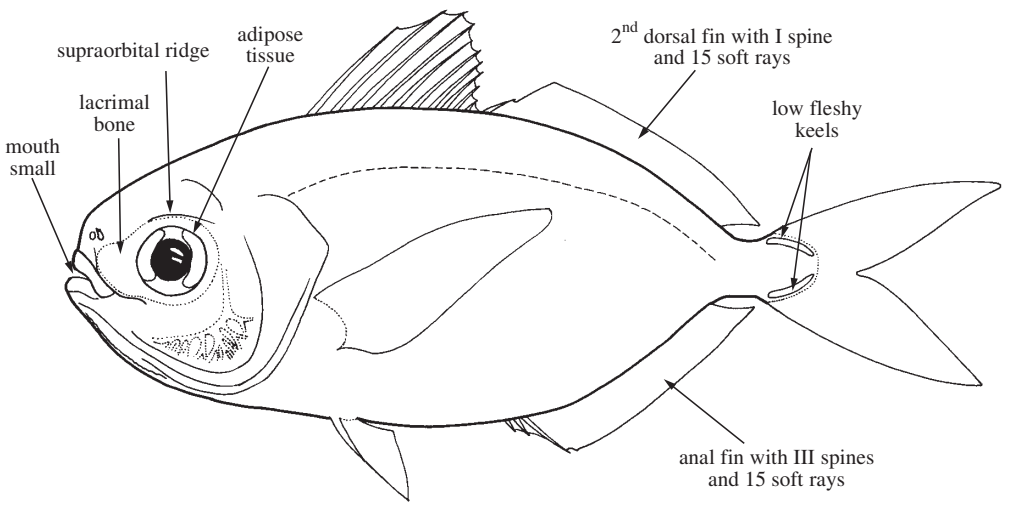
ARIOMMATIDAE

Ariommas

by P.R. Last

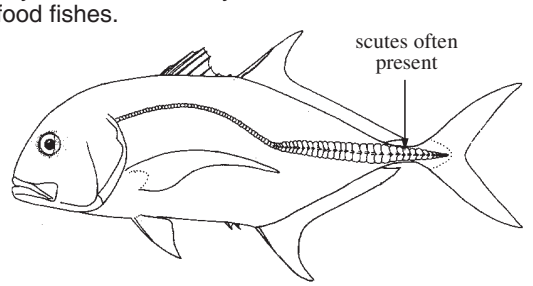
Diagnostic characters: Small to medium-sized (to 78 cm) fishes with either a deep, compressed, or more rounded, elongate body; flesh firm and oily; skin thin, mucous canal system well developed beneath skin. **Caudal peduncle short and slender, not compressed; with 2 low lateral keels on each side near caudal-fin base** (often indistinct). Head moderately large, compressed. Snout rounded or blunt. Opercle very thin, delicate. **Eye large, located centrally**, surrounded by pale adipose tissue that extends forward to mouth and over nostrils; indistinct ridge extending over eye. **Mouth small and terminal, not protractile, maxilla barely reaching border of eye**; lacrimal (preorbital) bone partly or wholly covering upper jaw when mouth closed. Teeth minute, uniserial, and pointed or flattened with 3 minute cusps; **teeth absent from palatines and vomer**. Gill rakers slender and numerous, about 20 to 30 on first gill arch. **Branchiostegal rays 6. Two distinct dorsal fins, almost connected**; first dorsal fin with X to XIII stiff but delicate spines, depressible into a deep groove, the fin origin above pectoral-fin base; second dorsal fin much lower than first dorsal fin, usually with I spine and 13 to 16 soft rays. Anal fin with I to III weak spines and 13 to 18 soft rays, similar to second dorsal fin in shape but with shorter base. Caudal fin deeply forked and moderately stiff; **caudal-fin lobes only slightly collapsible**. Pectoral fins moderately falcate, usually increasing in length with growth. Pelvic-fin origin below or behind pectoral-fin insertion, innermost ray attached to abdomen by a membrane, fins folding into a pronounced belly groove. **Lateral line on upper half of body, often indistinct, following dorsal profile but not extending onto caudal peduncle; scales large, cycloid, thin, very deciduous** (often barely detectable); no scales on bases of median fins; top of snout naked to above eye, sharply demarcated from predorsal scales. Vertebrae 29 to 32. **Colour:** silvery, with opalescent tinges; slightly darker on back.



Habitat, biology, and fisheries: Tropical and subtropical Atlantic, Pacific, and Indian oceans. Occur in large demersal schools on the continental shelf and slope to depths of at least 750 m. Appear to feed on small pelagic invertebrates. Important food fishes in other regions where they are trawled over muddy bottoms. In the Western Central Pacfic, they constitute a small bycatch but are likely to become more valuable with an expansion in exploratory trawling effort. Excellent food fishes.

Similar families occurring in the area

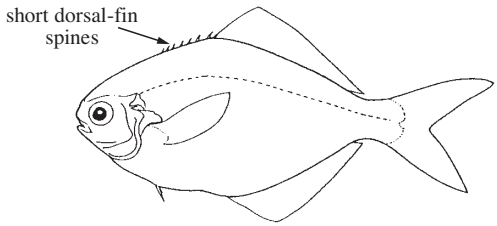
Carangidae: species of similar shape to ariommatids have a larger mouth, I or II separate spines preceding anal fin (no spines detached in ariommatids), spinous dorsal fin lower than soft dorsal fin (rather than taller), and many have scutes on caudal peduncle (always absent in ariommatids).



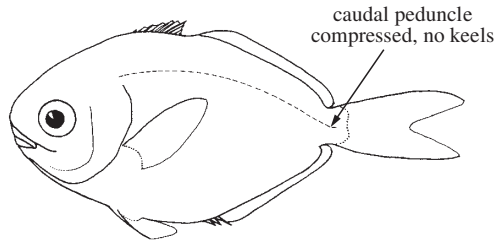
Carangidae

Centrolophidae: a single dorsal fin, sometimes spinous portion much lower than soft portion (2 dorsal fins with spines longer than rays in ariommatids); caudal keels absent (low keels on caudal peduncle in ariommatids); branchiostegal rays 7 (rather than 6).

Nomeidae: closest to *Psenes* in appearance; caudal peduncle deep and compressed (rather than slender and not compressed); caudal keels absent (low keels on caudal peduncle of ariommatids); teeth present on palate (absent in ariommatids).



Centrolophidae (*Psenopsis humerosa*)



Nomeidae (*Psenes* sp.)

Key to the species of Ariommatidae occurring in the area

1a. Body depth usually 42 to 50% standard length (Fig. 1) . . . . . ***Ariomma indicum***

1b. Body depth usually less than 32% standard length (Figs 2 and 3) . . . . . → ***2***

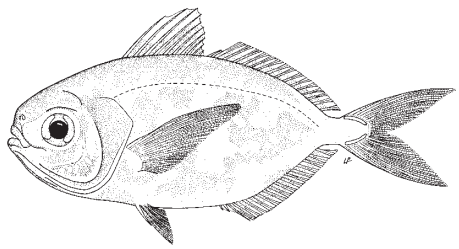


Fig. 1 ***Ariomma indicum***

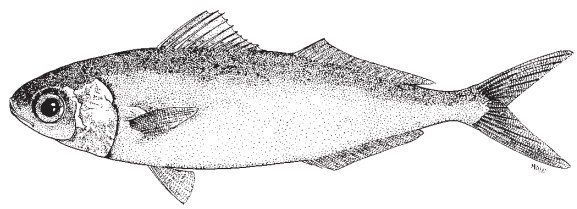


Fig. 2 ***Ariomma brevimanum***

2a. Predorsal scale patch extending forward to about hind margin of eye (Fig. 4a); preopercular margin somewhat angular (Fig. 4); eye small, less than 26% standard length (Fig. 2) . . . . . ***Ariomma brevimanum***

2b. Predorsal scale patch extending forward to front margin of eye (Fig. 4b); preopercular margin rounded (Fig. 4b); eye larger, more than 26% standard length (Fig. 3) . . . ***Ariomma luridum***

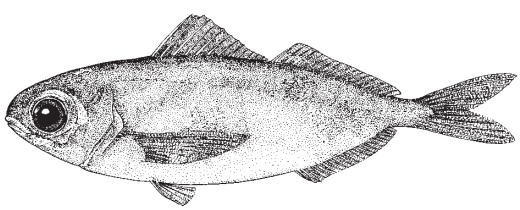
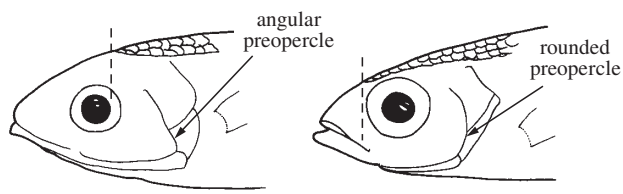


Fig. 3 ***Ariomma luridum***



a) ***Ariomma brevimanum*** **b)** ***Ariomma luridum***

Fig. 4

List of species occurring in the area

The symbol ◄ is given when species accounts are included.

◄ *Ariomma brevimanum* (Klunzinger, 1884)
◄ *Ariomma indicum* (Day, 1870)
◄ *Ariomma luridum* Jordan and Snyder, 1904

References

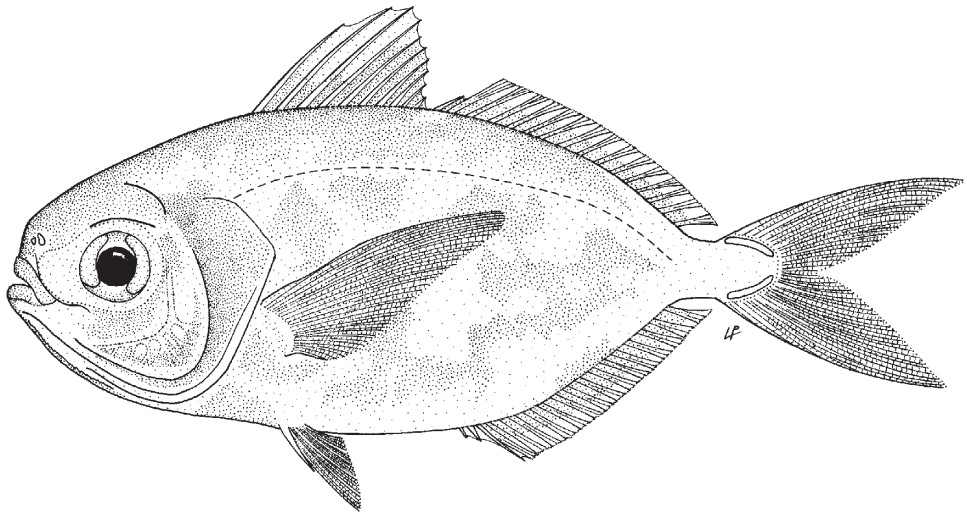
Haedrich, R.L. and M.H. Horn. 1972. A key to the stromateoid fishes. *Woods Hole Oceanogr. Inst. Tech. Rep.*, 1972(3):1-46.

Karrer, C. 1984. Notes on the synonyms of *Ariomma brevimanum* and *A. luridum* and the presence of the latter in the Atlantic (Teleosti, Perciformes, Ariommatidae). *Cybium*, 8(4):94-95.

Ariomma indicum (Day, 1870)

Frequent synonyms / misidentifications: *Psenes indicus* Day, 1870 / *Psenopsis anomala* Temminck and Schlegel, 1844 (family Centrolophidae).

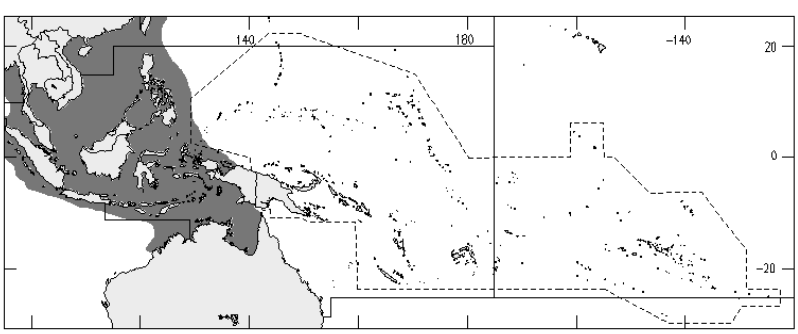
FAO names: En - Indian ariomma; **Fr** - Ariomme indienne; **Sp** - Arioma indica.



Diagnostic characters: Body firm, moderately deep (more than 40% standard length), slightly compressed**. Caudal peduncle slender, not compressed, almost square in cross-section with a very low keel (mostly indistinct) at base of each caudal-fin lobe.** Snout blunt and rounded; mouth very small, terminal, maxilla not reaching anterior margin of eye; upper jaw not protractile, almost totally covered by lacrimal (preorbital) bone when mouth closed. Eye moderately large, its diameter subequal to snout length, centred near midline of head. Jaw teeth small, cusps at tip minute; teeth in lower jaw with a single cusp anteriorly, 3 cusps posteriorly; no teeth on palate. About 23 gill rakers on first gill arch. Two dorsal fins, almost joined at bases; first dorsal fin originating over or slightly before pectoral-fin base, with X to XII spines; spines long and slender, delicate, about twice length of longest soft rays; second dorsal fin with 14 or 15 soft rays. Anal fin similar in shape to second dorsal fin, with III spines and 14 or 15 soft rays. **Caudal fin deeply forked but lobes not capable of folding into a single lobe. Pectoral fins with 21 to 24 rays**, the fins moderately long and falcate, usually directed obliquely. Pelvic fins short (not reaching anus), **folding into a broad abdominal groove.** Scales small, cycloid and **extremely deciduous (usually barely evident). Lateral line located on upper side, following dorsal profile but not extending onto caudal peduncle. Vertebrae usually 31. Colour:** silvery but slightly more brownish dorsally (occasionally uniformly dark); young with darker patches and blotches on side, fading or absent in adults; first dorsal fin and margin of caudal fin dark; dark vertical band through mideye.

Size: Maximum standard length about 25 cm, commonly to 18 cm.

Habitat, biology, and fisheries: Mainly demersal in small schools on the continental shelf in depths below 50 m but occasionally caught on the upper continental slope to 300 m. Often taken together north to the area with *Psenopsis anomala* (Centrolophidae) in trawl bycatch. Feeds largely on jellyfishes. Catch information poor for the area but it could have considerable commercial potential. Reported to sometimes comprise more than 1/2 the total catch weight with possible annual yields of 9 000 t off Africa. Marketed fresh or dried-salted.

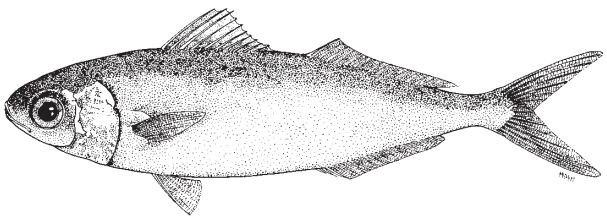


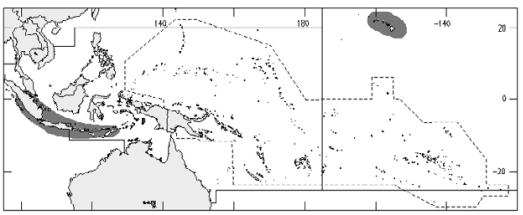
Distribution: Eastern Africa, along the continental margin of the northern Indian Ocean, eastward to Japan and the Gulf of Carpentaria, Australia.

Ariomma brevimanum (Klunzinger, 1884)

En - Smalleye ariomma.

Maximum total length about 78 cm. Pelagic or demersal on the continental shelf. Range inadequately defined but known to occur in the Red Sea, and off Indonesia, Japan, and Hawaii. Considered to be rare but occasionally taken in large quantities by purse seine off Japan. Could be of commercial value if targeted when abundant.

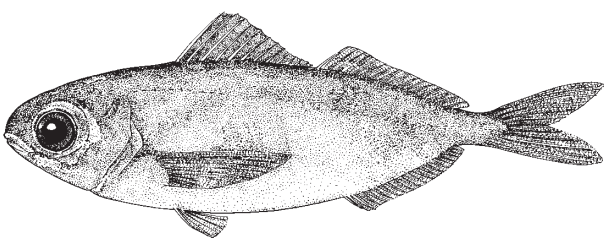


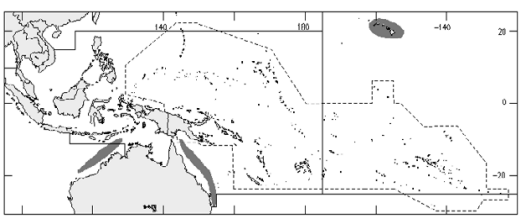


Ariomma luridum Jordan and Snyder, 1904

En - Slope ariomma.

Maximum total length at least 21 cm. Demersal on the upper continental slope, mainly in depths of 300 to 450 m. Reported from both sides of the central Atlantic, and off Japan, Hawaii, and northern Australia. Likely to be widespread in the Indo-Australian Archipelago but more than 1 species may be represented. Common in survey catches off northeastern Australia but only in small quantities. Not commercially important at present but could become a significant bycatch species in some regions after further development of slope fisheries. In sectors of the Atlantic, a closely related species is taken with a catch rate exceeding 1 t/hr.



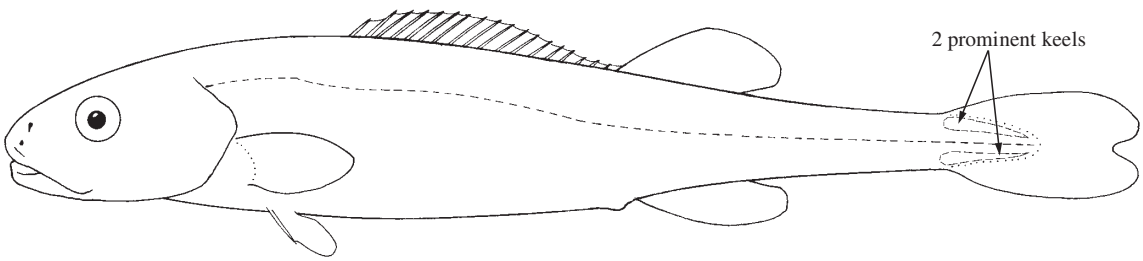


TETRAGONURIDAE

Squaretails

by P.R. Last

Diagnostic characters: Small to medium-sized (to 50 cm) fishes with a **very elongate, almost rounded body**; flesh firm; skin thick, mucous canal system not traceable, surface pores minute. **Caudal peduncle long, almost square in cross-section with 2 prominent, scaly lateral keels on each side near caudal-fin base.** Head small, compressed slightly. Snout blunt. Opercles not especially thin. Eye moderate, located above centre of head; no surrounding adipose tissue or ridges over eye. Mouth of moderate size and terminal, not protractile; maxilla reaching beneath eye, all but its ventral border covered by lacrimal (preorbital) bone. **Teeth very small, uniserial, and pointed in upper jaw; large, flattened with curved tips in lower jaw; lower jaw recessed within upper, teeth increasing in height away from symphysis (v-shaped in profile when viewed from front); palatines and vomer with teeth.** Gill rakers broad, flattened, 14 to 20 on first gill arch. **Branchiostegal rays 5 or 6. Two distinct dorsal fins**, well separated; **first dorsal fin** with X to XX short, stiff **spines, entirely depressible into a deep, narrow groove**, the fin origin behind pectoral-fin base; **second dorsal fin taller, with a much shorter base than first dorsal fin**, with 0 or I short spines and 10 to 17 soft rays. Anal fin similar in shape and size to second dorsal fin, with I or II short spines and 9 to 15 soft rays. Caudal fin forked, moderately stiff, lobes weakly scissor-like. Pectoral fins small and pointed. Pelvic-fin origin behind pectoral-fin base. **Lateral line indistinct, extending along midline over hind half of body**, not reaching caudal-fin base; **scales** moderate in size but very heavy, **strongly adherent**, **with prominent longitudinal ridges**; small scales on bases of median fins; main predorsal scale patch preceded on head by patch of pores and smaller granular scales (patches clearly demarcated). Vertebrae 40 to 61. **Colour:** uniform brownish or black, mouth and gill cavity dark.

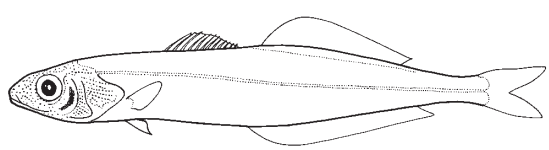


Habitat, biology and fisheries: Mesopelagic or oceanic epipelagic fishes of almost all tropical and temperate seas (yet to be recorded from the eastern Mediterranean and Red seas, and the China seas). Adults rarely onto continental shelves. Juveniles, which may seek refuge in tube-like salps, are seasonal vagrants inshore in some regions. The highly modified mouth is ideally suited to slicing through its primary food, ctenophores, and jellyfishes. Large squaretails are taken infrequently by tuna longliners in the Pacific. The flesh is considered by some to be poisonous but positive proof of these claims is unavailable. Nevertheless, of limited commercial potential as food.

Remarks: The family contains a single genus, *Tetragonurus*.

Similar families occurring in the area

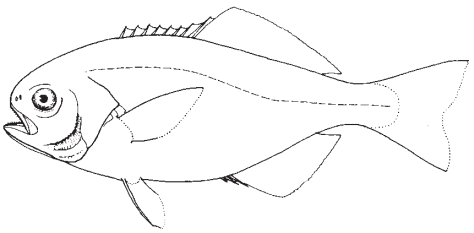
Amarsipidae: second dorsal-fin base distinctly longer than first (rather than the reverse); teeth conical and sharp in lower jaw (flattened and knife-like in tetragonurids); no prominent keels on caudal peduncle (2 prominent scaly keels on each side in tetragonurids).



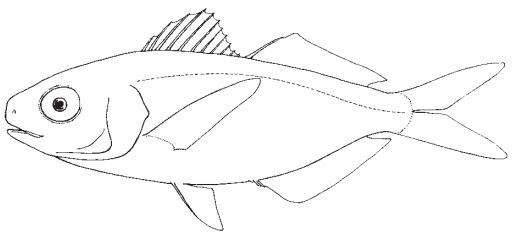
Amarsipidae

Centrolophidae: with only 1 dorsal fin or second dorsal-fin base distinctly longer than first (first dorsal-fin base longer in tetragonurids); teeth conical and sharp in lower jaw (flattened and knife-like in tetragonurids); no prominent keels on caudal peduncle (2 prominent scaly keels on each side in tetragonurids).

Nomeidae: second dorsal-fin base distinctly longer than first (rather than the reverse); scales lacking obvious surface ridges and easily shed (rather than strongly adherent and covered with thin longitudinal ridges); no prominent keels on caudal peduncle (2 prominent scaly keels on each side in tetragonurids).



Centrolophidae



Nomeidae

Key to the species of Tetragonuridae occurring in the area

1a. Dorsal-fin spines X to XII; lateral-line scales fewer than 80 (73 to 78); vertebrae 39 to 43 (Fig. 1) . . . . . ***Tetragonurus pacificus***

1b. Dorsal-fin spines XIV to XVII; lateral-line scales to caudal-keel origins more than 80 (83 to 95); vertebrae 44 or more (44 to 51) (Fig. 2) . . . . . ***Tetragonurus atlanticus***

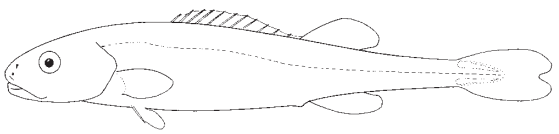


Fig. 1 ***Tetragonurus pacificus***

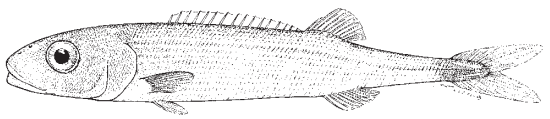


Fig. 2 ***Tetragonurus atlanticus***

List of species occurring in the area

Tetragonurus atlanticus Lowe, 1839
Tetragonurus pacificus Abe, 1953

Reference

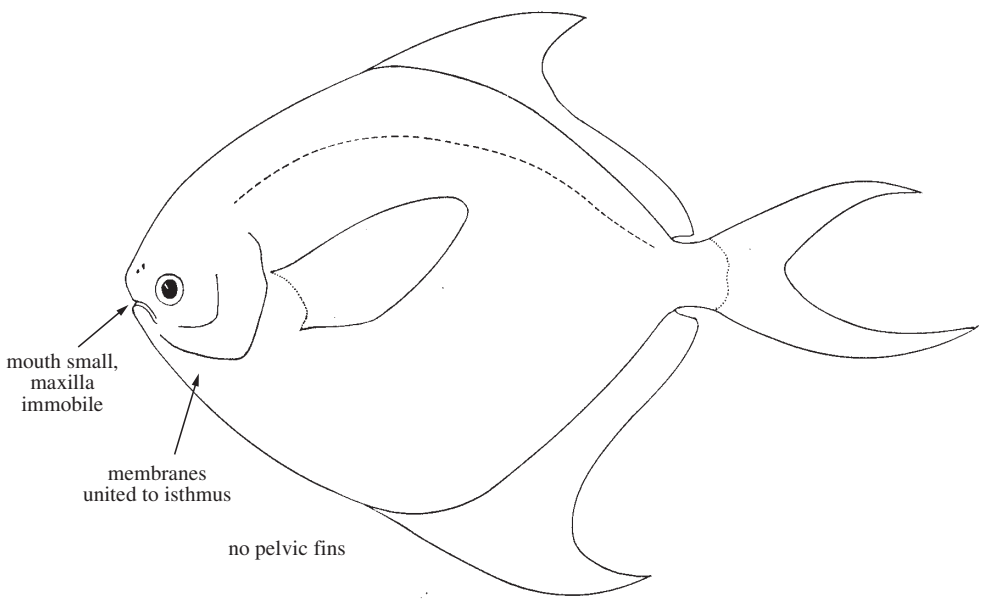
Grey, M. 1955. The fishes of the genus *Tetragonurus* Risso. *Dana Rept.*, (41):75 p.

STROMATEIDAE

Butterfishes (silver pomfrets)

by P.R. Last

Diagnostic characters: Medium-sized (to about 60 cm) fishes with a deep, compressed body; flesh firm; skin thickness variable, mucous canal system visible in some genera. **Caudal peduncle short, deep, very compressed; without keels or scutes near caudal-fin base.** Head deep, short. Snout blunt. Opercles thin. **Eye rather small, located centrally**, surrounded by pale adipose tissue that extends forward to mouth and over nostrils; low ridge extending over eye. Mouth small, terminal or inferior, not protractile; maxilla barely reaching border of eye, upper jaw scarcely covering lacrimal (preorbital) bone (in *Stromateus*) to completely concealed by skin (in *Pampus*). **Teeth** very small, **flattened, with 3 minute cusps**, uniserial in jaws; **absent from palatines and vomer**. Gill membranes not usually connected to isthmus (except in *Pampus*); 8 to 18 slender gill rakers on lower limb of outer gill arch. **Branchiostegal rays 5 or 6.** Single dorsal fin originating over to well behind pectoral-fin base; **total dorsal-fin elements 38 to 53, anterior rays greatly extended; none or I to X flat, blade-like spines preceding dorsal fin**. Anal fin similar in shape to dorsal fin and about the same size or slightly shorter; **total anal-fin elements 34 to 47**. Caudal fin deeply forked, moderately stiff with the lobes capable of incomplete scissor-like closure. Pectoral fins long, slightly pointed. **Pelvic fins absent** (except for young of *Stromateus*). **Lateral line on upper side**, following dorsal profile and extending onto caudal peduncle; scales small, cycloid, deciduous, extending onto median fins; top of head naked. Vertebrae 29 to 48. **Colour:** silvery, pale or bluish; sometimes with darker spots.



Habitat, biology, and fisheries: Distributed around continental margins of the tropical and temperate Atlantic and eastern Pacific, and the tropical Indian Ocean to Japan and the Indo-Australian Archipelago. Pomfrets are primarily coastal fishes occurring in large schools mainly in depths shallower than 100 m. They feed mainly on zooplankton, particularly copepods and decapod larvae. They are important food fishes in regions where they are abundant. For 1995, the FAO Yearbook of Fishery Statistics reports a total catch of around 20 700 t of Stromateidae from the Western Central Pacific.

Remarks: All species of this family found in the area belong to the genus *Pampus*.

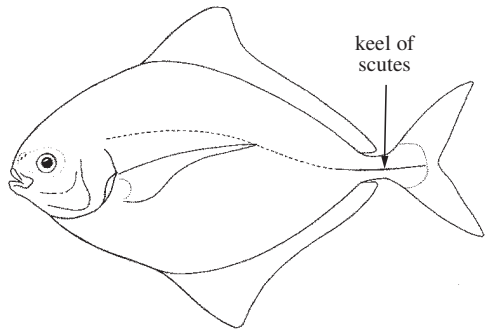
Similar families occurring in the area

Indo-Pacific members of *Pampus* can be distinguished from all other fishes of the area in having a combination of a deep and compressed body, no pelvic fins, and the gill membranes joined to each other and the belly ventrally.

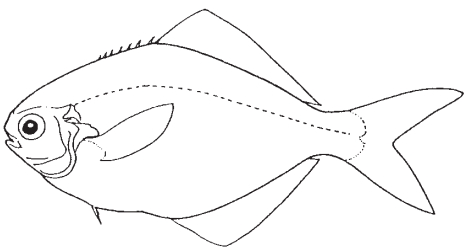
Carangidae: *Parastromateus niger*, or black pomfret, is very similar in form to some stromateids, especially *Pampus*. In *Parastromateus*, the gill membranes are not united to the isthmus (united in *Pampus*), there is a keel formed of short scutes along each side of the caudal peduncle (absent in stromateids), and the colour is often dark (pale or silvery in *Pampus*).

Centrolophidae: pelvic fins present (absent in adult stromateids); teeth conical and single-cusped (rather than flattened with 3 minute cusps); branchiostegal rays 7 (rather than 5 or 6).

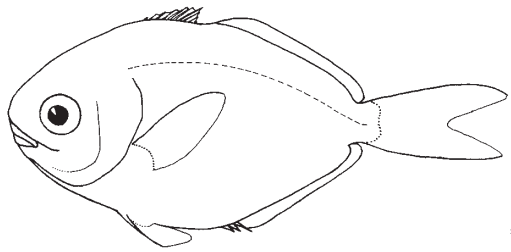
Nomeidae: 2 distinct dorsal fins (1 in stromateids); pelvic fins present (absent in adult stromateids); teeth present on palatines and vomer (rather than absent).



Carangidae (*Parastromateus*)



Centrolophidae



Nomeidae

Key to the species of Stromateidae occurring in the area

1a. Posterior margin of dorsal and anal fins not deeply indented; no blade-like spines before dorsal and anal fins; caudal fin not deeply forked, lobes equal in length (Fig. 1) . . . ***Pampus chinensis***

1b. Posterior margin of dorsal and anal fins deeply indented, fins with distinct anterior lobes; short, blade-like spines inserted before dorsal and anal fins (embedded in skin and barely evident in large specimens); caudal fin deeply forked, lower lobe often longer (Fig. 2) . . . . . → ***2***

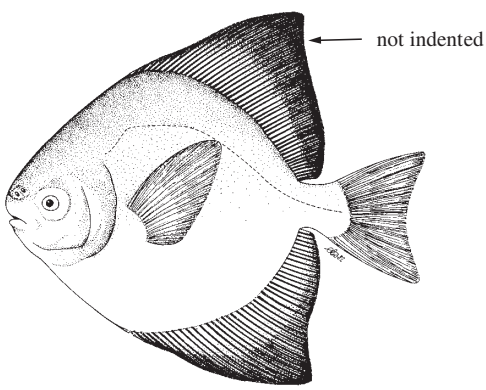


Fig. 1 ***Pampus chinensis***

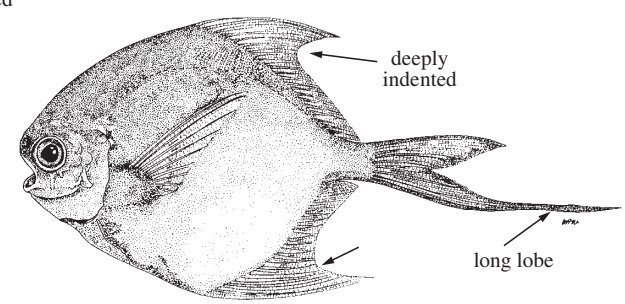
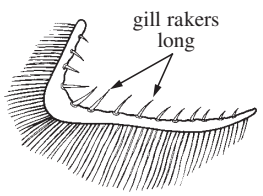


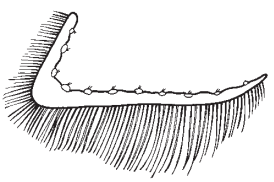
Fig. 2 ***Pampus* sp.**

2a. Gill rakers long, slender (several times longer than their base) (Fig. 3a); vertebrae 29 to 30 (Fig. 2) . . . . . ***Pampus* sp.**

2b. Gill rakers wart-like with 2 or more, minute spiny spinules on top (spinules much shorter than gill-raker base) (Fig. 3b); vertebrae 34 or more . . . . . → ***3***

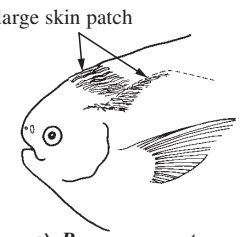


a) *Pampus* sp.

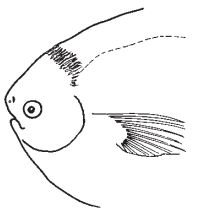


b) *Pampus argenteus, P. echinogaster*

Fig. 3



a) *Pampus argenteus*



b) *Pampus echinogaster*

Fig. 4

3a. Fine ridge-like patch of skin on top of head large, extending above pectoral-fin base (Fig. 4a); total gill rakers on first gill arch 10 to 13; dorsal-fin rays 37 to 43; vertebrae 34 to 37 (Fig. 5) . . . . . ***Pampus argenteus***

3b. Fine ridge-like patch of skin on top of head moderately small, not reaching pectoral-fin base (Fig. 4b); total gill rakers on first gill arch 15 to 21; dorsal-fin rays 42 to 49; vertebrae 41 (Fig. 6) . . . . . ***Pampus echinogaster***

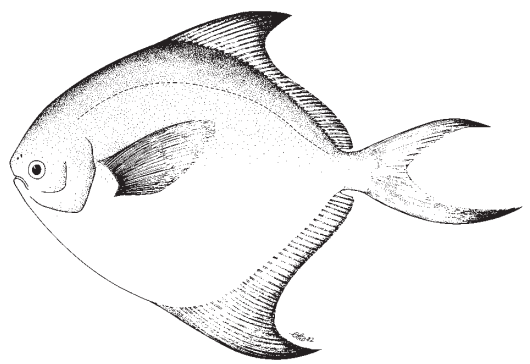


Fig. 5 ***Pampus argenteus***

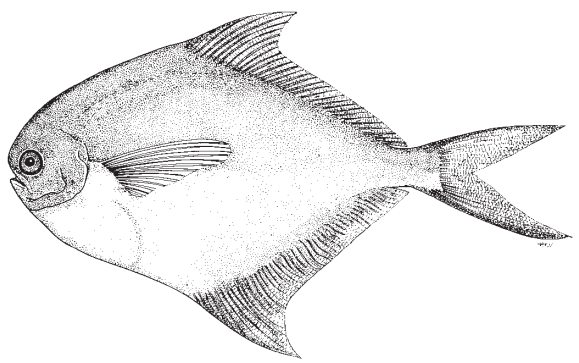


Fig. 6 ***Pampus echinogaster***

List of species occurring in the area

The sumbol is given when species accounts are included.

- *Pampus argenteus* (Euphrasen, 1788)
- *Pampus chinensis* (Euphrasen, 1788)
- ?*Pampus echinogaster* (Basilewsky, 1855)
- *Pampus* sp.

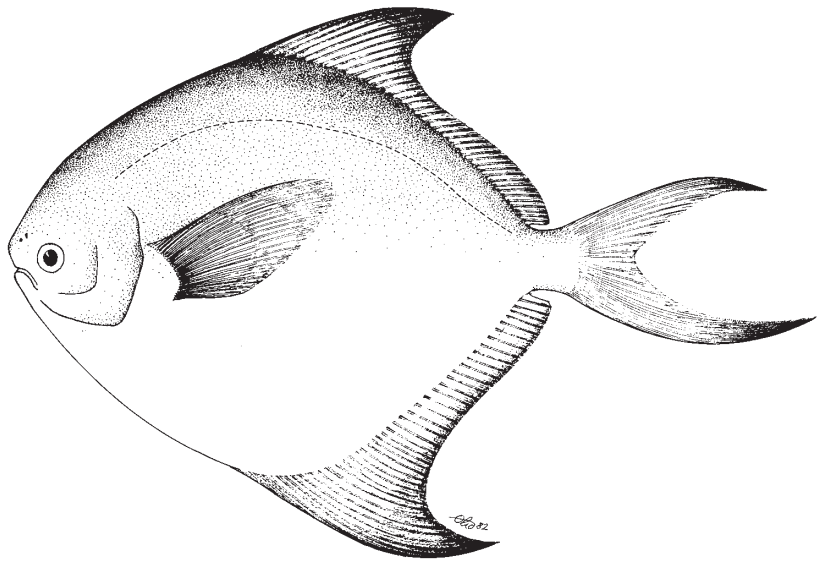
Reference

Pati, S. 1978. Systematic comparison of the stromateid fishes of the genus *Pampus* Bonaparte (family Stromateidae). *J. Mar. Biol. Soc. India*, 201-2(1-2):50-64.

Pampus argenteus (Euphrasen, 1788) SIP

Frequent synonyms / misidentifications: None / *Pampus* sp.

FAO names: En - Silver pomfret; **Fr** - Aileron argente; **Sp** - Palometon platero**.**

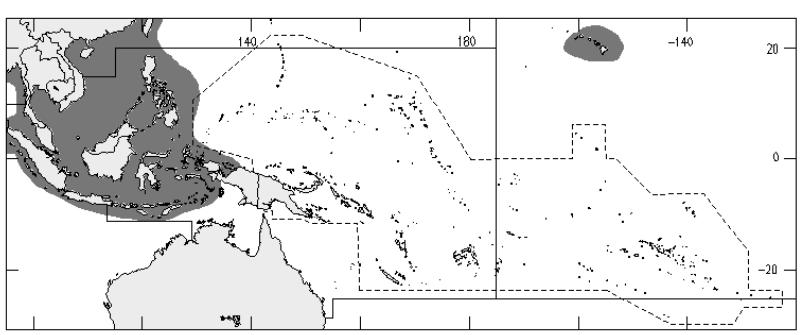


Diagnostic characters: Body firm, very deep, oval, compressed. Caudal peduncle short, deep, strongly compressed, lacking scute-like scales or fleshy keels. Snout blunt, **forehead arched slightly. Eye small, central, slightly shorter than snout.** Mouth small, subterminal, curved downward posteriorly; barely reaching beyond anterior margin of eye; upper jaw covered with skin, joined to head, not moveable. Jaw teeth minute, in a single series, flattened with 3 cusps (central cusp much larger than those adjacent)**. Gill membranes joined to belly; gill slit short, its lower margin about level with bottom of pectoral-fin base**; total gill rakers on first gill arch 10 to 13. **Dorsal and anal fins** subequal in size, originating behind pectoral-fin bases, both stiff and **lobe-like anteriorly, preceded by 5 to 10 short, blade-like spines with pointed ends (embedded and barely visible in adults); dorsal-fin rays 37 to 43**; anal-fin rays 34 to 43. **Caudal fin deeply forked, lower lobe often extended.** Pectoral fins long, fan-like, with 24 to 27 rays. **Pelvic fins absent**. Scales very small, cycloid, and deciduous, extending onto bases of all fins, enlarged slightly near caudal peduncle; naked patch on head and nape with well-defined network of longitudinal sensory canals, **patch usually extending above pectoral-fin base and partly along margin of lateral line**. Lateral line high, following dorsal profile onto caudal peduncle. **Vertebrae 34 to 37. Colour:** silvery white on sides, slightly darker bluish or greyish on back; fine black spots on head, and dark patches on upper caudal peduncle and beneath pectoral-fin base; fins yellowish with dark margins.

Size: Maximum standard length reported to be about 60 cm, commonly to 30 cm.

Habitat, biology, and fisheries: Inshore demersal on the continental shelf to about 80 m. Occurs frequently in large schools over muddy bottoms often in association with *Nemipterus* and *Leiognathus* species. A specialized feeder eating mainly pelagic invertebrates such as copepods, salps, and jellyfishes. Western Pacific populations spawn from late winter through to the northern summer with peaks from April to June. One of the most highly regarded food fishes of Asia. Caught mainly by demersal trawlers and with gill nets. Available fresh for local markets or transhipped frozen to urban centres. From 1990 to 1995, the FAO Yearbook of Fishery Statistics reports a range of yearly catch of around 11 046 to 18 021 t of *Pampus argenteus* from the area (Indonesia, Malaysia, Thailand).

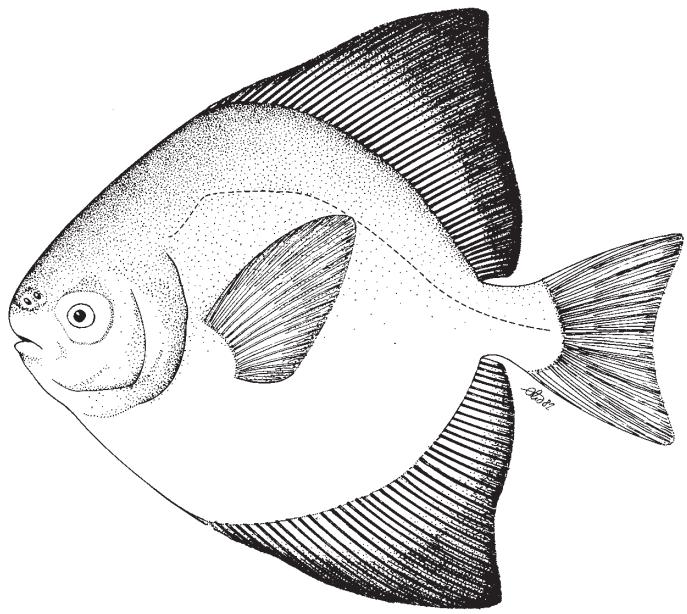
Distribution: Indo-Pacific from the Persian Gulf to Indonesia, northward to Hokkaido (Japan). Extralimital captures have been reported from the Adriatic, North Sea, and off Hawaii. Not recorded from Australasia.



Pampus chinensis (Euphrasen, 1788)

Frequent synonyms / misidentifications: *Stromateus sinensis* Forster, 1795 / None.

FAO names: En - Chinese silver pomfret; **Fr** - Aileron chinois; **Sp** - Palometon chino.

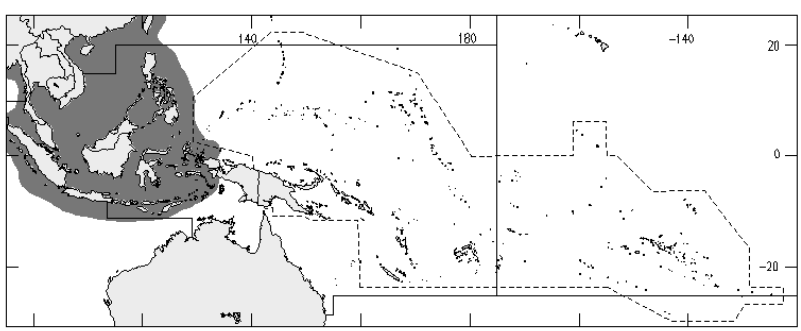


Diagnostic characters: Body firm, very deep, compressed. Caudal peduncle short, deep, strongly compressed, lacking scute-like scales or fleshy keels. Snout blunt, rounded, **forehead almost straight. Eye small, central, much shorter than snout**. Mouth small, subterminal, curved downward posteriorly; not reaching anterior margin of eye; upper jaw covered with skin, joined to head, not moveable. Jaw teeth minute, in a single series, flattened with 3 cusps (central cusp much larger than those adjacent). **Gill membranes joined to belly; gill slit short, its lower margin slightly below pectoral-fin base**; total gill rakers on first gill arch 11 to 14. **Dorsal and anal fins** subequal in size, originating at or behind level of pectoral-fin bases, quite stiff but **never produced into a falcate lobe anteriorly; no spines before fins; dorsal-fin rays 43 to 50**; anal-fin rays 39 to 42. **Caudal fin broad, weakly forked, lower lobe not extended.** Pectoral fins long, fan-like, with 24 to 27 rays. **Pelvic fins absent.** Scales very small, cycloid, and deciduous, barely extending onto fin bases; naked patch on head and nape with well-defined network of longitudinal sensory canals, **patch not extending above pectoral-fin base**. Lateral line high, following dorsal profile onto caudal peduncle. **Vertebrae 33. Colour:** greyish to brownish dorsally, silvery white on sides; covered in dark pigment spots; fins silvery to greyish, darkest distally.

Size: Maximum standard length about 40 cm, commonly to 20 cm.

Habitat, biology, and fisheries: Inshore demersal on the continental shelf over muddy bottoms and usually occurs in schools. Rarely caught deeper than 100 m; sometimes enters estuaries. Feeds mainly on zooplankton but will also prey on small benthic animals. Caught in coastal waters with trawl nets, traps, and occasionally with gill nets. Marketed fresh in small quantities. Much less important commercially than the silver pomfret (*Pampus argenteus*). Separate statistics are not available for this species.

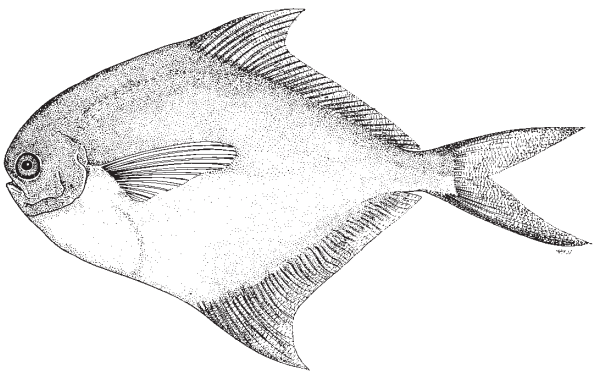
Distribution: Indo-West Pacific from the Persian Gulf to eastern Indonesia and northward to Japan. So far not recorded from Australia and New Guinea.

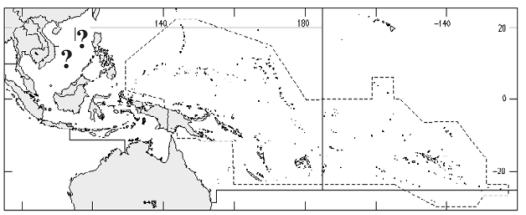


Pampus echinogaster (Basilewsky, 1855)

En - Butterfly silver pomfret.

Maximum standard length 50 cm. Demersal on the continental shelf of the East China and Yellow seas and not formally recorded further south. May occur within the area but unlikely to be commercially important.

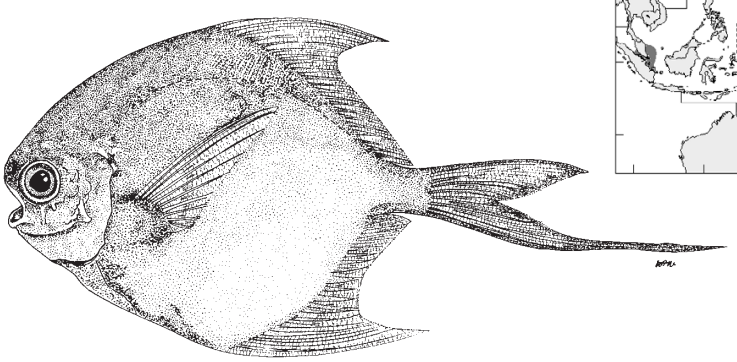


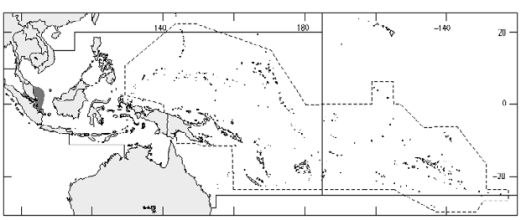


***Pampus* sp.**

En - Shortfin silver pomfret.

Maximum standard length about 12 cm. Once considered to be the juvenile of *Pampus argenteus* from which it is still rarely distinguished. Caught in quantity off Malaysia but, because of its small size, less important than *P. argenteus*. Biology unknown. Probably widely distributed in the Indo-West Pacific.





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