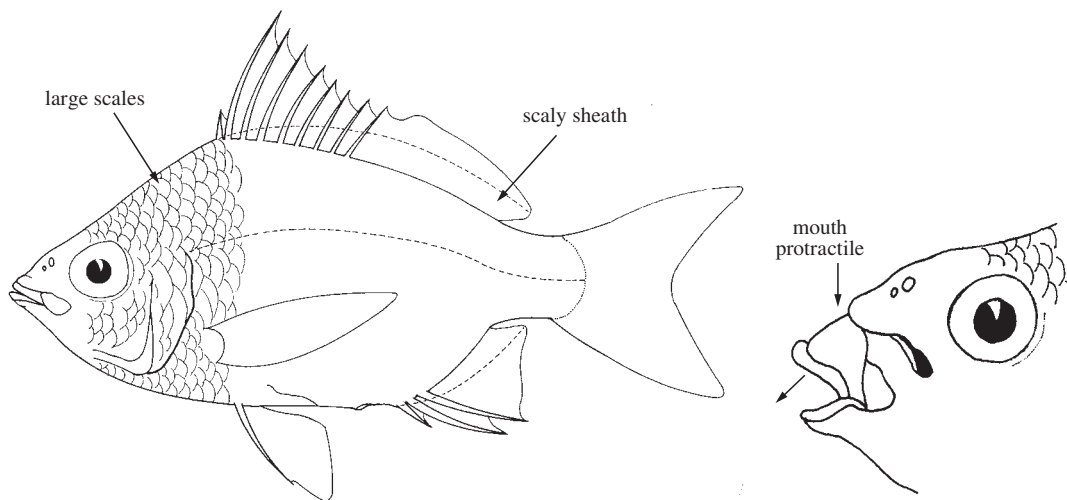


GERREIDAE

Mojarras (silverbiddies)

by D.J. Woodland

Diagnostic characters: Body laterally compressed, oblong, oval, or with markedly elevated back (size to about 35 cm). **Mouth terminal, strongly protractile, pointing downward when extended.** Bands of minute, acute teeth in both jaws; no incisors, canines, or molars. **Dorsal fin long, single, with IX (occasionally X) spines, the first very short (except in *Parequula*, not known from the area), and a similar number (9 to 11 in *Gerres*) or larger number (12 to 15 in *Pentaprion* and 17 in *Parequula*) of soft rays;** base of dorsal fin sheathed in a row of deciduous scales. **Anal fin usually with III (less commonly II) spines, but V or VI in *Pentaprion*,** the first spine very short in all species except *Parequula*; 6 to 8 anal-fin rays, but 12 to 14 in *Pentaprion* and 16 to 18 in *Parequula*. **Pectoral fins long and pointed.** Caudal fin markedly to very deeply forked. **Scales large, obvious but deciduous,** cycloid or finely ctenoid, extending over sides of head. **Colour:** predominantly brilliant silver, faint olive to brown dorsally, with dusky markings on sides in some species; dusky bars on sides occur only in juveniles in some species; margin and/or tip of spinous part of dorsal fin often black.

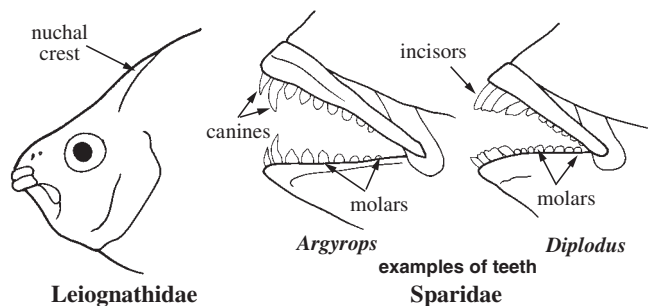


Habitat, biology, and fisheries: Near the bottom in coastal waters of all warm seas, down to 70 m; a few temperate species; especially abundant in very shallow bays, estuaries, and coastal lagoons. Tolerant of hyper- and hyposaline conditions, a few entering fresh water; some species characteristically found in clear water over bottoms of clean sand, others in turbid waters on muddy bottoms; a couple of species inhabit open areas of sand on coral reefs where they forage singly or in small schools, but most live in large schools. Feed on small invertebrates gleaned from the bottom by taking up mouthfuls of substrate and expelling sand and debris. Temperate species have a single spawning season in the warmer months; some species spawn biannually; larvae from a mixture of species abundant throughout the whole year in tropical coastal lagoons in some localities. Caught with set, lift, cast, and seine nets, and as bycatch with bottom trawls; flesh of good quality, but softens very quickly unless chilled; marketed fresh or as processed frozen products.

Similar families occurring in the area

Leiognathidae: bony ridges with median "nuchal" crest on top of head; scales minute, barely visible.

Sparidae: mouth not strongly protractile; large incisor, canine, and/or molar-shaped teeth in jaws.



Identification note

1. The **number of lateral-line scales** can be a useful diagnostic character. These scales may be divided into those that occur anterior to the line of flexure at the end of the hypural bone (i.e. up to the point to which "standard length" is measured in fishes in general) and those that occur posterior to this point - the latter residing in the scales covering the base of the caudal fin. If these scales are lost, the number up to the line of flexure may still be determined from the scale pockets, but posterior to this point an accurate estimate of the number is very difficult. For this reason the numbers of lateral-line scales recorded in this work are quoted in 2 parts, those anterior to the line of flexure and those posterior to it; the former figure carries the greater weight as a diagnostic character.
2. The **transverse scale-row counts** have been made from the base of the fifth dorsal-fin spine, diagonally backward to immediately in front of the first anal-fin spine; the row of scales sheathing the base of the dorsal fin is not included in the count. Excluding these sheath scales, the most dorsal row of scales on the sides is often composed of scales which are shorter in height than the scales below them; these have been included in the count expressed in fractions, e.g. 4.5 + 1 + 9 means that, counting from the base of the fifth dorsal-fin spine, there are 5 scale rows above the row of lateral-line pored scales, with the most dorsal row composed of scales only 1/2 the height of those immediately ventral to them (with a further 9 scale rows below the lateral line).
3. The premaxillae (upper jaws) have not been included in measurements of **standard length** or **length of head**.

Key to the species of Gerreidae occurring in the area

- 1a. Anal fin with V or VI spines and 12 to 14 soft rays, the fin base longer than length of base of soft portion of dorsal fin *Pentaptrion longimanus*
- 1b. Anal fin with III (occasionally II) spines, the first very short, and 6 to 8 soft rays, the fin base shorter than length of base of soft portion of dorsal fin → 2
- 2a. Dorsal fin with X spines and 9 soft rays^{1/} → 3
- 2b. Dorsal fin with IX spines and 10 soft rays → 4
- 3a. Lateral-line scales 38 to 40, and 3 or 4 more smaller pored scales on base of caudal fin; lower margin of preopercle not serrated *Gerres japonicus*
- 3b. Lateral-line scales 34 to 37, and 2 more smaller pored scales on base of caudal fin; lower margin of preopercle finely serrated *Gerres decacanthus*
- 4a. Scales in interorbital area extending on a broad front down to level of posterior margin of posterior nostrils, extensively covering the skin over the median groove into which the extensions of premaxillary bones (upper jaw) retract when mouth closed (Fig. 1a) → 5
- 4b. Scales in interorbital area not extending on a broad front down to nostrils, but extending as a pair of horns, 1 on each side of midline, leaving the skin over premaxillary groove unscaly (Fig. 1b) → 6
- 5a. Scales absent from a small, isolated, median patch of skin (a little larger than posterior nostril) in interorbital area *Gerres baconensis*
- 5b. No small, isolated patch of skin lacking scales in interorbital area *Gerres subfasciatus*

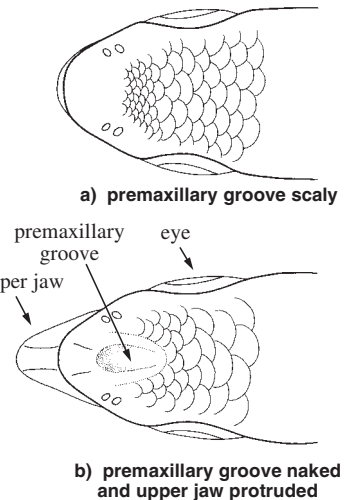



















Fig. 1 dorsal view of heads of 2 species of *Gerres*

^{1/} *Gerres decacanthus* sometimes with IX spines.

- 6a. Second dorsal-fin spine laterally compressed and greatly elongate, tapering to a slender, flexible filament whose tip when depressed extends past level of origin of first anal-fin spine; tip often broken → 7
- 6b. Second dorsal-fin spine not greatly elongate, when depressed its tip not reaching level of origin of first anal-fin spine → 8
- 7a. Usually 5 or 5 ½ (rarely 4 ½) scale rows between lateral line and base of fifth dorsal-fin spine; typically 44 or 45 (rarely 43 or 46) lateral-line scales to base of caudal fin *Gerres filamentosus*
- 7b. Usually 4 or 4 ½ (rarely 5) scale rows between lateral line and base of fifth dorsal-fin spine; typically 42 or 43 (rarely 41 or 44) lateral-line scales to base of caudal fin *Gerres macracanthus*
- 7c. Usually 4 ½ scale rows between lateral line and base of caudal fin; typically 39 or 40 lateral-line scales to base of caudal fin *Gerres infasciatus*
- 8a. Body very slender, the depth 3.1 to 3.4 times in standard length *Gerres oblongus*
- 8b. Body comparatively deep, the depth 1.9 to 3 times in standard length → 9
- 9a. Body very deep, the depth 1.9 to 2.3 times in standard length; second anal-fin spine robust and long, its length subequal with length of base of anal fin → 10
- 9b. Body comparatively slender, the depth 2.3 to 3 times in standard length; second anal-fin spine relatively slender and short, its length clearly shorter than length of base of anal fin, often less than 1/2 length of base of anal fin → 11
- 10a. Tip of depressed pectoral fins reaching well past vertical line through origin of first anal-fin spine; body depth 1.9 to 2.3 times in standard length; second dorsal-fin spine longer than length of head minus snout *Gerres abbreviatus*
- 10b. Tip of depressed pectoral fins just reaching to vertical line through origin of first anal-fin spine; body depth 2.1 to 2.3 times in standard length; second dorsal-fin spine shorter than length of head minus snout *Gerres poeti*
- 11a. Tip of depressed pectoral fins clearly not reaching past level of anus. → 12
- 11b. Tip of depressed pectoral fins reaching past level of anus (almost reaching to or reaching or past level of first anal-fin spine) → 13
- 12a. Lateral-line scales 35 to 39 to base of caudal fin, and 3 or 4 more pored scales in scaly sheath covering base of caudal fin; 3 ½ scale rows between lateral line and base of fifth dorsal-fin spine *Gerres oyena*
- 12b. Lateral-line scales 40 to 43 to base of caudal fin, and 2 or 3 more pored scales in scaly sheath covering base of caudal fin; 4 ½ to 5 scale rows between lateral line and base of fifth dorsal-fin spine. *Gerres macrosoma*
- 13a. Caudal fin long, much longer than length of head; lateral-line scales 42 to 44 to base of caudal fin, and 3 to 5 more in scaly sheath covering base of caudal fin; 4 ½ to 5 ½ scale rows between lateral line and base of fifth dorsal-fin spine *Gerres argyreus*
- 13b. Caudal fin short, shorter than length of head; lateral-line scales 33 to 41 to base of caudal fin, and 2 or 3 more in scaly sheath covering base of caudal fin; 3 to 4 ½ scale rows between lateral line and base of fifth dorsal-fin spine → 14
- 14a. Lateral-line scales 33 to 36 to base of caudal fin, and 2 or 3 more on scaly sheath covering base of caudal fin; 3 or 3 ½ scale rows between lateral line and base of fifth dorsal-fin spine *Gerres decacanthus*
- 14b. Lateral-line scales 37 to 41 to base of caudal fin, and 2 or 3 more on scaly sheath covering base of caudal fin; 4 or 4 ½ scale rows between lateral line and base of fifth dorsal-fin spine *Gerres kapas*

List of species occurring in the area

The symbol  is given when species accounts are included.

-  *Gerres abbreviatus* Bleeker, 1850
-  *Gerres argyreus* (Schneider, 1801)
-  *Gerres baconensis* (Evermann and Seale, 1907)
-  *Gerres chrysops* Iwatsuki, Kimura, and Yoshino, 1999^{2/}
-  *Gerres decacanthus* Bleeker, 1865
-  *Gerres filamentosus* Cuvier, 1829
-  *Gerres infasciatus* Iwatsuki and Kimura, 1998^{3/}
-  *Gerres japonicus* Bleeker, 1854
-  *Gerres kapas* Bleeker, 1854
-  *Gerres macrosoma* Bleeker, 1854
-  *Gerres macracanthus* Bleeker, 1854
-  *Gerres oblongus* Cuvier, 1830
-  *Gerres oyena* (Forsskål, 1775)
-  *Gerres poieti* Cuvier in Cuvier and Valenciennes, 1830^{4/}
-  *Gerres subfasciatus* Cuvier, 1830
-  *Pentaprion longimanus* (Cantor, 1850)

Reference

Woodland, D.J. 1984. Gerreidae. In *FAO species identification sheets for fishery purposes. Western Indian Ocean (Fishing Area 51)*, edited by W. Fischer and G. Bianchi. Vol. 3. Rome, FAO (unpaginated).

2/ Recently described from 3 specimens taken in the northern Gulf of Thailand. See species account of *Gerres filamentosus* to follow.

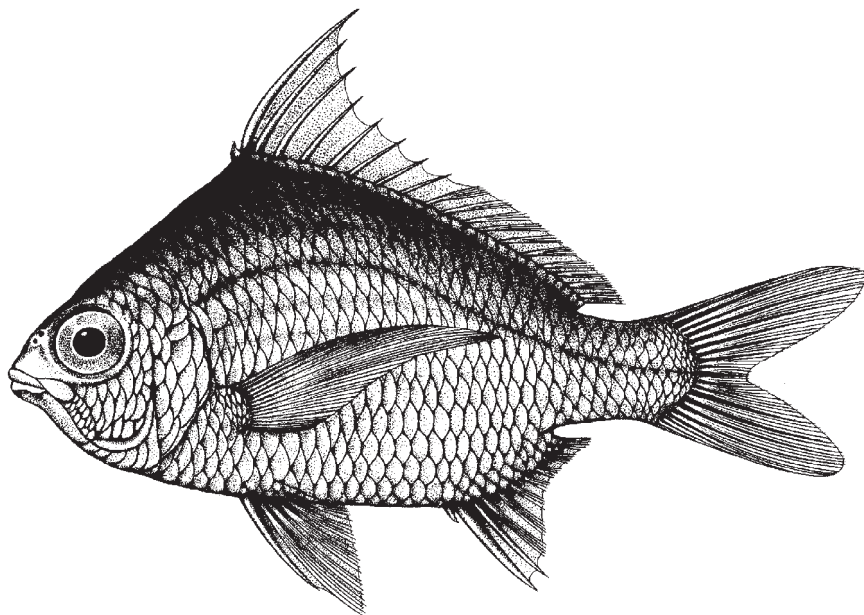
3/ Recently described from the northeastern Gulf of Thailand. Difficult to distinguish from *G. decacanthus* and not included in the identification key; reported as being slightly less deep-bodied and having slightly longer dorsal- and anal-fin spines.

4/ Cuvier's *G. poieti* was based on a pre-Linnaean published picture of a fish; there were no type specimens, and the picture is too crude to identify the fish to species. On the other hand, Cuvier's *Gerres poieti* has a type specimen, and is easily identifiable. Cuvier himself expressed doubt about the 2 fish being the same. He used the French conditional tense to remark that IF the indigenous names of these 2 fish were the same, then "they might well be" the same fish. My research shows that the indigenous names he refers to ["poia-poieti" (S. India) and "poeti" (Malay)] are not variations of the same name. Were it not for this 'indecision' by Cuvier, one could argue that the first spelling used (*poieti*) has priority, and that the subsequent "*poeti*" is a mis-spelling of "*poieti*". Following this line of argument, *Gerres poieti* currently has no valid scientific name, and it would need to be redescribed with a new name. While it could be done, most taxonomists would agree that this FAO publication is not the right place to be describing/naming a new species. Alternatively, the entry for this species could read "*Gerres* sp. (undescribed)", with "*Gerres poieti*" given as a "Frequent Synonym...". HOWEVER, I do not think it is necessary to give *Gerres poieti* a new name. Under the ICZN Rules, a difference in spelling of just a single letter between two scientific names is sufficient to validate both of them. Further, under the same Rules, one cannot conclude that a published name is a misspelling by reference to a source other than the original publication; so we cannot correct the spelling "*poieti*" in Cuvier 1829 to "*poeti*" (even though it would be logical to do so because "*poeti*" is the spelling used for the fish in the pre-Linnaean publication on which *Gerres poieti* is based). [D.J. Woodland]

Gerres abbreviatus Bleeker, 1850

Frequent synonyms / misidentifications: None / None.

FAO names: En - Deepbody silverbiddy; Fr - Blanche élevée; Sp - Mojarra chata.

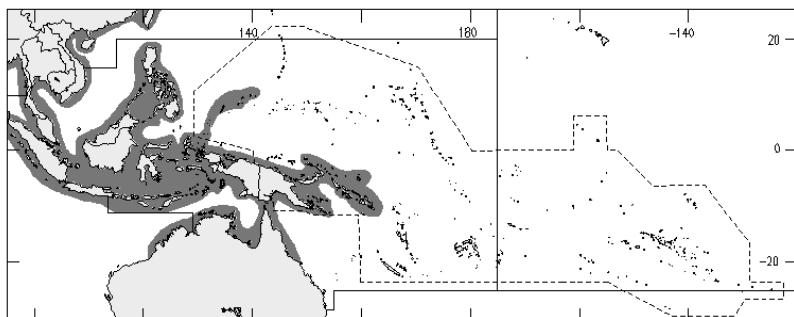


Diagnostic characters: Body compressed, deep, with an obtusely angled, elevated back; body depth 1.9 to 2.3 times in standard length. Anterodorsal profile nearly a straight line from tip of snout to base of first dorsal-fin spine, ascending at an angle of about 45° to the horizontal. **Dorsal- and anal-fin spines strong, particularly second anal-fin spine;** second dorsal-fin spine longer than head minus snout; second anal-fin spine either subequal to (0.8 times) or much longer than length of base of anal fin; pectoral fins long, tip of depressed fins reaching to or past level of first anal-fin spine; **caudal fin strongly forked but short,** longest rays subequal to head length, **lobes broadly rounded without pointed tips. Typically fewer than 38 lateral-line scales to base of caudal fin,** and 2 or 3 more pored scales in scaly sheath on base of fin; 3 ½ to 4 scale rows between base of fifth dorsal-fin spine and lateral line. **Colour:** silvery, tinged with brown dorsally; indistinct, fine, dark stripes following scale rows in older fish; many specimens, particularly juveniles, with 7 to 11 slender, dark bars along sides; dorsal fin edged with black; trailing edge of caudal fin dusky; anal and pelvic fins yellowish.

Size: Maximum total length about 30 cm, commonly to 20 cm.

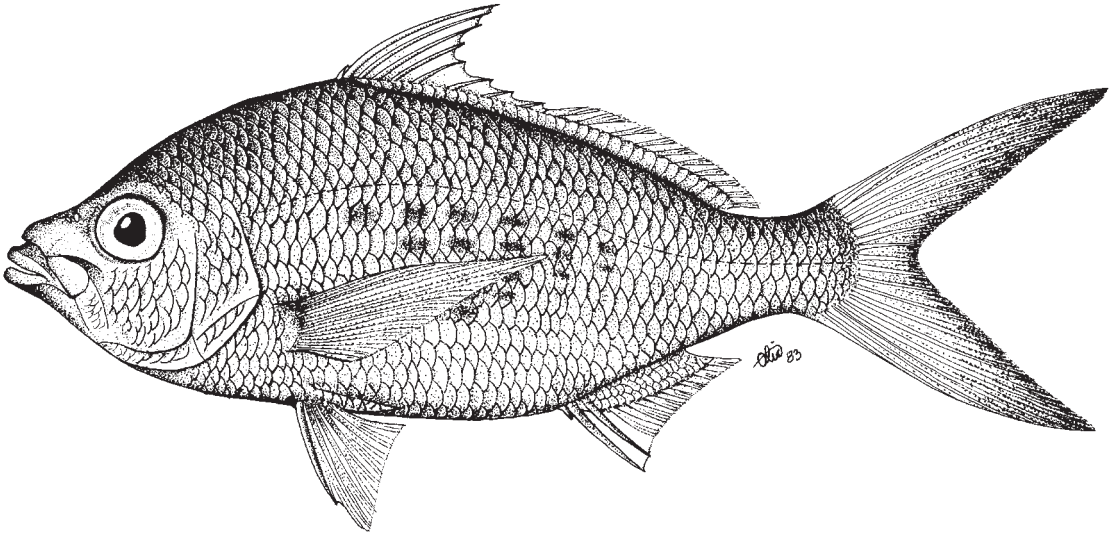
Habitat, biology, and fisheries: Lives in small schools on sandy bottoms, juveniles in the littoral zone, larger fish down to 40 m. Small juveniles feed on zooplankton, larger fish on small polychaetes, bivalves, crustaceans, and fishes. One of the more common gerreids in markets in Southeast Asia. Caught in set traps, seines, and by trawls. Usually marketed fresh, but the flesh deteriorates rapidly; large catches processed into fish balls and marketed frozen.

Distribution: From the west coast of India to the Indo-Malayan Archipelago and Palau, north to South China Sea, and south to northern Australia.



Gerres argyreus (Forster in Bloch and Schneider, 1801)

Frequent synonyms / misidentifications: *Gerres acinaces* Bleeker, 1854 / *Gerres oyena* (Forsskål, 1775).
FAO names: En - Longtail silverbiddy; Fr - Blanche gouvernail; Sp - Mojarra timonera.

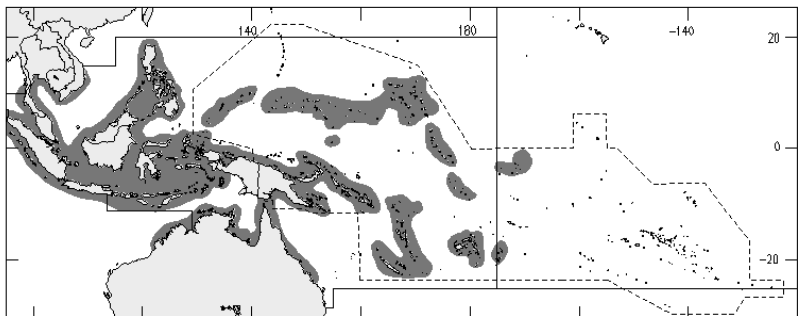


Diagnostic characters: Body compressed, slender, its depth 2.5 to 2.9 times in standard length; anterodorsal profile convex, except for slightly concave interorbital area; snout pointed, long, measured from tip to leading edge of eye almost 1.2 times length of eye; prominent, scaleless patch of skin encircling eye. Dorsal fin deeply notched, last dorsal-fin spine about 0.6 to 0.7 times in first soft ray; second and third anal-fin spines slender, length moderate, 0.5 to 0.6 times in second dorsal-fin spine; pectoral fins moderately long, tip of depressed fins just reaching to level of first anal-fin spine; caudal fin extremely deeply forked and very long, length of longest ray greater than distance from base of pelvic-fin spine to first anal-fin spine. Lateral-line scales 41 to 44 to base of caudal fin, and 1 to 3 more pored scales in scaly sheath on base of fin; 4 ½ to 5 scale rows between base of fifth dorsal-fin spine and lateral line. **Colour:** silvery, 5 or more faint slender bars on midsides in some specimens, narrow black margin to anterior point of spinous dorsal fin, trailing edge of caudal fin with a narrow, darker margin.

Size: Maximum total length 40 cm, commonly to 20 cm.

Habitat, biology, and fisheries: Inhabits inshore areas favouring clear, shallow water over bottoms of clean sand; in the area, the most common gerreid on coral reef flats and lagoons. Juveniles school; adults live singly or in small groups. Larger fish found picking over bottom for small invertebrates in areas swept by swift currents. Caught with bottom trawls down to about 40 m, also by beach seine and handline. Marketed fresh; large catches may be used as duck food or fertiliser in some areas.

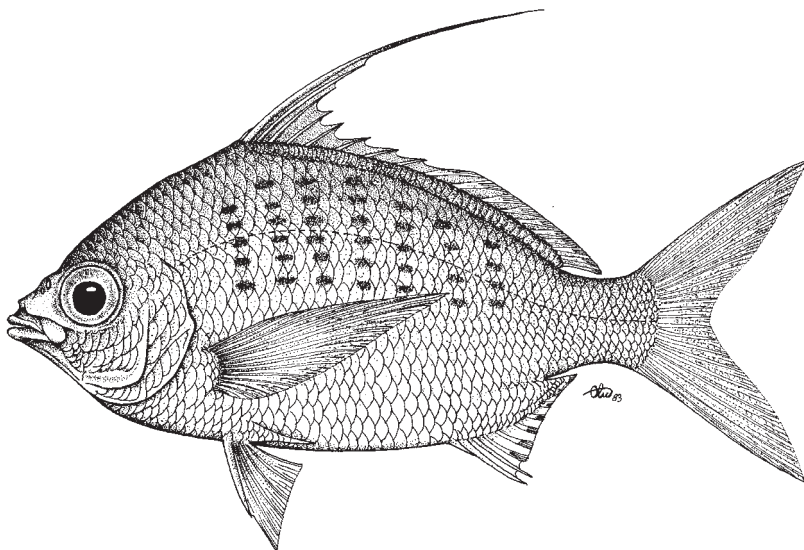
Distribution: From the east coast of Africa and islands of the Indian Ocean to those of the Central Pacific; at least as far east as Samoa and Tonga, throughout Micronesia, north to Ryukyu Islands, south to northern Australia and New Caledonia.



Gerres filamentosus Cuvier, 1829

Frequent synonyms / misidentifications: *Gerres punctatus* Cuvier, 1830; ? *G. macracanthus* Bleeker, 1854 / None.

FAO names: En - Whipfin silverbiddy; Fr - Blanche fil; Sp - Mojarra de hebra.



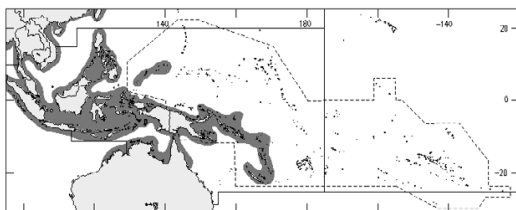
Diagnostic characters: Body compressed, elevated back, deep, its depth 2 to 2.5 times in standard length in larger specimens, up to 3 times in smaller ones. Anterodorsal profile ascending steeply in a gentle curve at an angle of about 40° to horizontal axis. **Second dorsal-fin spine laterally compressed, produced into a filament whose tip extends to at least level of first anal-fin spine**, except in very smallest of specimens, only equal to head length in specimens less than 6 cm standard length (**filament often lost, but compressed condition of spine indicates original condition**); third dorsal-fin spine also laterally compressed, as long as distance from tip of snout to preopercular margin; second anal-fin spine much shorter than length of base of anal fin; pectoral fins long, tip of depressed fins reaching to level of first anal-fin spine; caudal fin deeply forked, its longest rays 3 times length of median rays and slightly longer than length of head. Scales on lateral line 43 to 46 to base of caudal fin, and 2 to 5 more pored scales in scaly sheath on base of fin. **Colour:** silvery, with a touch of lightest brown dorsally; **7 to 10 columns of pale brown ovoid spots on upper half of sides, coalesced as bars in smaller specimens**; iris silvery with a dark ovoid patch in anterodorsal quarter; dorsal fin hyaline except for end of filamentous spine, which is black; anal, caudal, pectoral, and pelvic fins dusky hyaline, tips of anal fin, lower lobe of caudal and pelvic fins white.

Size: Maximum total length about 30 cm, commonly to 15 cm.

Habitat, biology, and fisheries: Lives in shallow coastal waters to depths of at least 50 m, on sandy bottoms, including around coralline areas, also entering lower fresh-water reaches of rivers. Schooling; feeds on small organisms such as crustaceans, polychaetes, and foraminiferans living on sand or muddy-sand bottoms. The commonest gerreid species in markets in many tropical areas. Caught mainly with beach seines and bottom trawls. Flesh excellent, but spoils rapidly.

Distribution: Widespread in all warm seas of the Indo-Pacific from the east coast of Africa through the Indo-Malayan Archipelago to the West Pacific islands; south to northern Australia, north to Ryukyu Islands.

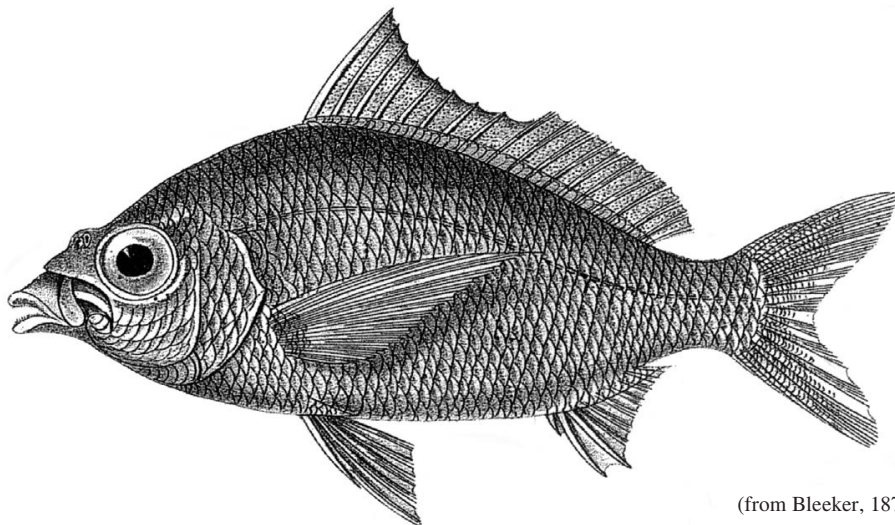
Remarks: *Gerres infasciatus* Iwatsuki and Kimura, 1998 was recently described from 3 specimens collected in the northern Gulf of Thailand. It is very similar in body shape to *G. filamentosus* adults of similar size (12.5 to 14 cm standard length), but lacks the dark markings on sides, has the tips of first and second dorsal-fin rays yellow, and shows fewer lateral-line scales (39 or 40, plus 3 or 4 pored scales on caudal-fin base). Also similar therefore to *G. macracanthus*.



Gerres kapas Bleeker, 1851

Frequent synonyms / misidentifications: None / *Gerres oyena* (Forsskål, 1775).

FAO names: En - Cotton silverbiddy.



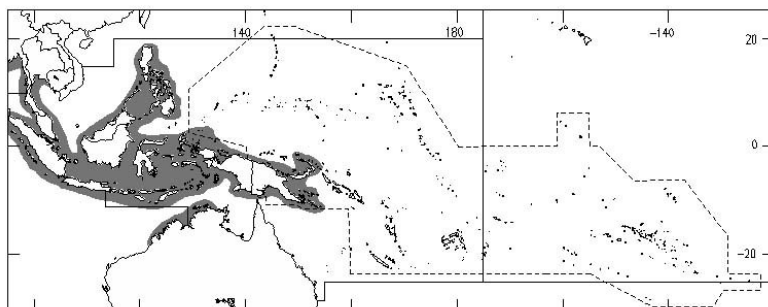
(from Bleeker, 1876-77)

Diagnostic characters: **Body compressed, oblong, moderately deep, its depth 2.3 to 2.4 times in standard length;** anterodorsal profile a smooth, convex curve from tip of snout to base of first dorsal-fin spine. Dorsal-fin spines slender, fin notched, last spine 3/4 length of first soft ray, second dorsal-fin spine neither elongate nor exceptionally short, contained about 0.6 to 0.7 times in length of head (excluding jaws); second and third anal-fin spines stouter than dorsal-fin spines, the second more so than the third, both spines long, the third more so than the second, the third longer than 1/2 length third dorsal-fin spine; **pectoral fins moderately long, tip of depressed fins almost reaching to or just past level of first anal-fin spine; caudal fin deeply forked, but lobes relatively short, length of longest ray almost identical to length of head. Scales on lateral line 37 to 41 to base of caudal fin, and 2 or 3 more pored scales in scaly sheath on base of caudal fin; 4 to 4.5 scales between lateral line and base of fifth dorsal-fin spine.** **Colour:** silvery, bluish, or greenish shading dorsally, juveniles with variable dark blotches, spinous dorsal fin with a narrow black margin, anal and pelvic fins yellow, others hyaline.

Size: Maximum total length 18 cm, commonly to 12 cm.

Habitat, biology, and fisheries: Lives around river mouths and along beaches; seems to prefer murkier waters. Schools; feeds on small invertebrates gleaned from bottom sediments. Caught with trawl, seine, and cast nets. Common in markets, but not highly esteemed as flesh deteriorates rapidly.

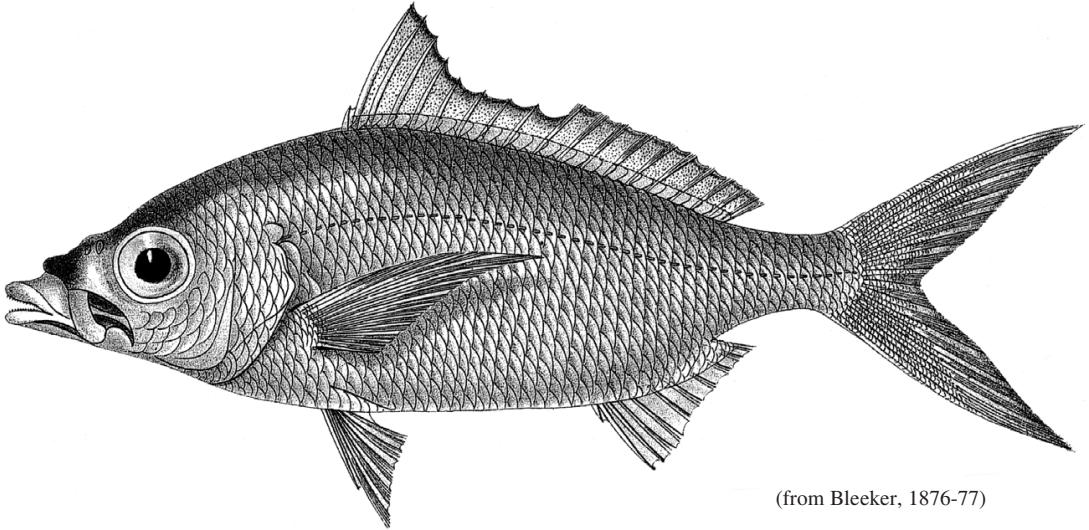
Distribution: Indo-Malayan region: Malaysia, Singapore, Thailand, Indonesia, New Guinea, Philippines, and northwestern shelf of Western Australia.



Gerres macrosoma Bleeker, 1854

Frequent synonyms / misidentifications: None / None.

FAO names: En - Largebodied silverbididy.



(from Bleeker, 1876-77)

Diagnostic characters: Body compressed, oblong, deep, its depth 2.5 to 3 times in standard length; anterodorsal profile sloping at an angle of about 30° to horizontal, slightly convex with a small concavity above anterior third of eye. Dorsal-fin spines slender, fin notched, second dorsal-fin spine neither elongate nor exceptionally short but short relative to length of base of spinous part of fin, its length very slightly less than 1/2 body depth but much shorter than twice the length of second anal-fin spine; second and third anal-fin spines slender and long, their lengths about 0.7 times in second dorsal-fin spine; **tip of pectoral fins not reaching anywhere near to level of first anal-fin spine, reaching anus; caudal fin very deeply forked, with long pointed lobes, the longest rays clearly greater than length of head and subequal to body depth. Scales on lateral line 40 to 43 to base of caudal fin, and 2 or 3 more pored scales in scaly sheath on base of caudal fin; 4.5 to 5 scales between lateral line and base of fifth dorsal-fin spine. Colour:** silvery, pale brownish olive above, spinous part of dorsal fin with a narrow blackish margin, other fins hyaline

Size: Maximum total length 25 cm, commonly to 15 cm.

Habitat, biology, and fisheries: Coastal, marine species, not recorded as entering estuaries. Schools; no doubt feeds on small invertebrates gleaned from substrate with its protrusible mouth. Common in Indonesia and Philippines. Marketed fresh.

Distribution: Central Indo-Malayan region (an unverified record for Samoa); Malaysia, Indonesia, Philippines, New Guinea, and Queensland.

