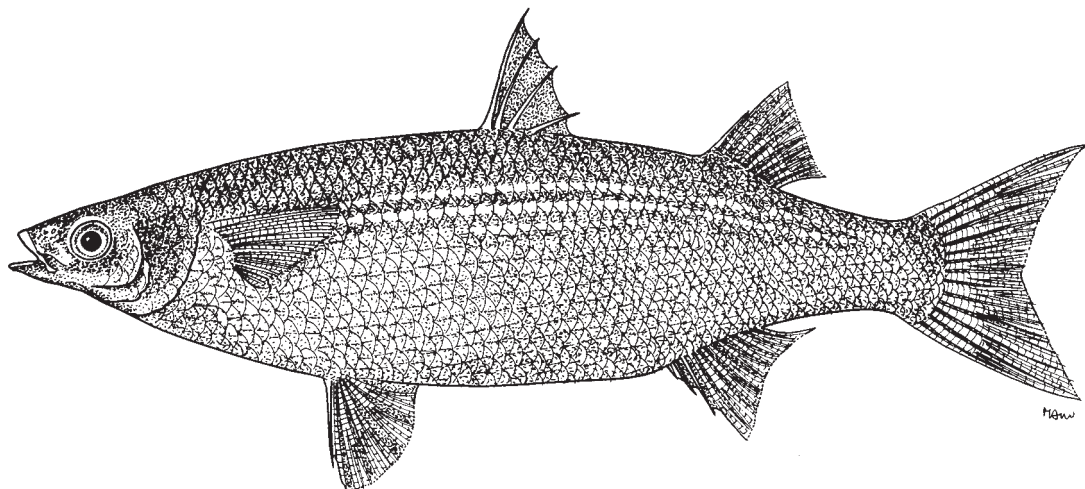


***Myxus petardi*** (Castelnau, 1875)

**Frequent synonyms / misidentifications:** *Trachystoma petardi* (Castelnau, 1875); *Mugil breviceps* Steindachner, 1866 / None.

**FAO names:** En - Freshwater mullet.

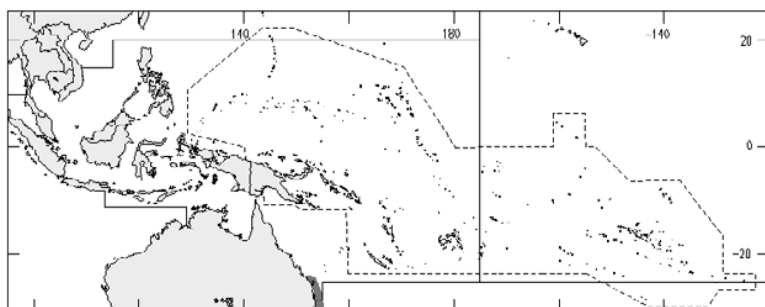


**Diagnostic characters:** A medium to large species; moderately deep-bodied. **Snout long, longer than eye diameter, pointed in profile.** Dentary symphysis more or less obtuse (blunt). Upper lip very slightly thickened, lower lip thin. **Lips with 1 or more rows of fine, ciliiform teeth, or teeth absent.** Vomer toothed. **Maxilla stocky, only slightly sigmoidally curved near posterior tip. Preorbital large; serrate anteroventral edge straight or only weakly concave; posteroventral tip broad and squarish.** Distance between anterior and posterior nostril more or less equal to maximum diameter of posterior nostril. **Adipose eyefold absent. Gill rakers on first gill arch 1/2 length of longest gill filaments.** Origin of first dorsal fin nearer base of caudal fin than tip of snout. Origin of fully erected second dorsal fin on vertical through anterior half of anal fin; both fins scaled only on anterobasal parts. Anal fin with III spines and 9 (rarely 8) soft rays in adults (usually II 'spines' and 10 soft rays in juveniles about 30 mm standard length or less). Caudal fin forked. Pectoral fins with I spine and 14 or 15 soft rays, short, not reaching origin of first dorsal fin; pectoral fins 16 to 20% standard length, **74 to 85% head length; pectoral axillary scale rudimentary or absent. Ctenoid scales in longitudinal series 47 to 52; 15 or 16 in transverse series; 32 to 34 scales in longitudinal series anterior to origin of second dorsal fin; 22 scales in transverse series entirely around caudal peduncle.** Pharyngobranchial organ with large denticulate area; wide sulcus; **valve as ventrally placed, double papillose pad.** Pyloric caeca 2. **Colour:** greenish black dorsally, lighter on flanks and silvery white ventrally; eye yellow-orange to pink; upper edge of operculum golden; fins pale yellow.

**Size:** Maximum reported total length 81 cm; commonly to 40 cm total length or less.

**Habitat, biology, and fisheries:** In fresh and brackish waters of streams and lagoons at 9° to 27°C; may be found in sea after heavy floods. Active surface and midwater fish; small groups may be found in deep pools where stream flow is slow. Mature after about 4 years and perhaps spawning in estuaries at low salinities, during late summer and early autumn. Feeds on filamentous algae, microscopic plants and animals, and detritus. Commercially netted after heavy rain, but not an important species; caught by anglers. Flesh edible but may have muddy taste.

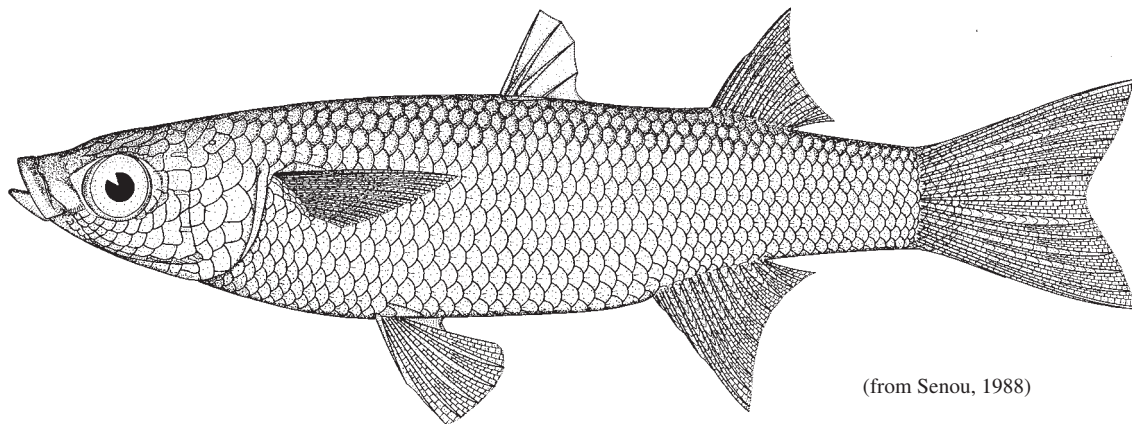
**Distribution:** East coast of Australia, in New South Wales and extending north to Burnett River, southern Queensland.



***Neomyxus leuciscus*** (Günther, 1871)

**Frequent synonyms / misidentifications:** *Chaenomugil nauticus* Bryon and Herre, 1903; *C. leuciscus* (Günther, 1871); *Neomyxus sclateri* (Steindachner, 1878) / *Neomyxus chaptalii* Eydoux and Souleyet, 1841.

**FAO names:** En - Acute-jawed mullet.



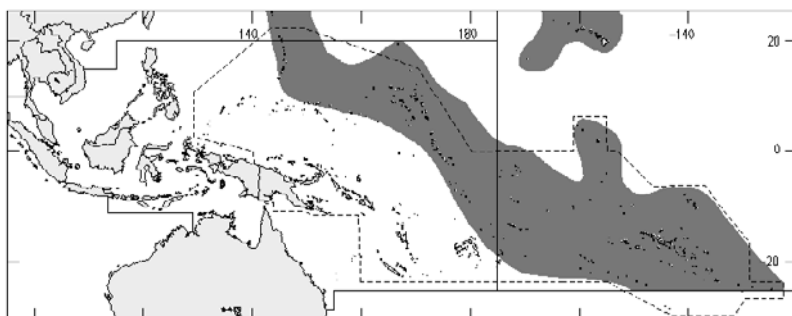
(from Senou, 1988)

**Diagnostic characters:** A medium-sized species; body elongate. Head relatively flattened dorsally. **Snout long, longer than eye diameter, pointed in profile. Dentary symphysis acute (pointed). Both lips thick, but upper lip not rugose nor bearing crenulations or papillae, and upper lip thickness at point of snout usually 12 or more times in head length. Lips bearing 2 or 3 irregular rows of long teeth which are slightly curved and tricuspid at their tips; lower lip with outer edge folded downwards. Lower jaw fits snugly under upper jaw. Vomer edentate. Maxilla more or less straight. Serrate anteroventral edge of preorbital straight; posteroventral tip broad and squarish. Distance between anterior and posterior nostril more or less equal to maximum diameter of posterior nostril. Adipose eyefold marginal. Gill rakers on lower limb of first gill arch 33 to 64, (usually 50 or more). Origin of first dorsal fin nearer base of caudal fin than tip of snout. Origin of fully erected second dorsal fin on vertical through anterior half to three-quarters of anal fin; both fins scaled only anterobasally. Anal fin with II spines and 10 or 11 soft rays in adults** (I spine and 11 or 12 soft rays in juveniles about 30 mm standard length or less). Caudal fin emarginate. Pectoral fins with I spine and 15 or 16 soft rays, not reaching origin of first dorsal fin; pectoral fins 20 to 23% standard length, 80 to 95% head length. **Cycloid scales in longitudinal series 43 to 49; 13 or 14 in transverse series; 28 or 29 scales in longitudinal series anterior to origin of second dorsal fin; 21 or 22 scales in transverse series entirely around caudal peduncle.** Pharyngobranchial organ with deep sulcus; denticulate cushion with long setiform teeth; **anterior valve tripartite; small digitate fold posterior to anterior valve.** Pyloric caeca 2. **Colour:** grey dorsally, silvery flanks, white ventrally; pectoral fins darkish but with bright yellow spot at origin.

**Size:** Maximum reported standard length 46 cm.

**Habitat, biology, and fisheries:** In shallow coastal waters (up to a depth of about 4 m), around reef flats, tidepools, lagoons, drainage ditches, and docks. At night tending to move inshore to surface waters and shallows close to beaches; attracted to lights. Forms schools. Can be caught at night by dazzling with strong light and scooping up with hand nets.

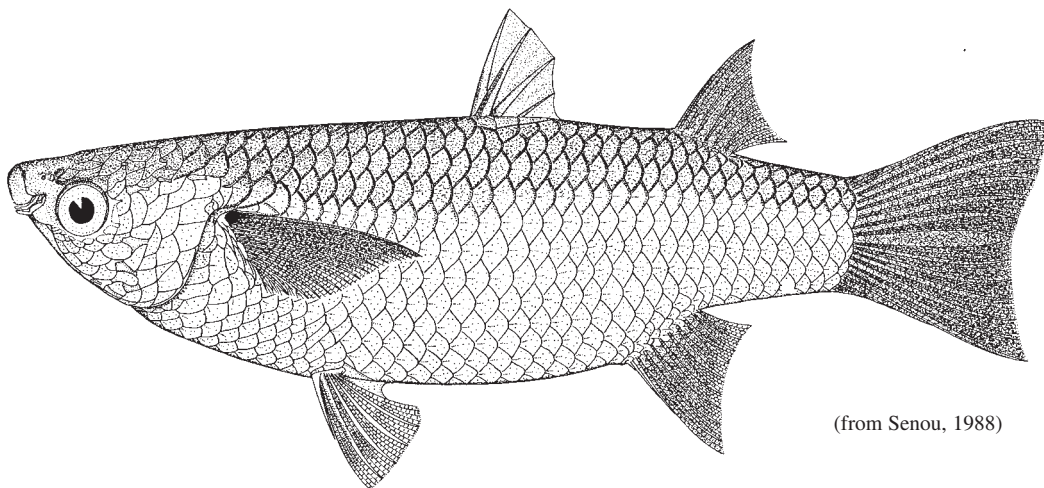
**Distribution:** Central Pacific, from southern Japanese and Hawaiian islands in north; south to Tubai and Ducie Islands; rare in Marianas Islands.



***Oedalechilus labiosus*** (Valenciennes, 1836)

**Frequent synonyms / misidentifications:** *Crenimugil labiosus* (Valenciennes, 1836); *Plicomugil labiosus* (Valenciennes, 1836) / None.

**FAO names:** En - Hornlip mullet; Fr - Mulet labéon; Sp - Lisa morruda.



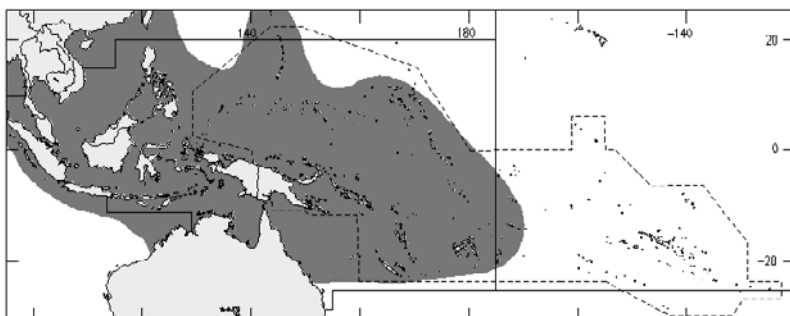
(from Senou, 1988)

**Diagnostic characters:** A small to medium-sized species; body moderately deep. Head relatively flattened dorsally. Snout shorter than eye diameter and blunt in profile. Dentary symphysis very obtuse; mouth may appear transverse in ventral view. **Upper lip very thick, lip thickness at point of snout about 7 to 10 times in head length. Upper lip with deep longitudinal fold near its ventral edge, splitting it into upper and lower lobes; these lobes fringed with ridges of horny epidermis; ridges small and appear as papillae on upper lobe (but different from papillae of *Crenimugil*); ridges on lower lobe better developed. Lower lip thin, directed forwards, also fringed with ridges of horny epidermis except at medial part. Both lips form folds tucked under preorbital at corners of mouth. Lips and vomer edentate.** Maxilla curved down posteriorly. **Preorbital deeply notched midway along anteroventral edge and expanded into a broad, squarish, posteroventral tip.** Distance between anterior and posterior nostril less than maximum diameter of posterior nostril. Adipose eyefold absent. Gill rakers on lower limb of first gill arch 30 to 41, shorter than gill filaments. Origin of first dorsal fin slightly nearer base of caudal fin than tip of snout. **Origin of fully erected second dorsal fin on vertical through anterior half to three-quarters of anal fin;** both fins usually well scaled on all parts. Anal fin with III spines and 9 soft rays in adults (II spines and 10 soft rays in juveniles about 30 mm standard length or less). Caudal fin emarginate. Pectoral fins with I 'spine' and 15 to 18 soft rays, **ventral 1 or 2 soft rays more or less free from fin membrane; pectoral fins not reaching origin of first dorsal fin;** pectoral fins 23 to 28% standard length, 94 to 112% head length. Scales cycloid or weakly ctenoid; **32 to 37 scales in longitudinal series; 11 or 12 in transverse series;** 23 to 25 scales in longitudinal series anterior to origin of second dorsal fin; **16 scales in transverse series entirely around caudal peduncle.** Pharyngobranchial organ with broad sulcus; small anterior valve and longer-based posterior valve. **Pyloric caeca 3 to 4.** **Colour:** olive dorsally, silvery ventrally.

**Size:** Maximum standard length 40 cm or more; commonly to 20 cm total length.

**Habitat, biology, and fisheries:** Found in shallow coastal waters, around coral reefs, and in harbours. Caught with gill nets, lift nets, and seines; also used as live bait in pole-and-line tuna fishing.

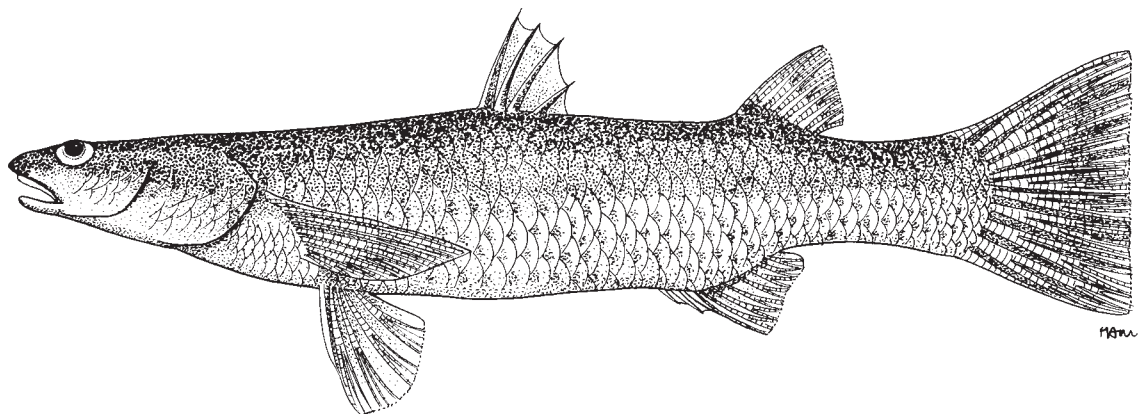
**Distribution:** Widespread throughout tropical Indo-Pacific, from the Red Sea and Madagascar to Samoa; north to southern Japan and south to the Great Barrier Reef.



***Rhinomugil nasutus*** (DeVis, 1883)

**Frequent synonyms / misidentifications:** *Squalomugil nasutus* (DeVis, 1883) / None.

**FAO names:** En - Shark mullet.

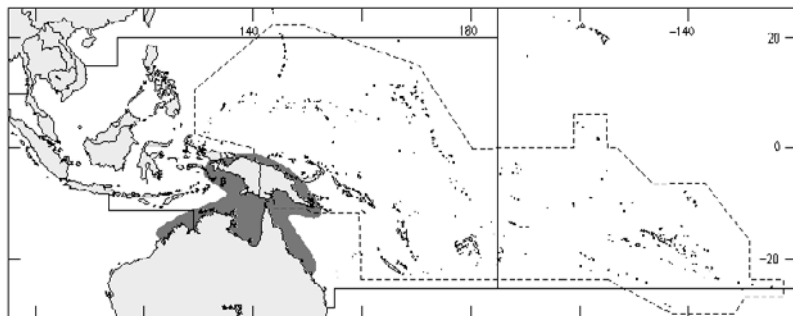


**Diagnostic characters:** A medium-sized species; body elongate. **Head noticeably wider than deep, flattened dorsally and concave between eyes; eyes positioned dorsolaterally high on head.** Eye diameter 14 to 20% head length. **Snout short, less than or equal to eye diameter, but projecting beyond upper lip.** Dentary symphysis about 90° or only slightly obtuse (blunt). Lips thin; lower lip directed forwards. **Teeth small, fine and spatulate on both lips, often not easily discernable.** Vomer edentate. Maxilla straight. Serrate anteroventral edge of preorbital very weakly concave; posteroventral tip narrow. **Nostrils set low on snout;** distance between anterior and posterior nostril greater than maximum diameter of posterior nostril. **Adipose eyefold developed posteroventral to eye and not overlying iris.** Gill rakers on lower limb of first gill arch 45 to 55 (perhaps more). Origin of first dorsal fin nearer base of caudal fin than tip of snout. **Origin of fully erected second dorsal fin on vertical through posterior half of anal fin, or behind anal fin;** both fins scaled basally but not distally. **Anal fin with III spines and 8 soft rays in adults** (II spines and 9 soft rays in juveniles about 30 mm standard length or less). **Caudal fin truncate.** Pectoral fins with I 'spine' and 13 soft rays, long, just reaching origin of first dorsal fin; pectoral fins 25 to 26% standard length, 95 to 100% head length. **Ctenoid scales in longitudinal series 28 to 30; 9 ½ or 10 in transverse series;** 21 or 22 scales in longitudinal series anterior to origin of second dorsal fin; 16 scales in transverse series entirely around caudal peduncle. Pharyngobranchial organ with broad sulcus, small valve ventrally and finger like processes in sulcal groove. Pyloric caeca 2. **Colour:** dark slaty-grey dorsally, silvery on flanks and abdomen; fins yellowish.

**Size:** Maximum fork length at least 32 cm.

**Habitat, biology, and fisheries:** Usually found in small schools in muddy fresh waters and coastal waters (e.g. mangroves). Swimming at the surface with eyes and snout exposed. Perhaps feeding on surface algae and insects which alight on surface; also feeding on muddy banks and bottoms. Capable of breathing air and wriggling over mudbanks for short distances. No reported fisheries data.

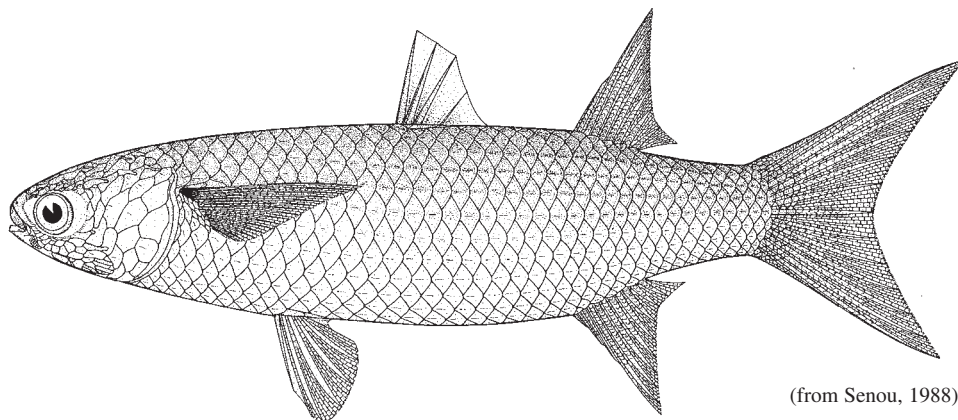
**Distribution:** Tropical Australia and New Guinea.



***Valamugil buchhanani*** (Bleeker, 1853)

**Frequent synonyms / misidentifications:** *Mugil ceylonensis* Günther, 1861 / *Valamugil cunnesius* (Valenciennes, 1836); *V. engeli* (Bleeker, 1859); *V. seheli* (Forsskål, 1775).

**FAO names:** En - Bluetail mullet; Fr - Mulet à queue bleue; Sp - Lisa rabo azul.



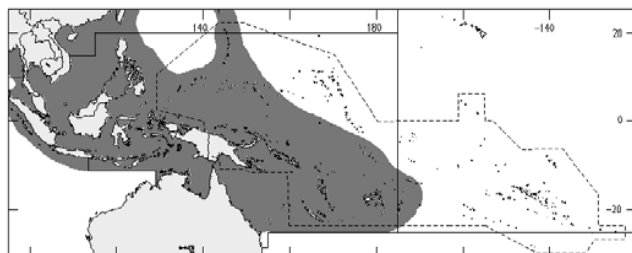
(from Senou, 1988)

**Diagnostic characters:** A medium-sized species; body moderately robust. Head dorsally flattened. **Snout short and blunt, 14 to 18% head length;** shorter than eye diameter. Dentary symphysis obtuse (blunt). Lips thin, lower directed forwards. **Teeth on both lips minute and ciliiform in 1 row or absent.** Vomer edentate. **Maxilla slender and weakly curved down at posterior tip, which is only just posteroventral to corner of mouth and partially or completely concealed.** **Serrate anteroventral edge of preorbital very weakly concave, not kinked; posteroventral tip narrow but not pointed.** Distance between anterior and posterior nostril less than or equal to maximum diameter of posterior nostril. Adipose eyefold poorly developed as rim around eye. Gill rakers on lower limb of first gill arch 37 to 67. Relative position of origin of first dorsal fin may vary during ontogeny, but is usually midway between tip of snout and base of caudal fin, or slightly nearer latter. **Origin of fully erected second dorsal fin on vertical through anal-fin origin, or only just posterior to it; both fins always well scaled basally and medially, and more or less scaled on distal parts; both fins falcate (more noticeable in specimens over 12 cm standard length).** Anal fin with III spines and 9 soft rays in adults (usually II spines and 10 soft rays in juveniles about 30 mm standard length or less). **Caudal fin deeply forked.** Pectoral fins with I 'spine' and 17 to 19 (rarely 16) soft rays; **long and falcate, reaching level of origin of first dorsal fin;** pectoral fins 22 to 27% standard length, **90 to 139% head length; greater than length of head minus snout, and often greater than head length;** pectoral axillary scale moderately long. **Scales with a membranous, digitated hind margin; 32 to 36 (rarely 37) in longitudinal series; 11 to 13 in transverse series;** 10 to 14 scales in longitudinal series anterior to tip of pectoral fins and **19 to 24 scales anterior to origin of second dorsal fin; 19 to 20 (rarely 18) in transverse series entirely around caudal peduncle.** Pharyngobranchial organ with large denticulate area; **broad sulcus; no valves.** Pyloric caeca 6 or 7. **Colour:** greenish dorsally; flanks and abdomen silvery; small gold patch on upper operculum and on iris; **caudal fin distinctive bright blue** (dusky when preserved); dorsal fins dusky; anal fin dusky at margins; **pectoral fins yellow with dark blue spot dorsally at origin.**

**Size:** Usually reported to a maximum standard length of 50 cm (100 cm reported for South African specimens); commonly to 20 to 30 cm standard length.

**Habitat, biology, and fisheries:** Inhabits shallow coastal waters. Young enter estuaries, lagoons, and backwaters. Feeds on algae, diatoms, detritus, and crustacea. Caught in coastal waters using gill nets, cast nets, stake nets, barrier nets, lift nets, beach seines, and pouch nets during the spawning run. Marketed fresh.

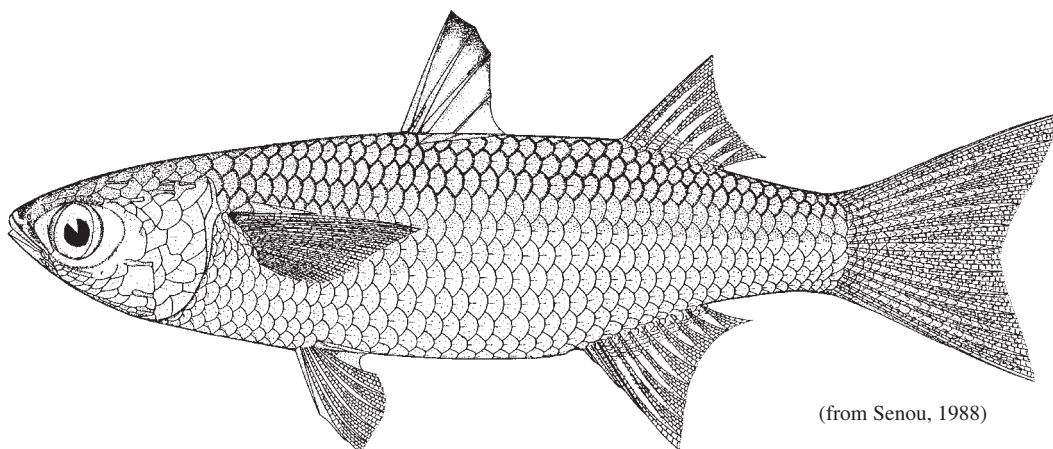
**Distribution:** Indo-Pacific from South Africa through parts of Indonesia to parts of Melanesia and Micronesia; north to the Marianas Islands and southern Japan.



***Valamugil cunnesius*** (Valenciennes, 1836)

**Frequent synonyms / misidentifications:** *Mugil ophuysenii* Bleeker, 1859 / See **Remarks**.

**FAO names:** **En** - Longarm mullet (= Longfin mullet, Fishing Area 57/71); **Fr** - Mulet longue aile; **Sp** - Lisa de aleta larga.



(from Senou, 1988)

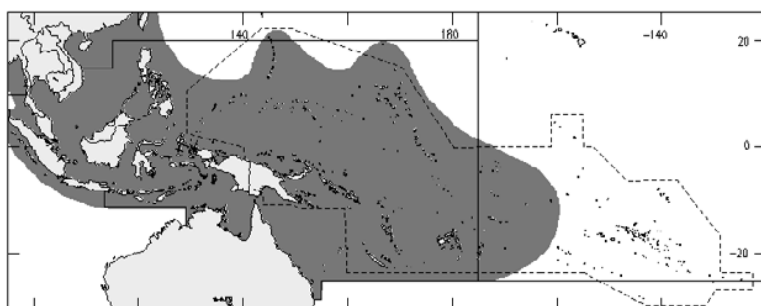
**Diagnostic characters:** A small species; body somewhat fusiform. Head deeper than wide and dorsally flattened. Snout moderately long and more or less pointed in profile, 20 to 25% head length. Dentary symphysis obtuse (blunt). Lips thin, lower directed forwards. **Teeth minute and cilliiform on both lips.** Vomer edentate. **Maxilla slender and weakly curved down at posterior tip, which is only just posteroventral to corner of mouth and partially or completely concealed. Serrate anteroventral edge of preorbital very weakly concave, not kinked; posteroventral tip narrow but not pointed.** Distance between anterior and posterior nostril more or less equal to maximum diameter of posterior nostril. **Adipose eyefold poorly developed, usually as rim around eye.** **Gill rakers on lower limb of first gill arch 62 to 75.** Relative position of origin of first dorsal fin variable, usually midway between tip of snout and base of caudal fin, or slightly nearer former. **Origin of fully erected second dorsal fin on vertical through anterior quarter to half of anal fin; both fins scaled only on anterior and basal parts.** Anal fin with III spines and 9 soft rays in adults (usually II spines and 10 soft rays in juveniles about 30 mm standard length or less). Caudal fin forked. Pectoral fins with I 'spine' and 14 to 16 soft rays; reaching level of origin of first dorsal fin; pectoral fins 23 to 25% standard length, 86 to 97% head length; greater than length of head minus snout; pectoral axillary scale moderately long. **Scales with a membranous, digitated hind margin; 37 to 43 (usually 38 or 39) in longitudinal series, 11 or 12 in transverse series; 12 or 13 scales in longitudinal series anterior to tip of pectoral fins and 23 to 26 anterior to origin of second dorsal fin; 17 or 18 (rarely 15 or 16) scales in transverse series entirely around caudal peduncle.** Pharyngobranchial organ with large denticulate area; **broad sulcus; no valves.** Pyloric caeca 5 to 7. **Colour:** greenish grey dorsally; flanks and abdomen silvery; second dorsal and anal fins with black margins.

**Size:** Largest observed specimen 14 cm standard length, but probably grows larger.

**Habitat, biology, and fisheries:** Very little reliable data due to earlier taxonomic confusion for this species (see below). Probably similar to other *Valamugil* species, inhabiting shallow coastal waters and browsing on benthic substrates.

**Distribution:** Reliable reports are very rare due to earlier taxonomic confusion. Perhaps widespread from Red Sea to West Pacific.

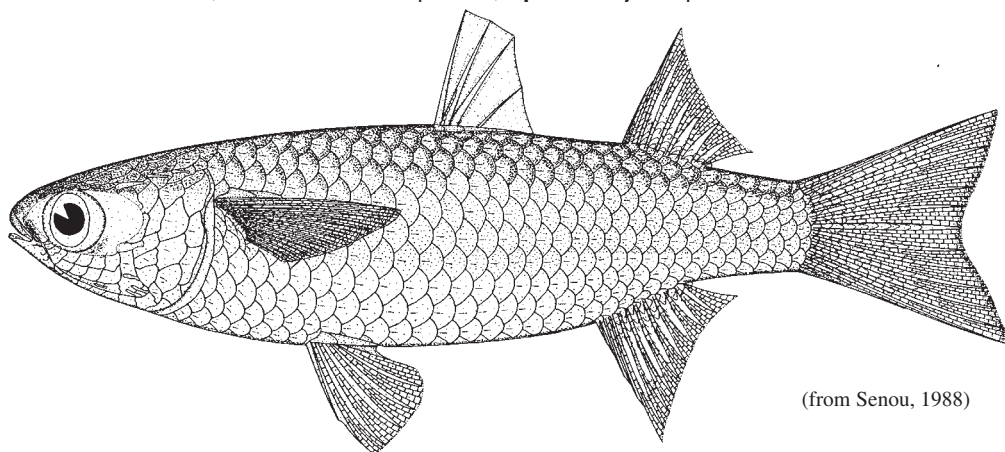
**Remarks:** The type-series specimens of *V. cunnesius* are non-conspecific and the putative holotype has frequently been overlooked. This has resulted in frequent, earlier, taxonomic confusion of other species with *V. cunnesius*.



*Valamugil engeli* (Bleeker, 1859)

**Frequent synonyms / misidentifications:** *Mugil kandavensis* Günther, 1877 / *Valamugil cunnesius* (Valenciennes, 1836); *V. perusii* (Valenciennes, 1836).

**FAO names:** En - Kanda; Fr - Mulet oeil de perdrix; Sp - Lisa ojo de perdiz.



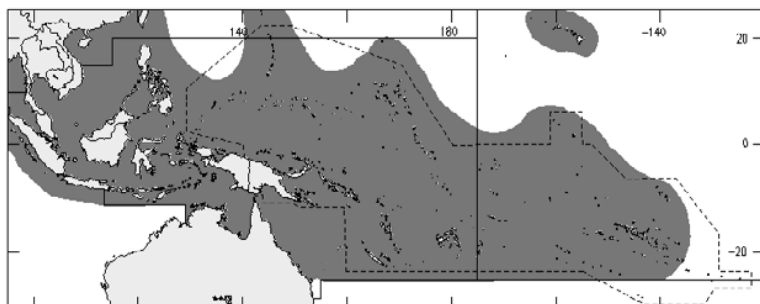
(from Senou, 1988)

**Diagnostic characters:** A small to medium-sized species; body more or less fusiform; depth at origin of first dorsal fin 25 to 29% standard length. Head deeper than wide and dorsally flattened. Snout short and blunt, **17 to 21% head length**; shorter than eye diameter. Dentary symphysis about 90° or slightly obtuse. Lips thin, lower directed forwards. **Teeth on both lips minute and ciliiform or absent.** Vomer toothed or edentate. **Maxilla slender and weakly curved down at posterior tip which is only just posteroventral to corner of mouth and partially or completely concealed. Serrate anteroventral edge of preorbital very weakly concave, not kinked; posteroventral tip narrow but not pointed.** Distance between anterior and posterior nostril more or less equal to maximum diameter of posterior nostril. **Adipose eyefold weakly developed, only slightly overlying iris.** Gill rakers on lower limb of first gill arch 44 to 52. **Origin of first dorsal fin nearer base of caudal fin than tip of snout. Origin of fully erected second dorsal fin on vertical through about third soft ray of anal fin, i.e. behind anterior quarter or more of anal fin; anal fin scaled basally, second dorsal fin only scaled anterobasally.** Anal fin with III spines and 9 (rarely 8) soft rays in adults (usually II spines and 10 soft rays in juveniles about 30 mm standard length or less). Caudal fin emarginate. Pectoral fins with I 'spine' and 14 to 17 (commonly 14 or 15) soft rays; moderately long, **just reaching level of origin of first dorsal fin or extending beyond this;** pectoral fins 23 to 26% standard length, 80 to 95% head length; greater than length of head minus snout; pectoral axillary scale long. **Scales with a membranous, digitated hind margin; thoracic and abdominal scales more distinctly ctenoid; 32 to 36 in longitudinal series; 10 ½ to 12 ½ in transverse series; 10 to 12 scales in longitudinal series anterior to tip of pectoral fins and 19 to 23 (commonly 21 or 22) anterior to origin of second dorsal fin; 16 scales in transverse series entirely around caudal peduncle; predorsal scales to tip of snout.** Pharyngobranchial organ with large denticulate area; **broad sulcus; no valves.** **Pyloric caeca 5 or 6.** **Colour:** olive dorsally; flanks and abdomen silvery; fins hyaline; **pectoral fins with dark spot dorsally at origin.**

**Size:** Maximum reported total length 30 cm; commonly to about 15 cm total length.

**Habitat, biology, and fisheries:** Inhabits coastal waters, shallow lagoons, protected inlets, and over sandy to muddy areas of reef flats. Juveniles may enter rivers and have been found in tide-pools at 40°C. Caught with seines and lift nets. Marketed fresh; also used as live bait in pole-and-line fishing for tuna.

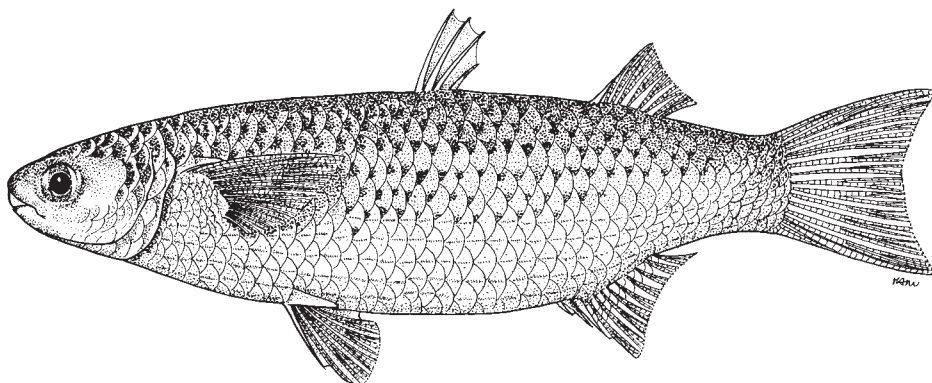
**Distribution:** Widespread across Indo-Pacific, from Africa to Marquesas and Tuamotu Islands; north to southern Japan; introduced to Hawaii.



***Valamugil georgii*** (Ogilby, 1897)

**Frequent synonyms / misidentifications:** *Mugil nortoni* Ogilby, 1908 / ?*Valamugil cunnesius* (Valenciennes, 1836); ?*V. engeli* (Bleeker, 1859); ?*V. perusii* (Valenciennes, 1836).

**FAO names:** En - Fantail mullet.



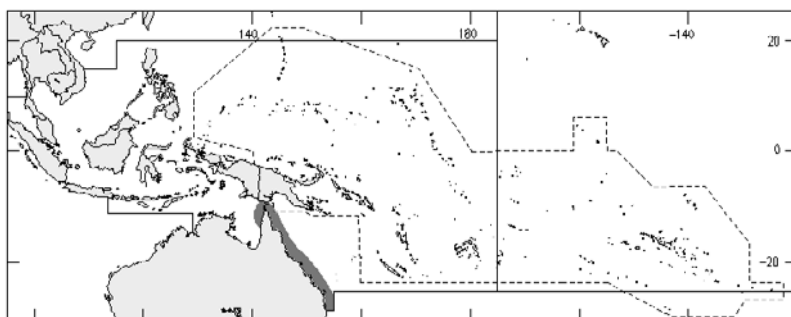
**Diagnostic characters:** A small to medium-sized species; body moderately robust; depth at origin of first dorsal fin about 30% standard length (ranges include 25 to 39%). **Snout short and blunt, 19 to 24% head length;** shorter than eye diameter. **Upper lip perhaps slightly thickened, with fine, ciliiform teeth;** lower lip thin, directed forwards, **without teeth.** Vomer edentate. **Maxilla slender and very weakly curved down at posterior tip, which is only just posteroventral to corner of mouth and partially or completely concealed.** **Serrate anteroventral edge of preorbital more or less straight;** **posteroventral part of preorbital broadened into a squarish end.** Anterior and posterior nostrils close-set. **Adipose eyefold usually well developed, covering most of iris posteriorly and partly anteriorly.** Gill rakers on lower limb of first gill arch 55 or 56. Origin of first dorsal fin nearer base of caudal fin than tip of snout. **Origin of fully erected second dorsal fin on vertical through anterior third to half of anal fin;** **both fins scaled only on anterior or basal parts.** Anal fin with III spines and 9 soft rays in adults (usually II spines and 10 soft rays in juveniles about 30 mm standard length or less). Caudal fin emarginate. Pectoral fins with I 'spine' and 14 or 15 soft rays; relatively short, **tip distinctly anterior to level of origin of first dorsal fin;** pectoral fins about 21% standard length, 92% head length; greater than length of head minus snout; pectoral axillary scale long. **Scales appear cycloid or only very weakly ctenoid (membranous, digitated hind margin of scale not distinct; thoracic and abdominal scales more distinctly ctenoid; 31 or 32 (rarely 30) in longitudinal series, (11 ½) 12 or 13 in transverse series; (9) 10 or 11 scales in longitudinal series anterior to tip of pectoral fins and 23 anterior to origin of second dorsal fin; about 16 scales in transverse series entirely around caudal peduncle.** Pharyngobranchial organ with large dentaculate area; **broad sulcus; no distinct valves but small valve-like swelling or fold of tissue at anteroventral part of sulcus.** **Pyloric caeca extensively branched, about 22 in total.** **Colour:** greenish brown dorsally; flanks silvery; abdomen off-white; gold spots on dorsal and ventral parts of iris; second dorsal, anal, and caudal fins with dusky margins and second dorsal speckled brown; **pectoral fins with purplish spot dorsally at origin.**

**Size:** Maximum reported total length 30 cm; rarely above 25 cm total length.

**Habitat, biology, and fisheries:** Inhabits coastal waters, estuaries and bays; young may enter fresh water. Forms schools, shoaling over shallow-water sand flats, particularly on rising tide at dusk. Fish tend to roll on their sides and flick a column of water into air. Taken as a bycatch; used as baitfish for crabs and snapper.

**Distribution:** Tropical Australia, along coasts of Queensland and New South Wales.

**Remarks:** Very similar to *V. engeli* and *V. perusii*, with which it has previously been synonymized.

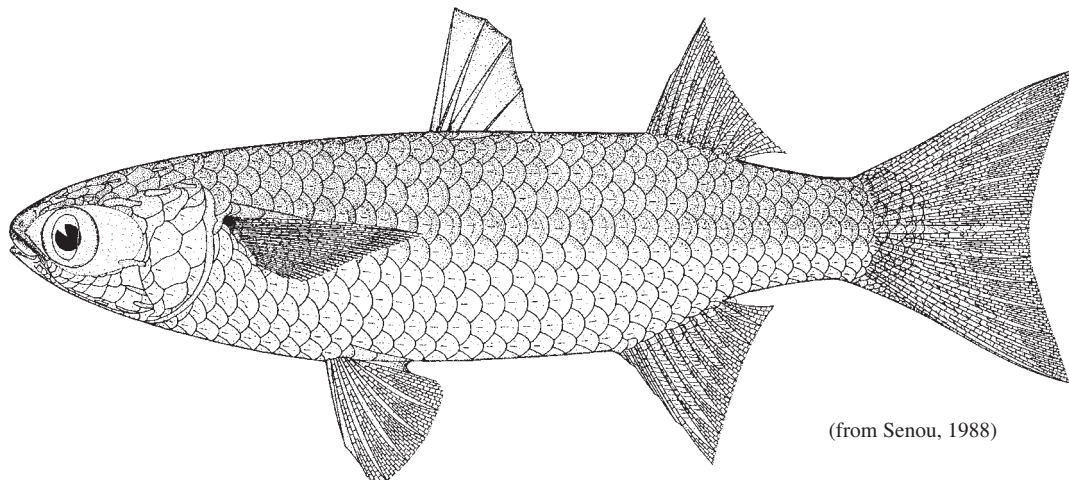




***Valamugil perusii*** (Valenciennes, 1836)

**Frequent synonyms / misidentifications:** ?*Mugil amarulus* Valenciennes, 1836; *M. kelaartii* Günther, 1861; *M. longimanus* Günther, 1861; *M. strongylocephalus* Richardson, 1846 / *Valamugil cunnesius* (Valenciennes, 1836); *V. engeli* (Bleeker, 1859).

**FAO names:** En - Longfinned mullet (from *Mugil strongylocephalus*).



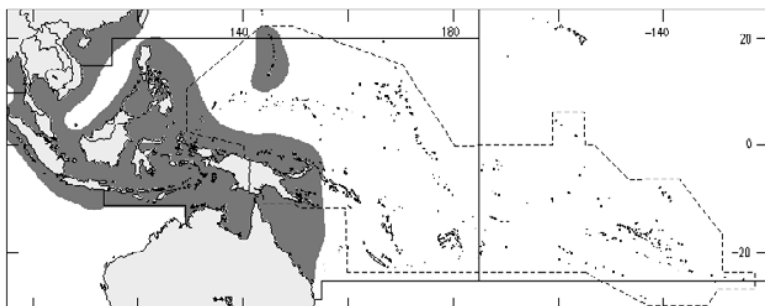
(from Senou, 1988)

**Diagnostic characters:** A small species; body moderately robust; depth at origin of first dorsal fin 24 to 35% (often less than 30%) standard length. Head deeper than wide and dorsally flattened. Snout short and blunt, **17 to 21% head length**; shorter than eye diameter. Dentary symphysis about 90° or slightly obtuse. Lips thin, lower directed forwards. **Teeth on both lips minute and ciliiform or absent.** Vomer usually edentate. **Maxilla slender and weakly curved down at posterior tip, which is only just posteroventral to corner of mouth and partially or completely concealed.** **Serrate anteroventral edge of preorbital very weakly concave, not kinked; posteroventral tip narrow but not pointed.** Distance between anterior and posterior nostril more or less equal to maximum diameter of posterior nostril. **Adipose eyefold reasonably developed, covering most of iris posteriorly and partly anteriorly.** Gill rakers on lower limb of first gill arch 40 to 51. **Origin of first dorsal fin midway between tip of snout and base of caudal fin, or slightly nearer latter.** **Origin of fully erected second dorsal fin on vertical through about third soft ray of anal fin, i.e. behind anterior quarter or more of anal fin; both fins moderately to well scaled on all parts.** Anal fin with III spines and 9 (rarely 8 or 10) soft rays in adults (usually II spines and 10 soft rays in juveniles about 30 mm standard length or less). Caudal fin emarginate. Pectoral fins with I 'spine' and 14 or 15 (rarely 16) soft rays; long, **just reaching level of origin of first dorsal fin or extending beyond this**; pectoral fins 21 to 27% standard length, 90 to 110% head length; greater than length of head minus snout; pectoral axillary scale long. **Scales with a membranous, digitated hind margin; thoracic and abdominal scales more distinctly ctenoid; 31 to 34 (rarely 35) in longitudinal series, 10 ½ to 11 ½ in transverse series; 11 to 14 (rarely 10) scales in longitudinal series anterior to tip of pectoral fins and 19 to 22 anterior to origin of second dorsal fin; 16 scales in transverse series entirely around caudal peduncle; predorsal scales to level of posterior nostril.** Pharyngobranchial organ with large denticulate area; **broad sulcus; no valves.** **Pyloric caeca 5 to 7.** **Colour:** greenish dorsally; flanks and abdomen silvery; gold opercular spot; fins dusky, particularly at margins; **pectoral fins with dark spot dorsally at origin.**

**Size:** Maximum reported total length 25 cm; perhaps commonly to 15 cm total length.

**Habitat, biology, and fisheries:** Inhabits coastal waters and estuaries. Shoaling over mudflats. Netted for bait.

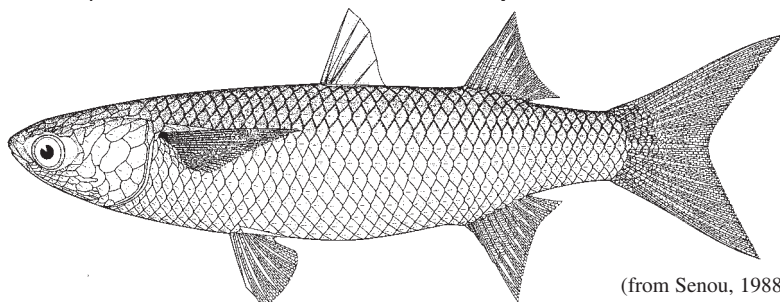
**Distribution:** Indo-West Pacific from Africa to Marianas Islands.



***Valamugil seheli*** (Forsskål, 1775)

**Frequent synonyms / misidentifications:** *Mugil axillaris* Valenciennes, 1836; *M. borbonicus* Cantor, 1850; *M. caeruleomaculatus* Lacepède, 1803; *M. cylindricus* Valenciennes, 1836 / *Valamugil buchanani* (Bleeker, 1853); *V. cunnesius* (Valenciennes, 1836); *V. speigleri* (Bleeker, 1859).

**FAO names:** En - Bluespot mullet; Fr - Mulet à tache bleue; Sp - Lisa de mancha azul.



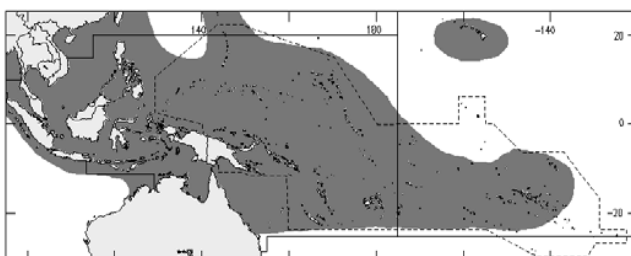
(from Senou, 1988)

**Diagnostic characters:** A medium-sized species; body moderately robust. Head as wide as deep or slightly wider and dorsally flattened. **Snout short and blunt, 18 to 22% (rarely 17%) head length;** shorter than eye diameter. Dentary symphysis obtuse (blunt). Upper lip thin or slightly thickened; lower lip thin and directed forwards. **Teeth on both lips minute and ciliiform in 1 row or absent.** Vomerine teeth present or absent. **Maxilla slender and weakly curved down at posterior tip, which is only just posteroventral to corner of mouth and partially or completely concealed. Serrate anteroventral edge of preorbital very weakly concave, not kinked; posteroventral tip narrow but not pointed.** Distance between anterior and posterior nostril less than or equal to maximum diameter of posterior nostril. Adipose eyefold poorly developed as rim around eye. Gill rakers on lower limb of first gill arch 39 to 73, usually more than 50. Relative position of origin of first dorsal fin may vary during ontogeny, but is usually midway between tip of snout and base of caudal fin, or slightly nearer snout. **Origin of fully erected second dorsal fin on vertical through anal-fin origin, or only just posterior to it; both fins always well scaled basally and medially, and more or less scaled on distal parts;** both fins mildly falcate but not as strongly as pectoral fins or fins of *Valamugil buchanani*. Anal fin with III spines and 9 (rarely 8 or 10) soft rays in adults (usually II spines and 10 soft rays in juveniles about 30 mm standard length or less). Caudal fin forked. Pectoral fins with I 'spine' and 16 to 18 (rarely 15 or 19) soft rays; **long and falcate, usually reaching level of origin of first dorsal fin;** pectoral fins 18 to 25% standard length, 84 to 104% head length (perhaps more, although this would be uncommon); often greater than length of head minus snout, not usually greater than length of head; pectoral axillary scale moderately long. **Scales with a membranous, digitated hind margin; 36 to 42 (usually 38 to 40) in longitudinal series; 12 to 14 in transverse series;** 10 to 14 scales in longitudinal series anterior to tip of pectoral fins and **23 to 26 (usually 24 or 25) anterior to origin of second dorsal fin; 18 to (commonly) 20 scales in transverse series entirely around caudal peduncle.** Pharyngobranchial organ with large denticulate area; **broad sulcus; no valves.** Pyloric caeca 6 to 9. **Colour:** bluish brown or green dorsally; flanks and abdomen silvery; dusky spots on upper rows of scales, giving indistinct longitudinal stripes; dorsal and caudal fins bluish, also dusky in second dorsal and caudal; anal, pelvic, and particularly pectoral fins yellowish; pectoral fins also with dark blue spot dorsally at origin.

**Size:** Maximum reported standard length 50 cm; commonly between 20 and 30 cm standard length.

**Habitat, biology, and fisheries:** Inhabits shallow coastal waters; enters lagoons, estuaries, brackish tidal creeks and fresh-water parts of rivers, where it feeds. Juveniles might be found in rice fields and mangrove swamps. Forms schools; larger shoals occur during spawning, which takes place at sea. Feeds on microalgae, filamentous algae, diatoms, foraminifera, and detritus associated with sand and mud. Caught using gill nets, cast nets, stake nets, barrier nets, lift nets, beach seines, and pouch nets during the spawning run; also taken as a bycatch with other fishes. Marketed fresh and perhaps salted, boiled (Thailand), canned or frozen (Australia). Roe marketed salted.

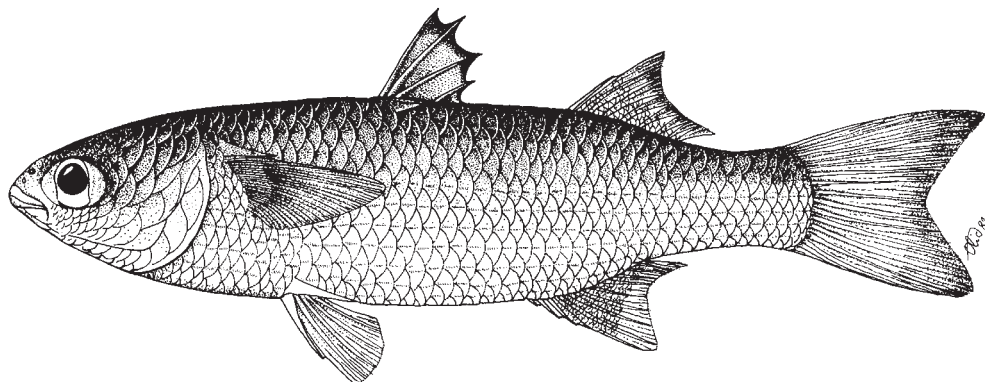
**Distribution:** Widespread throughout Indo-Pacific, from East Africa and Red Sea to the Marquesas Islands; north to Japan and Hawaii, and south to southern Queensland and New Caledonia.



***Valamugil speigleri*** (Bleeker, 1859)

**Frequent synonyms / misidentifications:** *Mugil suppositus* of Day, 1865 / *Valamugil cunnesius* (Valenciennes, 1836).

**FAO names:** En - Speigler's mullet; Fr - Mulet chiraya; Sp - Lisa chiraya.



**Diagnostic characters:** A small to medium-sized species; body fusiform. Head deeper than wide and dorsally flattened. Snout short and blunt, 17 to 22% head length. Dentary symphysis more or less obtuse (blunt). Lips thin, lower directed forwards. **Teeth on upper lip minute and ciliiform; those on lower lip also ciliiform but slightly larger and more numerous.** Vomer edentate. **Maxilla slender and more or less straight; posterior tip only just posteroventral to corner of mouth and partially or completely concealed.** **Serrate anteroventral edge of preorbital straight; posteroventral tip narrow but not pointed.** Distance between anterior and posterior nostril more or less equal to maximum diameter of posterior nostril. **Adipose eyefold varying from a narrow rim around eye to a well-developed structure covering iris posteriorly and partly anteriorly.** **Gill rakers on lower limb of first gill arch 35 to 45.** Origin of first dorsal fin usually nearer tip of snout than base of caudal fin. **Origin of fully erected second dorsal fin on vertical through anterior third to half of anal fin; both fins well scaled on all parts.** Anal fin with III spines and 9 soft rays in adults (usually II spines and 10 soft rays in juveniles about 30 mm standard length or less). Caudal fin forked. Pectoral fins with I 'spine' and 15 or 16 (rarely 17) soft rays; reaching level of origin of first dorsal fin; pectoral fins 20 to 24% standard length, 82 to 100% head length; greater than length of head minus snout; pectoral axillary scale long. **Scales with a membranous, digitated hind margin; 37 to 41 in longitudinal series; 11 or 12 in transverse series; 12 or 13 scales in longitudinal series anterior to tip of pectoral fins and 23 to 26 (usually 24 or 25) anterior to origin of second dorsal fin; 16 (less commonly 17) scales in transverse series entirely around caudal peduncle.** Pharyngobranchial organ with large denticulate area; **broad sulcus; no valves.** Pyloric caeca 4. **Colour:** greenish dorsally; flanks and abdomen silvery; first dorsal fin with black margin, other fins dusky; pectoral fins with dark spot dorsally at origin.

**Size:** Maximum reported total length 35 cm; commonly between 15 and 20 cm total length.

**Habitat, biology, and fisheries:** Schools in shallow coastal waters, estuaries, and backwaters; found in shallow, inundated areas along coast after heavy rains; enters fresh water. Spawns in sea. Juveniles might be found in rice fields and mangrove swamps. Feeds on small algae, diatoms, and other organic matter taken in with sand and mud; fry feed on copepods and floating algae. Caught using gill nets, cast nets, stake nets, barrier nets, lift nets, beach seines, pouch nets, and trawls. Marketed fresh and perhaps salted, boiled (Thailand), canned or frozen (Australia). Roe marketed salted.

**Distribution:** Indo-West Pacific, from Baluchistan to Borneo and New Guinea; north up to the Chinese coast, perhaps not reaching south to Australia.

