

## FAO SPECIES IDENTIFICATION SHEETS

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

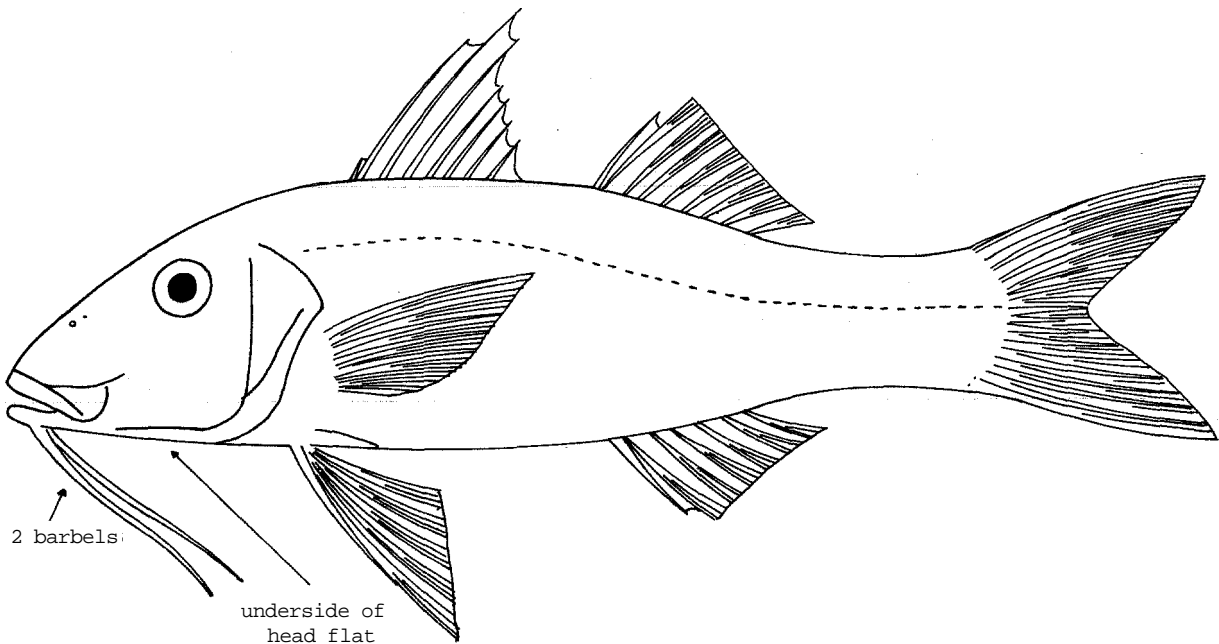
## MULLIDAE

## Goatfishes

Small to moderate-sized fishes, body elongate, underside of head, and usually also belly, flat; 2 barbels on chin. Proportions of eye and snout variable with age. 2 dorsal fins, the 1st with 7 to 8 spines, the 2nd with 1 spine and 8 soft rays; pelvic fins comparatively large, set just before pectoral fin base; caudal fin forked.

Colour: mostly red, orange, golden or brownish, but young specimens often pale sandy or blue. Body usually bears coloured markings such as longitudinal bands or stripes in yellow, orange, red, brown or black; also coloured dots, spots or blotches. Fins may have bands, stripes or bars. The colouration is characteristic for each species and is the best means of distinguishing one from another.

Goatfishes live in coastal waters, always near the bottom. The barbels carry sensory organs and are used in finding food, which consists mainly of small bottom-living animals.

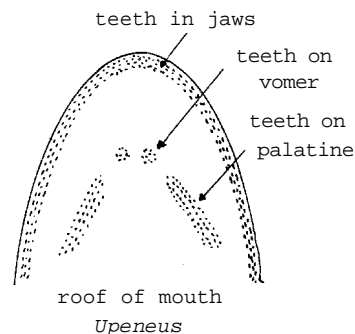


## SIMILAR FAMILIES OCCURRING IN THE AREA:

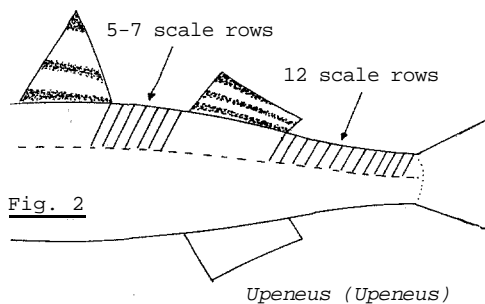
No other marine fishes of similar shape have two long barbels on chin.

Key to Genera

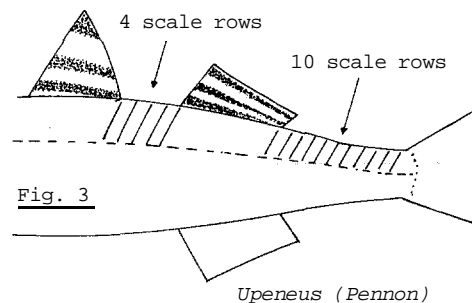
1 a. Teeth on vomer and palatines (Fig. 1: can be seen only after removing lower jaw); stripes on both dorsal fins, but never on anal fin; no opercular spine ..... *Upeneus*



2 a. 5 to 7 vertical rows of scales along the space between dorsal fins; 12 vertical rows of scales along upper part of caudal peduncle; both dorsal fins with grey or black (or sometimes red) horizontal stripes (Fig. 2); stripes on caudal fin, if present, always more numerous on upper than on lower lobe ..... subgenus *Upeneus*



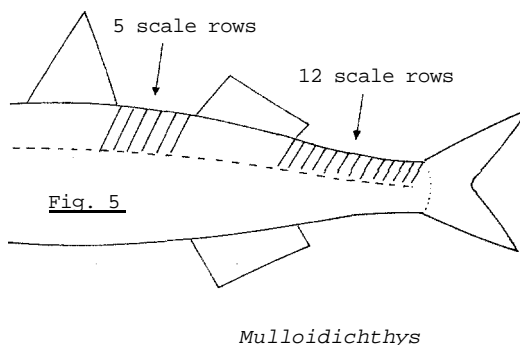
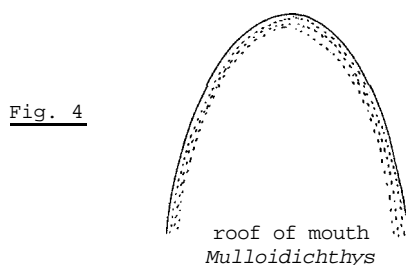
2 b. 4 vertical rows of scales along the space between dorsal fins; 10 vertical rows of scales along upper part of caudal peduncle; both dorsal fins with red or brown horizontal stripes (Fig. 3); stripes on caudal fin, if present, always more numerous on lower than on upper lobe ..... subgenus *Pennon*



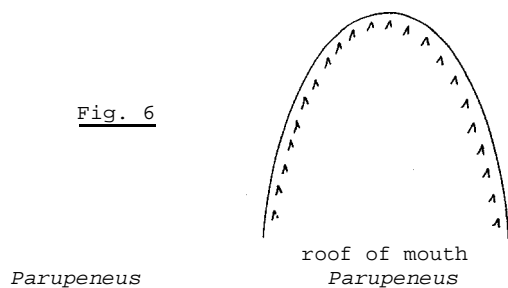
1 b. No teeth on palatines; either no stripes on any fin, or when there are stripes, these always present on 2nd dorsal and anal fins, but not on its dorsal fin; opercular spine present

3 a. No teeth on vomer

4 a. A band of very fine teeth in each jaw (Fig. 4); 5 vertical rows of scales along the space between dorsal fins; 12 vertical rows of scales along upper part of caudal peduncle; no marks on any of the fins (Fig. 5) ..... *Mulloidichthys*



4 b. One row of large, blunt teeth in each jaw (Fig. 6); 2 to 3 vertical rows of scales along the space between dorsal fins; 8 to 9 vertical rows of scales along upper part of caudal peduncle; stripes always present on 2nd dorsal and anal fins, but never on 1st dorsal fin (Fig. 7) .....



3 b. Teeth on vomer (can be seen only after removing lower jaw); teeth in jaws short, conical, 2 rows in front, a single row at sides (Fig. 8); as in *Parupeneus*, 2 to 3 vertical rows of scales along the space between dorsal fins; 8 to 9 vertical rows of scales along upper part of caudal peduncle; stripes always present on 2nd dorsal and anal fins, but never on 1st dorsal fin (Fig. 7) ... *Upeneichthys* (*Upeneichthys* is endemic to Australia; both the species known to belong to this genus have a characteristic colour pattern: body with regular alternating series of blue spots on a reddish background and with irregular greenish vertical bands.)

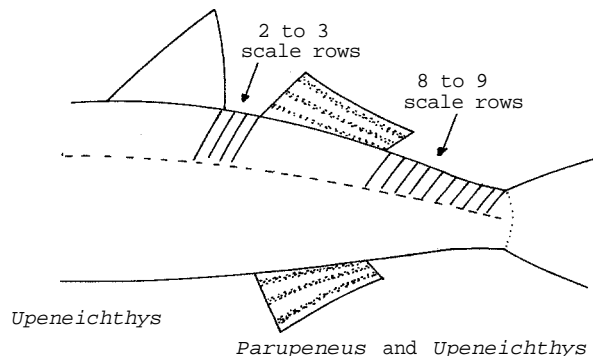
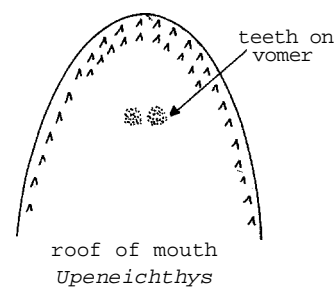


Fig. 8



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

<i>Upeneus (Upeneus) moluccensis</i> Bleeker, 1855	MULL Upen 1
<i>Upeneus (Upeneus) sulphureus</i> Cuvier, 1829	MULL Upen 2
<i>Upeneus (Upeneus) taeniopterus</i> Cuvier, 1829 = <i>Upeneus arge</i> Jordan & Evermann, 1902	
<i>Upeneus (Upeneus) vittatus</i> Lacepède, 1801 ( <i>U. vittatus</i> Forsskål seems to be a species from the Red Sea belonging to the subgenus <i>Pennon</i> )	MULL Upen 3

\* Due to the widespread confusion with the taxonomy of this family, it was decided to include in the list, besides the valid scientific species names, the authors and synonyms still in use, as well as some explanatory notes, as kindly provided by Mr. P. Guézé

- Upeneus (Pennon) asymmetricus* Lachner, 1954
- Upeneus (Pennon) bensasi* Temminck & Schlegel, 1842 MULL Upen 4
- Upeneus (Pennon) filifer* Ogilby, 1910  
(endemic to Australia)
- Upeneus (Pennon) luzonius* Jordan & Seal, 1907  
(endemic to Southeast Asia)
- Upeneus (Pennon) sundaicus* Bleeker, 1855 MULL Upen 5  
= form *U. armatoides* Whitley, 1955 (Australia)  
= form *U. caudalis* Poppta, 1921 (Indonesia)
- Upeneus (Pennon) tragula* Richardson, 1845 MULL Upen 6
- Mulloidichthys flavolineatus* Lacepède, 1801 MULL Mulld 1  
= *Mulloidichthys auriflamma* Klunzinger nec Forsskål,  
= *Mulloidichthys samoensis* Günther, 1873
- Mulloidichthys pflügeri* Steindachner, 1901  
= *Mulloidichthys vanicolensis* nec Valenciennes
- Mulloidichthys vanicolensis* Valenciennes, 1831  
= *Mulloidichthys auriflamma* nec Klunzinger nec Forsskål
- Parupeneus barberinus* Lacepède, 1801 MULL Paru 2
- Parupeneus barberinoides* Bleeker, 1852
- Parupeneus bifasciatus* Lacepède, 1801 MULL Paru 1  
= *Parupeneus trifasciatus* Lacepède, 1801  
= form *P. crassilabris* Valenciennes, 1831
- Parupeneus chryseerydros* Lacepède, 1801 MULL Paru 7  
(specimens of grey colour)  
= *Parupeneus cyclostomus* Cuvier, 1829 nec Lacepède  
(specimens of pink colour)  
= *Parupeneus luteus* Valenciennes, 1831  
(specimens of orange colour)
- Parupeneus fraterculus* Valenciennes, 1831 MULL Paru 6  
= *Parupeneus signatus* Günther, 1867  
(name still used in Australia)  
= *Parupeneus spilurus* Bleeker, 1854  
(name still used in South Asia)
- Parupeneus heptacanthus* Lacepède, 1801 MULL Paru 5  
= *Parupeneus cinnabarinus* Cuvier, 1829 (juvenile)  
= *Parupeneus luteus* Bleeker nec Valenciennes  
= *Parupeneus pleurospilus* Bleeker, 1853 (juvenile)
- Parupeneus indices* Shaw, 1803 MULL Paru 4
- Parupeneus janseni* Bleeker, 1856
- Parupeneus macronema* Lacepède, 1801 MULL Paru 3

*Parupeneus multifasciatus* Quoy & Gaimard, 1824

*Parupeneus trifasciatus* nec Lacepède  
= form *P. velifer* Smith & Swain, 1882

*Parupeneus pleurostigma* Bennett, 1831

*Parupeneus porphyreus* Jenkins, 1902

*Parupeneus chryseodydros* Cuvier, 1829 nec Lacepède  
(name still used in Indian Ocean)  
= *Parupeneus sufflavus* Whitley, 1941  
(name still used in Australia)

*Upeneichthys porosus* Cuvier, 1829

(endemic to Australia and New Zealand)

*Upeneichthys vlamingi* Cuvier, 1829

(endemic to Australia and New Zealand)

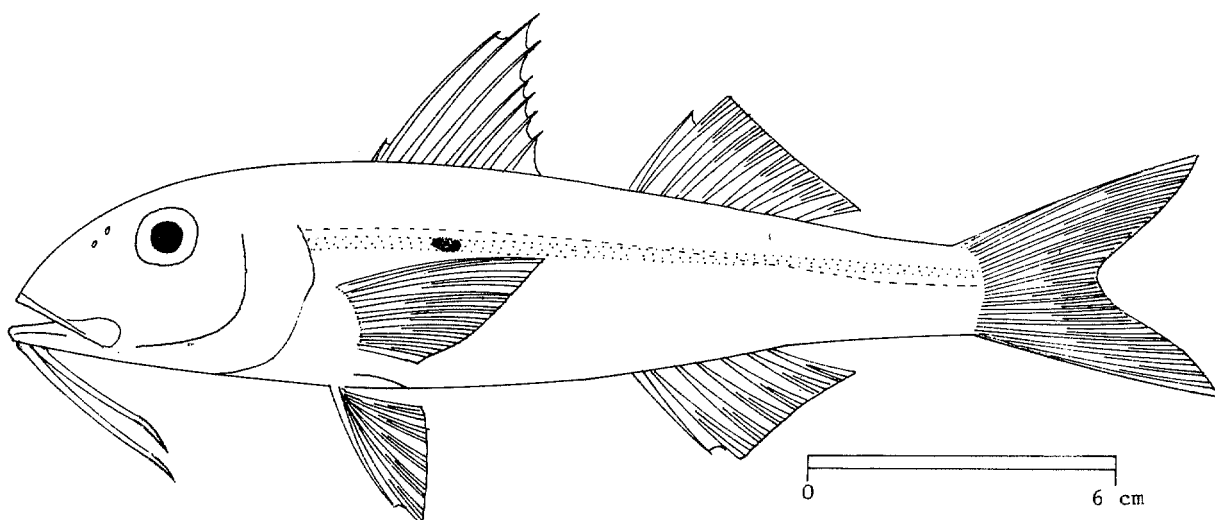
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: MULLIDAE

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

*Mulloidichthys flavolineatus* Lacepède, 1801

SYNONYMS STILL IN USE: *Mulloidichthys samoensis* Günther, 1873  
*Mulloidichthys auriflamma* Klunzinger, nec. Forsskål



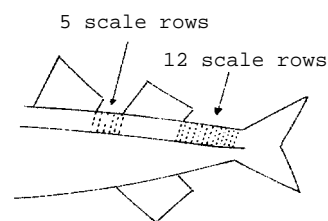
VERNACULAR NAMES

FAO: En - Slender goldband goatfish  
Fr -  
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body very elongate, but robust. Chin with 2 short and thin barbels; a spine on upper half of opercular margin. A band of very fine teeth in each jaw, none on vomer and palatines (roof of mouth). 5 vertical rows of scales along the space between dorsal fins; 12 vertical rows of scales along upper part of caudal peduncle.



Colour: head and back greenish bronze, belly whitish. A narrow golden band runs from opercular spine to base of upper caudal fin lobe, anteriorly well below lateral line, then crossing the line at level of 2nd dorsal fin; often 1 or 2 grey or black blotches on the longitudinal band below 1st dorsal fin. No marks on any of the fins; both dorsal fins greenish yellow, pectoral fins rosy, pelvic and anal fins whitish, caudal fin yellowish. Barbels white.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

*Mulloidichthys vanicolensis*: body deeper, eye clearly larger; colour of head and back changing with depth - bronze in shallow waters, brick red in deeper waters; all fins bright yellow, except for pectoral fins which are rosy.

*M. pflügeri*: head, body and fins uniform bright red; maximum size 45 cm (*M. flavolineatus*. 34 cm); only found in deep waters.

Other mullid species: stripes or other marks on dorsal, anal or caudal fins (apart from other generic differences).

SIZE:

Maximum: 34 cm; common: 20 to 25 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

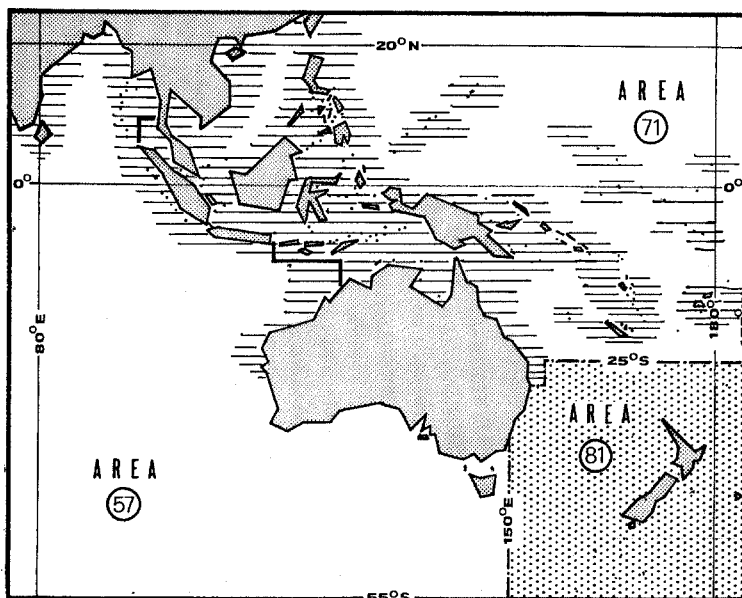
Throughout northern part of area, northward to Japan, southward to Australia and New Zealand, westward to East Africa and the Red Sea.

Inhabits coastal waters; the young form large schools entering coastal lagoons during the hot season.

Feeds on bottom-living animals.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

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

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

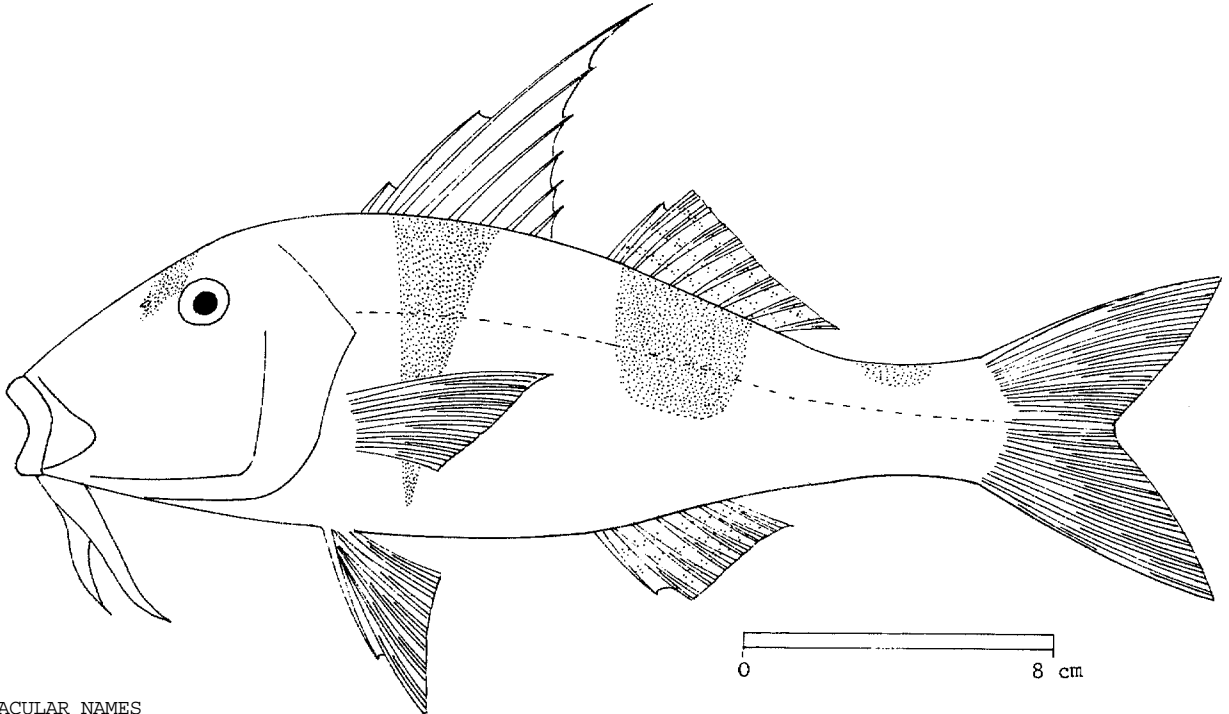
area 71 (Western Central Pacific): 15 500 tons (Philippines: 13 100 tons)

Caught mainly with bottom trawls; also with seines, especially in coastal lagoons.

Marketed mostly fresh, its flesh is highly appreciated.

## FAO SPECIES IDENTIFICATION SHEETS

FAMILY: MULLIDAE

FISHING AREAS 57,71  
(E Ind. Ocean)  
(W Cent. Pacific)*Parupeneus bifasciatus* Lacepède, 1801SYNONYMS STILL IN USE: *Parupeneus trifasciatus* Lacepède, 1801  
*Parupeneus crassilabris* Valenciennes, 1831

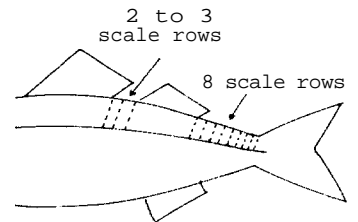
## VERNACULAR NAMES

FAO: En - Doublebar goatfish  
Fr -  
Sp -

## NATIONAL:

## DISTINCTIVE CHARACTERS:

Body very deep, snout profile straight. Lips thick and fleshy; a small spine on upper third of opercular margin; chin with 2 short, very thick and fleshy barbels. Teeth in both jaws in a single row, none on vomer and palatines (roof of mouth). 2 to 3 vertical rows of scales along space between dorsal fins; 8 vertical rows of scales along upper part of caudal peduncle.

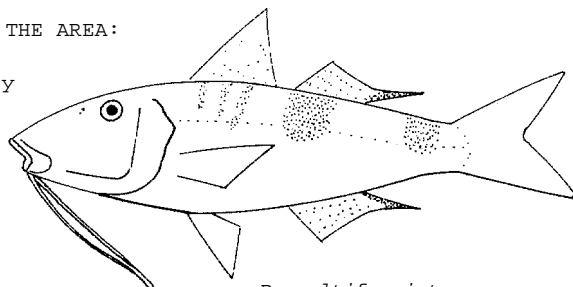


Colour: ground colour of head, body and fins dark red; centres of scales white with red marblings; a faint blackish band on head, in front of eye. 1 vertical blackish bar below each dorsal fin, the first long and narrow, triangular in shape; the second broad and short; often also a black saddle on caudal peduncle. These black markings may, however, fade to an inconspicuous light grey in very large specimens (so-called form *crassilabris*). 2nd dorsal fin with horizontal pink or violet stripes (but no stripes on 1st dorsal); anal fin with horizontal yellow stripes.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

*Parupeneus multifasciatus*: body moderately to strongly elongate, lips rather thin, barbels thin and very long, reaching to base of pelvic fins; "past ray of 2nd dorsal and anal fins elongate and blackish. Markings on body as follows: 2 to 3 ill-defined bars below 1st dorsal fin, a large conspicuous bar below 2nd dorsal fin, and a very broad saddle on caudal peduncle separated from preceding bar by a light-coloured area. In specimens from shallow waters these markings are black, save the first 2, which may be dark red; in fish from deeper waters (about 60 m), all of them are deep red, only slightly darker than ground colour of body (so-called form *velifer*). The existence of this species in the Indian Ocean is doubtful.



*P. multifasciatus*

Other mullid species: lack the combination of short, very fleshy barbels, vertical stripes on body and saddle on caudal peduncle (apart from generic differences in *Upeneus*, *Mulloidichthys* and *Upeneichthys*).

SIZE:

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

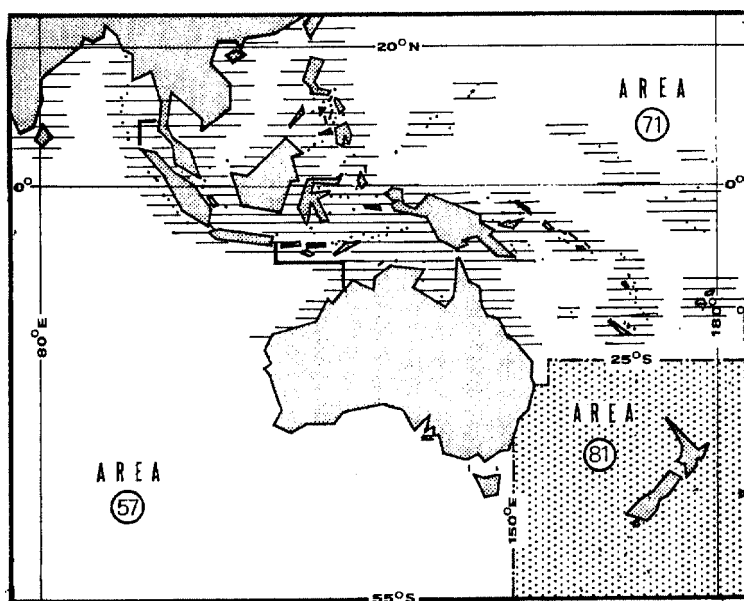
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout northern part of area; northward to Vietnam, southward to Australia, westward to East Africa.

Inhabits coastal waters, down to about 60 m.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING MAR AND PRINCIPAL FORMS OF UTILIZATION:

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

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

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

Caught mainly with lines.

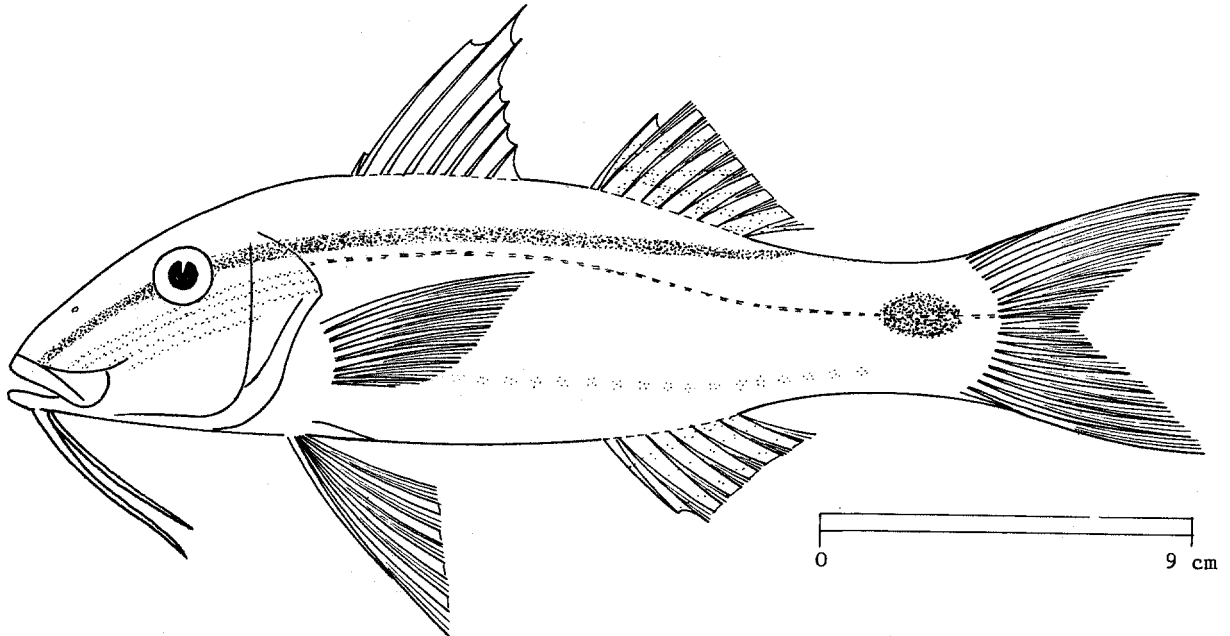
Marketed mostly fresh.

## FAO SPECIES IDENTIFICATION SHEETS

FAMILY: MULLIDAE

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

SYNONYMS STILL IN USE: None



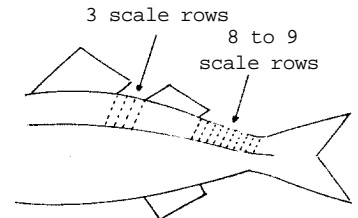
## VERNACULAR NAMES:

FAO: En - Dash-and-dot goatfish  
Fr -  
Sp -

## NATIONAL:

## DISTINCTIVE CHARACTERS:

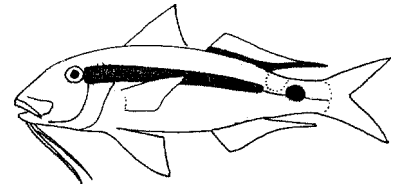
A large-sized fish; body elongate, snout long and pointed. Chin with moderately long barbels; a small spine on upper third of opercular margin. Teeth in both jaws in a single row, none on vomer and palatines (roof of mouth). 3 vertical rows of scales along space between dorsal fins; 8 to 9 vertical rows of scales along upper part of caudal peduncle. 1st dorsal fin long and pointed, reaching 2nd dorsal when depressed; 3rd dorsal spine sometimes strongly elongate and may reach base of caudal fin when depressed.



Colour: ground colour variable with depth; in shallow waters, head and back bronze-coloured and fins yellow; in deeper waters (60 to 80 m), head and back reddish, and fins pink; lower sides and belly always whitish. Head with alternating blue and yellow streaks from snout to operculum. A narrow, dark band, with golden upper and lower margins, runs from upper jaw through eye, above lateral line, to about end of 2nd dorsal fin; an oblong dark blotch, longer than eye, placed behind mid-point of caudal peduncle (its hind margin only 3 scale rows from caudal fin base), the lateral line passing through its centre. Both the band and the blotch are dark brown in specimens from shallow waters, but bright red in those from deeper waters. A line of yellow spots extends from base of pectoral fin to caudal peduncle. Second dorsal fin with pink or violet horizontal stripes, but no stripes on 1st dorsal; anal fin with yellow stripes.

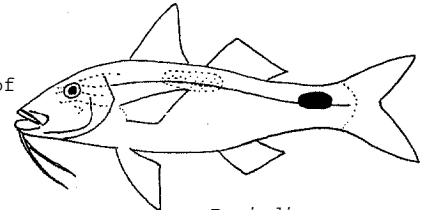
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

*P. macronema*: maximum size only 25 cm (*P. barberinus*: 50 cm); barbels very long, reaching base of pelvic fins; last ray of 2nd dorsal and anal fins elongate, about double the length of preceding rays; ground colour reddish, belly somewhat lighter; dark band on sides broader, not extending forward beyond eye; black blotch on caudal peduncle smaller, placed further (7 scale rows) from caudal fin base, the lateral line passing through its lower third; a black stripe along base of 2nd dorsal fin extending to last fin ray.



*P. macronema*

*P. indicus*: large blotch on caudal peduncle, but no dark band on sides; a large, elongate yellow blotch, mostly above lateral line, extending from below hind part of 1st dorsal fin to below front part of 2nd dorsal fin.



*P. indicus*

Other mullid species: lack the combination of a dark band along sides and a dark blotch on midline of caudal peduncle (apart from generic differences in *Upeneus*, *Mulloidichthys* and *Upeneichthys*).

SIZE:

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

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

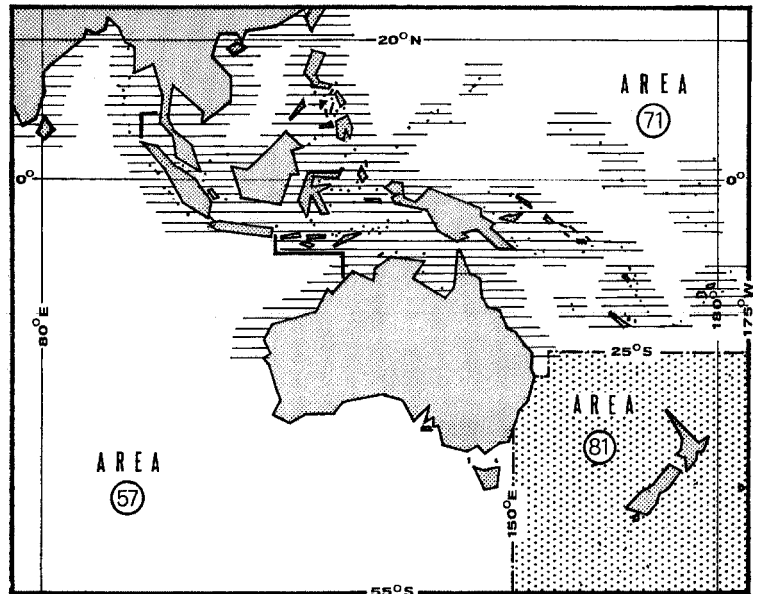
Throughout northern part of area and southward to Queensland (Australia); also, westward to East Africa and northward to southern Japan.

Inhabits coastal waters down to 100 m; found singly or in small schools.

Feeds mainly on bottom-living animals.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

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

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

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

Caught mainly with bottom trawls; also with trap nets.

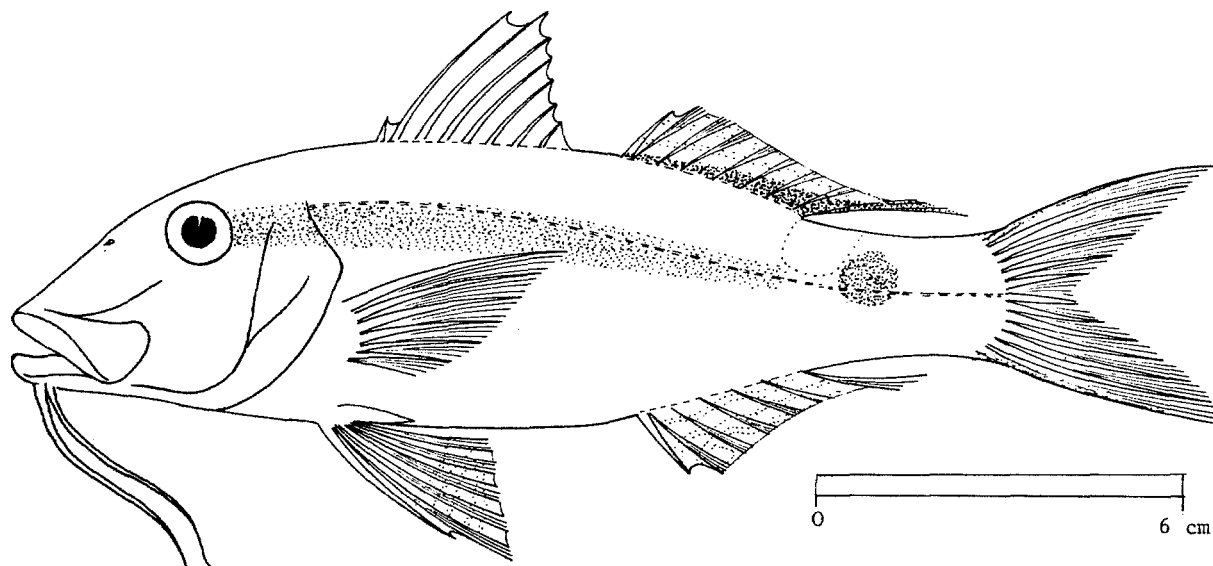
Marketed mainly fresh.

## FAO SPECIES IDENTIFICATION SHEETS

FAMILY: MULLIDAE

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

SYNONYMS STILL IN USE: None



## VERNACULAR NAMES:

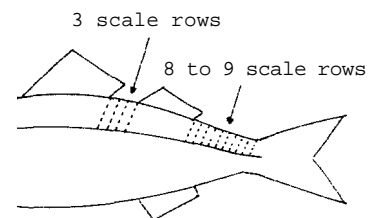
FAO: En - Longbarbed goatfish  
Fr -  
Sp -

## NATIONAL:

## DISTINCTIVE CHARACTERS:

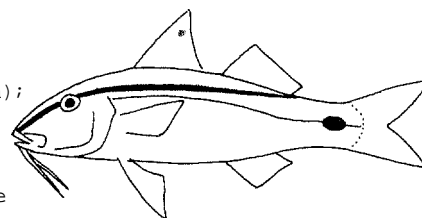
A small fish; body elongate. Chin with 2 long barbels reaching to base of pelvic fins; a small spine on upper third of opercular margin. Teeth in both jaws in a single row, none on vomer and palatines (roof of mouth). 3 vertical rows of scales along the space between dorsal fins; 8 to 9 vertical rows of scales along upper part of caudal peduncle. 1st dorsal fin rather high; last ray of 2nd dorsal and anal fins elongated (about double the length of preceding rays).

Colour: ground colour of head and body reddish, somewhat paler on lower sides and belly. A very broad, dark brown band runs from hind margin of eye to below hind margin of 2nd dorsal fin; a pale saddle behind 2nd dorsal fin and a dark blotch, smaller than or equal to eye, at midpoint of caudal peduncle (7 scale rows from caudal fin base), mostly above lateral line. All fins reddish or purple, 2nd dorsal fin with a black stripe along base extending to tip of last ray, and several horizontal pink or violet stripes above, but no stripes on 1st dorsal; anal fin with faint yellow horizontal stripes; outer rays of caudal fins purplish or dark.



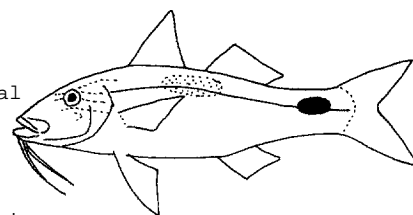
DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

*Parupeneus barberinus*: maximum size 50 cm (*P. macronema*: 25 cm); barbels shorter, not reaching base of pelvic fins; last ray of 2nd dorsal and anal fins not elongate; dark band on sides much narrower, and continuing in front of eye to upper jaw; dark blotch on caudal peduncle larger than eye and placed behind midpoint of caudal peduncle (its hind margin only 3 scale rows from caudal fin base), the lateral line passing through its centre; no pale saddle behind 2nd dorsal fin; base of 2nd dorsal fin without a black stripe. Red-coloured specimens of *P. barberinus* are often confused with *P. macronema*.



*P. barberinus*

*P. indicus*: a large blotch on caudal peduncle, but no dark band on sides; a large elongate yellow blotch on sides, mostly above lateral line, extending from below hind part of 1st dorsal fin to below front part of 2nd dorsal fin; base of 2nd dorsal fin without a black stripe.



*P. indicus*

Other mullid species: lack the combination of a dark band along sides and a dark blotch on midline of caudal peduncle (apart from generic differences in *Upeneus*, *Mulloidichthys* and *Upeneichthys*).

SIZE:

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

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

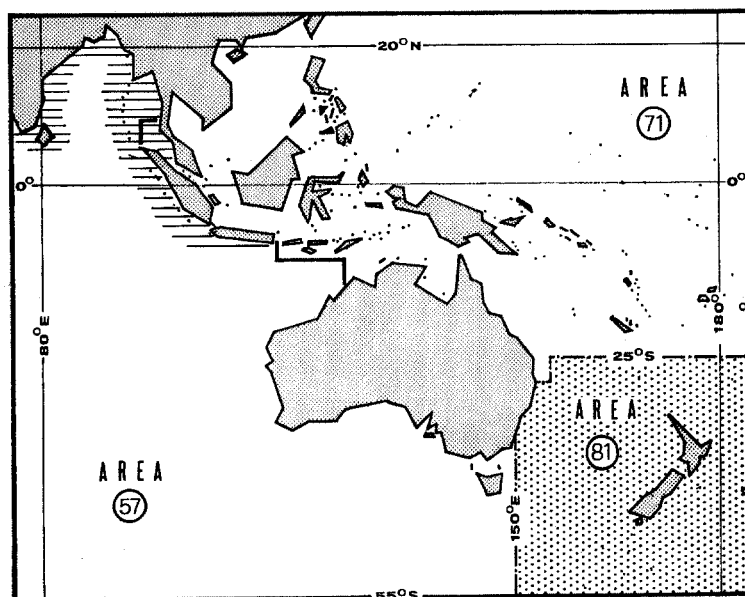
Throughout northern part of Indian Ocean only, but not southward to Australia; also, westward to East Africa.

Inhabits shallow coastal waters, only exceptionally beyond 40 m depth; lives singly or in small schools.

Feeds mainly on bottom-living animals.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

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

area 57 (Eastern Indian Ocean): 1 500 tons (India only)  
area 71 (Western Central Pacific): 15 500 tons (Philippines: 13 100 tons)

Caught mainly with bottom trawls; also with trap nets.

Marketed mainly fresh.

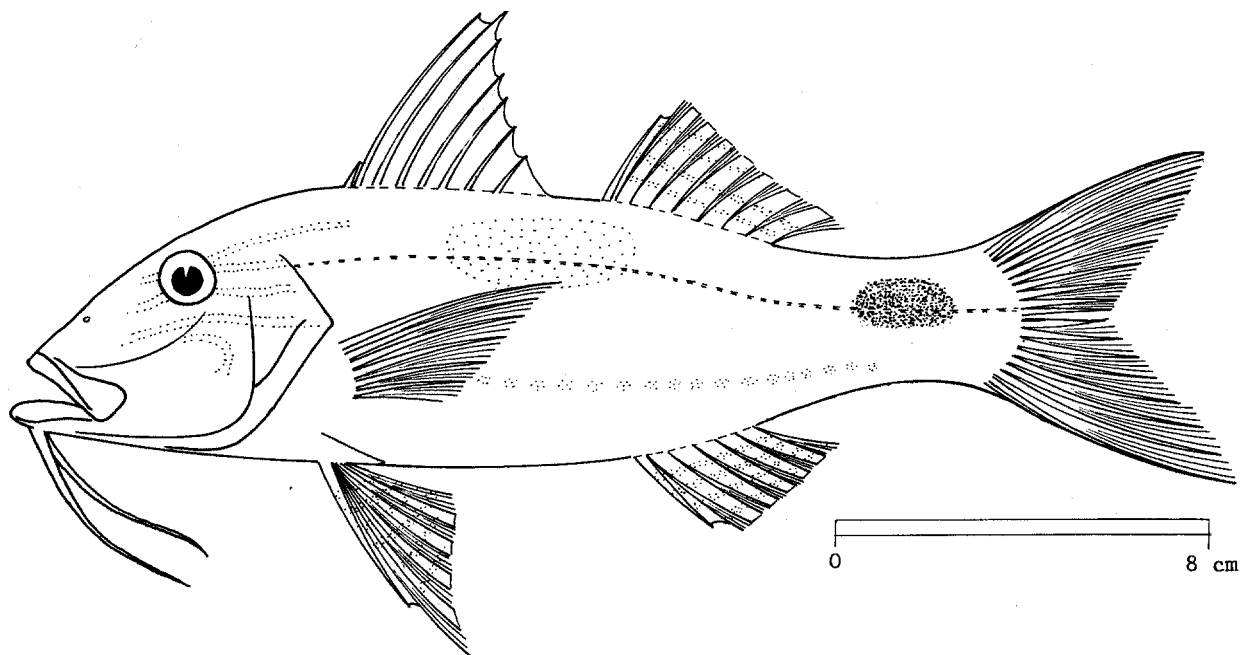
FAD SPECIES IDENTIFICATION SHEETS

FAMILY: MULLIDAE

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

*Parupeneus indicus* Shaw, 1803

SYNONYMS STILL IN USE: None



VERNACULAR NAMES

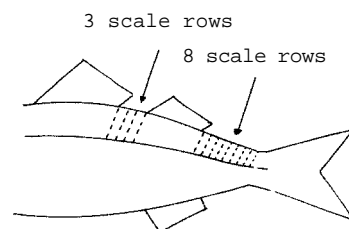
FAO: En - Indian goatfish  
Fr -  
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body deep. Chin with 2 moderately long barbels; a small spine on upper third of opercular margin. Teeth in both jaws in a single row, none on vomer and palatines (roof of mouth). 3 vertical rows of scales along the space between dorsal fins; 8 vertical rows of scales along upper part of caudal peduncle.

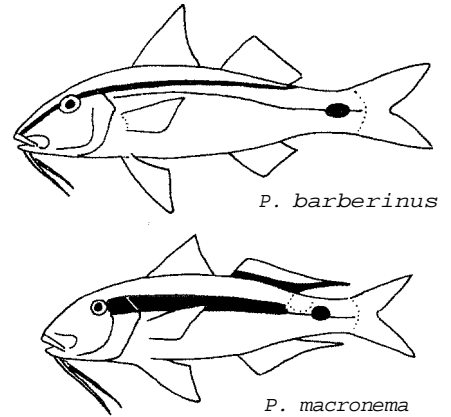
Colour: ground colour of head and body purple. Head with 3 to 5 violet or blue lines from snout to operculum. Scales on back each with a greenish yellow edge and scales on caudal peduncle with violet or blue spots. A large elongate yellow blotch, mostly above lateral line, extending from below hind part of 1st dorsal fin to below front part of 2nd dorsal fin; a large black blotch immediately behind midpoint of caudal peduncle, 2/3 of it above lateral line; a line of yellow spots from pectoral fin to caudal peduncle. 2nd dorsal fin with horizontal violet or pink stripes, but no stripes on 1st dorsal; anal fin with yellow horizontal stripes. Barbels white to pink.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

*Parupeneus barberinus* and *P. macronema*: no yellow blotch on lateral line; a dark band along sides, running to below hind margin of 2nd dorsal fin (from snout in *P. barberinus*); also, in *P. macronema* last ray of 2nd dorsal and anal fins elongate and a black band along base of 2nd dorsal fin extending to tip of last ray.

Other mullid species: lack the combination of a yellow blotch on sides and a dark blotch on midline of caudal peduncle (apart from generic differences in the case of *Upeneus*, *Mulloidichthys* and *Upeneichthys*).



SIZE:

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

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

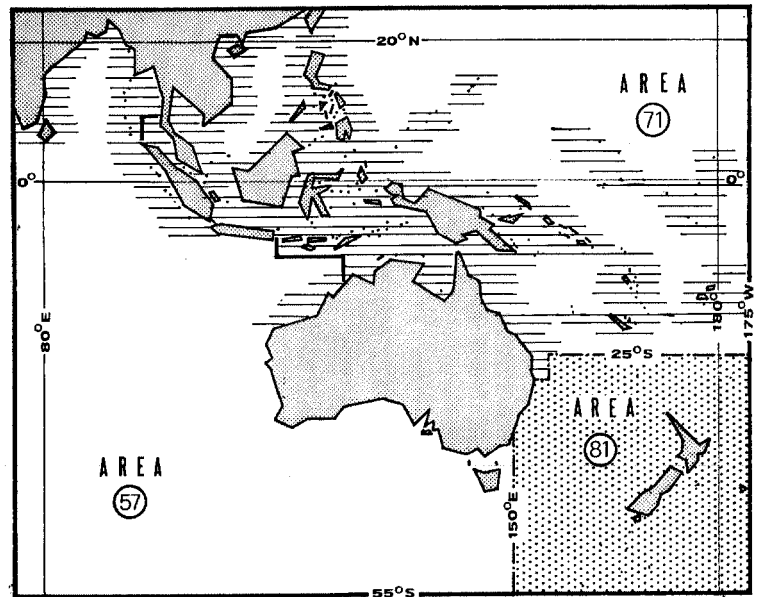
Throughout northern part of area and southward to Queensland (Australia); also, westward to East Africa and northward to Japan.

Inhabits shallow coastal waters; found singly or in small schools.

Feeds on bottom-living animals.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

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

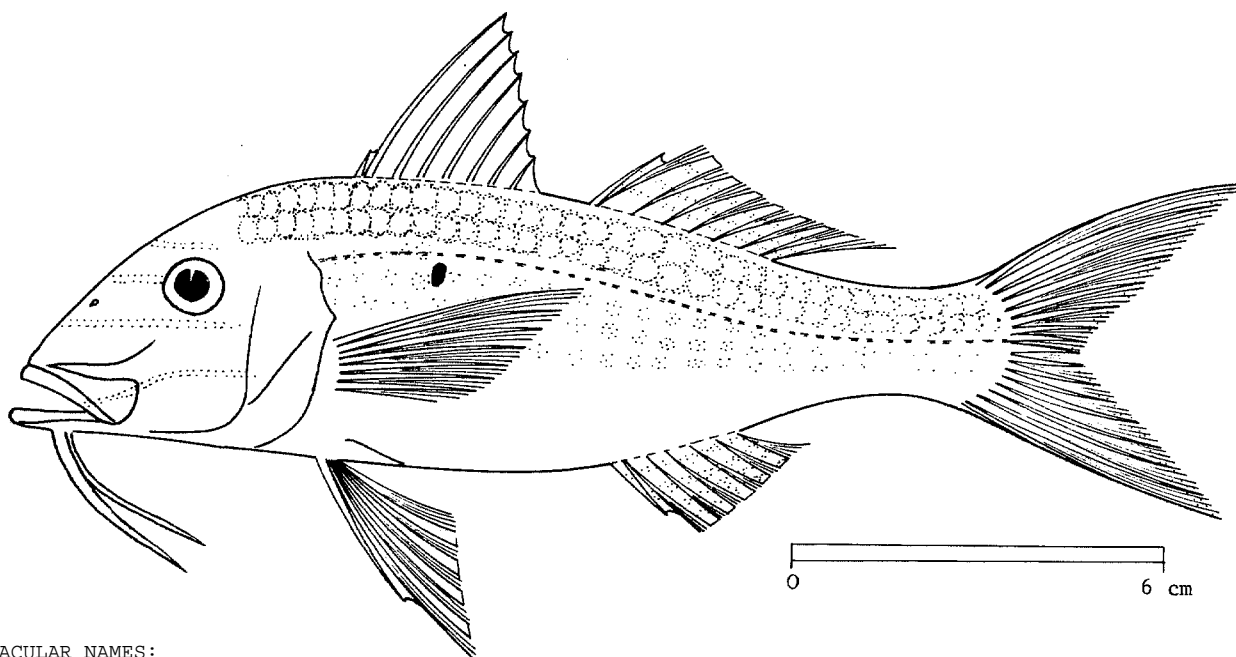
area 57 (Eastern Indian Ocean): 1 500 tons (India only)  
area 71 (Western Central Pacific): 15 500 tons (Philippines: 13 100 tons)

Caught mainly with bottom trawls; also with trap nets.

Marketed mainly fresh.

## FAO SPECIES IDENTIFICATION SHEETS

FAMILY: MULLIDAE

FISHING AREAS 57,71  
(E Ind. Ocean)  
(W Cent. Pacific)*Parupeneus heptacanthus* Lacepède, 1801SYNONYMS STILL IN USE: *Parupeneus luteus* Bleeker nec. Valenciennes  
*Parupeneus pleurospilus* Bleeker, 1853 (juveniles from shallow waters)  
*Parupeneus cinnabarinus* Cuvier, 1829 (juveniles from medium depths)

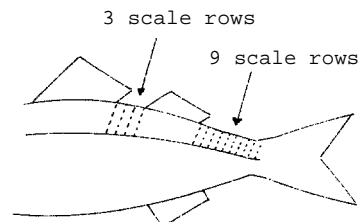
## VERNACULAR NAMES:

FAO: En - Spotted golden goatfish  
Fr -  
Sp -

## NATIONAL:

## DISTINCTIVE CHARACTERS:

Body rather deep, upper profile forming a characteristic regular arch; snout short and steep. Chin with 2 moderately long barbels; a small spine on upper third of opercular margin. Teeth in both jaws in a single row, none on vomer and palatines (roof of mouth). 3 vertical rows of scales along the space between dorsal fins; 9 vertical rows of scales along upper part of caudal peduncle. 1st dorsal fin higher than 2nd, pectoral fins longer than pelvic fins.



Colour: live fish very colourful, with blue reflections on back, golden on sides and pearly white on belly; several blue parallel bands on head; scales on back with dark edges, those on back and sides with light circular central spots, forming about 5 horizontal lines to caudal peduncle; 2nd dorsal fin with horizontal pink or violet stripes, but no stripes on 1st dorsal; anal fin with yellow stripes. After death, the head, back and fins become uniform pink. The only remaining ornament is a bright red "pleural" spot below the 9th scale of lateral line. Barbels white to pink. Young specimens with upper caudal fin lobe yellow; those from shallow waters in S.E. Asia have a grey or black pleural spot and are usually classified as *P. pleurospilus*, while those from deeper waters off India, with a little red pleural spot, are often identified as *P. cinnabarinus*.



DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:.

*Parupeneus pleurostigma*: body more elongate, upper profile of head straight, or even concave in older specimens; pleural spot grey or red, variable in size, placed below last spines of 1st dorsal fin; a broad, whitish or yellowish area above lateral line in the space between dorsal fins; soft rays of 2nd dorsal fin and of upper lobe of caudal fin edged with violet (black after death).

Other mullid species: lack the combination of upper profile forming a perfect arch, presence of a red or grey "pleural" spot on sides, and pectoral fins longer than pelvic fins (apart from generic differences in *Upeneus*, *Mulloidichthys* and *Upeneichthys*).

SIZE:

Maximum: 30 cm; common: about 20 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

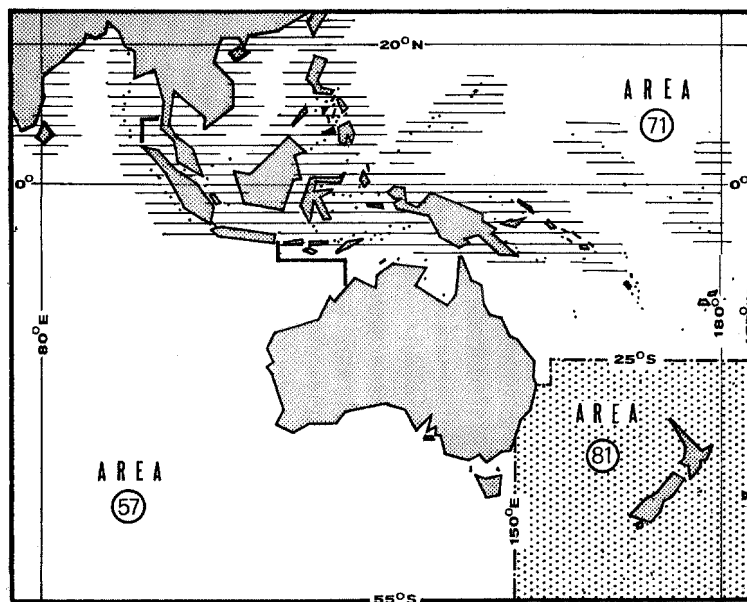
Throughout northern part of area but not to coasts of Australia; also, westward to East Africa.

Inhabits coastal waters, down to about 60 m. Found singly or in small schools.

Feeds on bottom-living animals.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

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

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

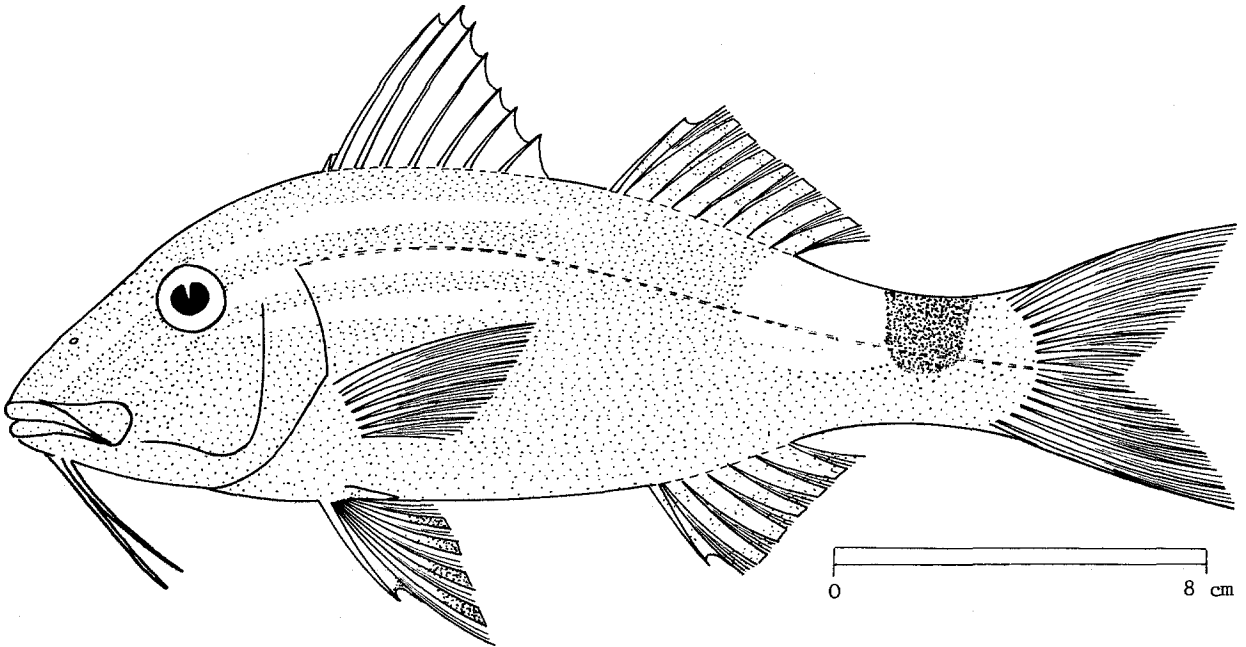
area 71 (Western Central Pacific): 15 500 tons (Philippines: 13 100 tons)

Caught mainly with bottom trawls; also with trap nets.

Marketed mainly fresh.

## FAO SPECIES IDENTIFICATION SHEETS

FAMILY: MULLIDAE

FISHING AREAS 57,71  
(E Ind. Ocean)  
(W Cent. Pacific)*Parupeneus fraterculus* Valenciennes, 1831SYNONYMS STILL IN USE: *Parupeneus spilurus* Bleeker, 1854  
*Parupeneus signatus* Günther, 1867

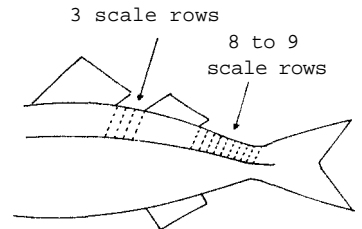
## VERNACULAR NAMES

FAO: En - Blacksaddle goatfish  
Fr -  
Sp -

NATIONAL:

## DISTINCTIVE CHARACTERS:

Body deep, snout profile straight. Chin with 2 moderately long barbels; a small spine above midpoint of opercular margin. Teeth in both jaws in a single row, none on vomer and palatines (roof of mouth). 3 vertical rows of scales along the space between dorsal fins; 8 to 9 vertical rows of scales along upper part of caudal peduncle.

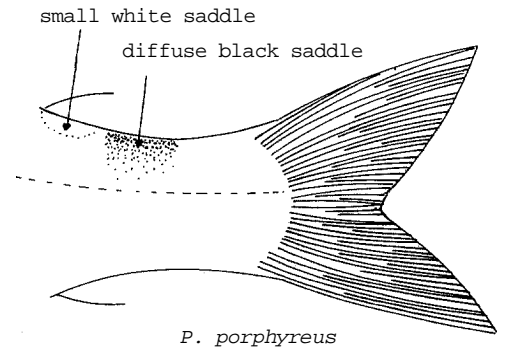


Colour: ground colour of head, body and fins red or vermillion in adults, but greenish bronze in young specimens. 2 to 3 longitudinal bands of lighter shade on head and sides, separating 2 darker bands (of the same colour as body) which are most conspicuous behind the eyes but become indistinguishable at the level of the space between dorsal fins; these bands tend to disappear with age. A large whitish saddle on anterior part of caudal peduncle followed by a black saddle which increases in size with age. 2nd dorsal and anal fins with light yellow to golden marks (parallel lines of spots in young specimens, changing to irregular blotches with age, no marks on 1st dorsal fin; caudal fin rays lined with yellow, also changing to blotches with age.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA:

*Parupeneus porphyreus*: whitish saddle on anterior part of caudal fin very well defined and small (only 2 scale rows long and 1 scale row broad) followed by a diffuse black saddle which disappears with age; in adults, also vertical stripes on body, tips of 1st dorsal fin and upper lobe of caudal fin white; alternating series of greenish points on caudal fin. Ground colour highly variable with age (olive green in young, bright red in adults, and orange in old specimens). This species is often confused with *P. fraterculus*.

Other mullid species: lack the combination of light and dark longitudinal bands on head and sides, and white and black saddles on caudal peduncle (apart from generic differences in *Upeneus*, *Mulloidichthys* and *Upeneichthys* species).



SIZE:

Maximum: 45 cm; common: 20 to 30 cm.

GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

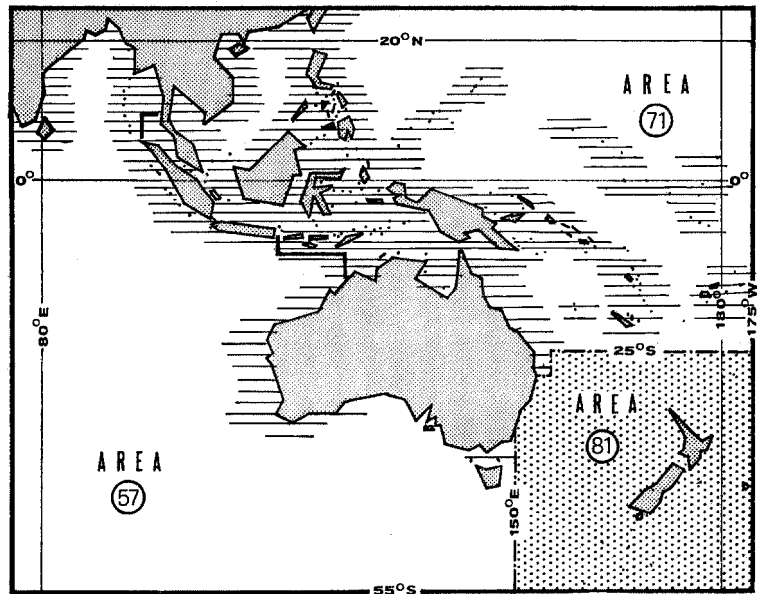
Throughout northern part of area; northward to Japan, southward to southern coasts of Australia, and westward to East Africa. Abundant along continental coasts, as well as around oceanic islands.

Inhabits coastal waters, from depths of 20 m to about 80 m. Found singly or in small schools.

Feeds on bottom-living animals.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

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

area 57 (Eastern Indian Ocean): 1 500 tons (India only)  
area 71 (Western Central Pacific): 15 500 tons (Philippines: 13 100 tons)

Caught mainly with bottom trawls; also with trap nets.

Marketed mainly fresh.

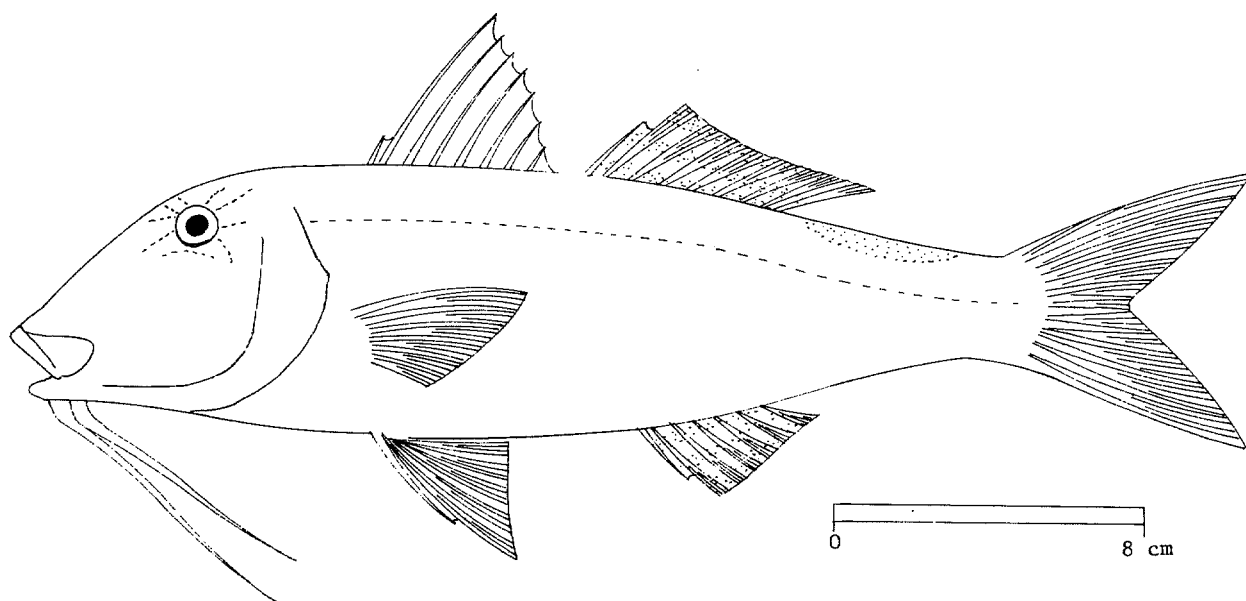
FAO SPECIES IDENTIFICATION SHEETS

FAMILY: MULLIDAE

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

*Parupeneus chryserydros* Lacepède, 1801

SYNONYMS STILL IN USE: *Parupeneus cyclostomus* Cuvier, 1829 nec. Lacepède  
*Parupeneus luteus* Valenciennes, 1831



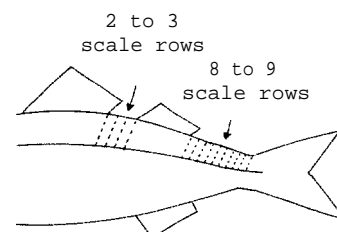
VERNACULAR NAMES

FAO: En - Goldsaddle goatfish  
Fr -  
Sp -

NATIONAL:

DISTINCTIVE CHARACTERS:

Body elongate, snout profile straight. Chin with 2 very long barbels, reaching to base of pelvic fins; a small spine on upper third of opercular margin. Teeth in both jaws in a single row, none on vomer and palatines (roof of mouth). 2 to 3 vertical rows of scales along the space between dorsal fins; 8 to 9 vertical rows of scales along upper part of caudal peduncle.



Colour: ground colour of head, body and fins changing greatly with depth; light to dark violet/grey with lines of yellow spots or a yellow network in shallow waters; yellow/orange at about 50 m, and pink at greater depths (about 80 m). Radiating lines around eye, either golden on a violet/grey background, or vice versa, according to the ground colour of the fish. Always a large, oblong, golden saddle on caudal peduncle which is characteristic for the species. 2nd dorsal and anal fins with horizontal stripes, but no stripes on 1st dorsal. Due to its variability in colour, this species is often misidentified.

DISTINGUISHING CHARACTERS OF SIMILAR SPECIES OCCURRING IN THE AREA

Other mullid species: lack the combination of very long barbels, radiating lines around eye, and a golden saddle on caudal peduncle (apart from generic differences in *Upeneus*, *Mulloidichthys* and *Upeneichthys*).

SIZE:

Maximum: 52 cm; common: 30 to 40 cm.

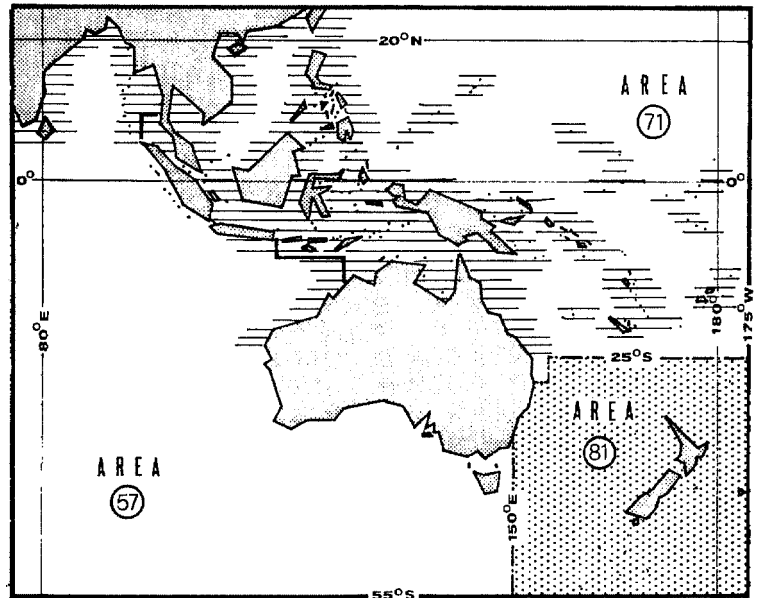
GEOGRAPHICAL DISTRIBUTION AND BEHAVIOUR:

Throughout northern part of area, northward and southward to 25° latitude, westward to East Africa.

Inhabits coastal waters down to about 80 m.

PRESENT FISHING GROUNDS:

Coastal waters, throughout its range.



CATCHES, MAIN FISHING GEAR AND PRINCIPAL FORMS OF UTILIZATION:

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

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

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

Caught mainly with lines.

Marketed mostly fresh.