

Epinephelus labriformis (Jenyns, 1843)

Fig. 335; Pl. XVII

SERRAN Epin 63

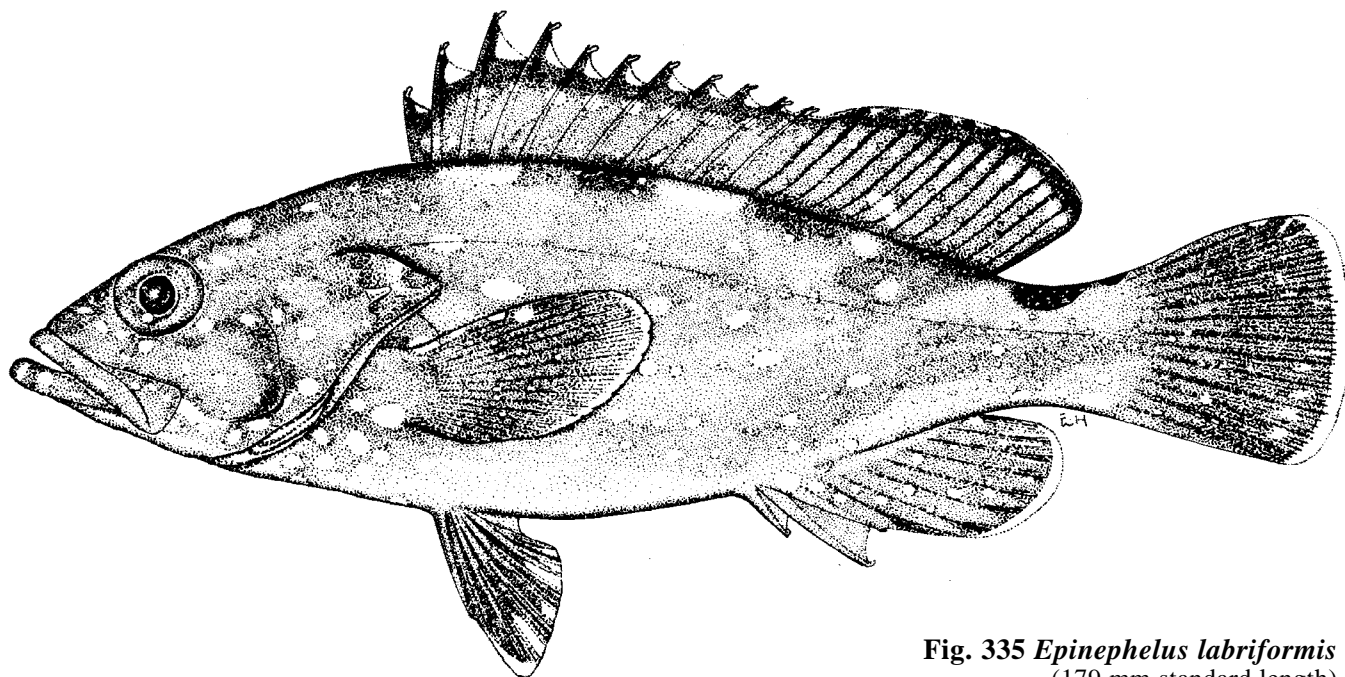
Serranus labriformis Jenyns, 1843:8, pl. 3 (type locality: Galapagos Islands).**Synonyms:** *Epinephelus sellicauda* Gill, 1863:250 (type locality: Cape San Lucas, Baja California). *Epinephelus ordinatus* Cope, 1871:466 (type locality: Panama).**FAO Names:** En - Starry grouper; Fr - M erou  toile; Sp - Cabrilla piedra.

Fig. 335 *Epinephelus labriformis*
(179 mm standard length)

Diagnostic Features: Body depth distinctly less than head length, depth contained 2.7 to 3.1 times in standard length (for fish 10 to 33 cm standard length). Head length contained 2.2 to 2.5 times in standard length; interorbital area flat; preopercle rounded, finely serrate, the ventral serrae slightly enlarged; subopercle and interopercle smooth; upper edge of operculum slightly convex; nostrils subequal. Gill rakers 7 to 9 on upper limb, 15 to 17 on lower limb, 23 to 26 total. Dorsal fin with XI spines and 16 to 18 rays, the third or fourth spine longest (longer than the longest dorsal-fin ray) and the interspinous membranes moderately incised; anal fin with III spines and 8 rays; pectoral-fin rays 18 or 19; pelvic fins much shorter than pectoral fins, their origin below or behind pectoral-fin base; caudal fin rounded. Lateral-body scales ctenoid, with a few auxiliary scales; lateral-line scales 48 to 51; lateral-scale series 84 to 100. **Colour:** Generally olive-green to reddish brown with scattered irregular white spots and blotches; white triangle at margin of interspinous dorsal-fin membranes and a bright white tag at tip of each spine; juveniles with black spots on top of head and median fins reddish distally with white edge; small black saddle on peduncle; inside of mouth red.

Geographical Distribution: Eastern Pacific from Gulf of California to Peru, including the offshore islands of Cocos, Revillagigedo, and Galapagos (Fig. 336).

Habitat and Biology: A common shallow-water species of rocky shores, *E. labriformis* is a secretive predator that feeds on small fishes during the day and mainly on crustaceans at night. Although the species is most abundant near shore, adults also occur to depths of at least 30 m.

Size: Maximum total length about 50 cm.

Interest to Fisheries: *E. labriformis* is of some commercial importance in local fisheries. Caught with hook-and-line and in traps,

Local Names: MEXICO: Cabrilla piedra, Cabrilla pinta; USA: Flag cabrilla.

Literature: Hobson (1968); Smith (1971); Thomson et al. (1979)

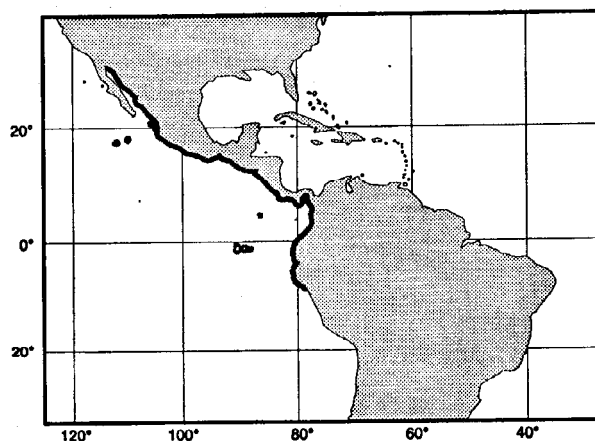


Fig. 336

Remarks: Lopez Lemus (1988) reckoned that his electrophoretic isozyme data show that *E. labriformis* is more closely related to *Cephalopholis panamensis* than it is to either *E. analogus* or *E. acanthistius*. But his biochemical evidence for this relationship is very tenuous, namely that *C. panamensis* and *E. labriformis* have two enzyme alleles in common that are not shared with *E. analogus*, while *E. labriformis* and *E. analogus* share only one allele that is not also seen in *C. panamensis*. Since this supposed close relationship of *C. panamensis* and *E. labriformis* is indicated by only a single allele, and, in view of the fact that Lopez Lemus has done no comparisons with the enzymes of outgroups in order to infer the polarity of this single allele, his evidence for a sister group relationship between these two species is unconvincing. And we have recently discovered additional morphological differences between *C. panamensis* and *E. labriformis* (e.g., in the shape of the maxilla and presence or absence of trisegmental pterygiophores in the dorsal and anal fins), which indicate that these two species are not congeneric.

Epinephelus lanceolatus (Bloch, 1790)

Fig. 337; Pl. XVID

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Holocentrus lanceolatus Bloch, 1790:92, pl. 242, fig. 1 (type locality: East Indies).

Synonyms: *Serranus geographicus* Valenciennes in Cuv. and Val., 1828:322 (type locality: Java). *Serranus abdominalis* Peters, 1855b:237 (type locality: Mozambique coast at 15°S). *Batrachus gigas* Günther, 1869:1 31 (type locality: Seychelles). *Oligorus terrae-reginae* Ramsay, 1880:93, fig. (type locality: Queensland). *Oligorus Goliath* De Vis, 1883:318 (type locality: Moreton Bay, Queensland, Australia). *Serranus phaeostigmaeus* Fowler, 1907:255, fig. 2 (type locality: Hawaiian Islands). *Stereolepoides thompsoni* Fowler, 1923:382 (type locality: Honolulu). *Promicrops lanceolatus*.

FAO Names: En - Giant grouper; Fr - Mérou lancéolé; Sp - Mero lanceolado.

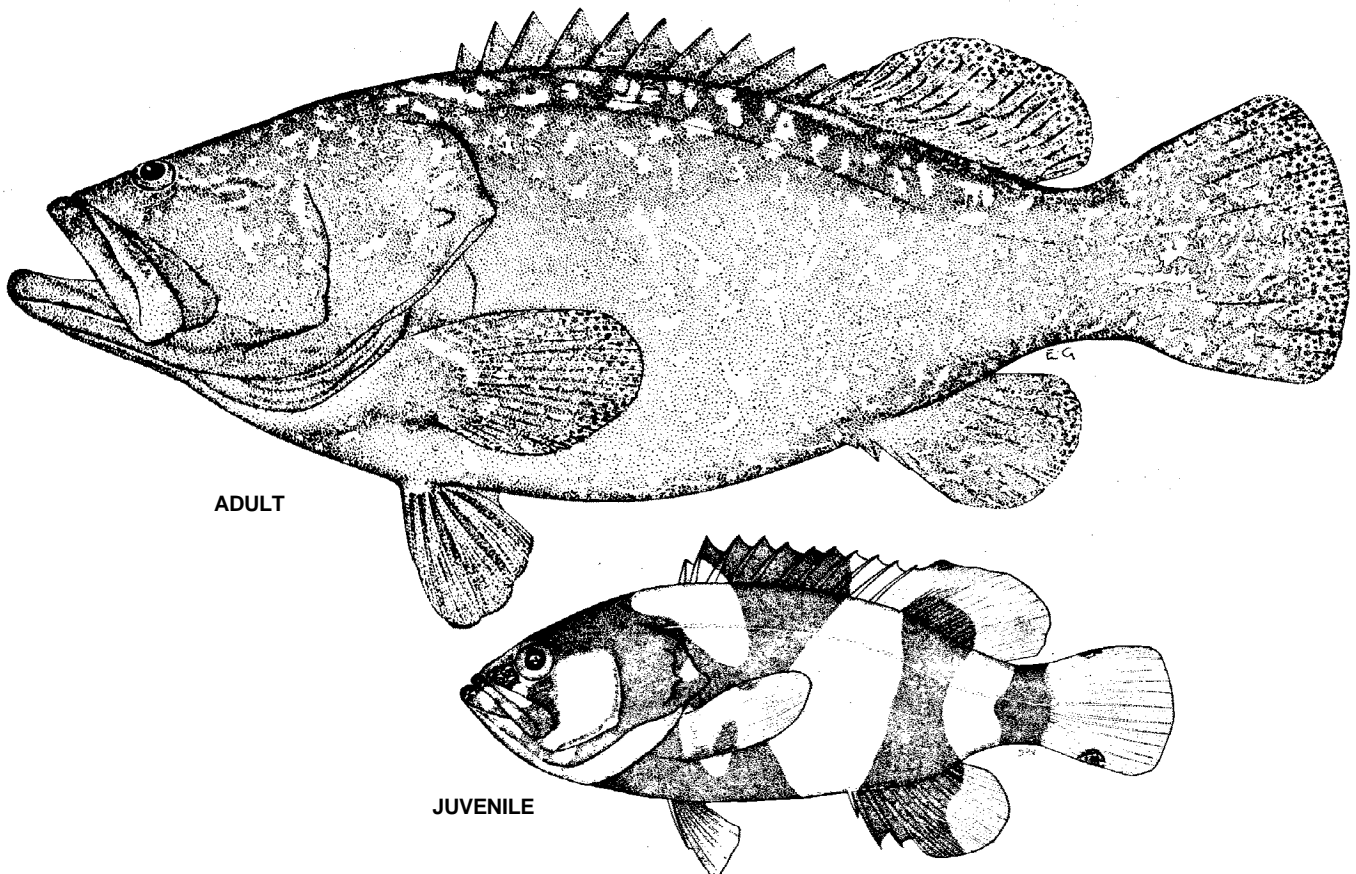


Fig. 337 *Epinephelus lanceolatus*
(adult 1450 mm standard length, juvenile 30 mm standard length)

Diagnostic Features: Body robust, the depth contained 2.4 to 3.4 times in standard length (for fish 12 to 179 cm standard length), the body width contained 1.5 to 1.75 times in the depth. Head length contained 2.2 to 2.7 times in standard length; interorbital width contained 3.3 (for fish 177 cm standard length) to 6.2 (for fish 12 cm standard length) times in head length; interorbital area flat to slightly convex, the dorsal head profile convex; preopercle subangular, finely serrate, the corner rounded; upper edge of operculum convex; eye diameter contained 5.8 to 14 times in head length; nostrils subequal; maxilla reaching past vertical at

rear edge of eye; midlateral part of lower jaw with 2 or 3 rows of teeth (specimens of 20 to 25 cm standard length) increasing to 15 to 16 rows in a fish of 177 cm standard length; canine teeth at front of jaws small or absent. Gill rakers of juveniles 8 to 10 on upper limb, 14 to 17 on lower limb; rudiments in adults are difficult to distinguish from the bony platelets covering the gill arch. Dorsal fin with XI spines and 14 to 16 rays, the 3rd to 11 th spines subequal, their length contained 3.1 to 5.7 in head length and much shorter than longest rays in adults; anal fin with III spines and 8 rays; pectoral-fin rays 18 to 20; pectoral-fin length contained 1.8 to 2.2 times in head length; pelvic fins not reaching anus, their length contained 2.1 to 2.6 times in head length; caudal fin rounded. Lateral-body scales smooth, with auxiliary scales; lateral-line scales 54 to 62, the anterior scales with branched tubules (except small juveniles); lateral-scale series 95 to 105. **Colour:** Small juveniles (12 cm standard length) yellow, with irregular broad black bars on body, the first from spinous dorsal fin to belly and chest and extending onto head, the second from base of soft dorsal fin to anal fin and the last at base of caudal fin; small adults (20 to 50 cm standard length) with irregular white or yellow spots on the black areas and fins with irregular black spots; adults (80 to 150 cm standard length) dark brown with faint mottling, the fins with numerous small black spots; large adults (160 to 230 cm standard length) dark brown, the fins darker.

Geographical Distribution: *E. lanceolatus* is the most widely distributed grouper in the world; it occurs throughout the Indo-Pacific region from the Red Sea to Algoa Bay, South Africa and eastward to the Hawaiian and Pitcairn Islands. In the western Pacific, *E. lanceolatus* ranges northward to southern Japan and southward to Australia (from northern Western Australia to northern New South Wales, and Kailola and Jones (1981) reported a 212 cm total length specimen from South Australia). It is known from oceanic islands as well as continental localities. Its absence in the Persian Gulf is puzzling (Fig. 338).

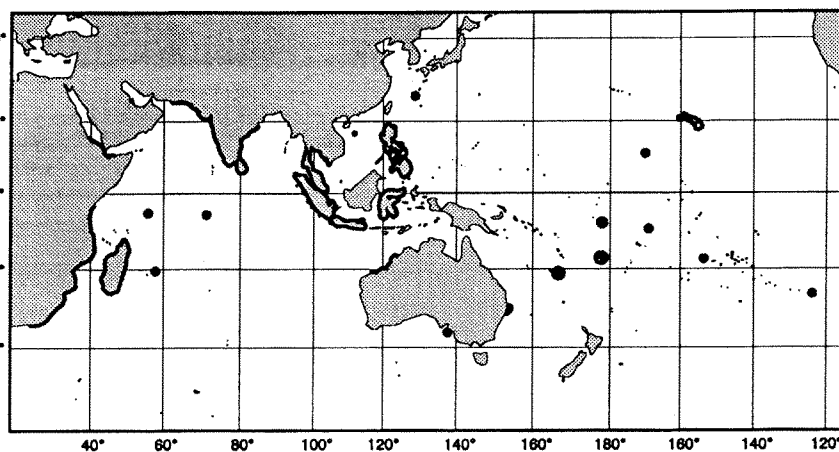


Fig. 338

Habitat and Biology: *E. lanceolatus* has been caught at depths of 100 m, but it is more often found in shallow water. Specimens more than a metre long have been caught from shore and in harbours. It is commonly seen in caves on coral reefs and around wrecks; and adults as well as juveniles are found in estuaries. A favourite food on coral reefs and in rocky areas is spiny lobsters. A 177 cm standard length fish, caught from shore at Maui, Hawaiian Islands, contained 2 spiny lobsters and several large crabs. It is also known to eat a variety of fishes, including small sharks and batoids and juvenile sea turtles; in South African estuaries, the main prey item is the mud crab (*Scylla serrata*).

Size: *E. lanceolatus* is one of the two largest species of groupers in the world (the other is *E. itajara* of the Atlantic and eastern Pacific oceans). Schultz (1966) reported a 231 cm total length, 214 kg specimen from Bikini Atoll. Grant (1982) mentioned a specimen of 288 kg from Queensland. According to Fourmanoir and Laboute (1976), *E. lanceolatus* can attain 400 kg.

Interest to Fisheries: *E. lanceolatus* is not common enough to be of commercial importance, but it is often the target of spear-fishermen because of its size. Caught with hook-and-line and spear.

Local Names: AUSTRALIA: Groper; JAPAN: Tamakai; NEW CALEDONIA: Loche géante, Carite; SOUTH AFRICA: Brindle bass.

Literature.: Van der Elst (1981); Witzell (1981); Grant (1982); Randall and Heemstra (1991).

Remarks: *E. lanceolatus* and *E. itajara* were often assigned to the genus *Promicrops* Poey; but C.L. Smith (1971) demoted *Promicrops* to a subgenus of *Epinephelus*, and we agree with this action. These two species are closely related; both grow to enormous size and have a similar body shape, small eye, wide interorbital area, numerous platelets on the gill arches, short dorsal-fin spines, similar fin counts, and anterior lateral-line scales with branched tubules. *E. itajara* differs from *E. lanceolatus* in having ctenoid scales on the sides of the body, and small black spots on the head and dorsal part of the body.

Epinephelus latifasciatus (Temminck and Schlegel, 1842)

Fig. 339; Pl. XVII,F

SERRAN Epin 35

Serranus latifasciatus Temminck and Schlegel, 1842:6 (Nagasaki, Japan).

Synonyms: *Serranus grammicus* Day, 1867:700 (type locality: vicinity of Madras, India); Day, 1875:23, pl. 5, fig. 4. *Priacanthichthys maderaspatensis* Day, 1868:193, fig. (type locality: Madras).

FAO Names: En - Striped grouper; Fr - M  rou    bandes; Sp - Mero abanderado.

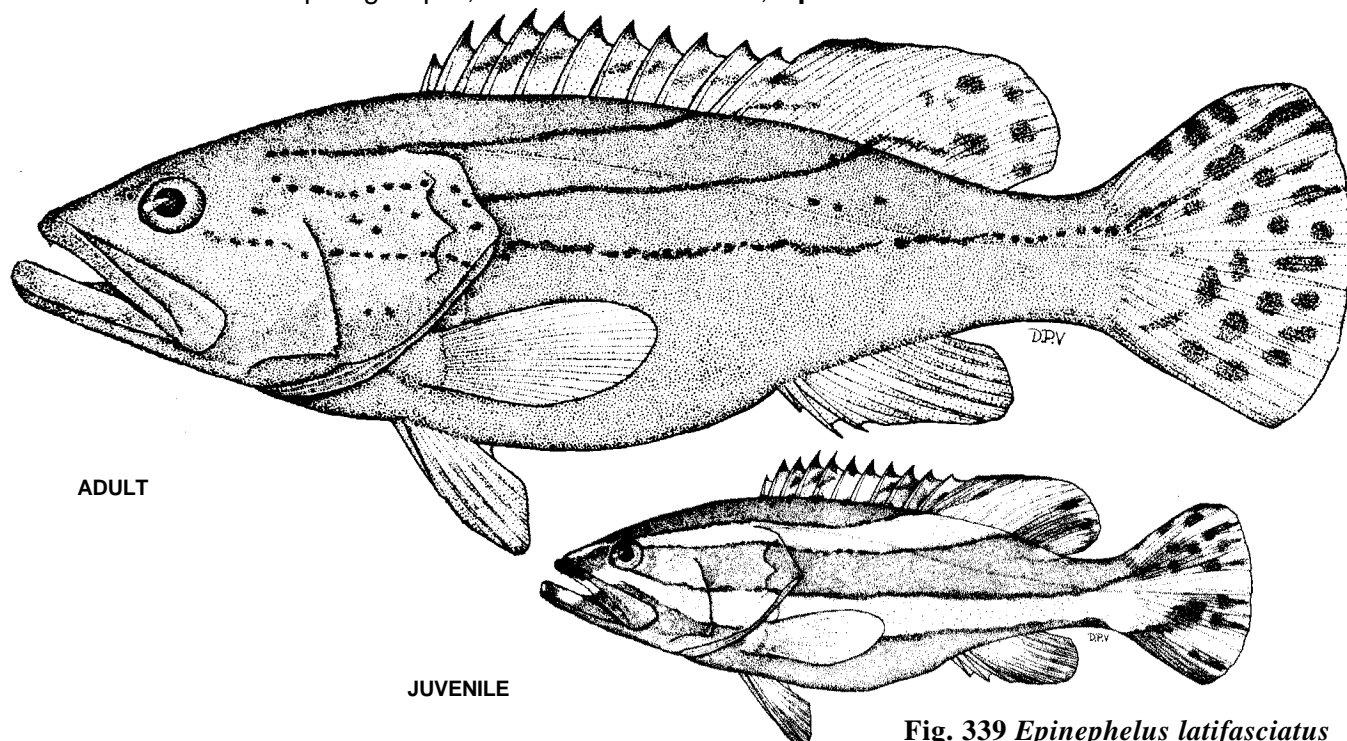


Fig. 339 *Epinephelus latifasciatus*
(adult 292mm standard length, juvenile 76 mm standard length)

Diagnostic Features: Body depth contained 2.9 to 3.4 times in standard length (for fish 13 to 62 cm standard length). Head length contained 2.3 to 2.6 times in standard length; interorbital area convex, the dorsal head profile convex; preopercle angular, with 3 to 7 distinctly enlarged serrae at angle; upper edge of operculum distinctly convex; nostrils subequal; maxilla reaches past vertical at rear edge of eye; midlateral part of lower jaw with 2 or 3 rows of teeth. Gill rakers 8 to 11 on upper limb, 15 to 18 on lower limb. Dorsal fin with XI spines and 12 to 14 rays, the third or fourth spine longest, contained 2.9 to 3.9 times in head length and not much shorter than longest rays, the interspinous membranes incised; anal fin with III spines and 8 rays; pectoral-fin rays 17 to 19; pectoral-fin length contained 1.8 to 2.2 times in head length; pelvic fins not reaching anus, their length contained 2.2 to 2.6 times in head length; caudal fin truncate in large adults, the rear margin convex in juveniles. Lateral-body scales smooth; lateral-line scales 56 to 65; lateral-scale series 91 to 106. **Colour:** Juveniles lavender-grey or pale brownish, shading to whitish ventrally; 2 black-edged white longitudinal bands, the upper band from above eye to anterior dorsal-fin rays, and the lower band from below eye to lower caudal-fin rays; dorsal and caudal fins with black spots and streaks; white bands disappearing on adults, the dark edges breaking into dashes and spots; head and body of large adults uniformly grey.

Geographical Distribution: Indo-West Pacific region, including the Red Sea, Persian Gulf, Gulf of Oman, Pakistan, coast of India, Viet Nam, Hong Kong, China (Shanghai), Korea, southern Japan, Taiwan, and northwest Australia (Fig. 340). *E. latifasciatus* seems to prefer continental localities, but it is not known from the east coast of Africa, islands of the Indian Ocean, Indonesia, Philippines, or New Guinea.

Habitat and Biology: The preferred habitat seems to be bottoms of low relief; adults are taken on coarse sand or rocky areas, while juveniles are found on silty-sand and mud bottom. Depths range from 20 to at least 230 m.

Size: Attains 137 cm standard length (157 cm total length) and a weight of 58.6 kg.

Interest to Fisheries: Common in markets of the Persian Gulf, Hong Kong, Singapore, and Japan. Caught with hook-and-line, longline, trawl, and traps.

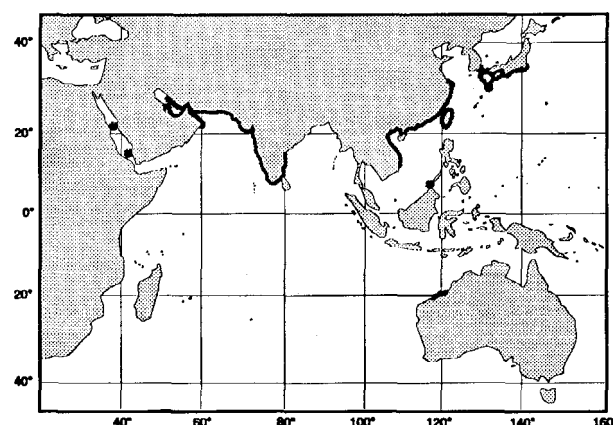


Fig. 340

Local Names: HONG KONG: Laterally-banded grouper, Saw-law-paan; JAPAN: Osujihata; KUWAIT: But-tam; SINGAPORE: Lined grouper.

Literature: Chan (1968); Randall and Heemstra (1991).

Remarks: Heemstra and Randall (1984) illustrated a specimen of 292 mm standard length as a "juvenile" of *E. epistictus*.

Epinephelus lebretonianus (Hombron and Jacquinot, 1853)

Fig. 341

SERRAN Epin 84

Serranus lebretonianus Hombron and Jacquinot, 1853:33, pl. 1, fig. 3 (type locality unknown).

Synonyms: None.

FAO Names: En - Mystery grouper; Fr - M rou arcane; Sp - Mero misterioso.

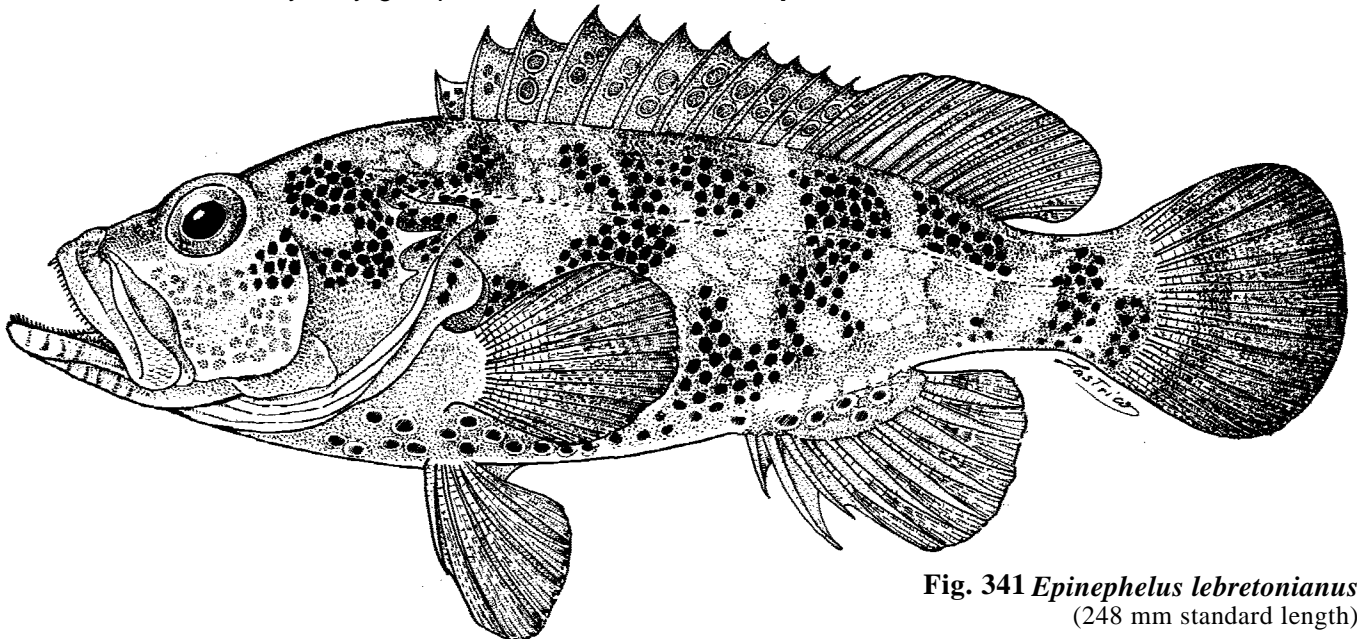


Fig. 341 *Epinephelus lebretonianus*
(248 mm standard length)

Diagnostic Features: Body depth contained 3.4 times in standard length (for fish 248 mm standard length). Head length contained 2.3 times in standard length; interorbital area slightly convex; preopercle margin finely serrate, the lower rear edge mostly smooth; posterior nostrils slightly larger than anterior nostrils; maxilla reaches vertical at rear edge of orbit; midlateral part of lower jaw with 3 rows of teeth. Gill rakers 7 on upper limb, 17 to 18 on lower limb. Dorsal fin with XI spines and 17 rays, the fourth and fifth spines longest, their length contained 3.5 times in head length and shorter than longest dorsal-fin ray, the interspinous membranes incised; anal fin with III spines and 8 rays; pectoral-fin rays 20; pectoral-fin length contained 1.9 times in head length; pelvic-fin length contained 2.3 times in head length; caudal fin rounded. Lateral-body scales ctenoid; lateral-line scales 73; lateral-scale series about 120. **Colour:** Body mottled with brown and covered with small, close-set, dark brown spots; median fins brown, with small blue-edged brown ocelli, the fin margin blackish: paired fins whitish proximally, brown distally.

Geographical Distribution: Probably Indo-Pacific (Fig. 342).

Habitat and Biology: Unknown.

Size: The single known specimen is 248 mm standard length.

Interest to Fisheries: None.

Local Names:

Literature: Hombron and Jacquinot (1853); Randall and Heemstra (1991).

Remarks: *E. lebretonianus* is known only from the holotype, which was collected during the circum-global voyage of the corvettes "L'Astrolabe" and "La Z lee,"

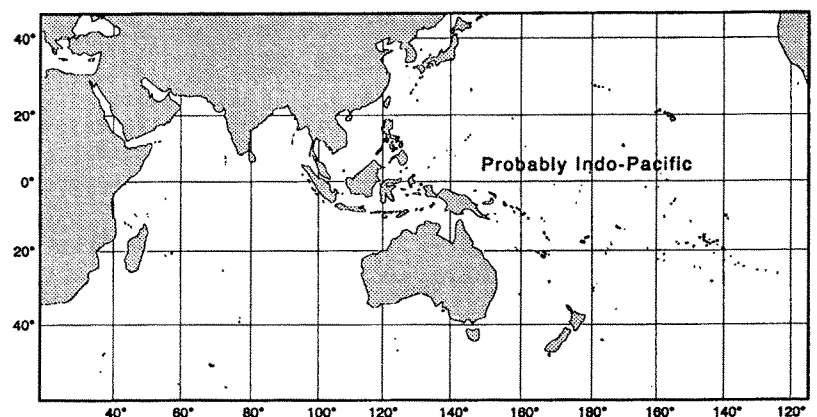


Fig. 342

which were attempting to find the South Pole. Hombron and Jacquinot (1853) noted that the provenance of this specimen was unknown; since most of the fishes reported from this voyage were from the Indo-Pacific region, it seems likely that *E. lebretonianus* was also collected in the Indo-Pacific region.

Epinephelus longispinis (Kner, 1864)

Fig. 343; Pl. XVIIIA

SERRAN Epin 36

Serranus longispinnis Kner, 1864:483; 1865275, pl. 2, fig. 2 (type locality: Madras, India).

Synonyms: None, but often misidentified as "*Epinephelus gaimardi*" (a synonym of *E. miliaris*), "*E. fario*" (a *nomen dubium*), or "*E. maculatus*."

FAO Names: En- Longspine grouper (formerly: Streakyspot grouper); Fr - Mérou longues épines; Sp - Mero espigón.

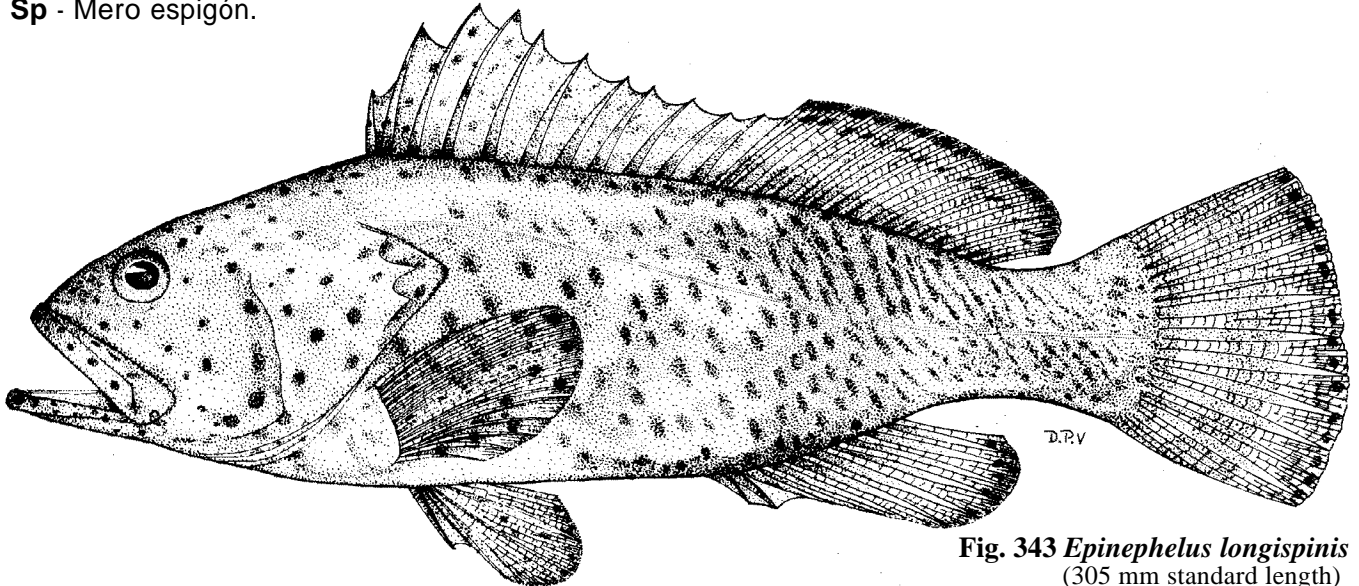


Fig. 343 *Epinephelus longispinis*
(305 mm standard length)

Diagnostic Features: Body depth contained 2.8 to 3.3 times in standard length (for fish 13 to 35 cm standard length). Head length contained 2.4 to 2.6 times in standard length; interorbital area flat to slightly convex, the dorsal head profile convex; preopercle corner with enlarged serrae and a shallow indentation just above the corner; upper edge of operculum straight or slightly convex; posterior nostrils not much larger than anterior nostrils; maxilla reaches to or past vertical at rear edge of eye, the ventral edge with a blunt hook-like process distally in fish larger than 35 cm standard length; midlateral part of lower jaw with 2 rows of teeth. Gill rakers 8 to 11 on upper limb, 15 to 17 on lower limb. Dorsal fin with XI spines and 16 or 17 rays, the third or fourth spine longest, its length contained 2.1 to 2.6 times in head length and distinctly longer than longest dorsal rays, the interspinous membranes slightly incised between anterior spines and not incised between posterior spines; anal fin with III spines and 8 rays; pectoral-fin rays 17 to 19; pectoral-fin length contained 1.5 to 1.9 times in head length; pelvic fins not reaching anus, their length contained 1.8 to 2.2 times in head length; caudal fin convex. Lateral-body scales distinctly ctenoid, with numerous auxiliary scales; lateral-line scales 49 to 53; lateral-scale series 98 to 121. **Colour:** Head and body pale; greyish brown, covered with small, dark reddish brown spots that are round and widely spaced on head and front half of body, but obliquely elongated, closer together and darker posteriorly; fins with similar dark brown spots; a row of dark spots along distal margin of soft dorsal and caudal fins. Juveniles with fewer dark spots on head and body, and 2 to 4 dark blotches on body at base of dorsal fin and extending onto fin; ventral part of head and body with irregular white spots; white blotch on upper part of operculum.

Geographical Distribution: Continental and insular localities in the Indian Ocean from Kenya to South Africa (32°S) and east to the Watubela Group of the eastern Banda Sea, including Madagascar, Comoros, Aldabra, Seychelles, Chagos Islands, Mauritius, Réunion, Maldives, Lakshadweep Islands, India, Sri Lanka, Nicobars, and the Nazareth Bank (Fig. 344). Not known from the Red Sea or Persian Gulf.

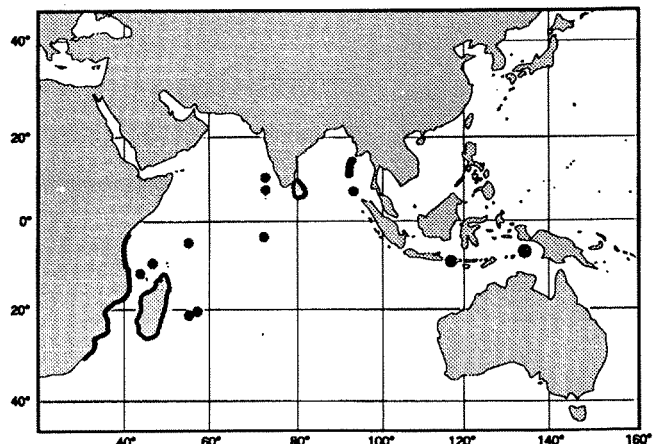


Fig. 344