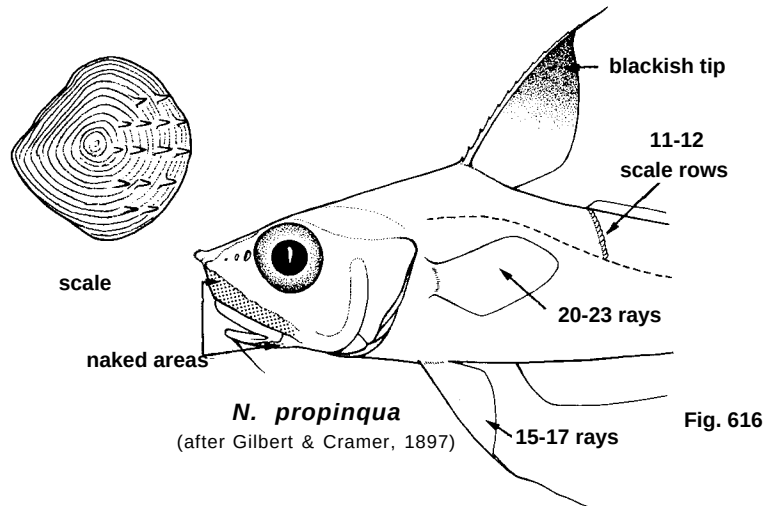


- 6b. Pelvic fin rays 15 to 17; pectoral fin 60 to 67% of head length; distance from anus to anal fin origin 21 to 25% of head length *N. propinqua*
(Hawaii, W. Pacific, W. Indian Ocean)
(Fig. 616)



List of Species

Nezumia aequalis (Günther, 1878)
Nezumia africana (Iwamoto, 1970)
Nezumia atlantica (Parr, 1946)
Nezumia bairdii (Goode & Bean, 1877)
Nezumia brevibarbata (Barnard, 1925)
Nezumia brevirostris (Alcock, 1889)
Nezumia bubonis Iwamoto, 1974
Nezumia burragei (Gilbert, 1905)
Nezumia condylura Jordan & Gilbert, 1902
Nezumia convergens (Garman, 1899)
Nezumia cyrano Marshall & Iwamoto, 1973
Nezumia dara Gilbert & Hubbs, 1916
Nezumia duodecim Iwamoto, 1970
Nezumia ectenes (Gilbert & Cramer, 1897)
Nezumia evides (Gilbert & Hubbs, 1920)
Nezumia hebetata (Gilbert, 1905)
Nezumia holocentra (Gilbert & Cramer, 1897)
Nezumia infranudis (Gilbert & Hubbs, 1920)
Nezumia investigatoris (Alcock, 1889)
Nezumia kamoharai Okamura, 1970
Nezumia latirostrata (Garman, 1899)
Nezumia leonis (Barnard, 1925)
Nezumia liolepis (Gilbert, 1890)
Nezumia longebarbata (Roule & Angel, 1933)
Nezumia loricata (Garman, 1899)
Nezumia macronema (Smith & Radcliffe, 1912)
Nezumia micronychodon Iwamoto, 1970
Nezumia milleri Iwamoto, 1973
Nezumia namatahi McCann & McKnight, 1980
Nezumia obliquata (Gilbert, 1905)
Nezumia orbitalis (Garman, 1899)
Nezumia parini Hubbs & Iwamoto, 1977
Nezumia polylepis (Alcock, 1889)
Nezumia propinqua (Gilbert & Cramer, 1897)
Nezumia proxima (Smith & Radcliffe, 1912)
Nezumia pudens Gilbert & Thompson, 1916
Nezumia pulchella (Pequeño, 1971)
Nezumia sclerorhynchus (Valenciennes, 1838)
Nezumia semiquincunciata (Alcock, 1889)
Nezumia spinosa (Gilbert & Hubbs, 1916)
Nezumia stelgidolepis (Gilbert, 1890)
Nezumia suilla Marshall & Iwamoto, 1973
Nezumia tinro Sazonov, 1985
Nezumia toi McCann & McKnight, 1980
Nezumia tomiyamai (Okamura, 1963)
Nezumia ventralis Hubbs & Iwamoto, 1979

***Nezumia aequalis* (Günther, 1878)**

Fig. 617

MACROUR Nez 1

Scientific Name with Reference : *Coryphaenoides aequalis* Günther, 1878, *Ann. Mag. Nat. Hist.*, ser. 5, 2: 25 (south of Portugal, 1097 m).

Synonyms : ?*Macrurus serratus* Lowe, 1843; ?*Coryphaenoides serratus* -- Gunther, 1862; *Macrurus aequalis* -- Günther, 1887; *Macrurus smiliophorus* Vaillant, 1888; *Coryphaenoides (Macrurus) aequalis* -- Collett, 1905; *Lionurus (Nezumia) aequalis* -- Gilbert & Hubbs, 1916; *Macrurus serratus* -- Roule, 1919; *Macruropus serratus* -- Fowler, 1936; *Macrurus holotrachys* -- Hildebrand *in* Longley & Hildebrand, 1941 (non *Macrurus holotrachys* Günther); *Nezumia hildebrandi* Parr, 1946; *Nezumia aequalis* -- Maul, 1951; *Nezumia (Lionurus) aequalis* -- Cadenat, 1961.

FAO Names : En - Common Atlantic grenadier.

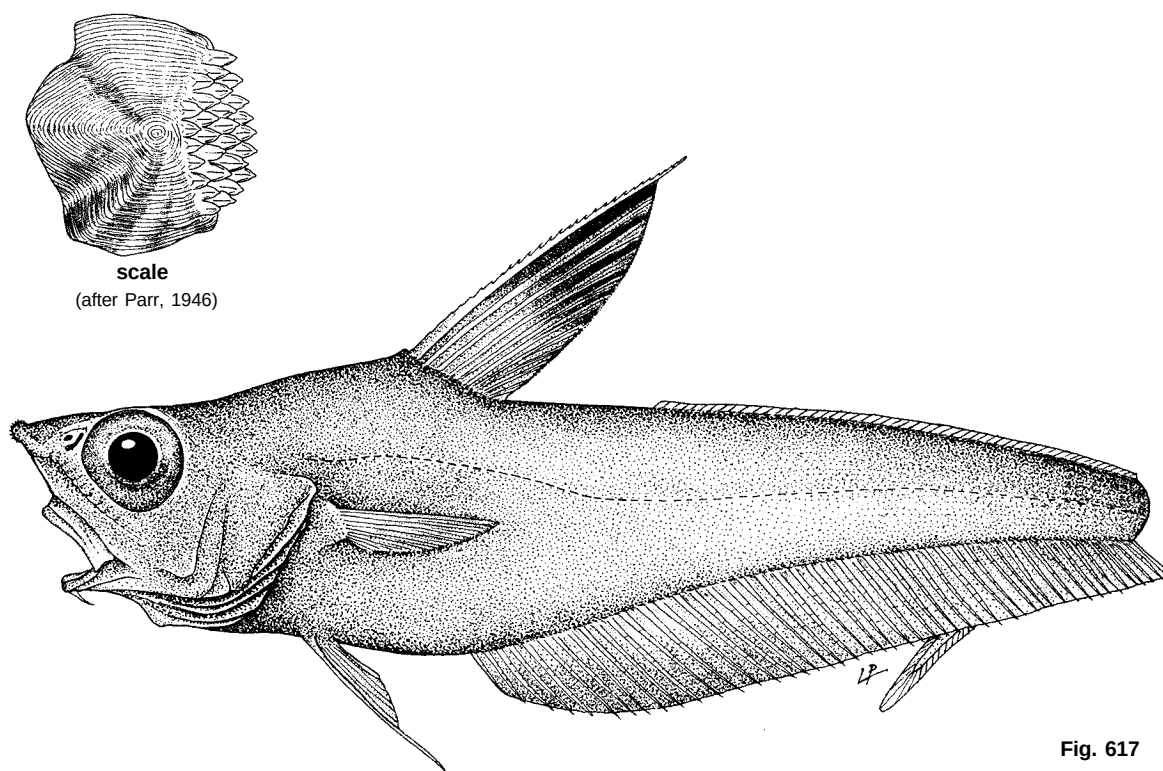


Fig. 617

Diagnostic Features : Snout short, acute, 26 to 34% of head length; orbits large 29 to 42%; naked area on ventral surface of snout confined to narrow median-ventral strip, otherwise head surfaces completely scale-covered; head pores relatively small and inconspicuous; inner gill rakers on first arch 1 or 2 + 8 to 10. Teeth small, in moderately wide bands in both jaws. First dorsal fin with 2 spines and 9 to 12 rays; pectoral fin rays i17 to i20; pelvic fin rays 9 (usually 8 or 9, depending on population). Measurements in percentages of head length: orbit diameter 29 to 42; interorbital space 17 to 25; upper jaw 28 to 36; orbit to angle of preopercle 32 to 38; barbel 10 to 17. Pyloric caeca 20 to 28. Body scales with lanceolate to shield-shaped spinules; scales below second dorsal fin 7 to 9; lateral-line scales over distance equal to preodorsal length 32 to 37. **Colour**: bluish to violet, head somewhat tawny to swarthy; silvery reflections on ventral 2/3 of body when fresh; pelvic fins black except outermost ray pale to white; pectoral fins dusky; anal fin black anteriorly, fading to dusky or clear posteriorly; first dorsal fin black on distal 1/3; mouth greyish, gill cavity mostly black.

Geographical Distribution : Widespread in North Atlantic, from Faroe Bank to northern Angola and the Mediterranean Sea in the east, and Davis Straits to northern Brazil in the west (Fig. 618).

Habitat and Biology : Benthopelagic in approximately 200 to 1 000 m depth. Feeds on small crustaceans (mysids, amphipods, etc.) and polychaetes.

Size : To about 30 cm total length.

Interest to Fisheries : Often caught in moderate quantities; taken as bycatch by offshore trawlers throughout its range. Mostly reduced to fish meal and oil.

Literature : Günther (1887); Koefoed (1910); Parr (1946), Poll (1953); Iwamoto (1970); Marshall & Iwamoto, in Marshall (1973).

Remarks : Populations of this widespread North Atlantic species have been distinguished by Marshall and Iwamoto (in Marshall, 1973). The Gulf of Guinea population is the most distinct of these and probably deserves subspecific recognition at the least. The population in the Gulf of Mexico, although less well defined, also deserves consideration at the subspecific level.

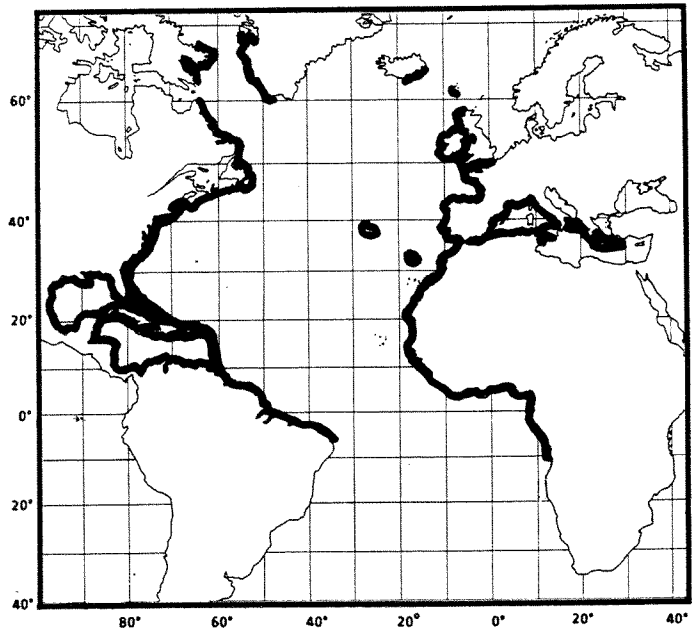


Fig. 618

Nezumia atlantica (Parr, 1946)

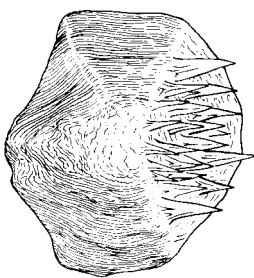
Fig. 619

MACROUR Nez 2

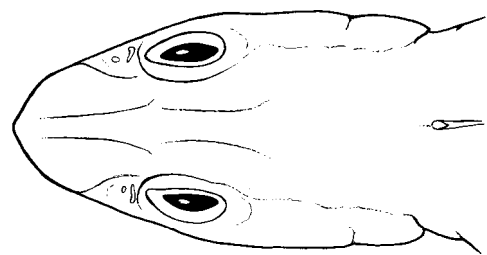
Scientific Name with Reference : *Ventrifossa atlantica* Parr, 1946. Bull. Bingham Oceanogr. Coll., 10 (art. 1): 32, fig. 9,10 (northern Gulf of Mexico, 345 to 500 fm).

Synonyms : *Nezumia atlantica* -- Arai, in Uyeno et al., 1983

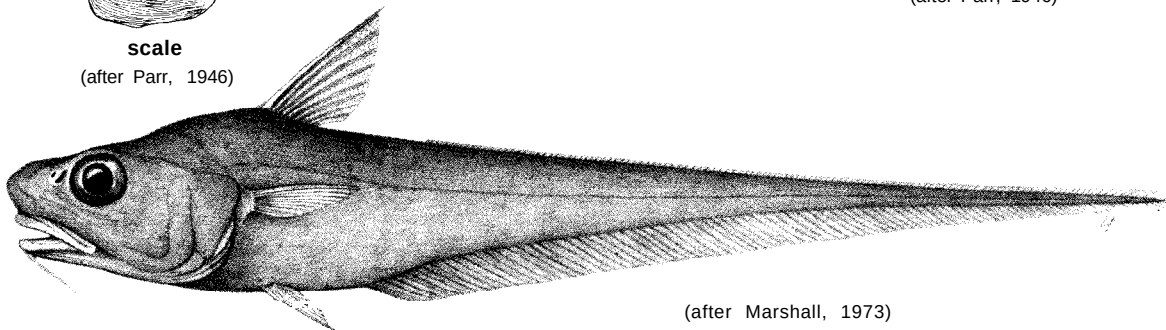
FAO Names : En - Western Atlantic grenadier



scale
(after Parr, 1946)



top of head
(after Parr, 1946)



(after Marshall, 1973)

Fig. 619

Diagnostic Features : Snout narrow, bluntly rounded, scarcely produced, its underside naked; terminal and lateral snout scutes broad, blunt; suborbital region flat, vertical. Teeth in broad bands; outer series of upper jaw enlarged, teeth do not extend to end of rictus. Inner gill rakers of first arch 1 or 2 + 8 or 9 [10 or 11 total]. First dorsal fin with 2 spines and 10 to 13 rays; pectoral fin rays 19 to 23; pelvic fin rays 9 or 10. Measurements in percentages of head length: snout length 24 to 29, snout height 12 to 17; orbit diameter 27 to 31; interorbital space 19 to 22; upper jaw 38 to 45; least suborbital width 11 to 14; orbit to angle of preopercle 39 to 43; barbel 20 to 29; outer gill slit 15 to 21. Spinules on body scales numerous, lanceolate, arranged in 8 to 10 subparallel rows in larger specimens; scales below second dorsal fin 8 to 9; lateral-line scales over distance equal to predorsal length 37 to 45. **Colour**: uniformly deep brownish black overall; fins blackish.

Geographical Distribution : Abundant in the tropical western Atlantic (Fig. 620).

Habitat and Biology : Benthopelagic in 366 to 1 097 m depth.

Size : To at least 45 cm total length.

Interest to Fisheries : Probably taken in bycatch of deep-water trawl fishery for royal red shrimp of western central Atlantic, but not known to be utilized.

Local Names : JAPAN: Nishi-nezumidara.

Remarks : Parr (1946); Marshall (1973); Arai (in Uyeno Matsuura & Fujii, 1983).

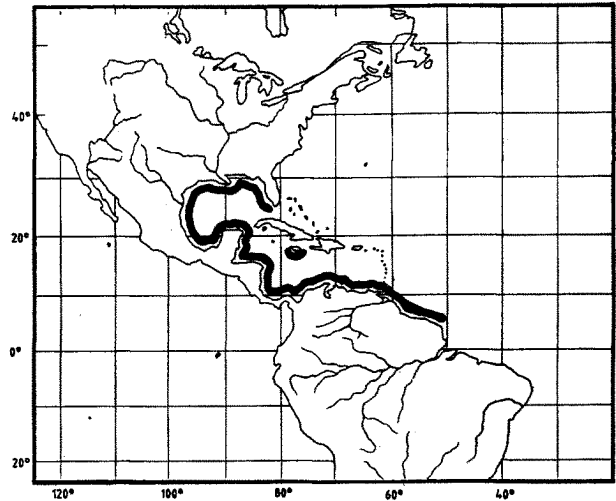


Fig. 620

Nezumia bairdi (Goode & Bean, 1877)

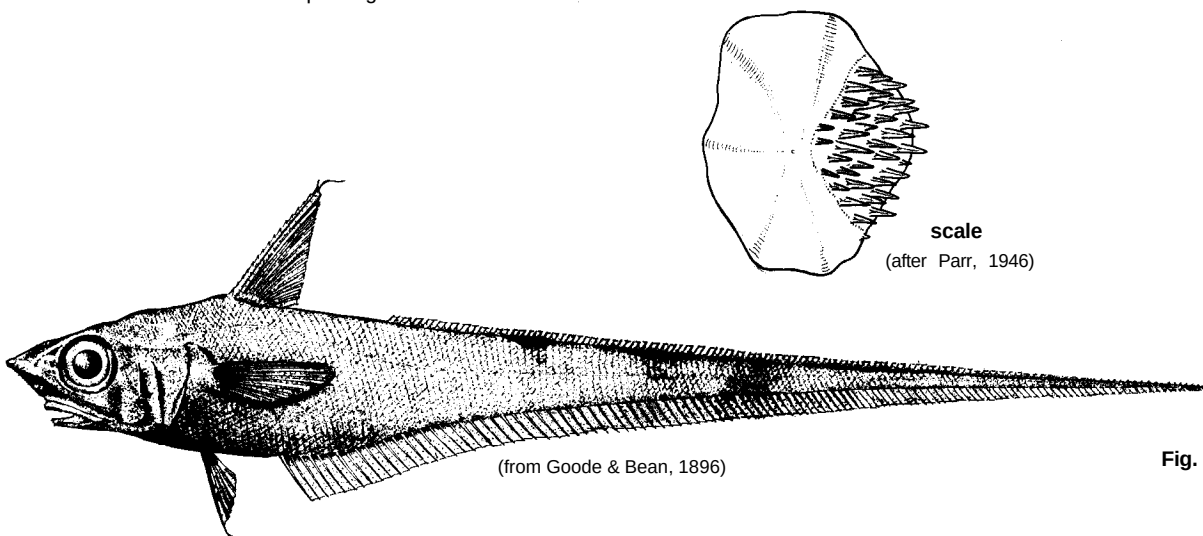
Fig. 621

MACROUR Nez 3

Scientific Name with Reference : *Macrurus bairdii* Goode & Bean, 1877, Amer. J. Sci. Arts, 14: 471 (Gulf of Maine, 44 mi. ese of Cape Ann; 293 m).

Synonyms : *Lionurus (Nezumia) bairdii* -- Gilbert & Hubbs, 1916; *Coryphaenoides bairdii* -- Schroeder, 1940; *Nezumia bairdi* -- Parr, 1946.

FAO Names : En - Marlin-spike grenadier.



(from Goode & Bean, 1896)

Fig. 621

Diagnostic Features : Snout acutely pointed naked area on underside of snout confined to median-ventral strip, otherwise head surfaces completely scale covered; head pores well developed on lower margins of suborbital and preopercle. Teeth small, in wide, tapered bands in both jaws, outer series in upper jaw enlarged; bands extend to end of rictus. Inner gill rakers on first arch 8 to 10 total. First dorsal fin with 2 spines and 9 to 11 rays; pectoral fin rays 16 to 19; pelvic fin rays 7 (rarely 6). Measurements in percentages of head length: snout length 30 to 33; orbit diameter 30 to 34; interorbital space 26 to 29; upper jaw 30 to 33; orbit to angle of preopercle 34 to 37; barbel 12 to 15. Scale spinules slender, conical to lanceolate, arranged in convergent rows; scales below second dorsal fin 7 to 9; lateral-line scales over a distance equal to predorsal length 37 to 41. **Colour**: fresh specimens grey with violet hue on trunk and lower jaw; silvery reflections on gill cover, parts of suborbital, and trunk and tail below lateral line; pelvic fins and membrane between spinous dorsal ray and first segmented ray black; pectoral and median fins otherwise dusky; oral and gill cavities mostly black.

Geographical Distribution : Western North Atlantic, from New Foundland to the northern end of the Straits of Florida. One northeastern Atlantic specimen (36°47'N, 27°21'W) reported by Geistdoerfer, Hureau, & Rannou (1970) should be reexamined; its capture depth of 3 520 m is well beyond the normal range of the species (90 to 700 m). Roule & Angel (1933) reported a specimen from the Azores, but their count of 8 pelvic rays suggests that it represents another species. Records of the species from the Gulf of Mexico and West Indies probably refer to other species, especially *N. suilla*, which also has 7 pelvic fin rays (Fig. 622).

Habitat and Biology : Benthopelagic, most commonly in 90 to 700 m depth, but taken much shallower in areas with cold surface waters: one was trawled in Vineyard Sound, Massachusetts, in 16.5 m depth; another was taken in a weir at Lubec, Maine. It has been reported as deep as 2 295 m, but records deeper than 1 000 m should be viewed sceptically. In the Gulf of Maine, it breeds during summer and autumn. Feeds primarily on euphausiids, amphipods, and polychaetes, although a 200 mm individual had many copepods in its stomach.

Size : To about 40 cm total length.

Interest to Fisheries : The most common grenadier in shallow slope waters of the western North Atlantic. Sometimes caught in moderate quantities as bycatch of trawlers.

Local Names : USA: Marlin-spike, Common grenadier, Rat-tail.

Literature : Goode & Bean (1896); Parr (1946); Bigelow & Schroeder (1953); Marshall & Iwamoto, *in* Marshall (1973).

Remarks : This species is immediately distinguished from its Atlantic congeners by the combination of pelvic fin rays 7, first dorsal fin pale except for black membrane between second spinous dorsal and first segmented rays, conical to lanceolate scale spinules, and relatively restricted naked area on snout.

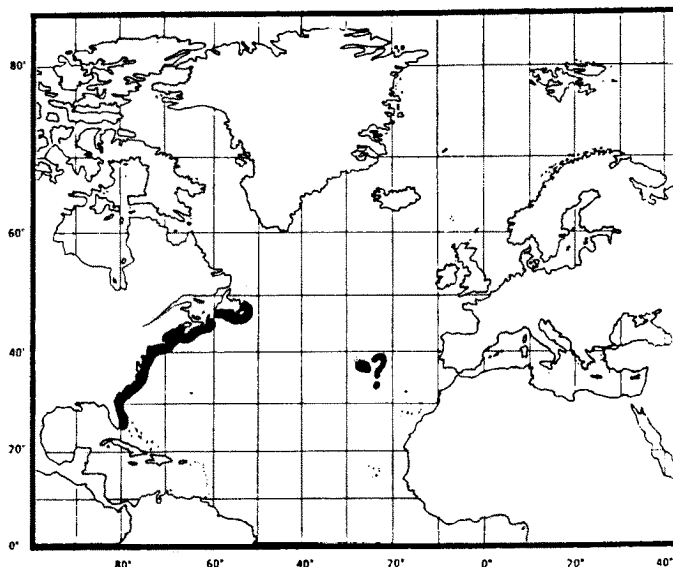


Fig. 622

Nezumia brevibarbata (Barnard, 1925)

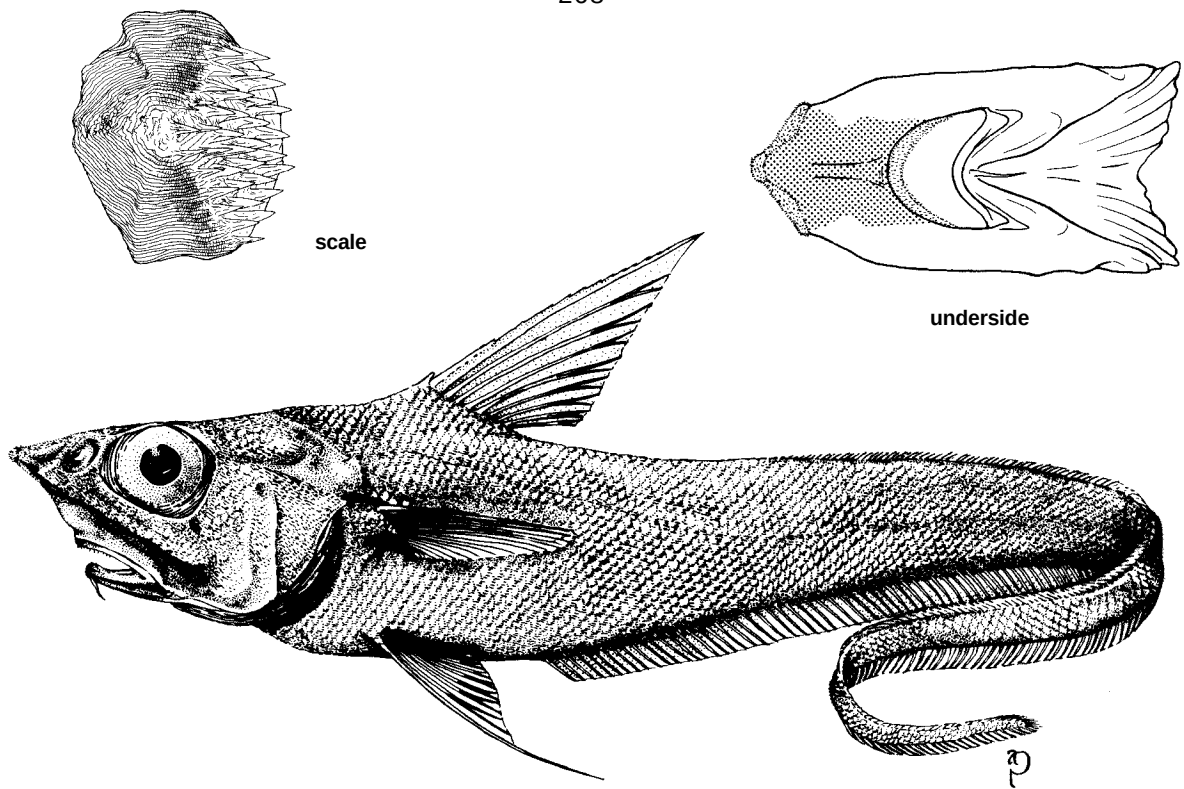
Fig. 623

MACROUR Nez 4

Scientific Name with Reference : *Lionurus brevibarbatus* Barnard, 1925a, *Ann. Mag. Nat. Hist.* ser. 9, 15: 503 [off Cape Point, South Africa, 300-950 fms].

Synonyms : *Macruropus brevibarbatus* -- Smith, 1949; *Nezumia brevibarbatus* -- Marshall & Iwamoto *in* Marshall, 1973.

FAO Names : En - Shortbeard grenadier.



(from Iwamoto, *in* Smith & Heemstra, 1986)

Fig. 623

Diagnostic Features : Snout acutely pointed; terminal scute well developed, but not especially set off from adjacent scales; undersides of snout; most of suborbital, and anterior part of mandible mostly naked. Teeth in moderately wide bands, outer series in upper jaw slightly enlarged. Inner gill rakers on first arch usually 1 or 2 + 10 or 11 (12 total), outer gill rakers on second arch 1 + 9 or 10. First dorsal fin with 2 spines and 9 to 11 rays, serrations on second spine slender, rather widely spaced; pectoral fin rays i18 to i20; pelvic fin rays 11. Measurements in percentages of head length: snout 32 to 35; orbit diameter 33 to 34; interorbital space 21 to 25; upper jaw 30 to 32; orbit to angle of preopercle 34 to 35; barbel 11 to 12. Pyloric caeca about 30. Spinules on body scales broadly lanceolate to shield-shaped in somewhat converging rows; scales below second dorsal fin 7 or 8; lateral-line scales over a distance equal to predorsal length 35 to 40. **Colour**: brownish, violaceous over abdomen; gill membranes blackish; fins dusky.

Geographical Distribution : South Africa off Cape Point. Possibly more widely distributed in southern Africa, but nowhere taken in abundance (Fig. 624).

Habitat and Biology : Benthopelagic in 549 to 1 737 m depth.

Size : To about 26 cm total length.

Interest to Fisheries : Probably not of much commercial interest because of the small size and relative scarcity.

Literature : Barnard (1925a); Iwamoto (*in* Smith & Heemstra, 1986).

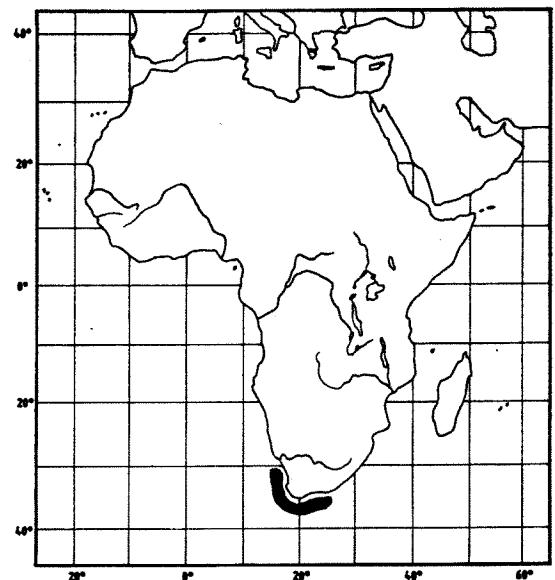


Fig. 624

Nezumia condylura Jordan & Gilbert, 1904

Fig. 625

MACROUR Nez 5

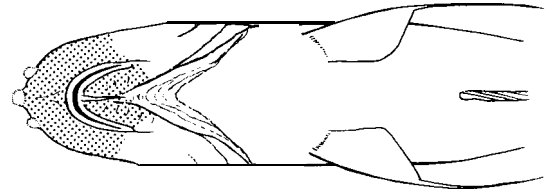
Scientific Name with Reference : *Nezumia condylura* Jordan & Gilbert, in Jordan & Starks, 1904: Bull. U.S. Fish Comm. (1902) 22: 620, pl. 4, fig. 2 (Suruga Bay, Japan; 379 to 457 m; ALBATROSS sta. 3721).

Synonyms : *Lionurus (Nezomia) condylura* -- Gilbert & Hubbs, 1916

FAO Names : En - Pugnose grenadier.



scale
(from Okamura, 1970a)



underside
(after Okamura, 1970a)

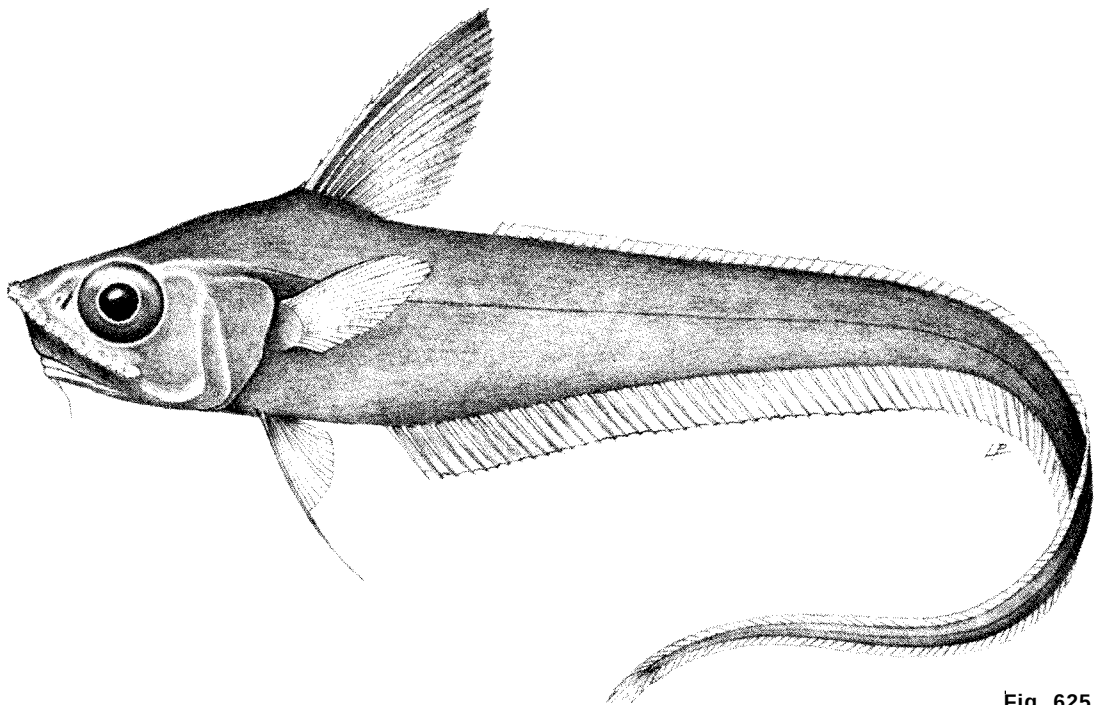


Fig. 625

Diagnostic Features : Snout short, blunt; terminal and lateral snout scutes large, blunt; undersides of snout, mandible, most of suborbital, and part of lower margin of preopercle naked; pores prominent in these areas. Teeth in rather broad, tapered bands, outer series in upper jaw slightly enlarged. Inner gill rakers on first arch usually 1 or 2 + 7 or 8 (8 to 10 total). First dorsal fin with 2 spines and 10 to 12 rays, serrations on second spine slender and rather widely spaced; pectoral fin rays i18 to i21; pelvic fin rays 13 to 17. Measurements in percentages of head length: snout length 28 to 30; orbit diameter 29 to 36; interorbital space 23 to 25; upper jaw 29 to 33; orbit to angle of preopercle 32 to 38; barbel 14 to 21. Pyloric caeca 25 to 28. Scales small, spinules on body scales sharp, needlelike, greatly reclined, in 4 to 16 parallel rows; scales below midbase of first dorsal fin 8 or 9, below second dorsal fin 12 or 13. **Colour**: greyish brown, bluish over abdomen; gill membranes blackish; fins dusky, first dorsal fin blackish distally; oral and branchial linings blackish.

Geographical Distribution : Southern Japan, East China Sea (Fig. 626).

Habitat and Biology : Benthopelagic in 200 to 720 m depth, but uncommon shallower than 400 m. Frequents waters of 5 to 7° C. Polychaetes and euphausiids compose 30 to 60% of the diet of specimens from Japan, with prawns of minor importance.

Size : To about 21 cm total length.

Interest to Fisheries : A common, but small species taken as by-catch by trawlers in southern Japan; no catch statistics are available.

Local Names : JAPAN: Nezumi-dara.

Literature : Jordan & Gilbert (*in* Jordan & Starks, 1904); Gilbert & Hubbs (1916); Okamura (1970a); Okamura (*in* Okamura *et al.* 1982).

Remarks : This species may be a synonym of *N. propinqua* from Hawaii.

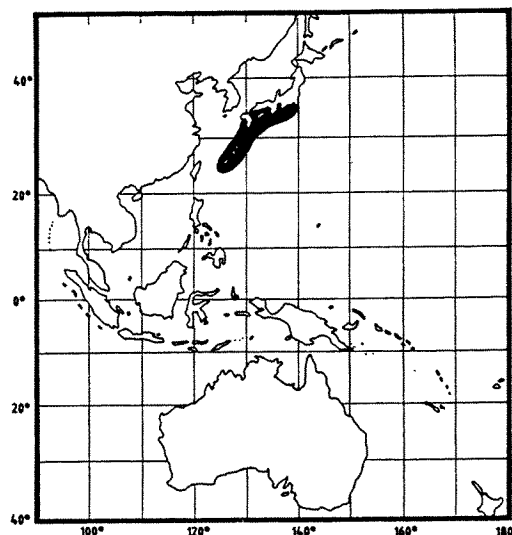


Fig. 626

Nezumia convergens (Garman, 1899)

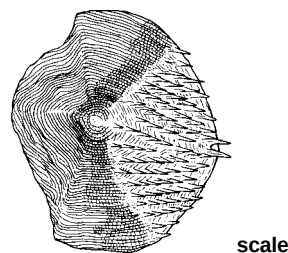
fig. 627

MACROUR Nez 6

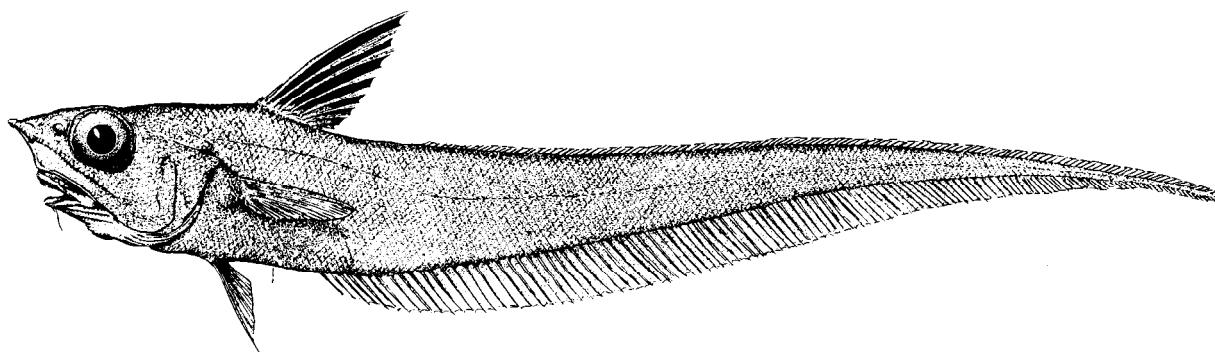
Scientific Name with Reference : *Macrurus convergens* Garman, 1899, *Men. Mus. Comp. Zool. Harvard* 24:210, pl. 48, fig. 1 (Gulf of Panama; 1271 to 1865 m; ALBATROSS sta. 3353, 3357, 3393).

Synonyms : *Macrurus cuspidatus* Garman, 1899; *Macrurus trichiurus* Garman, 1899; *Lionurus (Nezumia) convergens* -- Gilbert & Hubbs, 1916; *Lionurus (Nezumia) cuspidatus* -- Gilbert & Hubbs, 1916; *Lionurus (Nezumia) trichiurus* -- Gilbert & Hubbs, 1916; *Nezumia convergens* -- Makushok, 1967; *Nezumia cuspidata* -- Makushok, 1967; *Nezumia trichiura* -- Makushok, 1967; *Sphagemacrurus trichiurus* -- Marshall, 1973.

FAO Names : En - Peruvian grenadier.



scale



(from Iwamoto, 1979)

Fig. 627

Diagnostic Features : Snout moderately pointed; terminal and lateral snout scutes stout; underside of snout and suborbital anteriorly naked; mandibular rami naked anteriorly; cephalic pores of lateralis system small. Teeth small, in broad bands in both jaws, bands fall short of posterior end of rictus; outer premaxillary teeth very slightly enlarged. Inner gill rakers of first arch 1 or 2 + 5 to 7 (7 to 9 total). First dorsal fin with 2 spines and 9 to 10 rays, serrations on second spine slender, closely spaced but not overlapping; pectoral fin rays i17 to i21; pelvic fin rays 10 or 11. Measurements in percentages of head length: snout length 27 to 34; orbit diameter 31 to 37; interorbital space 16 to 23; upper jaw length 26 to 32; orbit to angle of preopercle 32 to 40; barbel 8 to 20. Light organ not well developed externally; no scaleless fossa between pelvic fin bases. Pyloric caeca 21 to 32. Body scales somewhat deciduous, covered with conical spinules aligned in 10 to 12 (in adults) slightly convergent rows, the middle row larger than lateral ones; scales below second dorsal fin origin usually 6.5 to 9. **Colour**: brownish black overall, with hint of violet; abdominal region bluish black; mouth dusky; gill cavity black except for pale areas ventrally and along medial wall; fins uniformly black to brownish black.

Geographical Distribution : Gulf of California south to Chile (34°53.5'S), including Cocos I. and Galapagos (Fig. 628).

Habitat and Biology : Benthopelagic in 600 to 1 865 m depth.

Size : To at least 30 cm total length.

Interest to Fisheries : This is one of the most common species of *Nezumia* in the eastern Pacific, and it ranges over an extensive latitudinal span. It is taken in moderate quantities by research vessels, but probably is too deep-living to occur with any frequency in commercial trawl catches.

Literature : Garman (1899); Iwamoto (1979).

Remarks : The chief distinguishing characteristic of *N. convergens* is the low inner gill raker count of the first arch: 9 or fewer total, 5 or 6, rarely 7, on lower limb. Its slender body (greatest depth usually less than 3/4 head length) and scale spinulation also help in differentiating the species from its closest relatives.

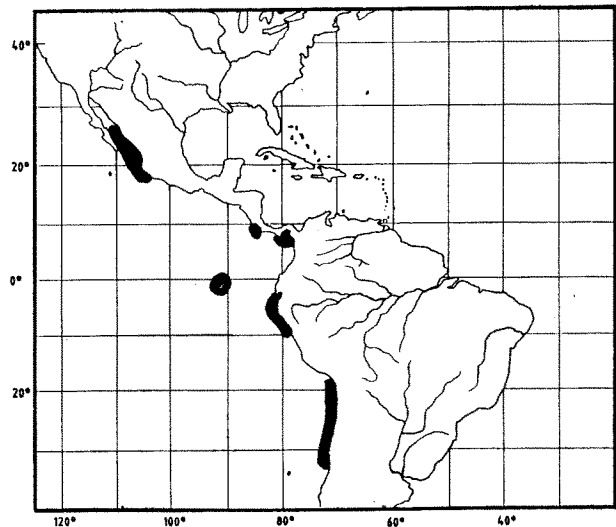


Fig. 628

Nezumia duodecim Iwamoto, 1970

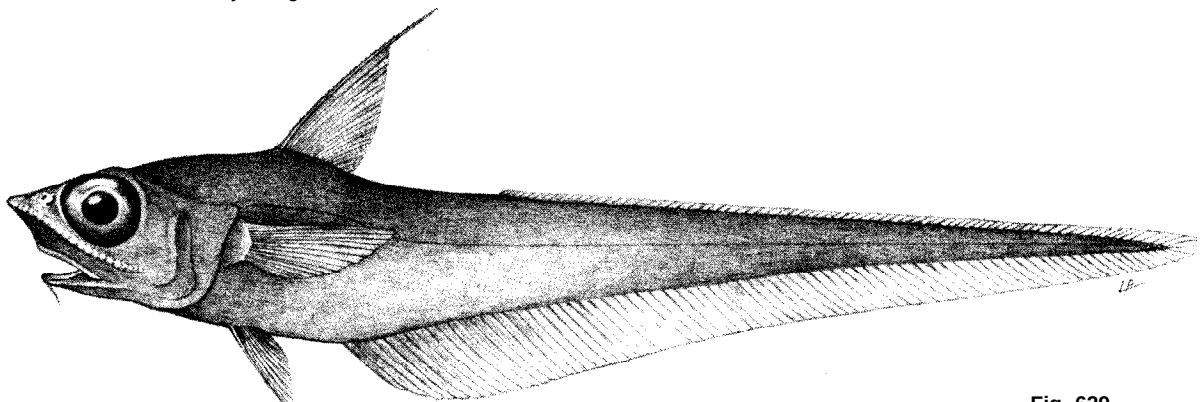
Fig. 629

MACROUR Nez 7

Scientific Name with Reference : *Nezumia duodecim* Iwamoto, 1970, Stud. Trop. Biol. Miami, (4)(pt. 2): 393, figs. 17b, 20b, 21 b, 22-23)(Gulf of Guinea, 4°40'5, 11°00'E, off Congo, 951 m).

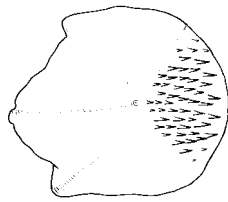
Synonyms : None

FAO Names : En - Twelve-rayed grenadier

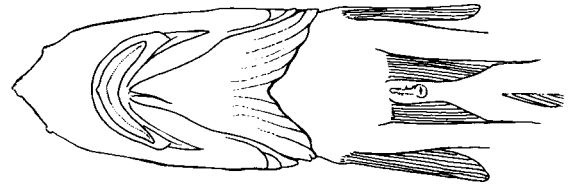


(after Iwamoto, 1970)

Fig. 629



scale



underside

Diagnostic Features : Ventral leading edge of snout and narrow ventromedian strip on underside naked, head otherwise completely scaled. Teeth in wide bands in both jaws; outer series of upper jaw slightly enlarged. Inner gill rakers of first arch 1 or 2 + 8 to 10 (10 to 12 total). First dorsal fin with 2 spines and 9 to 12 rays; pectoral fin rays 19 to 22; pelvic fin rays 11 to 13. Measurements in percentages of head length: snout length 30 to 33; preoral length 22 to 29; orbit diameter 32 to 38; interorbital space 18 to 23; upper jaw 32 to 36; barbel 8 to 16; orbit to angle of preopercle 35 to 43. Pyloric caeca 18 to 35. Scales highly deciduous, spinules small, short, conical, greatly appressed, generally absent along posterior margin, in 6 to 9 parallel rows with 1 to 4 spinules per row; scales below second dorsal fin 6 to 7. **Colour:** brownish to bluish overall; trunk bluish to blackish; fins blackish; mouth dusky; gill cavities blackish.

Geographical Distribution : Northwestern Africa, from 24°N, southerly into the Gulf of Guinea to Angola (Fig. 630).

Habitat and Biology : Benthopelagic in 329 to 1 261 m, apparently found deeper in the northern part of its range. Merrett & Marshall (1981) found copepods (80%) and polychaetes (62%) in highest proportions in specimens they examined from the slope off northwestern Africa. Other crustaceans and a few fish formed the remainder of the diet. They stated that *N. duodecim*, like the majority of macrourines, depends on a mixed diet of benthic and pelagic organisms."

Size : To more than 25 cm total length.

Interest to Fisheries : Relatively abundant in depths of 400 to 500 m, but size too small to be of commercial importance except for reduction to fish meal.

Literature : Iwamoto (1970); Merrett & Marshall (1981).

Remarks : *Nezumia duodecim* is distinguishable from most other members of the genus by its high pelvic-ray count, squamation, and proportional measurements.

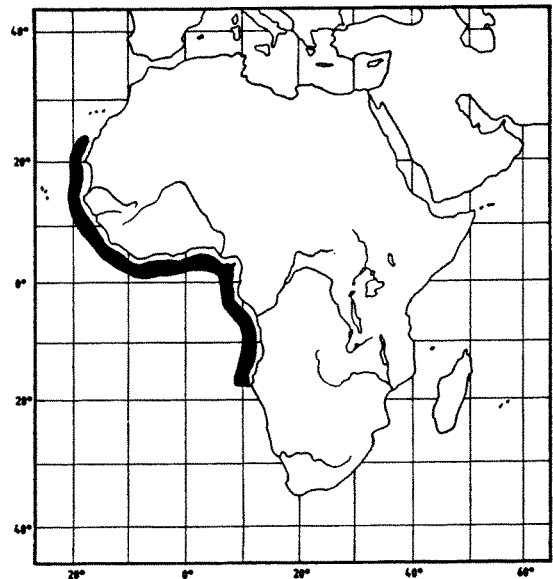


Fig. 630

***Nezumia latirostrata* (Garman, 1899)**

Fig. 631

MACROUR Nez 8

Scientific Name with Reference : *Macrurus latirostratus* Garman, 1899, *Mem. Mus. Comp. Zool. Harvard* 24: 211, pl. 48, fig. 2 (Gulf of Panama; 589 to 935 m; ALBATROSS sta. 3354, 3384, 3394).

Synonyms : *Lionurus (Nezumia) latirostratus*-- Gilbert & Hubbs, 1916; *Nezumia latirostrata* -- Makushok, 1967

FAO Names : En - Broadsnout grenadier.

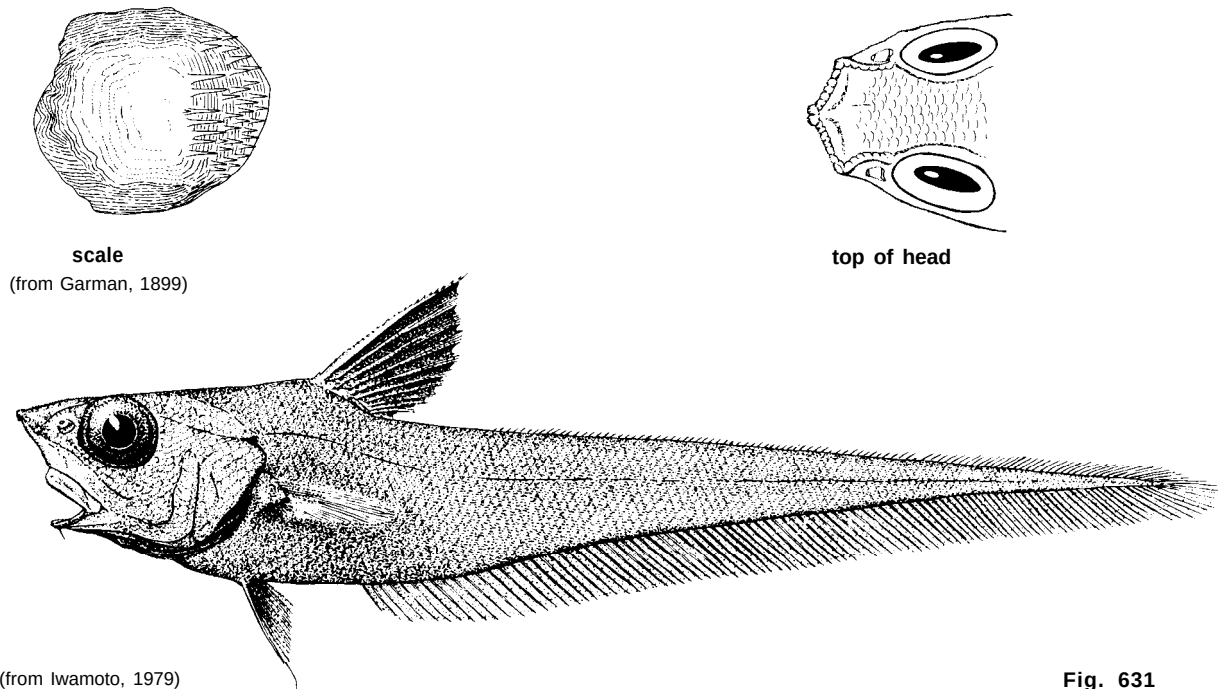


Fig. 631

Diagnostic Features : Snout short, conical; terminal snout scute small but stout, distinctly bifid; underside of snout and part of suborbital space naked; mandibular rami with loose scales along midline of each ramus; cephalic pores of lateralis system indistinct, although small dark papillae prominent on head. Teeth small, in moderately broad bands in both jaws, bands fall short of posterior end of rictus; outer premaxillary teeth slightly enlarged. Inner gill rakers of first arch 1 to 3 + 7 to 9 (9 to 11 total). First dorsal fin with 2 spines and 9 or 10 rays; serrations on second spine numerous, closely overlapping; pectoral fin rays i17 to i22; pelvic fin rays 9 or 10. Measurements in percentages of head length: snout length 27 to 34; orbit diameter 30 to 36; interorbital space 17 to 25; upper jaw 27 to 32; orbit to angle of preopercle 33 to 39; barbel 5 to 20. Pyloric caeca 17 to 25. Body scales fairly large and deciduous, densely covered with lanceolate spinules that are indistinctly aligned in convergent rows; scales below second dorsal fin origin 6 to 7.5. **Colour:** swarthy to brownish, abdominal region bluish black; mouth dusky, gill cavity black except for pale areas ventrally and along medial wall; fins dark brown to brownish black.

Geographical Distribution : Panama to northern Peru (Fig. 632).

Habitat and Biology : Benthopelagic in 605 to 1 400 m depth. Almost ripe eggs were found in specimens taken off Ecuador in mid-September.

Size : To at least 23 cm total length.

Interest to Fisheries : This common species of the tropical eastern Pacific is occasionally taken in moderate quantities by trawlers, but no catch statistics are maintained for the species and it is probably not utilized.

Literature : Garman (1899); Iwamoto (1979).

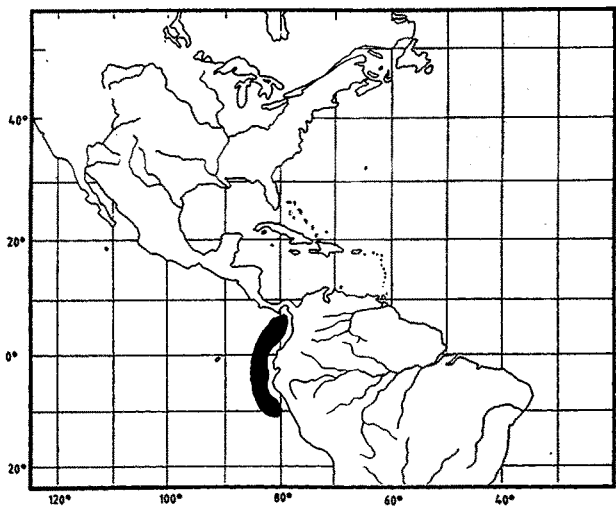


Fig. 632