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly small, rather deep-bodied species, with a large, terminal, oblique mouth; upper jaw reaching to below hind part of eye, lower jaw more than 1/2 of head length. Teeth well differentiated into large and small in both jaws, the large forming outer series in upper jaw, and inner series in the lower; no outstanding canine teeth. Lower gill rakers 10 to 12. Swimbladder carrot-shaped, with 18 to 22 arborescent appendages, the first not entering head, the last a simple tube parallel to the narrow posterior end of the swimbladder. Dorsal fin with 9 to 10 spines, followed by a notch, second part of the fin with 23 to 25 soft rays; pectoral fin rather long, up to 1/4 of standard length; anal fin with 2 spines and 7 to 8 soft-rays, the 2nd spine weak; caudal fin truncate. Scales cycloid (smooth) on snout, elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin.

Colour: no distinctive markings; body silvery white, back blue/grey.



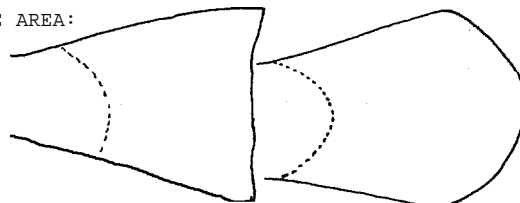
swimbladder
ventral view

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

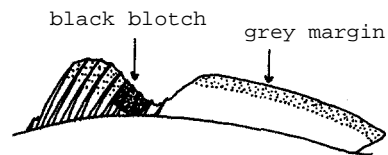
Pennahia macrocephalus: caudal fin bluntly rhomboid and more soft dorsal fin rays (27 to 29; 23 to 25 in *P. macrophthalmus*).

Pennahia pawak and *P. argentatus*: fewer lower gill rakers (5 to 9; 10 to 12 in *P. macrophthalmus*); also, a black blotch on spinous part of dorsal fin in *P. pawak*

Kathala axillaris: bears a superficial resemblance to *P. macrophthalmus* but no arborescent appendages on swimbladder, a more oblique mouth and slightly swollen snout.



caudal fin
P. macrophthalmus *P. macrocephalus*



dorsal fin of *P. pawak*

SIZE:

Maximum: 17 cm; common: 13 to 15 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

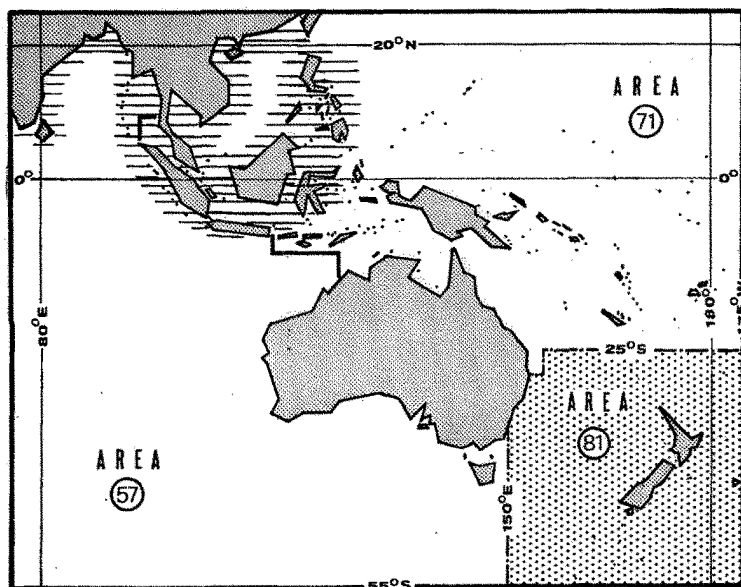
Eastern Indian Ocean and Indonesia; also, northward to China and westward to Persian Gulf.

Inhabits coastal waters, down to 60 m.

Feeds on small invertebrates.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not recorded for this species within the area. The total reported catch of unclassified croakers and drums in 1972 was:

area 57 (Eastern Indian Ocean): 41 900 tons (India only)
 area 71 (Western Central Pacific): 21 400 tons (Philippines: 16 900 tons;
 Malaysia: 4 500 tons)

Caught with bottom trawls and lines.

Marketed fresh and dried-salted.

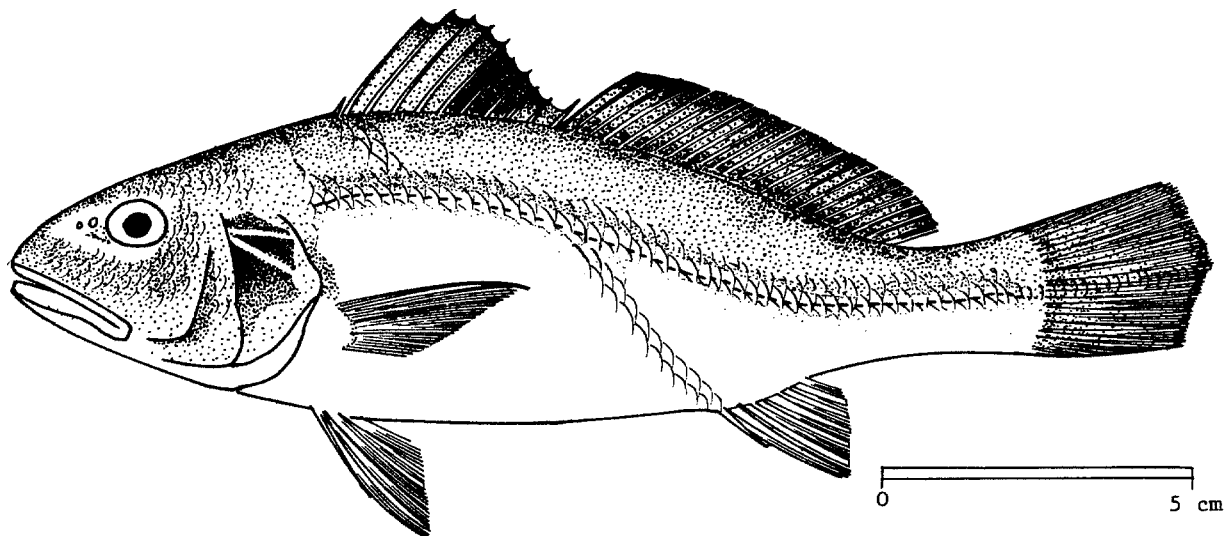
FAD SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

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

Pennahia pawak (Lin, 1940)

SYNONYMS STILL IN USE: *Argyrosomus pawak* Lin, 1940; Chu, Lo & Wu, 1963



VERNACULAR NAMES:

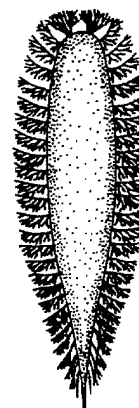
- FAO: En - Pawak croaker
- Fr -
- Sp -

NATIONAL:

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

A medium-sized, fairly deep-bodied species, with a large, terminal, oblique mouth; upper jaw reaching to about eye centre, lower jaw more than 1/2 of head length. Teeth well differentiated into large and small in both jaws; no outstanding canine teeth. Lower gill rakers 9. Swimbladder carrot-shaped, with 24 to 27 pairs of appendages, none entering head, the last simple and parallel to the tubular end of the bladder; all the others very regularly branched, with no dorsal limb. Dorsal fin with 10 spines, followed by a notch, second part of the fin with 23 to 25 soft rays; pectoral fins moderate, about 5 times in standard length; anal fin with 2 spines and 7 soft rays, the 2nd spine weak; caudal fin bluntly rhomboid or with a point. Scales on head and a few above pectoral fin base cycloid (smooth), elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin.

Colour: a characteristic blotch on dorsal fin; the black lining of the gill cover shows through conspicuously; back regularly or irregularly dark and the soft part of dorsal fin with a pale band between basal and distal dark zones. Caudal fin dark at the margin; other fins pale.



swimbladder
ventral view

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Pennahia argentata: pectoral fins longer (25 to 26% of standard length; 20 to 23% in *P. pawak*) and more soft dorsal fin rays (25 to 28; 23 to 25 in *P. pawak*).

Pennahia macrophthalmus, *P. macrocephalus*: more lower gill rakers (10 to 13; 9 in *P. pawak*).

Nibea species: longer and stronger anal spines.

All other croaker species in area: black blotch on spinous part of dorsal fin much less distinct.

SIZE:

Maximum: 22 cm; common: 18 to 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

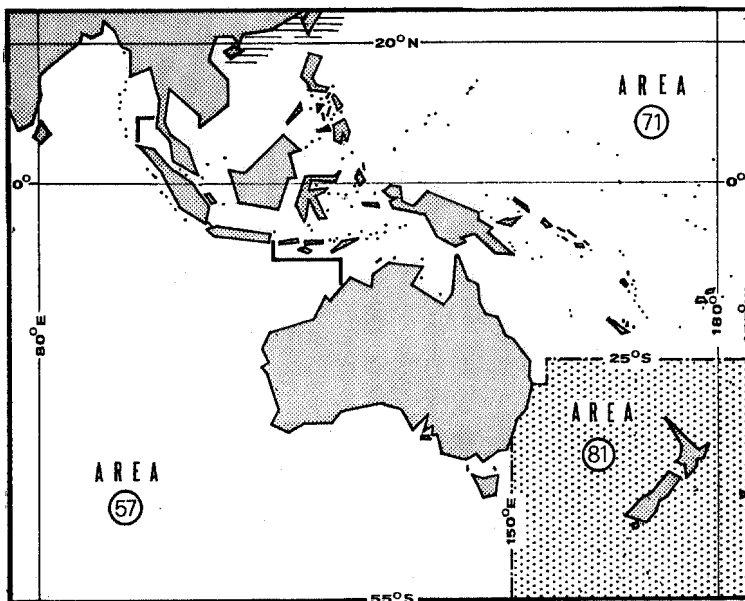
Southern coasts of China; also, northward to Japan.

Inhabits coastal waters.

Feeds on small crustaceans.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not recorded for this species within the area. The total reported catch of unclassified croakers and drums in 1972 was:

area 57 (Eastern Indian Ocean): 41 900 tons (India only)
area 71 (Western Central Pacific): 21 400 tons (Philippines: 16 900 tons;
Malaysia: 4 500 tons)

Caught with bottom trawls and lines.

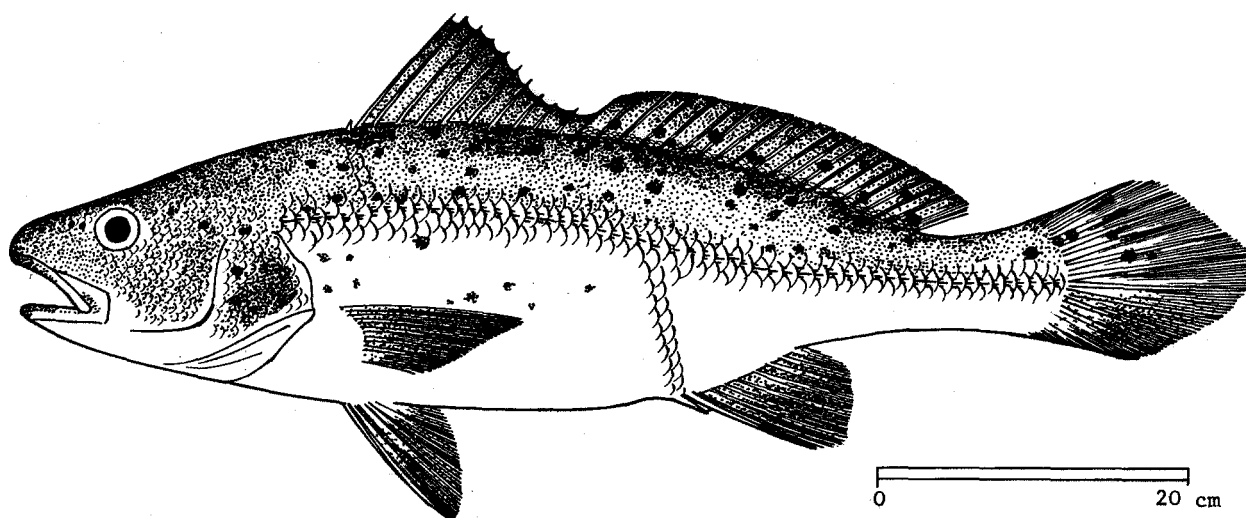
Marketed fresh; also dried-salted.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

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

SYNONYMS STILL IN USE: *Sciaena diacanthus*: Day, 1876
Pseudosciaena diacanthus: Weber & de Beaufort, 1936
Nibea diacanthus: Lin, 1938; Chu, Lo & Wu, 1963
Protonibea diacanthus: Trewavas, 1971
Sciaena goma Tanaka, 1915; Matsubara, 1937



VERNACULAR NAMES:

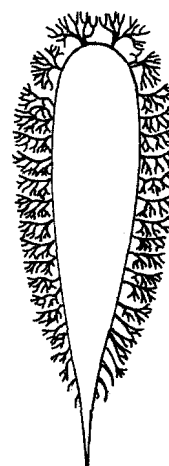
FAO: En - Spotted croaker
 Fr -
 Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A large species with a pointed snout and large terminal mouth forming a low angle to the horizontal. Teeth differentiated into large and small in both jaws; no canine teeth. Lower gill rakers 7 to 8. Swimbladder carrot-shaped, with about 20 pairs of arborescent appendages, the first branching on transverse septum but not entering head, the last two small and simple, the rest branching but without dorsal limbs. Dorsal fin with 9 to 10 spines, followed by a low notch, second part of the fin with 22 to 24 soft rays; pectoral fin fairly small, a little more than 1/2 of head length; anal fin with 2 spines and 7 soft rays, the 2nd spine rather strong; caudal fin rhomboid. Scales cycloid (smooth) on snout and below eyes, elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin.

Colour: 5 dark blotches along back, many small black spots (about size of pupil of eye) on top of head, upper half of body and dorsal and caudal fins; pectoral, pelvic, anal and lower part of caudal fins black. Rarely, in larger fishes, either the 5 blotches or the smaller spots may be absent.

swimbladder
ventral view

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Nibea maculata: lower fins pale; black blotches on body, but numerous black dots never present.

Pterotolithus maculatus: more soft dorsal fin rays (31; 22 to 24 in *P. diacanthus*) and more swimbladder appendages (50 or more; about 20 in *P. diacanthus*); also, canine teeth present.

All other croakers in area: lack the distinctive colour pattern of blotches and spots on body and fins.

SIZE:

Maximum: 120 cm; common: 70 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

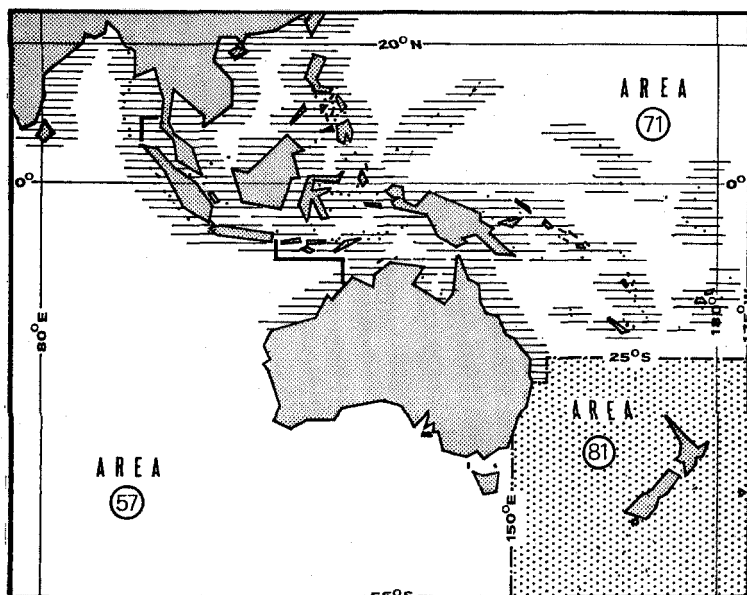
Throughout northern part of area and southward to Queensland (Australia); also, westward to East Africa and northward to Japan.

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

Feeds mainly on crustaceans, particularly small crabs.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not recorded for this species within the area. The total reported catch of unclassified croakers and drums in 1972 was:

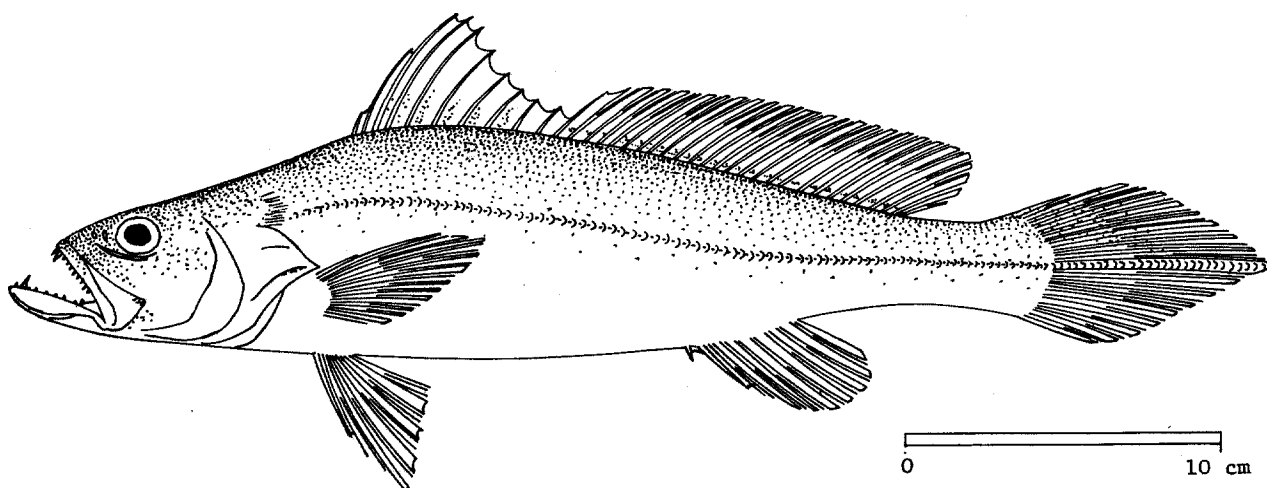
area 57 (Eastern Indian Ocean): 41 900 tons (India only)
area 71 (Western Central Pacific): 21 400 tons (Philippines: 16 900 tons;
Malaysia: 4 500 tons)

Caught with bottom trawls, bottom longlines and handlines.

Marketed fresh; sometimes dried-salted; swimbladder dried.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Pterotolithus lateoides* (Bleeker, 1850)SYNONYMS STILL IN USE: *Otolithes lateoides*: Weber & de Beaufort, 1936
? *Ototithus dolorosus* Seale, 1910

VERNACULAR NAMES:

FAO: En - Bigmouth croaker
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A slender species (body depth 4 to 5 times in standard length); snout longer than eye diameter, its upper profile rising evenly and almost horizontally to dorsal fin origin; mouth large, oblique, the lower jaw strongly projecting) a little less than 1/2 of head length. Teeth in a single series in both jaws, with 1 or 2 pairs of strong canines in upper jaw and 1 pair at tip of lower jaw. Lower gill rakers about 12, but the anterior 4 short toothed stumps. Swimbladder carrot-shaped, with about 40 pairs of arborescent appendages, some of the dorsal branches of which are long and lie on the dorso-lateral surface of the bladder; none entering the head. Dorsal fin with 10 spines, followed by a notch, second part of the fin with 1 spine and 24 to 27 soft rays; anal fin with 2 spines and 7 to 8 soft rays, the 2nd spine rather weak, its base beginning before middle of soft part of dorsal fin; caudal fin wedge-shaped, the middle rays prolonged. Scales cycloid (smooth) on head, elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin.

Colour: a series of black or brown spots along soft part of dorsal fin.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Otolithes cuvieri, *O. ruber*: more soft dorsal fin rays (27 to 31; 24 to 27 in *P. lateoides*); also, *O. ruber* has fewer lower gill rakers (8 to 11; 12 in *P. lateoides*) and both have fewer swimbladder appendages (28 and 32 to 36, respectively; about 40 in *P. lateoides*).

Pterolithus maculatus: anal fin with 10 to 11 soft rays (7 to 8 in *P. lateoides*).

Other croakers with canine teeth: anal fin origin set under or behind middle of soft part of dorsal fin.

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

SIZE:

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

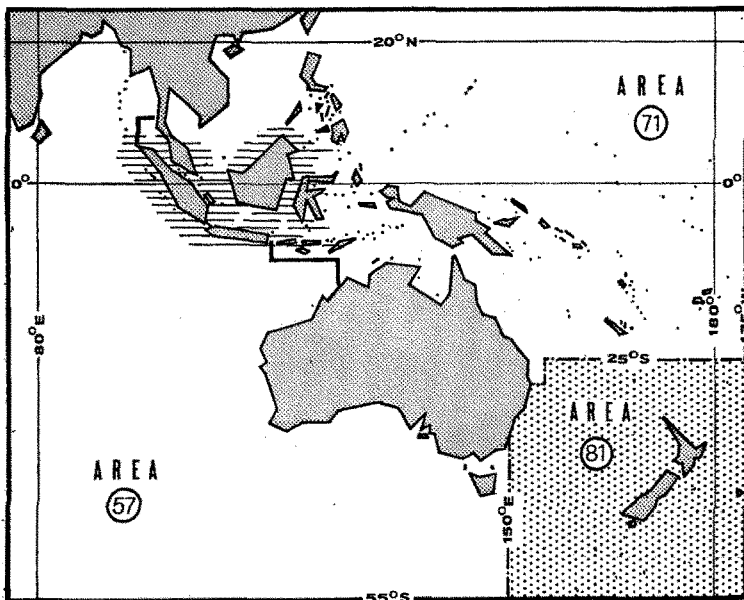
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Borneo, Indonesia and Malaysia.

Inhabits coastal waters and mouths of rivers.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not recorded for this species within the area. The total reported catch of unclassified croakers and drums in 1972 was:

area 57 (Eastern Indian Ocean): 41 900 tons (India only)
area 71 (Western Central Pacific): 21 400 tons (Philippines: 16 900 tons;
Malaysia: 4 500 tons)

Caught with bottom trawls, gill nets and handlines.

Marketed fresh; also dried-salted; swimbladder dried.

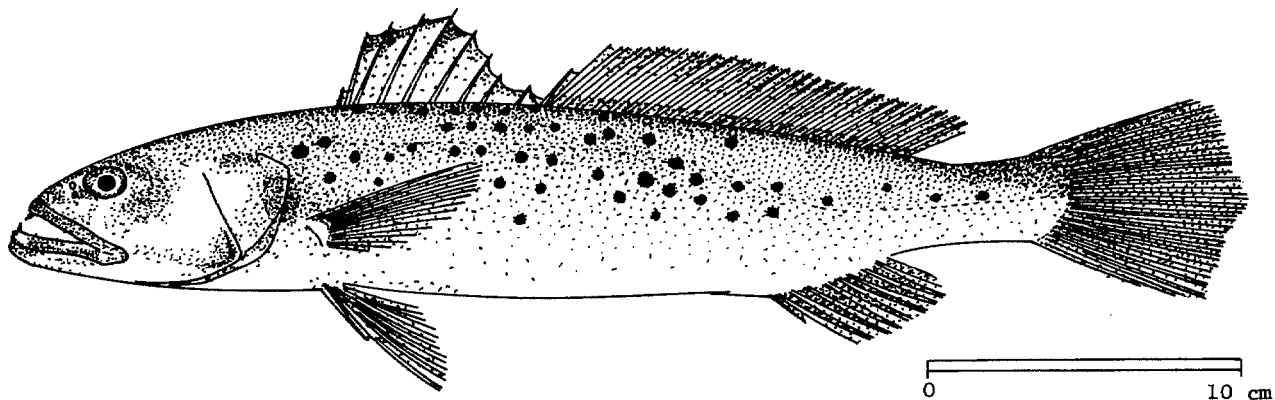
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

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

Pterotolithus maculatus (Cuvier, 1836)

SYNONYMS STILL IN USE: *Otolithus maculatus*: Day, 1876
Otolithes maculatus: Weber & de Beaufort, 1936



VERNACULAR NAMES:

FAO: En - Blotched tiger-toothed croaker
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly large and slender species, with head profile low and only slightly curved; mouth large and strongly oblique, lower jaw projecting. Teeth in 2 rows in upper jaw, the inner small, and a pair of strong canines in front; a similar pair of canines in lower jaw. Lower gill rakers 8 to 9, with 1 or 2 small knobs in front. Swimbladder in adult with numerous (50 or more) pairs of branched appendages, the stems of the lower limbs forming a parallel series of tubes, those of the upper limbs roofing the swimbladder with a filigree of silvery branched tubules. Dorsal fin with 9 spines, followed by a deep notch, second part of the fin with 1 spine and 31 soft rays; anal fin with 2 spines and 10 to 11 soft rays, the 2nd spine weak; caudal fin rhomboid. Scales cycloid (smooth) and in very irregular rows; lateral line scales reaching to tip of caudal fin.

Colour: upper part of body marked with numerous black patches, about half the size of eye or larger.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Protonibea diacanthus: fewer soft dorsal fin rays (22 to 24; 31 in *P. maculatus*) and fewer swimbladder appendages (about 20; 50 or more in *P. maculatus*); also, no canine teeth.

Cottichthys species: 7 to 13 soft anal fin rays, but yellow luminous patches along belly.

All other Indo-Pacific croakers: lack the distinctive body markings and usually have fewer soft anal fin rays (6 to 9; 10 to 11 in *P. maculatus*).

SIZE:

Maximum: 45 cm; common: 30 to 40 cm.

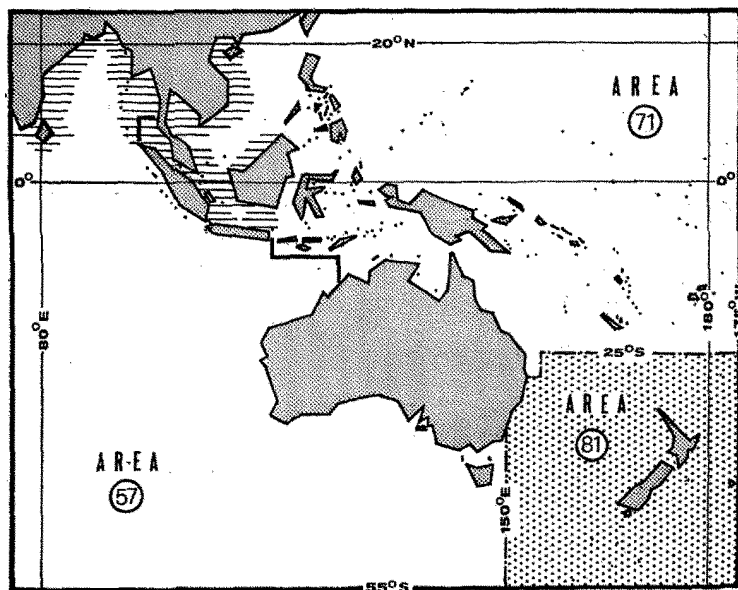
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Northwestern part of area as far as Borneo; apparently not to the south.

Inhabits coastal waters.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

Separate statistics are not recorded for this species within the area. The total reported catch of unclassified croakers and drums in 1972 was:

area 57 (Eastern Indian Ocean): 41 900 tons (India only)
area 71 (Western Central Pacific): 21 400 tons (Philippines: 16 900 tons;
Malaysia: 4 500 tons)

Caught with bottom trawls, gill nets and handlines.

Marketed fresh; also dried-salted; swimbladder dried.

