

Diagnostic Features : Snout moderately long (43 to 45% of head length), sharply pointed, anterolateral margin incompletely supported by bone; orbit (23 to 26% of head length) less than snout length, about 2/3 of postorbital length; upper jaw (27 to 29% of head length) extends to below posterior margin of orbit, rictus extends to posterior 1/4 of orbits; barbel 1.7 to 2.1 times into orbit; premaxillary teeth in 7 or 8 irregularly oblique series forming a tapered band extending to near end of rictus; outer series enlarged; mandibular teeth in 3 or 4 irregular series; inner gill rakers on first arch 1 or 2 + 6 or 7; head ridges well developed but not especially coarse; underside of head mostly naked except on mandibular rami, and posteriorly from end of premaxilla to end of preopercle, and anterolateral margin of snout, where characteristic scales prevail; nasal fossa and crescentic area above anterolateral edges of snout naked. First dorsal fin with 2 spines and 8 to 10 rays, its height less than postrostral length of head; pectoral fin rays i15 to i18. Light organ long, extends as a black streak from anus to just behind isthmus, expanded at each end but lacking a scaleless fossa Scales of body with short, sharp, triangular spinules arranged in irregularly quincunx pattern to subparallel rows; scale rows below midbase of first dorsal fin 3.5 to 4.5. **Colour**: greyish dorsally, silvery ventrally; dorsally on trunk and tail with irregular blotches, mouth lining whitish, gill cavity dusky; paired black papillae on underside of head; second spinous ray and membrane between spine and first segmented ray of first dorsal fin blackish; pelvic and anal fin rays blackish distally.

Geographical Distribution : East China Sea around Taiwan Island and off southern Japan (Fig. 373).

Habitat and Biology : Benthopelagic in about 200 to 300 m depth.

Size : To 25 cm total length.

Interest to Fisheries : Occasionally taken by trawlers, but no catch statistics kept.

Local Names : JAPAN: Taiwan-sokodara.

Literature : Okamura (1963, 1970a).

Remarks : According to Okamura 1970a, page 161, the original descriptions of *C. intermedius* and *C. abbreviatus* were published in August of 1963. They were predated by Okamura's description of *C. formosanus*, which was published in March, 1963.

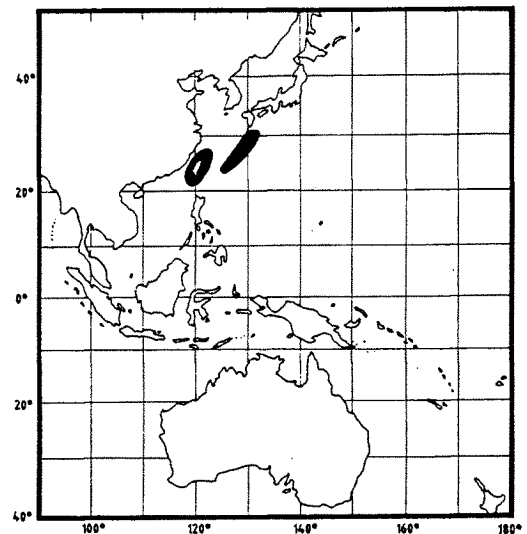


Fig. 373

Coelorinchus hexfasciatus Okamura, 1982

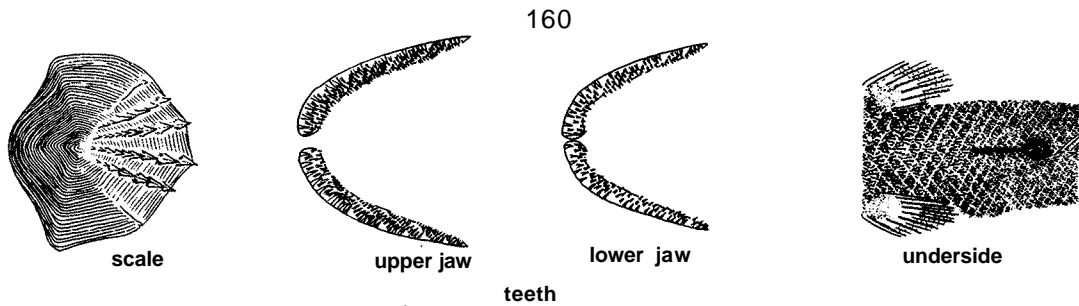
Fig. 374

MACROUR Coel 18

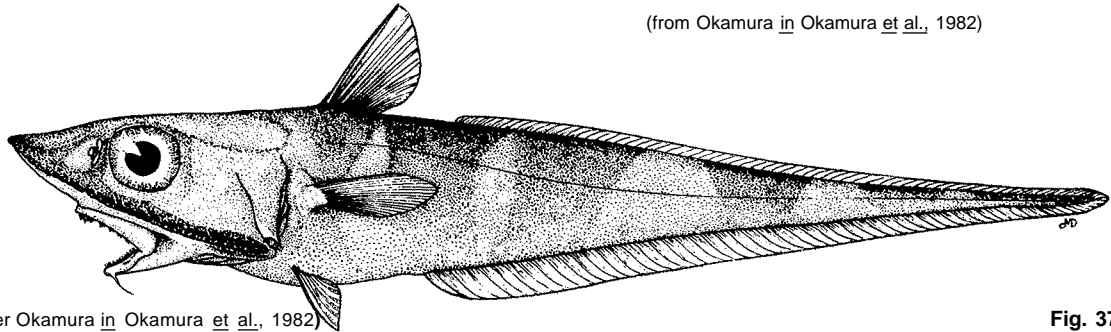
Scientific Name with Reference : *Coelorinchus hexfasciatus* Okamura, 1982, Fishes of the Kyushu-Palau Ridge and Tosa Bay, p. 172 (Kyushu-Palau Ridge, 26°45'N, 135°19'E, 336 m).

Synonyms : None

FAO Names : En - Six-band grenadier



(from Okamura *in* Okamura *et al.*, 1982)



(after Okamura *in* Okamura *et al.*, 1982)

Fig. 374

Diagnostic Features : Head large, less than 4 times in total length; snout moderately long (37 to 41% of head length), and tipped with a blunt tricuspid tubercle, its anterolateral margin incompletely supported by bone; orbit diameter 23 to 27% of head length; interorbital space 21 to 25% of head length, usually narrower than orbit diameter; mouth large, upper jaw 28 to 35% of head length, maxillary bone extends to below posterior end of orbit; barbel short, about 1/3 to 1/2 of orbit diameter; subopercle ends in a narrow protruding tip; teeth in long, rather broad bands in both jaws; inner gill rakers on first arch 1 to 3 + 6 to 8; head ridges well developed; underside of head naked except for a small patch below preopercular angle. First dorsal fin with 2 spines and 8 or 9 rays, its height much less than postrostral length of head; pectoral fins rays i16 to i20. Light organ small, externally apparent as a narrow blackish streak extending forward of anus to about midway between pelvic fin insertions and anal fin origin. Body scales with 4 to 7 divergent rows of stout, broad spinules, the lateral rows lower than median one; scale rows below midbase of first dorsal fin 6.5 to 8.5. Swimbladder large, strongly bilobed anteriorly, with 4 retia mirabilia. Pyloric caeca about 54. **Colour**: greyish brown; abdominal region bluish; 6 or 7 broad saddle marks on body extending below lateral line (more prominent in young); fins blackish except for whitish base of first dorsal and basally on anal in some individuals; mouth and gill cavities black.

Geographical Distribution : Kyushu-Palau Ridge (Fig. 375).

Habitat and Biology : Benthopelagic in 336 to 910 m.

Size : To at least 62 cm total length.

Interest to Fisheries : Because of its size and because it seems to co-occur with its even-larger close relative, *C. longicephalus*, the species may offer some potential for commercial exploitation.

Local Names : JAPAN: Musuji-sokodara.

Literature : Okamura, Amaoka & Mitami, eds (1982).

Remarks : The description and illustrations are from Okamura's (1982) original description. Additional non-type specimens from the Kyushu-Palau Ridge were examined by the present author at Hokkaido University. The species is closely related to *C. longicephalus*, *C. tokiensis*, and *C. quadricristatus*, the four constituting a natural group, according to Okamura (1982: 178). *C. hexfasciatus* differs from *C. longicephalus* in having a shorter snout (2.4 to 2.7 times in head length compared with 2.2 to 2.3 in *C. longicephalus*) and a longer orbit (3.7 to 4.3 times in head length compared with 4.6 to 4.9). The snout profile and markings on the body also differ between the two. *C. tokiensis* differs slightly from *C. hexfasciatus* in orbit diameter (4.3 to 4.6 times in head length), head length (3.5 to 3.7 times in total length compared with 3.4 to 4.1 in *hexfasciatus*), and body depth (7.5 to 8.2 times in total length compared with 6.1 to 7.4). *C. quadricristatus* from the Indian Ocean is readily distinguished from the other three in having a completely scaled underside of head.

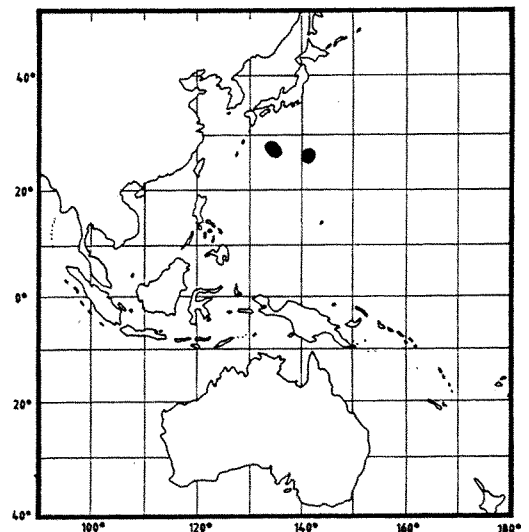


Fig. 375

Coelorinchus innotabilis McCulloch, 1907

Fig. 376

MACROUR Coel 19

Scientific Name with Reference : *Coelorhynchus innotabilis* McCulloch, 1907, *Rec.Austr.Mus.Sydney*, 6:348, pl. 63, figs 2,2a (56 km east of Sydney, 1 463 m).

Synonyms : None

FAO Names : En - Notable whiptail.

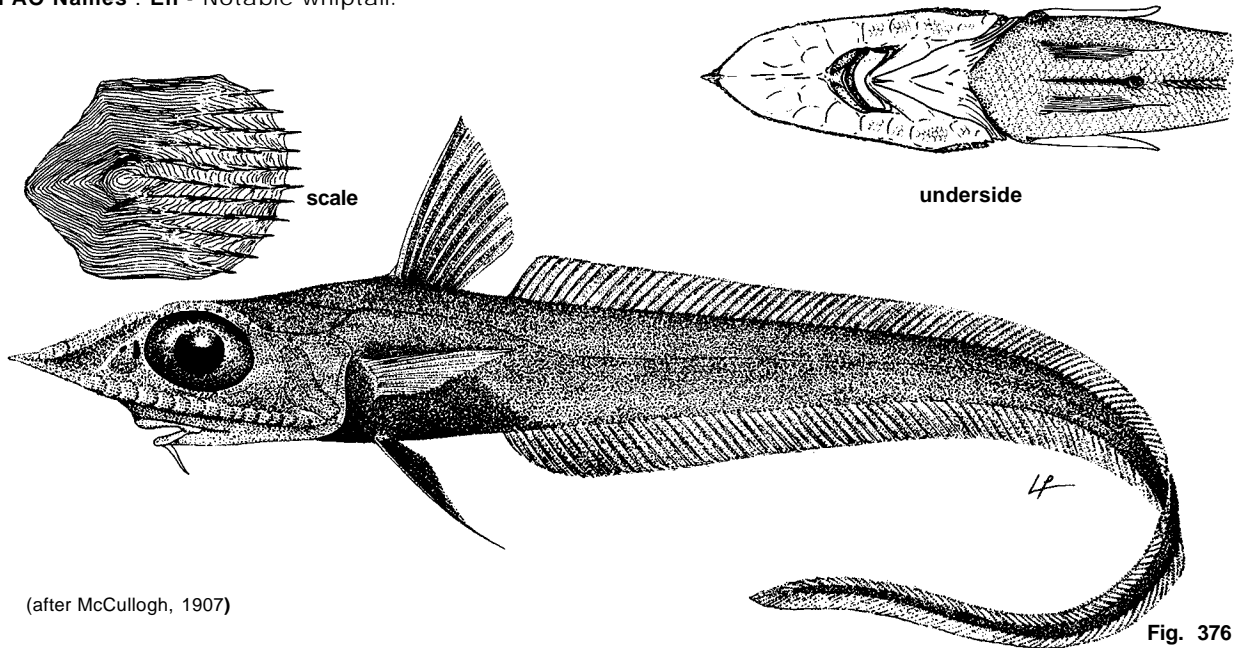


Fig. 376

(after McCulloch, 1907)

Diagnostic Features : Snout long (40 to 46% of head length), sharply pointed, dorsal profile concave, its anterolateral margin sharp, completely supported by bone; orbits 29 to 34% of head length; upper jaw 19 to 22% of head length; barbel 5 to 9% of head length; teeth small, in broad bands in both jaws; premaxillary band short, falling well short of posterior mouth angle; mandibular band long, tapering to few teeth, wide posteriorly, ending at mouth angle; inner gill rakers on first arch 1 or 2 + 6 or 7; head ridges narrow and sharp, no supraoccipital scutes; post-temporal scute developed; underside of head mostly naked although small, thin, deciduous, non-spinulated scales are clustered near mouth and onto preopercle; area located dorsally behind anterolateral margins of snout generally naked or with thin cycloid scales. First dorsal fin with 2 spines and 9 or 10 rays, its height less than postrostral length of head; pectoral fin rays i15 to i19. Light organ small, not readily visible from exterior, connected to periproct by a short stalk, much closer to pelvic fin insertions than to anal fin origin; anus slightly removed from anal fin origin. Scales large, fairly deciduous, covered with small, sharp, reclined spinules aligned in about 4 to 14 essentially parallel rows; scale rows below midbase of first dorsal fin 4.5 to 6. Swimbladder large, oval; 4 large retia mirabilia. Pyloric caeca 7 to 12. **Colour**: overall pale ochre; fins dusky to blackish (pelvics); abdomen bluish below upper level of pectoral fin base; mouth and gill cavities black.

Geographical Distribution : Tasmania, southeast Australia (NSW), New Zealand (Fig. 377).

Habitat and Biology : Benthopelagic in 554 to 1 463 m. Feeds on gastropods, bivalves, polychaetes, and percarid crustaceans. Near-ripe ova were found in a specimen taken in late March (McCann & McKnight, 1980).

Size : To at least 32 cm total length.

Interest to Fisheries : Common in trawl catches between 600 and 1 000 m off Tasmania.

Local Names : AUSTRALIA: Longnose rattail, Notable whiptail.

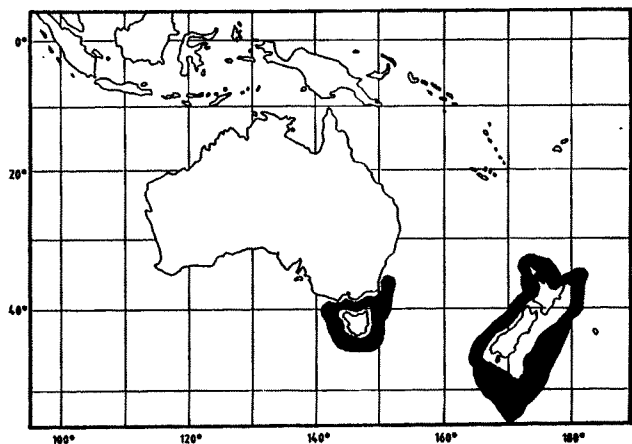


Fig. 377

Literature : Iwamoto (1978, in part); McCann & McKnight, 1980; Last *et al.* (1983: fig. 21.14 from Iwamoto, 1978, represents an undescribed species).

Remarks : The Chilean specimen that Iwamoto (1978:329) reported under this name actually represents a closely related, but undescribed species. Two specimens of *C. kaiyomaru* Arai & Iwamoto, 1979, were also mixed with Iwamoto's material. *C. karrerae* Trunov, 1984 is a closely related species that differs chiefly in its more attenuated snout.

Coelorinchus japonicus (Temminck & Schlegel, 1842)

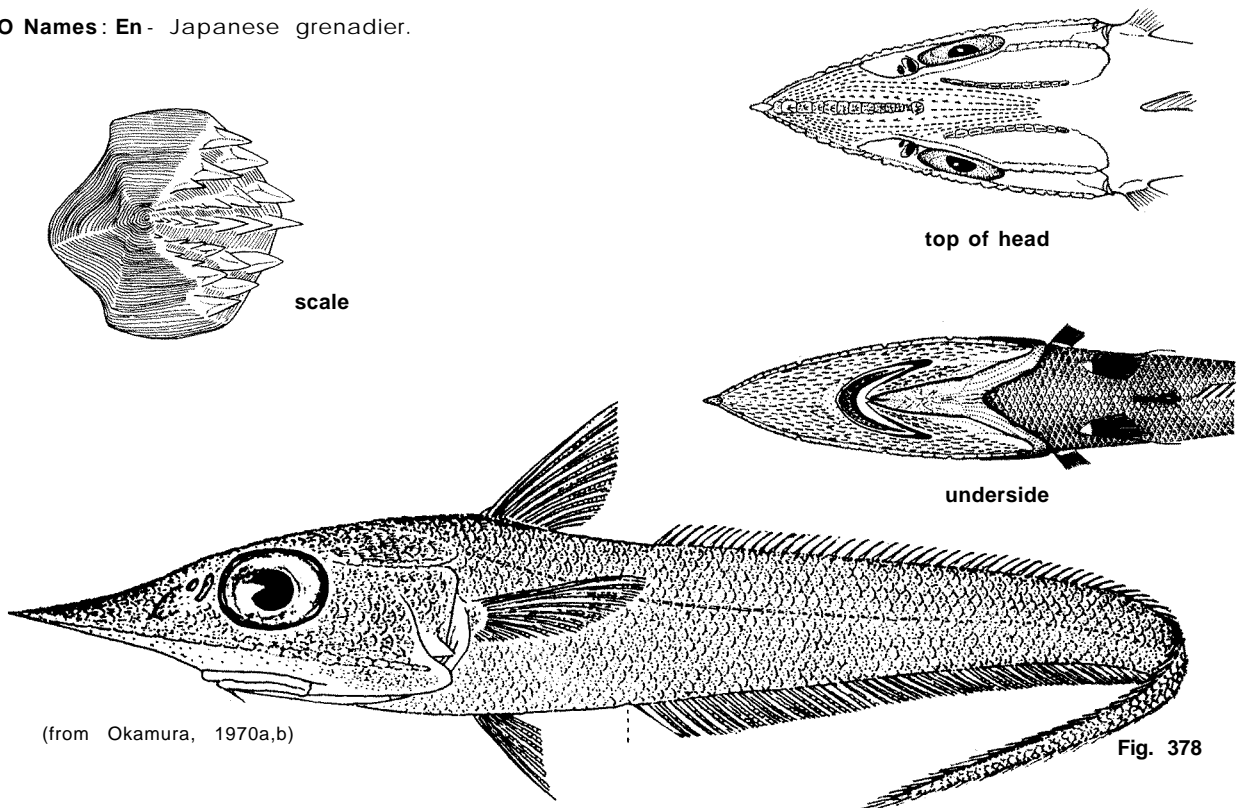
Fig. 378

MACROUR Coel 20

Scientific Name with Reference : *Macrurus japonicus* Temminck & Schlegel, 1842, Pisces in Von Siebold, *Fauna Japonica* 2:256 (Japan).

Synonyms : *Coelorhynchus japonicus* - Jordan & Gilbert 1904.

FAO Names: En - Japanese grenadier.



Diagnostic Features : Snout long, sharply pointed, 42 to 44% of head length, its anterolateral margin completely supported by bone; orbit 21 to 26% of head length, somewhat shorter than upper jaw, which is 29 to 34% of head length; inner gill rakers on first arch 0 to 2 + 5 to 7; head ridges prominently demarcated by stout, spiny scales; supraoccipital ridge developed; most head scales with single ridge of sharp spinules; underside of head scaled. First dorsal fin with 2 spines and 8 to 10 rays, its height less than postrostral length of head; pectoral fin rays i17 to i19. Light organ short, 2.4 to 4.1 times into orbit. Body scales rather small, covered with 3 to 6 divergent, keel-like rows of imbricate spinules, the posteriormost in the middle row usually largest and with 3 struts; scale rows below midbase of first dorsal fin 5.5 to 6.5. Pyloric caeca 41 to 60. **Colour**: greyish to brownish, without prominent markings; mouth cavity grey; gill cavities and distal third of first dorsal fin blackish.

Geographical Distribution : Southern Japan (and possibly much wider) (Fig. 379).

Habitat and Biology : Benthopelagic in 300 to 1 000 m, with larger fish in deeper waters. Feeds on euphausiids, prawns, benthic fishes, isopods, and polychaetes. Spawning season apparently in early spring, when mature fish believed to migrate to shallower waters.

Size : To 75 cm total length.

Interest to Fisheries : Taken by trawlers, but no separate catch statistics recorded.

Local Names : JAPAN: Tojin.

Literature : Günther (1887); Steindachner & Döderlein (1887); Jordan & Gilbert (1904); Okamura (1970).

Remarks : Okamura (1970:186) and subsequent authors give the distribution as wide ranging ".....throughout the tropic and subtropic regions of Indo-western Pacific," but the author found no references to specimens that would support such a distribution. His search of the literature revealed supportive material only from off southern Japan and possibly to the Kyushu-Palau Ridge (Okamura *et al.* 1982). Weber's (1913) specimens of "*Coelorhynchus japonicus*" from SIBOGA expeditions to the East Indies have been attributed to *C. acantholepis* Gilbert & Hubbs, 1920.

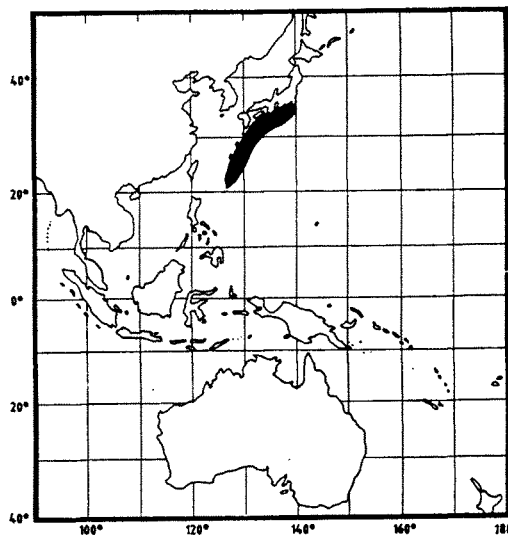


Fig. 379

***Coelorinchus kaiyomaru* Arai & Iwamoto, 1979**

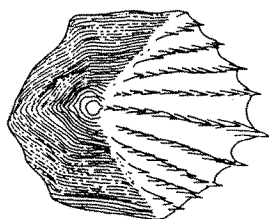
Fig. 380

MACROUR Coel 21

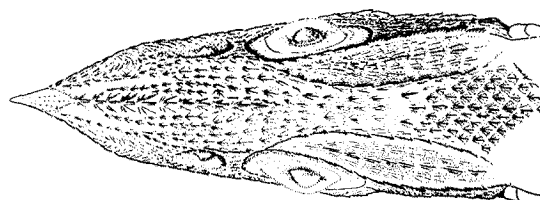
Scientific Name with Reference : *Coelorinchus kaiyomaru* Arai & Iwamoto, 1979, *Japan.J.Ichthyol.*, 26(3):238 (Chatham Rise, east of New Zealand, 1 006 to 1 050 m).

Synonyms : *Coelorinchus innotabilis* (non McCulloch,1907)-Iwamoto, 1978 (in part).

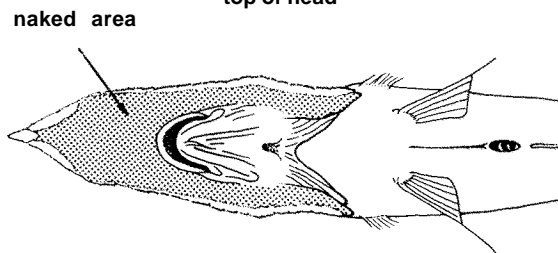
FAO Names : En -Campbell whiptail.



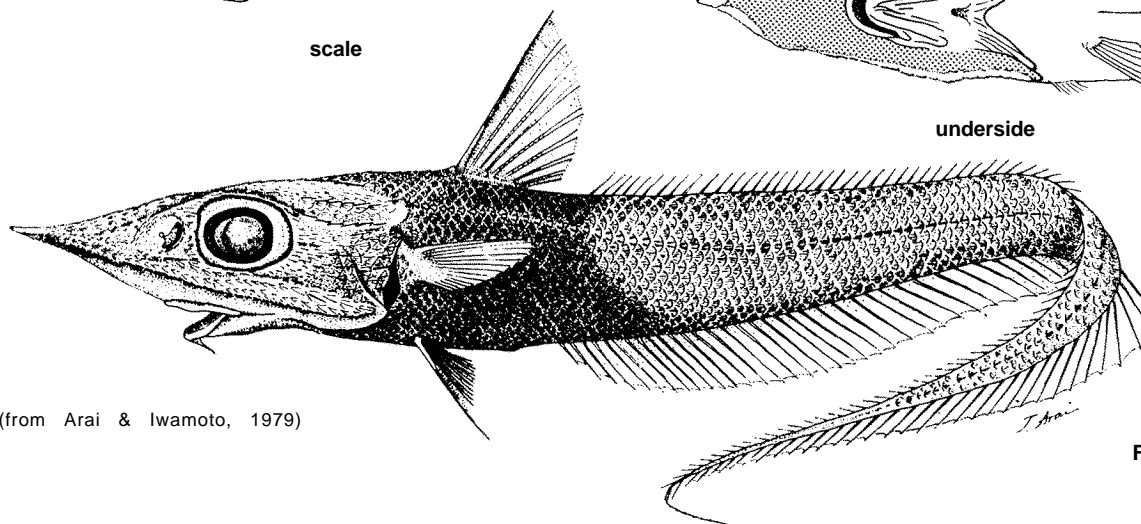
scale



top of head



underside



(from Arai & Iwamoto, 1979)

Fig. 380

Diagnostic Features : Snout long, sharply pointed, 43 to 48% of head length, much longer than orbit diameter; anterolateral margin sharp, but incompletely supported by bone; orbits 24 to 30% of head length; upper jaw 16 to 23% of head length; barbel 5.1 to 7.5% of head length; small teeth in bands in both jaws, upper jaw band short, not extending to end of rictus; lower jaw band tapered, extending to end of rictus; inner gill rakers on first arch 1 or 2 + 5 to 7; no supra-occipital scute, post-temporal ridge scarcely developed; underside of head generally naked, except for characteristic overlapping scales along leading edge of snout; dorsally, snout almost entirely scaled. First dorsal fin with 2 spines and 7 to 10 rays (usually 8 or 9), its height about equal to or usually less than postrostral length of head; pectoral fin rays i16 to i20. Light organ small, short; gland rounded, depressed, immediately anterior to periproct region, a dark streak extends forward to level of pelvic fin bases; anus slightly removed from anal fin origin. Scales large, fairly deciduous, spinules short, imbricate, aligned in 8 to 10 (in larger specimens), slightly divergent rows; scale rows below first dorsal fin base 4.5 to 5.5. Pyloric caeca 10 to 15, long and slender (about 0.8 to 0.9 times into orbit diameter). **Colour**: grey-brown overall, entire trunk completely encircled by bluish band; underside of head dusky to densely punctate; orbit rim black; fins blackish to dusky, membrane behind spinous second dorsal ray black; mouth and gill cavities black.

Geographical Distribution : New Zealand, Tasmania, Falkland/Malvinas Islands; Southeastern Atlantic off Cough and Discovery tablemounts (Fig. 381).

Habitat and Biology : Benthopelagic in 845 to 1 050 m (2.8 to 5.0°C) in the Pacific, and 340 to 1 360 m in the Atlantic. Feeds on deep-sea decapod crustaceans, gastropods, and polychaetes.

Size : To at least 43 cm total length.

Interest to Fisheries : None, although probably taken occasionally in by-catch of commercially important fishes.

Literature : Arai & Iwamoto (1979); McMillan & McKnight (1980); Trunov (1984).

Remarks : This species is easily recognized by the dark band encircling the trunk. It is currently known from widely separated localities in the southern hemisphere and will probably be found in intervening areas with more collecting.

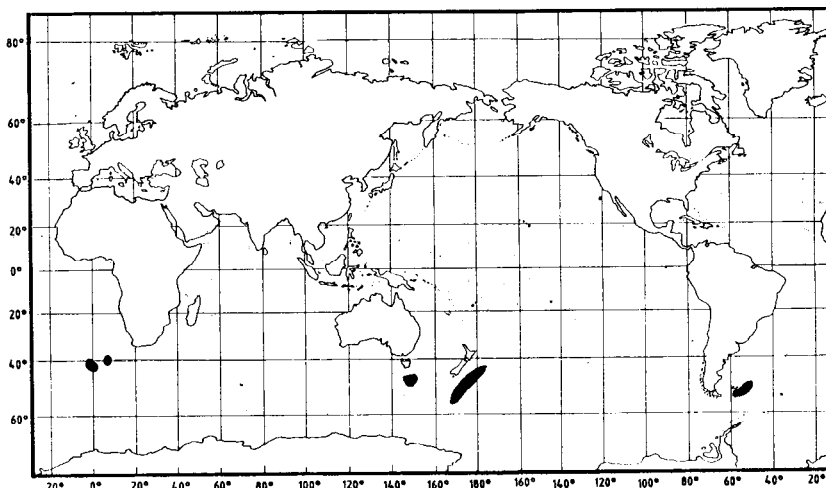


Fig. 381

Coelorhynchus kamoharai Matsubara, 1943

Fig. 382

MACROUR Coel 22

Scientific Name with Reference : *Coelorhynchus kamoharai* Matsubara, 1943, *J. Sigenkagaku Kenkyusyo*, 1(2): 136, fig. 4 (Suruga Bay, Japan).

Synonyms : *Coelorhynchus parallelus* (non Günther, 1877) - Kamohara, 1938.

FAO Names : En - Kamohara grenadier.

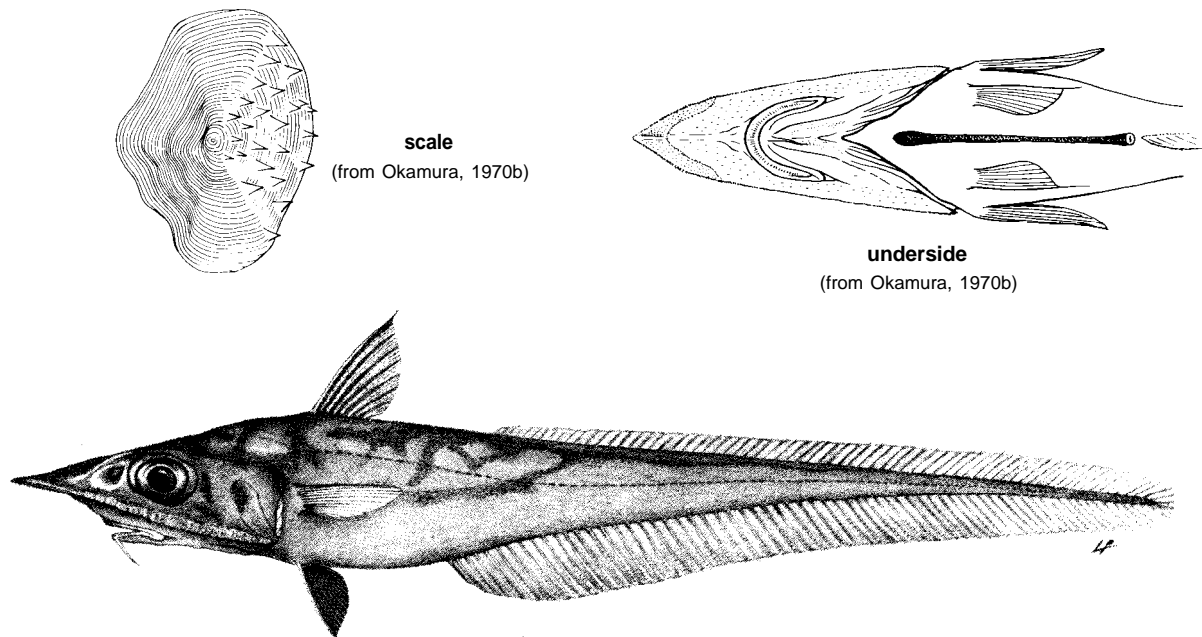


Fig. 382

Diagnostic Features : Snout long, sharply pointed, 31 to 37% of head length, anterolateral margin incompletely supported by bone; orbits 24 to 29% of head length, somewhat shorter than upper jaw (28 to 34% of head length); teeth cardiform, in long tapered bands in premaxillae, in a narrow band in mandible, teeth bands of both jaws extend to end of rictus; inner gill rakers on first arch 1 or 2 + 8 to 10; head ridges not strongly developed; characteristic broad scales on underside behind leading edge of snout; underside of head and mandibular rami otherwise naked, but densely covered with unpaired black papillae. First dorsal fin with 2 spines and 8 to 10 rays, its greatest height less than postrostral length of head; pectoral fin rays 15 to 19. Black streak of light organ long, extending from anus to near isthmus, anteriorly expanded but scale covered. Scales thin, deciduous; spinules on body scales short, broad-based, widely spaced, arranged in quincunx order; scale rows below midbase of first dorsal fin about 3.5 to 4. Pyloric caeca 7 to 13. **Colour**: light brown, irregularly blotched or mottled on dorsum above midlateral line, silvery over abdominal region; median nasal process black; gular and branchiostegal membranes heavily punctate; mouth and gill cavities whitish; fins dusky or punctate, first dorsal fin blackish.

Geographical Distribution : Southern Japan, south to Taiwan Island (Fig. 383).

Habitat and Biology : Benthopelagic in about 220 to 400 m depth.

Size : To at least 28 cm total length.

Interest to Fisheries : Taken by trawlers, but no separate catch statistics recorded.

Local Names : JAPAN: Ichimonji-hige.

Literature : Okamura (1970a); Yatou in Okamura & Kitajima, 1984.

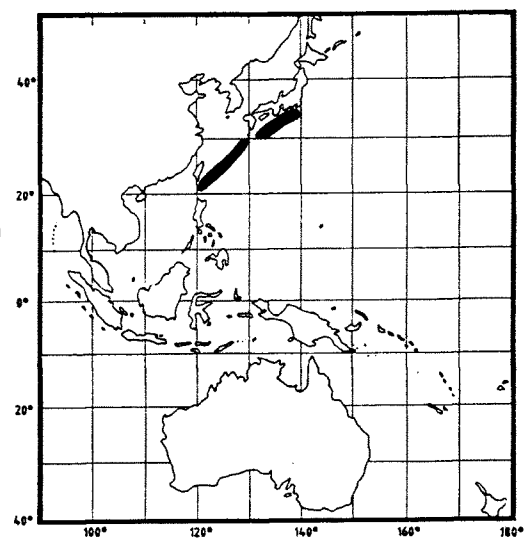


Fig. 383

Coelorinchus karrerae Trunov, 1984

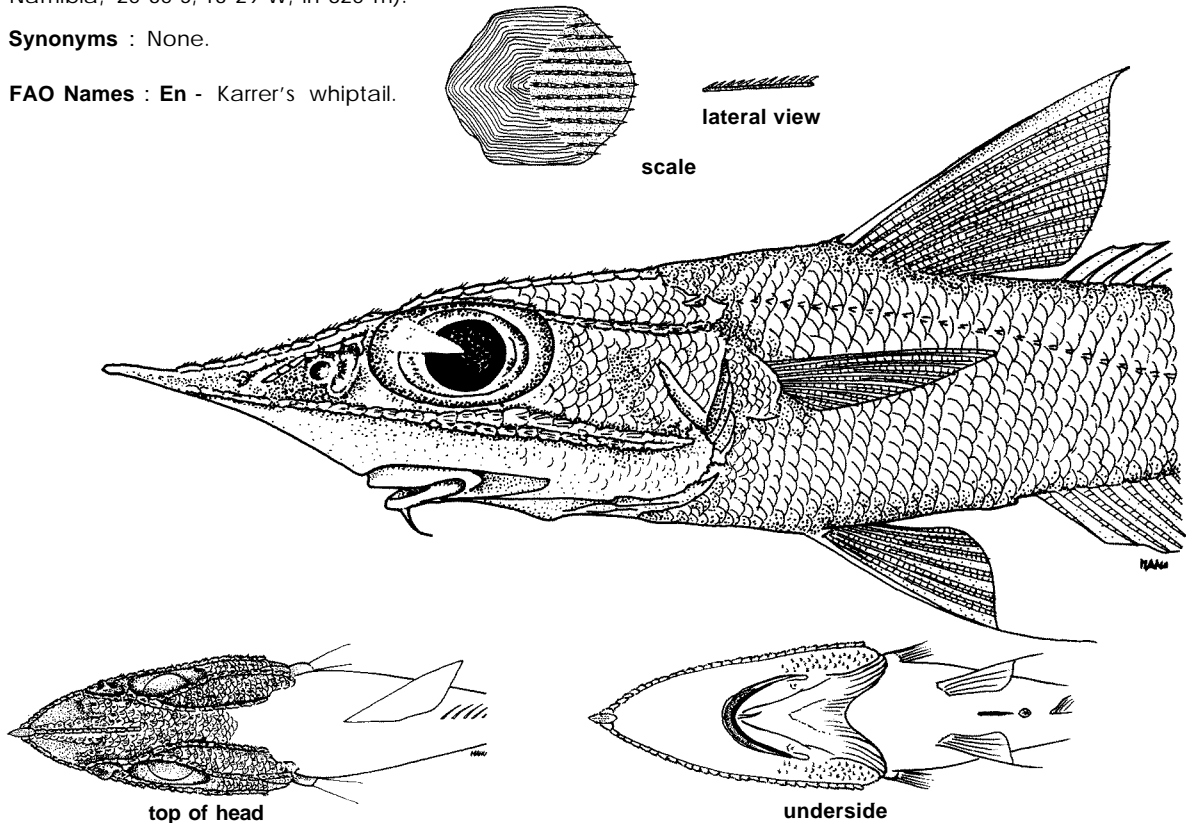
Fig. 384

MACROUR Coel 23

Scientific Name with Reference : *Coelorinchus karrerae* Trunov, 1984, *Voprosy Iktiologii* t.24, vol.3:359, fig.3 (off Namibia, 25°35'S, 13°29'W, in 825 m).

Synonyms : None.

FAO Names : En - Karrer's whiptail.



(after Trunov, 1984)

Fig. 384

Diagnostic Features : Snout long (41 to 46% of head length), attenuated, sharply pointed, its anterolateral margin completely supported by bone; orbits 27 to 31% of head length, outline somewhat squared off at anterior end; posterior nostril large 8 to 12% of head length; mouth small, inferior, opening restricted at posterior angle; teeth in broad bands in both jaws; premaxillary band short, ending short of angle of mouth; mandibular band longer, tapered; inner gill rakers on first arch 7-9 total; head ridges narrow, sharply spined, underside of head mostly naked except posteriorly behind level of mouth angle, where there are patches of thin, deciduous scales; nasal fossa naked;

dorsally behind anterolateral margins of snout naked or with thin, deciduous scales first dorsal fin with 2 spines and 8 to 10 rays, its height less than postrostral length of head; pectoral fin rays i17 to i19. Light organ small, externally apparent as a blackish streak extending forward of anus to between pelvic fins; anus removed from anal fin by 2 or 3 scale rows. Body scales rather deciduous, covered with as many as 16 parallel rows of small, conical spinules; scale rows below midbase of first dorsal fin 5 1/2 to 7 1/2. Swimbladder large, oval, with 4 retia mirabilia. Pyloric caeca 7 to 10. **Colour**: light brown to swarthy; abdominal region bluish; fins dusky to blackish; mouth and gill cavities blackish.

Geographical Distribution : Southeast Atlantic off Valdivia Bank, Discovery Tablemount, Namibia; Indian Ocean off Madagascar Ridge, Saya de Malha Bank, Broken (West Australian) Ridge (Fig. 385).

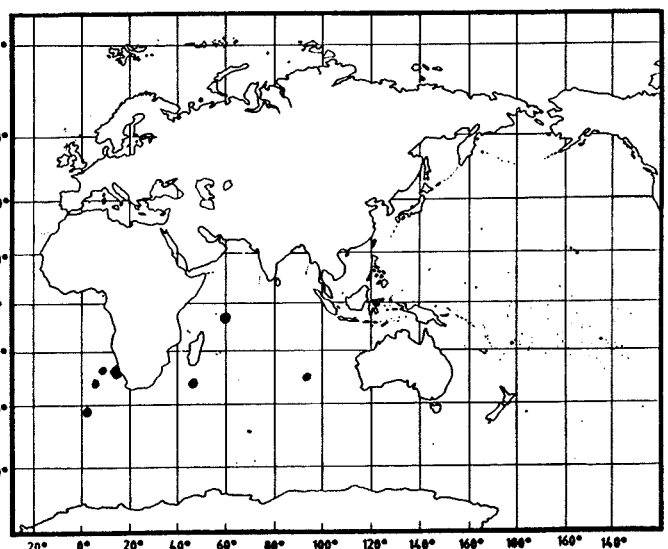


Fig. 385

Habitat and Biology : Benthopelagic in 500 to 1 150 m.

Size : To at least 35 cm total length.

Interest to Fisheries : A small species, but common where found; not now utilized by commercial fisheries.

Literature : Trunov (1984).

Remarks : *Coelorinchus karrerae* is very close to *C. innotabilis* from Australia and New Zealand, but differs primarily in having a more slender snout. Viewed from above, the sides of the snout are gently convex, whereas in *C. innotabilis* the sides are more convex.

***Coelorinchus kishinouyei* Jordan & Snyder, 1900**

Fig. 386

MACROUR Coel 24

Scientific Name with Reference : *Coelorhynchus kishinouyei* Jordan & Snyder, 1900, Proc.U.S.Natl. Mus., 23:376, pl. 20 (Misaki, Japan).

Synonyms : None

FAO Names : En · Mugura grenadier.

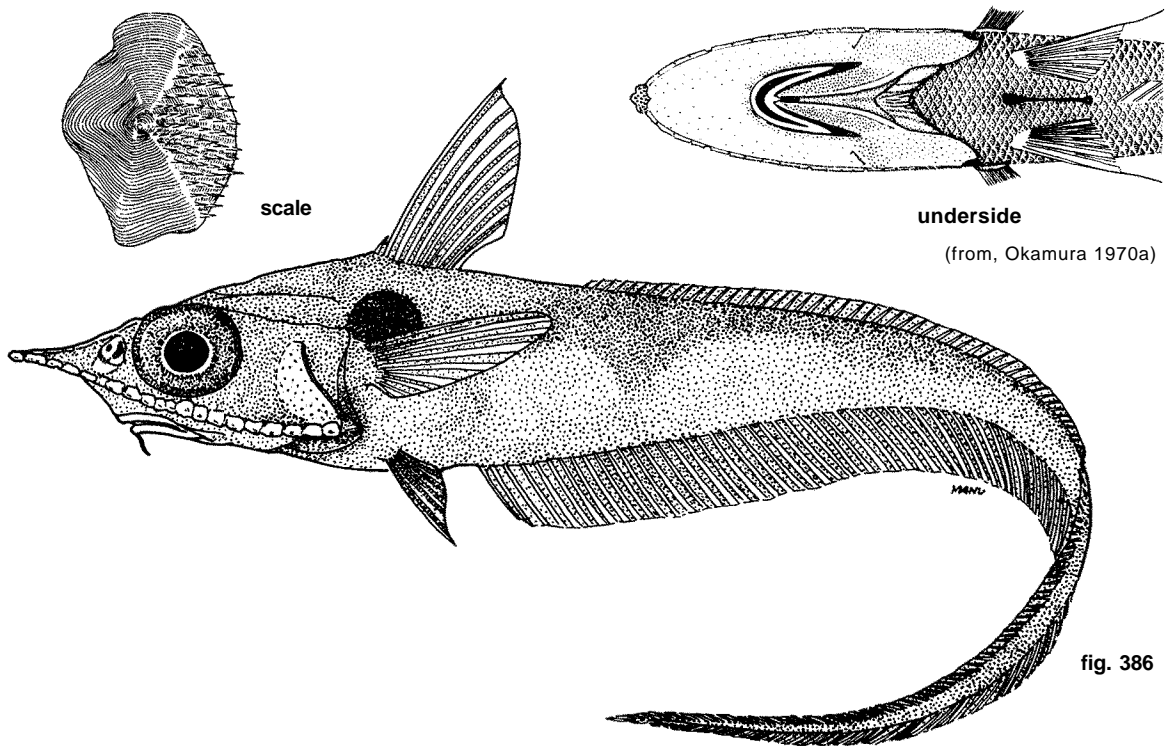


fig. 386

Diagnostic Features : Snout 33 to 45% of head length, its anterolateral margin convex and completely supported by bone; broad triangular naked areas on dorsal surface; the terminal scute small, blunt, trifid, poorly defined in larger individuals; orbit diameter 31 to 38% of head length; upper jaw 23 to 29% of head length; premaxillary teeth in broad, short bands extending 2/3 of length of rictus; mandibular teeth in a broad tapered band extending to end of rictus; inner gill rakers on first arch 0 to 2 + 7 or 8; space between nasal fossa and suborbital ridge naked; underside of head (except for a few small scales below infraorbital-preopercle ridge junction) naked; head ridges relatively strong. First dorsal fin with 2 spines and 8 to 10 rays, its height about equal to postrostral length of head; pectoral fin rays i15 to i19. The blackish streak of the light organ extends forward of vent to between pelvic fin bases, expanded into a naked fossa anteriorly; anus removed from anal fin by 2 or 3 scale rows. Body scales rather large, covered with 8 to 17 parallel to slightly divergent rows of short, slender spinules; scale rows below midbase of first dorsal fin 3.5 to 4.5. Pyloric caeca 19 to 26. **Colour**: light brown overall; a large ocellated black blotch above and behind pectoral fin bases; a fainter saddle below anterior end of second dorsal fin extending 2 or 3 rows below lateral line; underside of head with scattered, often dense punctuations; mouth cavity whitish; gill cavity blackish; fins generally dusky, but pelvics blackish.

Geographical Distribution : Southern Japan (Fig. 387).

Habitat and Biology : Benthopelagic in 250 to 450 m (8 to 12°C). Feeds primarily on polychaetes, with crustaceans of minor importance. Spawns apparently between February and April.

Size : To 36 cm.

Interest to Fisheries : Taken by trawlers, but no separate statistics are maintained.

Local Names : JAPAN: Mugura-hige.

Literature : Okamura (1970a)

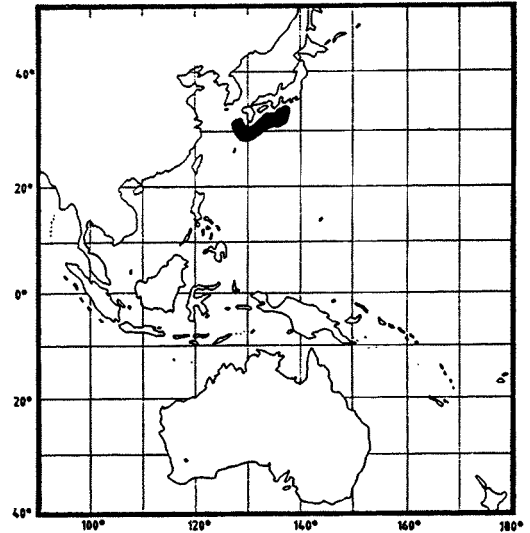


Fig. 387

Coelorhynchus labiatus (Koehler, 1896)

Fig. 388

MACROUR Coel 25

Scientific Name with Reference : *Macrurus labiatus* Koehler, 1896, Ann. Univ. Lyon, 26: 497, pl. 27, figs. 7,8 (Bay of Biscay, 570-700 m).

Synonyms : *Macrurus japonicus* -- Vaillant, 1888 [non Temminck & Schlegel]; *Cofyphaenoides (Coelorhynchus) talismani* Collett, 1905; *Macrurus (Coelorhynchus) talismani* -- Murray & Hjort, 1912; *Coelorhynchus talismani* -- Gilbert & Hubbs, 1916; *Coelorhynchus vaillanti* -- Roule, 1919; *Oxygadus labiatus* -- Grey, 1956; *Coelorhynchus labiatus* -- Tortonese, 1970.

FAO Names : En - Spearsnouted grenadier.

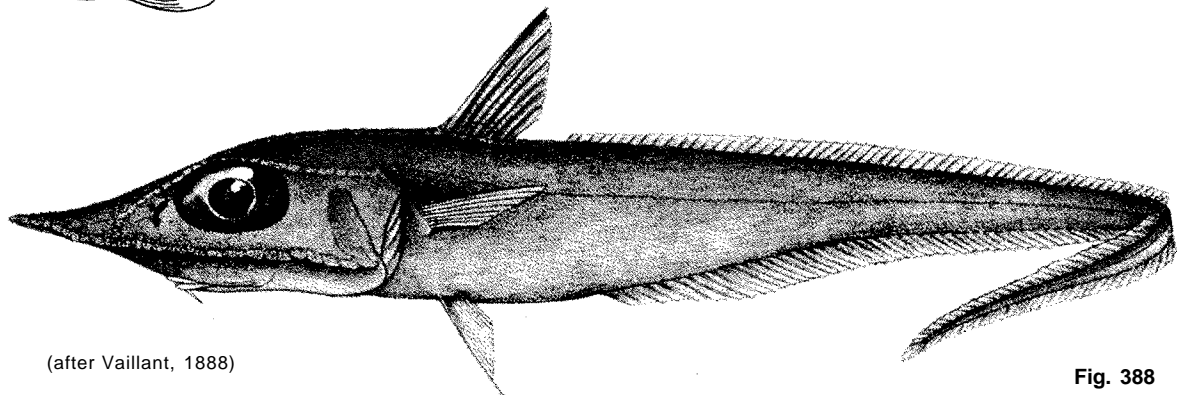
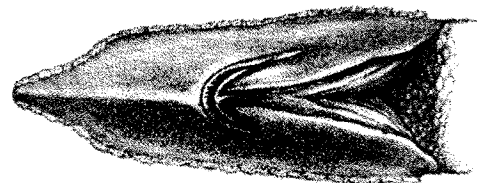
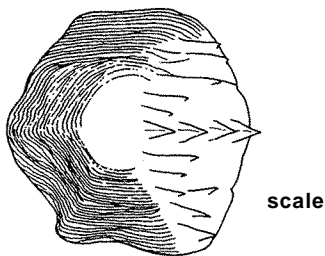


Fig. 388