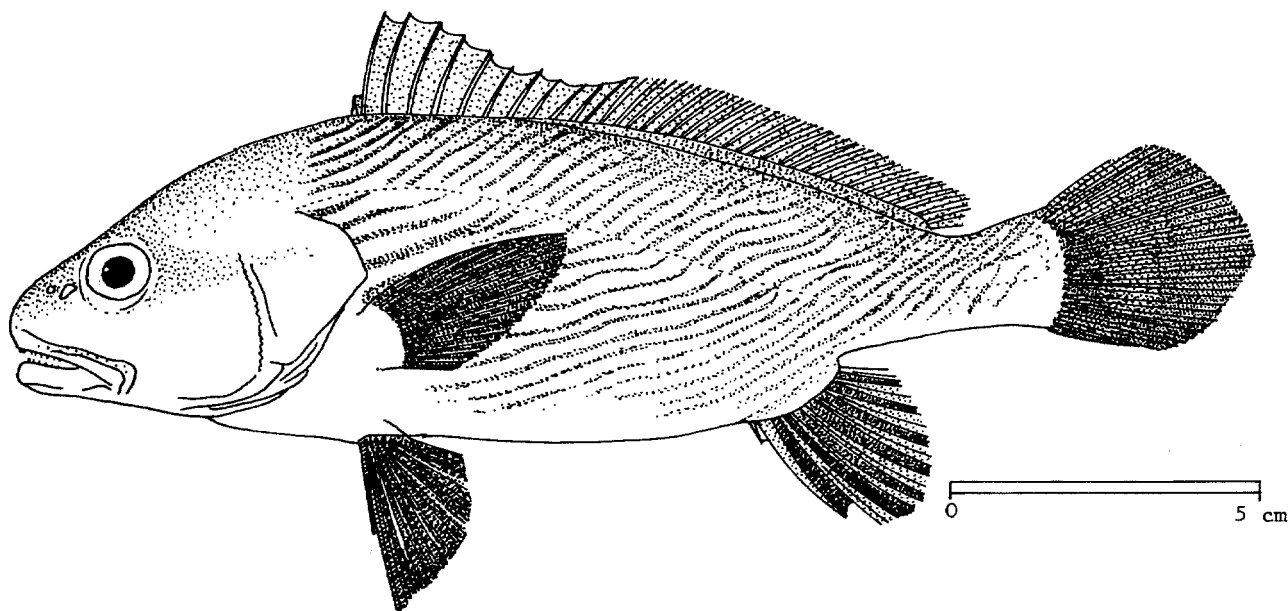


FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Nibea semiluctuosa* (Cuvier, 1830)

SYNONYMS STILL IN USE: *Corvina semiluctuosa* Cuvier, 1830
Johnius semiluctuosus: Weber & de Beaufort, 1936; Chu, Lo & Wu, 1963
Sciaena semiluctuosa: Day, 1876



VERNACULAR NAMES:

FAO: En - Half-mourning croaker
 Fr -
 Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly small species with an arched back and deep body; mouth slightly inferior and at a low angle to the horizontal. Teeth differentiated into large and small in upper jaw only; the large forming outer series, longest in front; no canine teeth. Lower gill rakers 5 to 8, with some toothed plates below. Swimbladder carrot-shaped, with about 15 pairs of arborescent appendages, the first rather long, entering the head and branching below the occipital region. Dorsal fin with 10 to 11 spines, followed by a notch, second part of the fin with 27 to 31 soft rays; pectoral fin moderate, about 2/3 of head length; anal fin with 2 spines and 7 soft rays, the second spine long and strong, up to 1/2 of head length; caudal fin rounded or bluntly rhomboid. Scales cycloid (smooth) on snout and below eyes, elsewhere ctenoid (very rough to touch); lateral line scales reaching to tip of caudal fin.

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

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Nibea maculata, *N. chui*: soft dorsal fin rays fewer (24 to 25; 27 to 31 in *N. semiluctuosa*); also, big dark blotches on upper flank in *N. maculata* and oblique lines confined to front part of body, faint or even absent in *N. chui*.

Other *Nibea* species: more swimbladder appendages (19 to 25 pairs; about 15 in *N. semiluctuosa*); also, some enlarged teeth in lower jaw and oblique stripes covering less of body.

SIZE:

Maximum: 23 cm; Common: 17 to 20 cm.

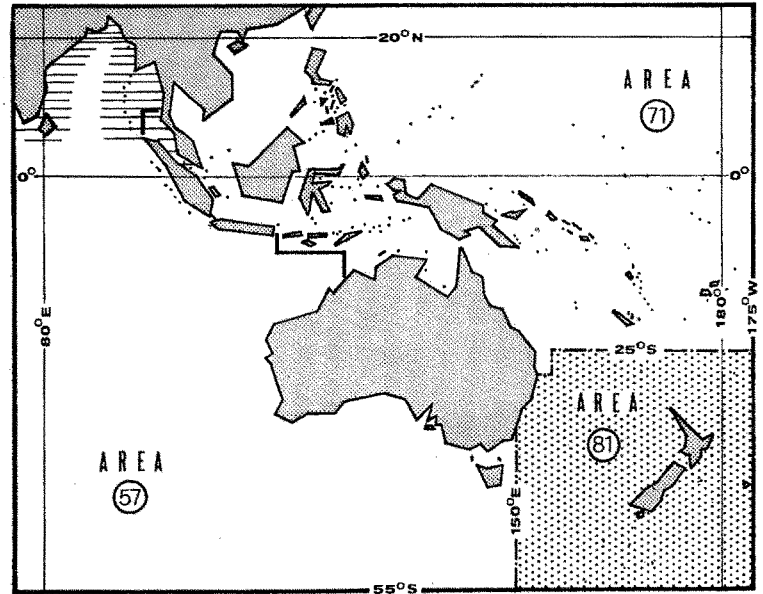
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Indian Ocean.

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:

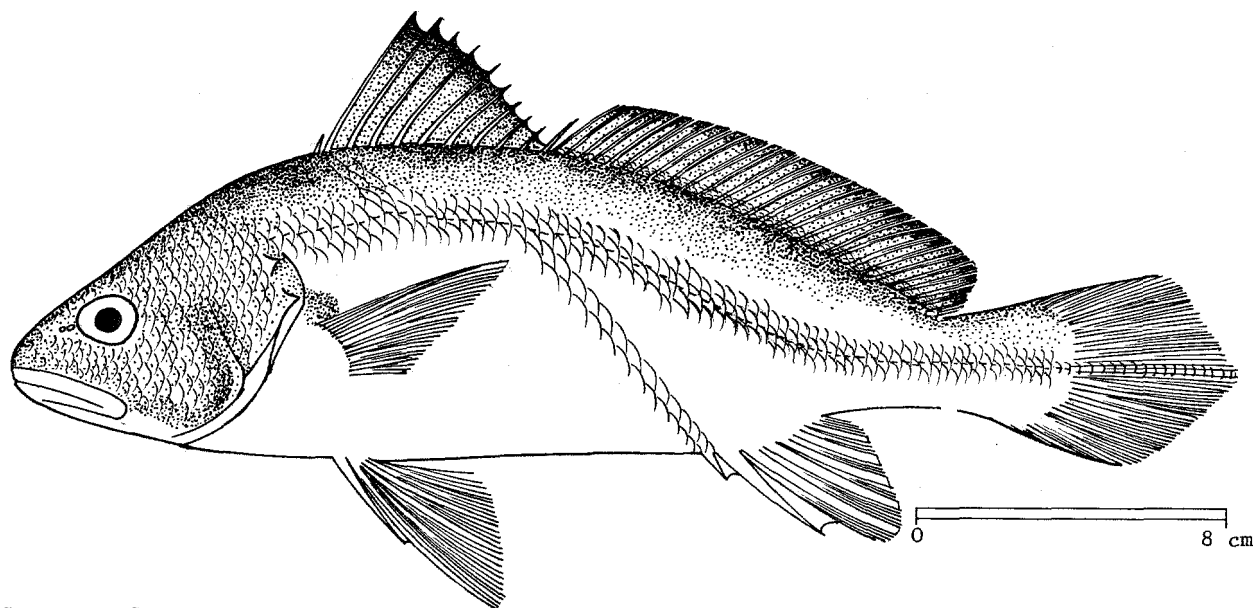
area 57 (Eastern Indian Ocean):	41 900 tons (India only)
area 71 (Western Central Pacific):	21 400 tons (Philippines: 16 900 tons; Malaysia: 4 500 tons)

Caught with bottom trawls, gill nets and handlines.

Marketed fresh; also dried-salted; swimbladder dried.

FAD SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Nibea soldado* (Lacepède, 1802)SYNONYMS STILL IN USE: *Johnius soldado*: Fowler, 1933
Pseudosciaena soldado: Weber & de Beaufort, 1936
Wak soldado: Chu, Lo & Wu, 1963
Corvina miles Cuvier, 1829; Day, 1876

VERNACULAR NAMES:

FAO: En - Soldier croaker
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly large species with an arched back and deep body; mouth terminal and at a low angle to the horizontal. Teeth well differentiated into large and small in both jaws. Lower gill rakers 8 to 9. Swimbladder carrot-shaped, abruptly constricted posteriorly to its tubular end, with about 20 pairs of appendages, the first long, entering the head and branching below the occipital region, the two last simple and parallel to tubular end of bladder, the rest arborescent with no dorsal limb. Dorsal fin with 9 to 10 spines, followed by a deep notch, second part of the fin with 1 spine and 28 to 31 soft rays; pectoral fin short, about 2/3 of head length; anal fin with 2 spines and 7 soft rays, the 2nd spine very strong and nearly 1/2 of head length; caudal fin rhomboid. Scales cycloid (smooth) on head and chest, elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin.

Colour: faint series of oblique stripes along scale rows; border of soft part of dorsal fin dark.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Nibea albiflora, *N. semifasciata*: upper jaw projects beyond lower and the series of oblique stripes along scale rows more definite; also, soft dorsal fin rays fewer in *N. semifasciata* (26 to 29; 28 to 30 in *N. soldado*).

Nibea maculata, *N. chui*: soft dorsal fin rays fewer (24 to 25).

Nibea semiluctuosa: lower gill rakers fewer (5 to 8; 8 to 9 in *N. soldado*) and fewer swim-bladder appendages (15 pairs; 20 pairs in *N. soldado*).

SIZE:

Maximum: 60 cm; common: 30 to 40 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

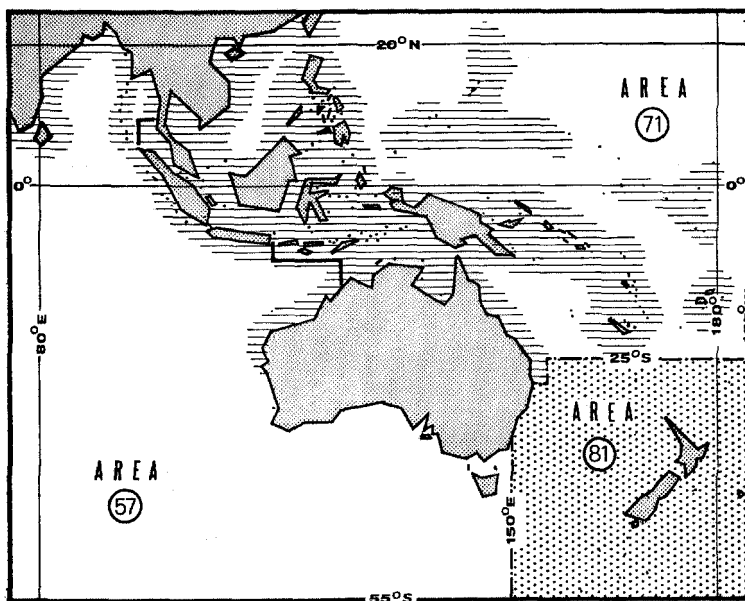
Throughout northern part of area and southward to Queensland (Australia). Records from Hong Kong and Hainan doubtful.

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, traps and handlines.

Marketed fresh; also dried-salted; swimbladder dried.

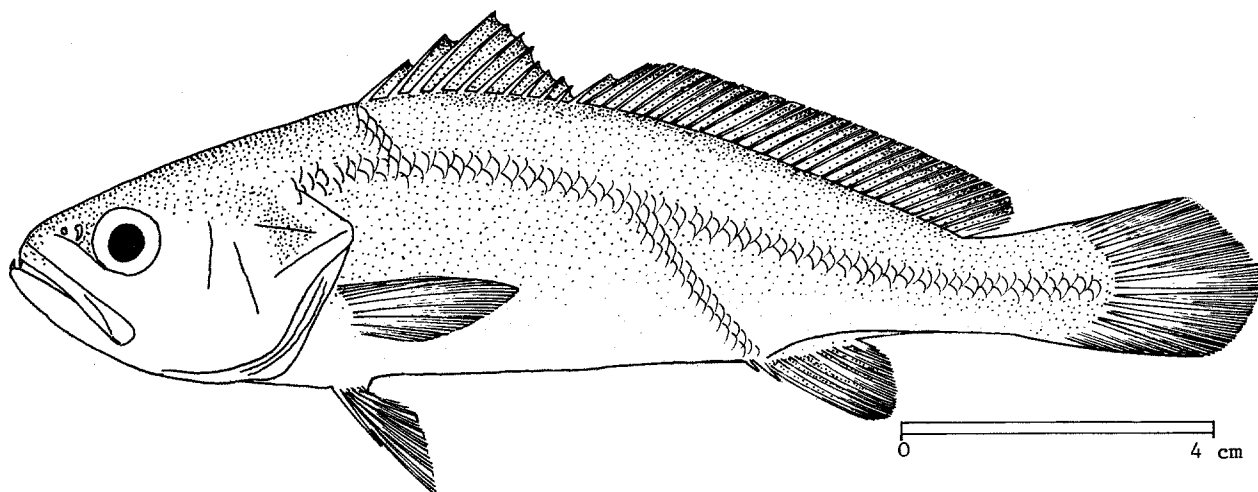
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

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

Otolithes cuvieri
(new name proposed here by E. Trewavas)

SYNONYMS STILL IN USE: *Otolithes ruber* (not of Schneider): Fowler, 1933; Munro, 1955



VERNACULAR NAMES

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

NATIONAL:

DISTINCTIVE CHARACTERS:

A fairly slender species (body depth $3 \frac{1}{4}$ to $4 \frac{1}{2}$ times in standard length); snout a little longer than eye diameter, its upper profile rising evenly to dorsal fin origin but a little concave over eye; mouth large, terminal; lower jaw projecting and more than $\frac{1}{2}$ of head length. Teeth in a single series in lower jaw (sometimes part of a second series present); 1 or 2 pairs of strong canines in upper jaw and 1 pair at tip of lower jaw. Lower gill rakers 12 to 14, with some toothed plates anteriorly. Swimbladder carrot-shaped, with about 28 pairs of arborescent appendages, somewhat swollen at their bases; none entering the head. Dorsal fin with 10 spines, followed by a notch, second part of the fin with 1 spine and 29 to 31 soft rays; anal fin with 2 spines and 7 to 8 soft rays, the 2nd spine short and weak, its base beginning behind middle of soft dorsal fin; caudal fin rhomboid, but with tip pointed. Scales cycloid (smooth) on head, elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin.

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

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Ototithes ruber: more swimbladder appendages (32 to 36; about 28 in *O. cuvieri*) and fewer gill rakers (8 to 11; 12 to 14 in *O. cuvieri*); also, body more slender (depth 4 to 5 times in standard length; 3 1/4 to 4 1/2 in *O. cuvieri*).

Pterotolithus lateoides: anal fin origin before middle of soft part of dorsal fin (behind middle in *O. cuvieri*) and spots present on soft dorsal.

Pterotolithus maculatus: upper part of body marked by numerous black patches; also, more soft anal fin rays (10 to 11; 7 to 8 in *O. cuvieri*).

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

SIZE:

Maximum: 20 cm; common: 15 to 16

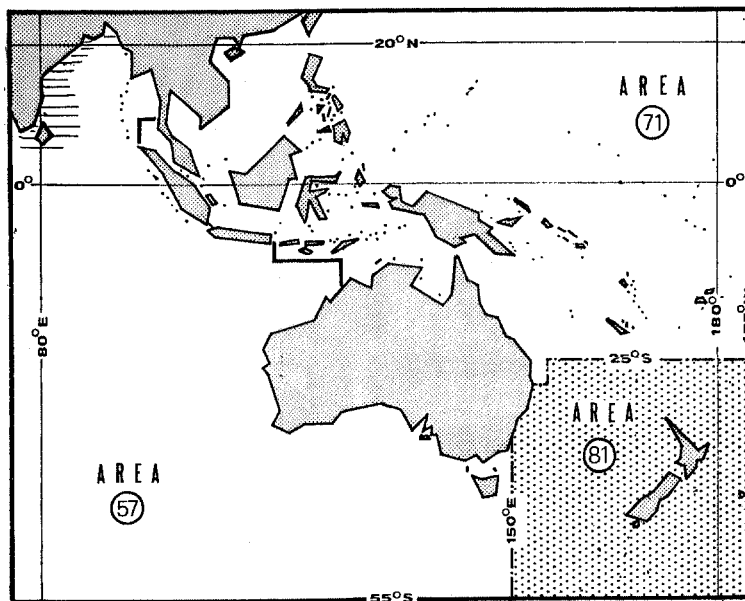
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Eastern coasts of India; other records doubtful.

Inhabits inshore and 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:

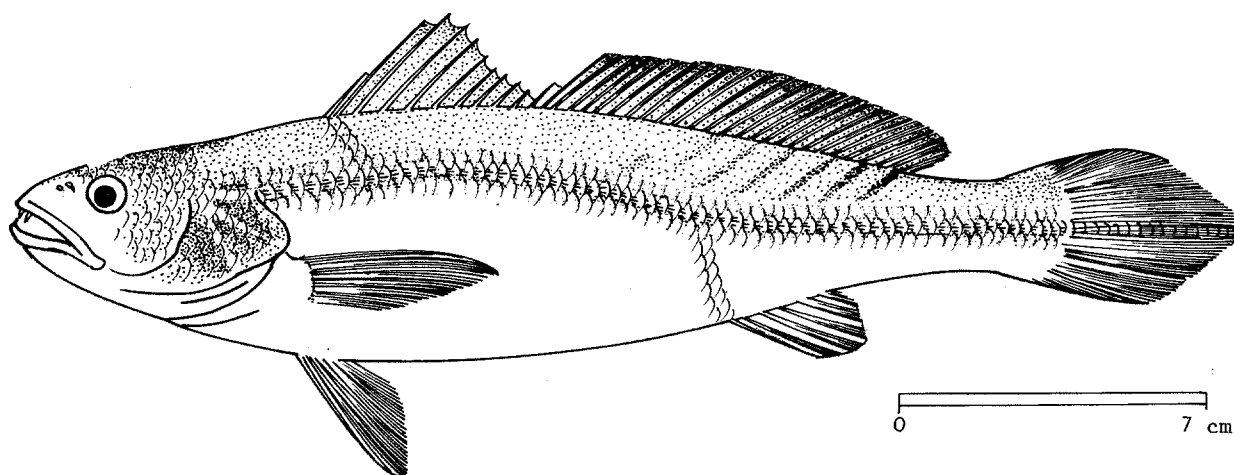
area 57 (Eastern Indian Ocean): 41 900 tons (India only)
area 71 (Western Central Pacific): 21 400 tons (Philippines: 16 900 tons;
Malaysia: 4 500 tons)

Caught with bottom trawls, gill nets and handlines.

Marketed fresh; also dried-salted; swimbladder dried.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Ototithes ruber* (Schneider, 1801)SYNONYMS STILL IN USE: *Otolithus argenteus*: Day, 1876
Ototithes argenteus: Chu, Lo & Wu, 1963

VERNACULAR NAMES

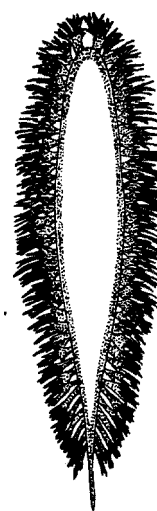
FAO: En - Tiger-toothed croaker
Fr -
Sp -

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 to dorsal fin origin or slightly concave before eye; mouth large, terminal; lower jaw more than 1/2 of head length. Teeth in 2 series in upper jaw, with 1 or 2 pairs of strong canines at front; a pair of canine teeth at tip of lower jaw. Lower gill rakers 8 to 11, long and slender. Swimbladder with 32 to 36 arborescent appendages in adults, branching in a very regular pattern; none entering head. Dorsal fin with 9 to 10 spines, followed by a notch, second part of the fin with 1 spine and 27 to 30 soft rays; anal fin with 2 spines and 7 soft rays, the 2nd spine short and weak, its base behind middle of soft part of dorsal fin; caudal fin rhomboid (pointed in juveniles). Scales cycloid (smooth), but a few ctenoid (rough to touch) on lower part of hind end of body; lateral line scales reaching to tip of caudal fin.

Colour: no distinctive markings.

swimbladder
ventral view

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Otolithes cuvieri: fewer swimbladder appendages (about 28; 32 to 36 in *O. Tuber*) and more gill rakers (12 to 14; 8 to 11 in *O. Tuber*); also, body deeper (depth 3 1/4 to 4 1/2 times in standard length; 4 to 5 in *O. Tuber*).

Pterotolithus lateoides: anal fin origin before middle of soft part of dorsal fin (behind middle in *O. Tuber*) and spots present on soft dorsal.

Pterotolithus maculatus: upper part of body marked by numerous black patches; also, more soft anal fin rays (10 to 11; 7 to 8 in *O. Tuber*).

Chrysochir aureus: snout prominent and canines only in upper jaw.

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

SIZE:

Maximum: 70 cm; common: 30 to 40 cm

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

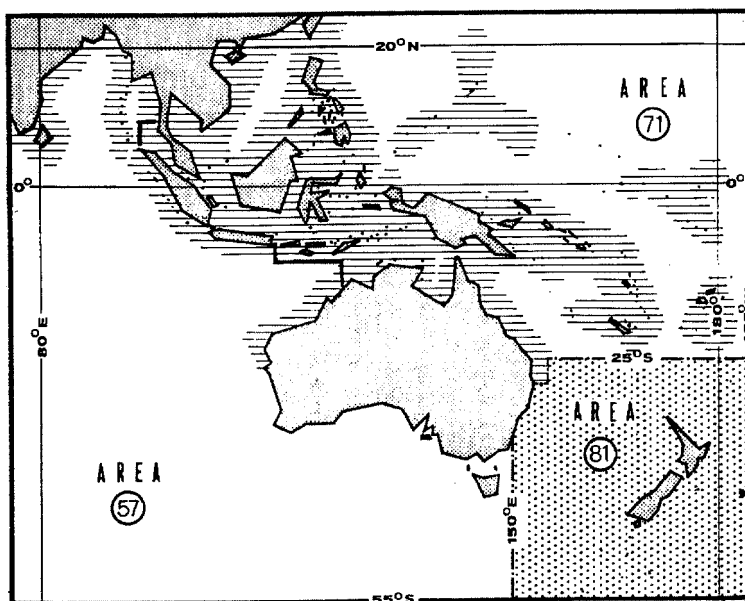
Throughout northern part of area and southward to Queensland (Australia); also, westward to South Africa and northward to Japan.

Inhabits coastal waters, down to 40 m.

Feeds on 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, traps and handlines.

Marketed fresh; also dried-salted; swimbladder dried.

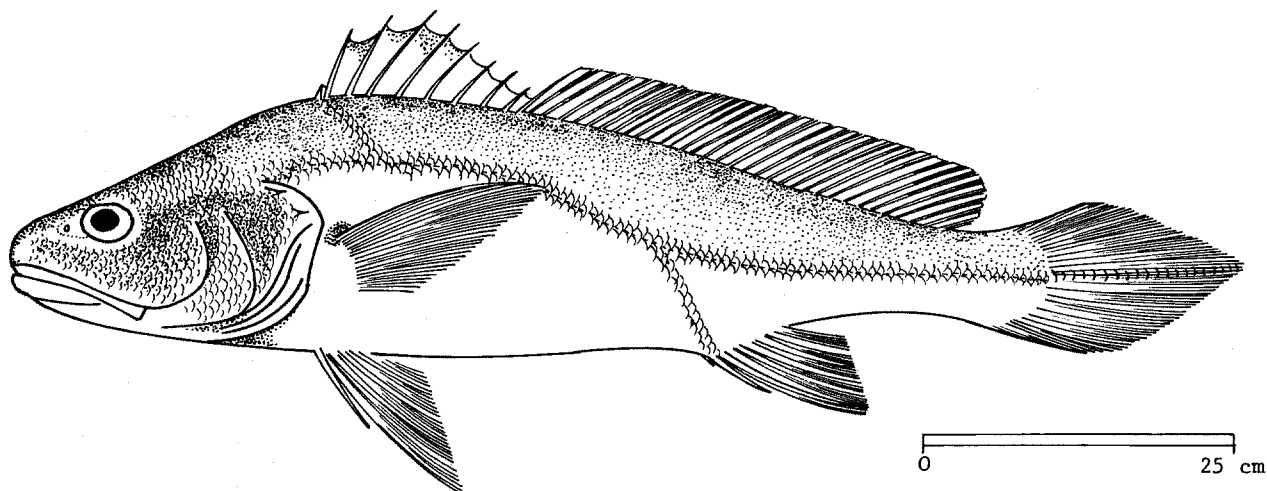
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

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

Otolithoides biauritus (Cantor, 1850)

SYNONYMS STILL IN USE: *Otolithoides biauritus*: Fowler, 1933; Chu, Lo & Wu, 1963
Sciaenoides brunneus: Day, 1876
Otolithoides brunneus: Fowler, 1933; Chu, Lo & Wu, 1963



VERNACULAR NAMES:

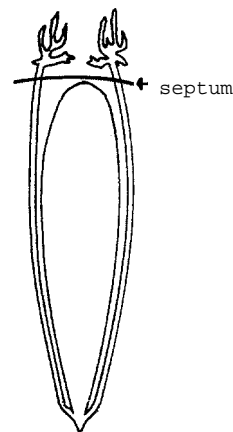
FAO: En - Bronze croaker
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A large species with a fairly acute snout and large terminal mouth; upper jaw reaching back well beyond eye. Teeth strong and spaced in both jaws, no canine teeth; a few smaller teeth also present. Lower gill rakers 11. Swimbladder carrot-shaped, with a single pair of appendages, arising from posterior end of bladder and running forward beside main body of bladder and in front of it into the head, where they branch under the skull. Dorsal fin with 8 to 9 spines, followed by a low notch, second part of the fin with 1 spine and 27 to 32 soft rays; pectoral fin moderate, about 3/4 of head length; anal fin with 2 spines and 7 to 8 soft rays, the 2nd spine weak; caudal fin pointed. Scales cycloid (smooth) on head and on upper part of front of body, elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin.

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



Otolithoides

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Otolithoides pama: more soft rays in dorsal fin (40 to 45; 27 to 32 in *O. biauritus*); also, pectoral fin as long as head ($3 \frac{1}{4}$ of head length in *O. biauritus*).

Otolithoides perarmata: fewer dorsal fin spines (7 + 1; 8 to 9 + 1 in *O. biauritus*).

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

SIZE:

Maximum: 160 cm; common: 100 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

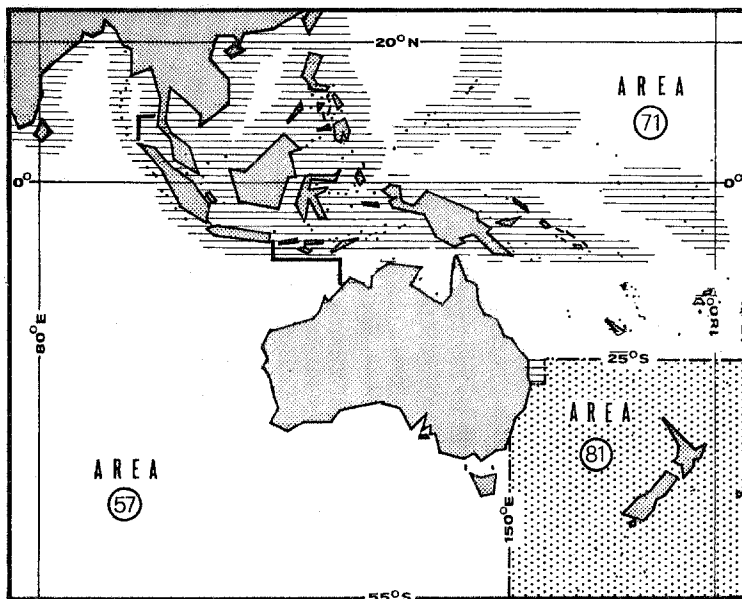
Throughout northern part of area.

Inhabits coastal and inshore waters.

Feeds on 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, handlines and traps.

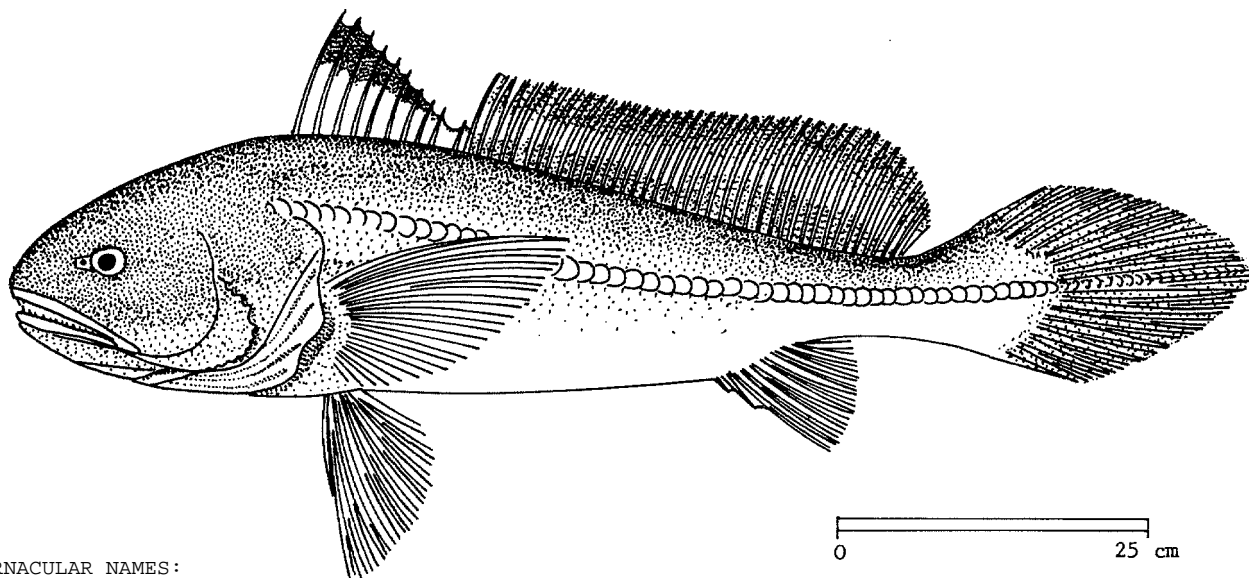
Marketed fresh; also dried-salted; swimbladder dried.

FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

FISHING AREAS 57,71
(E Ind. Ocean)
(W Cent. Pacific)*Otolithoides pama* (Ham. Buch., 1822)

SYNONYMS STILL IN USE: *Bola pama* Ham. Buch., 1822
Sciaenoides pama: Day, 1876
Pama pama: Fowler, 1933; Weber & de Beaufort, 1936
Otolithoides pama: Mohan, 1972



VERNACULAR NAMES:

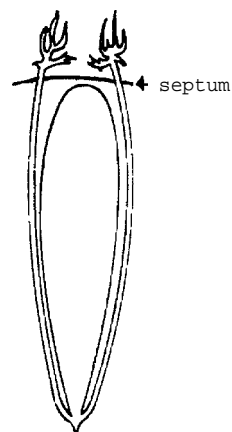
FAO: En - Pama croaker
 Fr -
 Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A large species with a conical snout and large terminal mouth; upper jaw reaching back beyond eye. Teeth enlarged in both jaws, with 1 or 2 pairs of canines in upper jaw and sometimes a pair of large teeth at tip of lower jaw. Lower gill rakers 11 to 14, long at joint of arch, shorter in front. Swimbladder carrot-shaped, with a single pair of appendages, arising from posterior end of bladder and running forward beside it to enter the head where they branch under the skull. Dorsal fin with 10 spines, followed by a low notch, second part of the fin with 1 spine and 40 to 45 soft rays; pectoral fin as long as or longer than head; anal fin with 2 spines and 7 soft rays, the 2nd spine short and weak; caudal fin pointed (very long and tapering in juveniles). Scales cycloid (smooth) on head, elsewhere ctenoid (rough to touch), very small above anterior part of lateral line; lateral line scales reaching to tip of caudal fin.

Colour: no distinctive markings.

*Otolithoides*

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Otolithoides biauritus: fewer soft dorsal fin rays (27 to 32; 40 to 45 in *O. pama*); also, pectoral fin only 3/4 of head length (as long as head, or longer, in *O. pama*).

Otolithoides perarmata: fewer dorsal fin spines (7 + 1; 10 + 1 in *O. pama*) and some dorsal, pelvic and anal spines greatly swollen in older fishes.

Other croakers species: fewer soft dorsal fin rays (40 to 45 in *O. pama*); also, swimbladder usually with many appendages attached to front or sides of bladder, not solely at posterior end.

SIZE:

Maximum: 160 cm; common: about 100 cm.

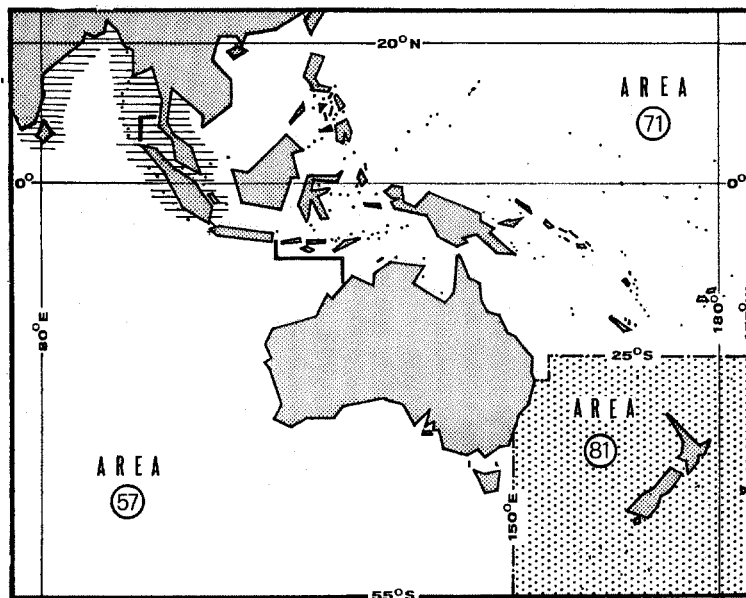
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Bay of Bengal, Burma, Malay Peninsula.

Inhabits coastal waters and enters estuaries. The young have been taken in the Sundarbans, Ganges delta.

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.

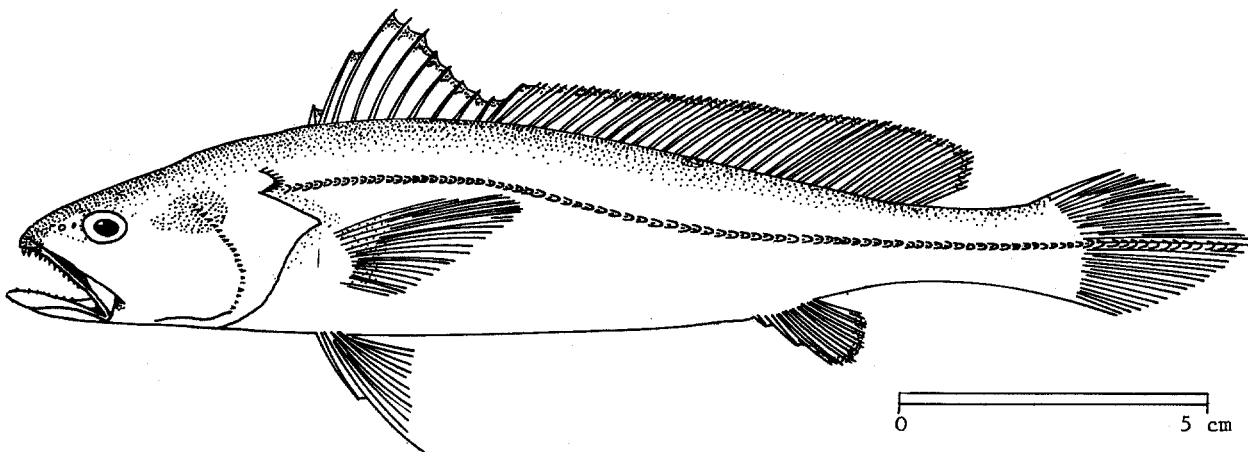
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: SCIAENIDAE

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

Panna microdon (Bleeker, 1849)

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



VERNACULAR NAMES:

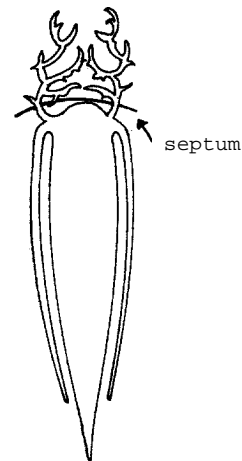
FAO: En - Panna croaker
Fr -
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

A medium-sized species with an acute snout and large terminal mouth; upper jaw reaching back beyond eye; large and small teeth present in both jaws, with 1 or 2 canine teeth in upper jaw. Lower gill rakers 11 to 12, the anterior three short and club-shaped. Swimbladder carrot-shaped, with one pair of appendages arising at the anterior end and immediately dividing into an anterior branch entering the head and ramifying under the skull, and a posterior simple tube lying beside the main bladder to its posterior end. Dorsal fin with 9 to 10 spines, followed by a notch, second part of the fin with 31 to 36 soft rays; pectoral fin moderate, about 4 times in standard length; anal fin with 2 spines and 6 to 8 soft rays, the 2nd spine short; caudal fin pointed. Scales cycloid (smooth) on head and chest, elsewhere ctenoid (rough to touch); lateral line scales reaching to tip of caudal fin.

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



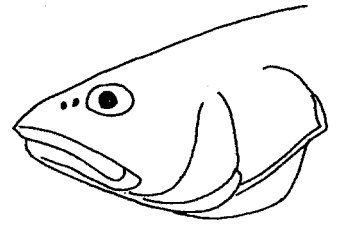
swimbladder
Panna

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

Chrysochir aureus: snout projects in front of mouth; also swimbladder with several pairs of arborescent appendages (only 1 pair in *P. microdon*).

Otolithes and *Pterotolithus* species: canines present in both jaws, not only in upper; also, swimbladder with many pairs of arborescent appendages.

Otolithoides species: appendages of swimbladder attached at posterior end.



Chrysochir aureus

SIZE:

Maximum: ?30 cm; common: 18 to 20 cm.

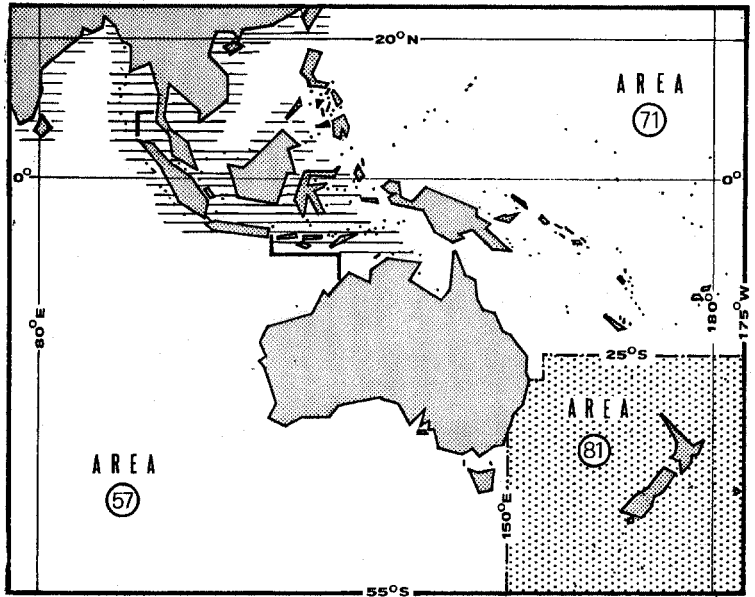
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Northwestern part of area;
also, northward to southern China.

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.