

without barbs) in upper jaw; no fangs on tip of lower jaw; a series of sharp compressed lateral teeth in both jaws. A single, long-based dorsal fin with III spines and about 140 soft rays; anal fin reduced to minute spinules buried in skin, situated below 41st to 43rd dorsal-fin soft ray; pectoral fins about as large as snout, with I spine and 12 soft rays; pelvic fins present, but reduced to a small scale-like process; caudal fin absent, posterior part of body tapering to a point. Lateral line running almost straight along midbody or slightly nearer ventral contour than dorsal contour. **Colour:** In fresh specimens, body steely blue with metallic reflections, becoming silvery grey after death; dorsal-fin membrane semi-transparent, both dorsal and ventral sides of posterior part of fin black; dermal process on upper jaw black, dermal process of lower jaw black above and grey below; a small pale black spot on base of anterior margin of pectoral fins.

**Geographical Distribution:** Indo-West Pacific including The Gulf, India, Sri Lanka, Malaysia, Indonesia, Gulf of Thailand, China and southern Korean Peninsula (Fig. 161).

**Habitat and Biology:** Benthopelagic, in coastal waters down to about 80 m depth, often comes near surface at night. Feeds on a wide variety of small fish, squid and crustaceans.

**Size:** Maximum 70 cm total length, common 20 to 50 cm.

**Interest to Fisheries:** Caught mainly with shore seines, bag nets and coastal bottom trawls in coastal waters down to about 50 m in West Bengal to Madras in the east coast of India and around Bombay in the west coast of India. Marketed mostly dried and salted, mixed with other trichiurids, sometimes fresh.

**Local Names:** JAPAN: Oshiroidachi; MALAYSIA: Seleyur, Timah-timah; THAILAND: Smallhead ribbonfish.

**Literature:** Tucker (1956); James (1961, 1967); Nakamura (1984a,b).

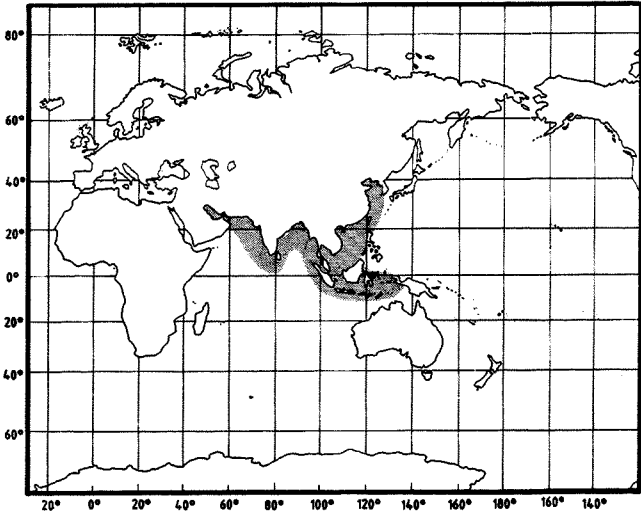


Fig. 161

*Evoxymetopon* Gill, 1863

TRICH Evox

*Evoxymetopon* Gill, 1863:227. Type species, *Evoxymetopon taeniatus* Gill, 1863, by monotypy.

**Synonyms:** None

**Diagnostic Features:** Body elongate, deep and remarkably compressed. Upper profile of head convex steeply rising from tip of snout to dorsal-fin origin forming a prominent sagittal crest. Posterior end of gill cover broadly rounded. First anal-fin spine scale-like in shape; pelvic fins present, scale-like; small caudal fin present.

**Biology, Habitat and Distribution:** Little information is known about the biology of this genus. Benthopelagic on continental shelf and slope, seems to be abundant in sea mountain areas.

**Interest to Fisheries:** No special fishery for species of this genus.

**Species:** Two species recognized thus far.

**Key to Species of *Evoxymetopon*:**

- 1 a. First dorsal-fin spine elongated; nostril slit-like; body depth 12.5 to 13.5 times in standard length ..... *Evoxymetopon poeyi*
- 1 b. First dorsal-fin spine not elongated; nostril crescent; body depth 11.5 to 12.5 times in standard length ..... *Evoxymetopon taeniatus*

*Evoxymetopon poeyi* Günther, 1887

Fig. 162

TRICH Evox 1

*Evoxymetopon poeyi* Günther, 1887:39, pl. 43 (Mauritius, Indian Ocean).

**Synonyms:** None

**FAO Names:** **En** - Poey's scabbardfish; **Fr** - Poisson sabre latte; **Sp** - Tajali de Poey.

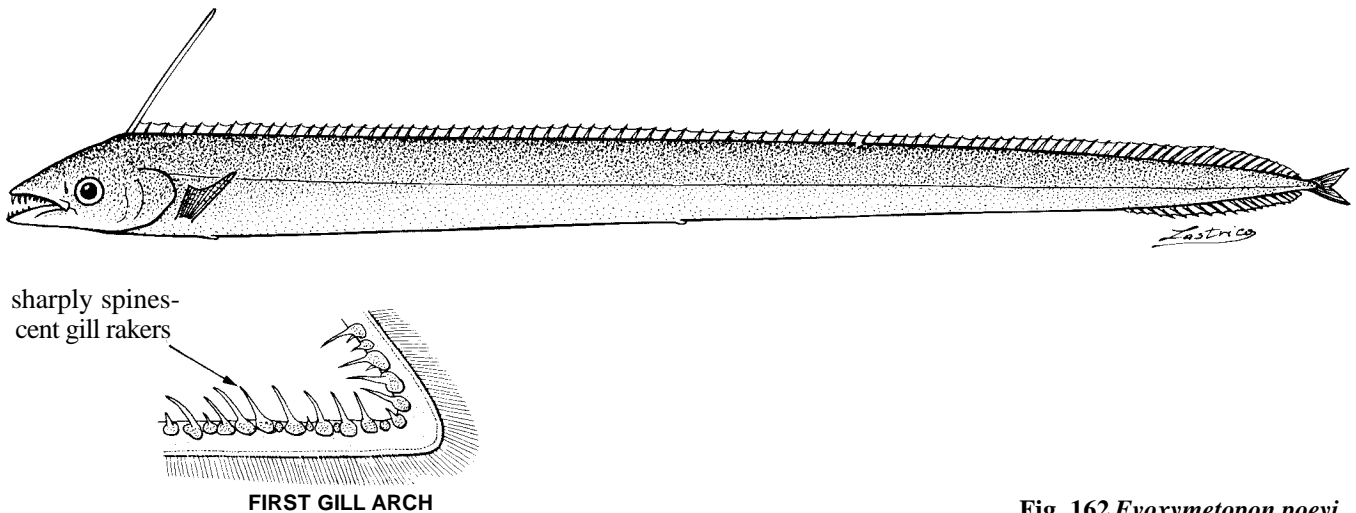


Fig. 162 *Evoxymetopon poeyi*

**Field Characters:** First spine of dorsal fin elongate. Pectoral fins triangular in shape.

**Diagnostic Features:** Body elongate and compressed; body depth 12.5 to 13.5 times in standard length. Head length 7.5 to 8.5 times in standard length; upper profile of head rather straight; a slit-like nostril present; mouth large, not protractile; 3 pairs of large fangs in anterior end of upper jaw (3 of them often lost), 1 pair of small fangs in lower jaw; sharp conical teeth in both jaws, upper (about 30) larger and more sparsely arranged than lower (about 40); tongue slender with many irregular villiform tooth patches; vomer edentate, fine uniserial canine teeth on palatine. Gill rakers sharply spinescent. Dorsal-fin elements 91 to 93, first dorsal-fin spine elongate; first anal-fin ray scale-like, other rays embedded; pectoral fins situated low, rather small and acute triangular in shape with shorter anterior rays and longer posterior rays; pelvic fins reduced to scale-like spines. Lateral line fairly straight, situated mid-laterally or slightly nearer ventral contour than dorsal contour. No scales. **Colour:** Body silvery white, all fins pale brown; opercle lining blackish.

**Geographical Distribution:** In the Indian Ocean reported from Mauritius, and in the West Pacific Ocean, reported from Okinawa and Kyushu-Palau Ridge (Fig. 163).

**Habitat and Biology:** Benthopelagic, seems to be abundant in sea mountain areas, sometimes near shore. Feeds on rather large fishes (species of *Priacanthus*, *Decapterus*, *Emmelichthys* etc.) in Kyushu Palau-Ridge.

**Size:** Maximum 200 cm standard length, common 130 to 180 cm.

**Interest to Fisheries:** No special fishery for this species. Sometimes marketed fresh in Okinawa when caught.

**Local Names:** JAPAN: Hatatateyume-tachimodoki, Hirenaga-yumetachi.

**Literature:** Tucker (1956); Abe and Asai (1975); Nakamura (1982b, 1984b).

**Remarks:** Tucker (1956) reported that differences between *E. poeyi* and *E. taeniatus* are probably due to sex, growth stages or damage of the specimens described. Nakamura (1982b) recognized both species to be valid.

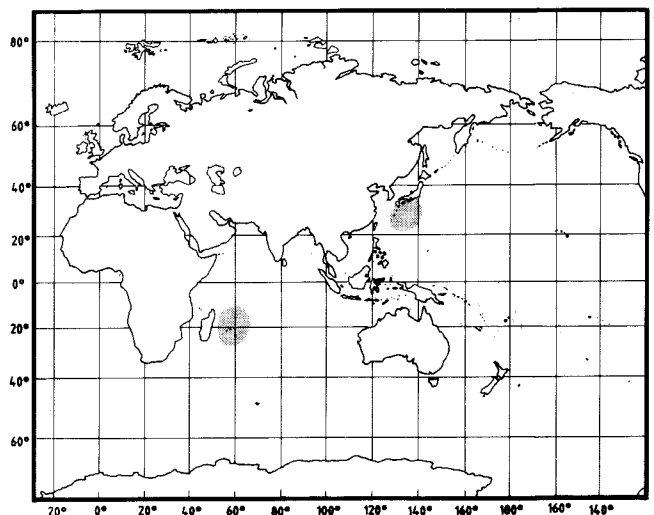
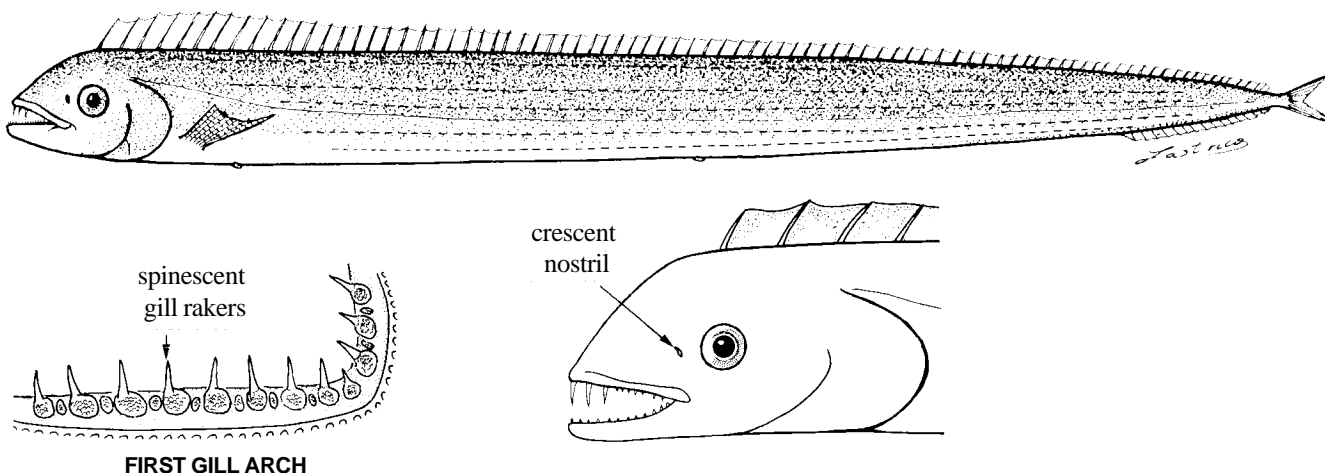


Fig. 163

*Evoxymetopon taeniatus* Gill, 1863

Fig. 164

TRICH Evox 2

*Evoxymetopon taeniatus* Gill, 1863:228 (Havana, Cuba).**Synonyms:** None**FAO Names:** **En** - Channel scabbardfish; **Fr** - Poisson sabre canal; **Sp** - Tajali de canal.Fig. 164 *Evoxymetopon taeniatus***Field Characters:** First spine of dorsal fin not elongate. Pectoral fins triangular in shape.

**Diagnostic Features:** Body elongate and compressed; body depth 11.5 to 12.5 times in standard length. Head length 7.5 to 8.0 times in standard length; upper profile of head convex; a crescent nostril in front of eye; mouth large, not protractile; lower jaw slightly anterior to upper jaw; several fangs in anterior end of upper jaw and a pair of fangs in lower jaw; lateral teeth in both jaws sharp and conical; vomer edentate and fine uniserial canine teeth on palatine. Gill rakers spinescent. Dorsal-fin elements 81 to 88, first dorsal-fin spine not elongate; first anal-fin ray scale-like, other rays ordinal and short; pectoral fins situated low, rather small and triangular in shape with shorter anterior rays and slightly longer posterior rays; pelvic fins reduced to a scale-like spine. Lateral line fairly straight, situated mid-laterally or slightly nearer ventral contour than dorsal contour. No scales. **Colour:** Body silvery white with slight red-brownish on dorsal part; several longitudinal pale yellow stripes on body; fin membrane of anterior part blackish and posterior part semitransparent in first dorsal fin.

**Geographical Distribution:** In the Atlantic Ocean from the Bahamas, Caribbean Sea and off southern Brazil (specimens at Institut für Seefischerei, Universität Hamburg (ISH) were collected from 24°40'S, 44°35'W) and in the Pacific Ocean from Cheju Do Island (south of Korean Peninsula) (Fig. 165).

**Habitat and Biology:** Benthopelagic on the continental slope, and sometimes the continental shelf.

**Size:** Maximum 200 cm standard length, common 130 to 180 cm.

**Interest to Fisheries:** No special fishery for this species.

**Local Names:** CUBA: Triante, Tyrant fish; JAPAN: Yumetachimodoki; KOREA: Dong-dong-gal-chi.

**Literature:** Uchida (1940); Tucker (1956); Duarte-Bello (1959); Parin and Mikhailin (1981); Nakamura (1984b).

**Remarks:** See *E. poeyi*.

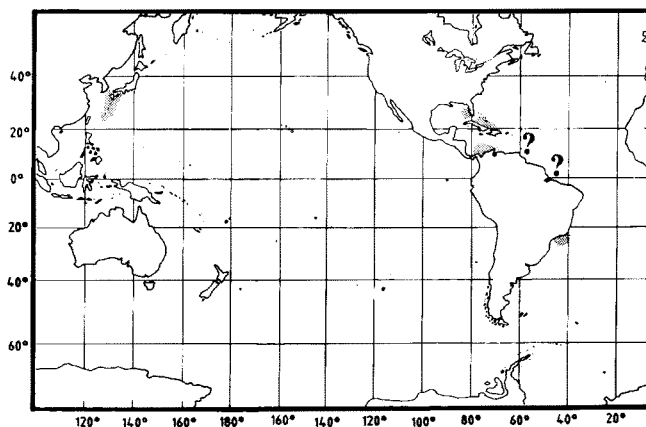


Fig. 165

*Lepidopus* Goüan, 1770

TRICH Lepid

*Lepidopus* Goüan, 1770:107, 185. Type species, *Lepidopus gouanianus* Lacepede, 1800 = *Trichiurus caudatus* Euphrasen, 1788, by subsequent monotypy or subsequent designation (see Eschmeyer, 1990).

**Synonyms:** *Vandellius* Shaw, 1803. *Scarcina* Rafinesque, 1810. *Ziphoteca* Montague, 1811.

**Diagnostic Features:** Body elongate and compressed. Head length 4.2 to 6.8 times in standard length; upper head profile slightly concave to slightly convex, gently rising from tip of snout to dorsal-fin origin; frontal crests converging from before middle of orbits to behind their rear margins; sagittal crest, if present, confined to nape (beginning between orbits in *Lepidopus* sp.); lower jaw projects anterior to upper jaw; lower hind margin of gill cover convex; eyes fairly large, situated near dorsal contour; interorbital space concave to convex; tips of both jaws usually with a short dermal process; jaw dentition including anterior fangs (3 to 6 in upper jaw and a pair in lower jaw) and smaller lateral teeth. Dorsal fin with VII to X weak anterior spines hardly differing from subsequent soft rays; first anal-fin spine rudimentary, second spine moderate to strong; pectoral fins with 12 soft rays, subtriangular, anterior rays shorter than posterior soft rays; pelvic fins with 1 small scale-like spine and 1 to 2 tiny soft rays, inserted behind end of pectoral-fin base; small forked caudal fin present. Lateral line slowly descending from above gill opening to mid-lateral position.

**Biology, Habitat and Distribution:** Benthopelagic at shelf and upper slope. Distributed throughout all oceans.

**Interest to Fisheries:** See species.

**Species:** Six species recognized (Parin and Collette, 1992).

**Illustrated Key to Species of *Lepidopus*:**

- 1a. Posterior confluence of frontal crests before middle of orbits; sagittal crest begins in interorbital region; interorbital space strongly convex; orbits relatively far from dorsal profile (Fig. 168) ..... *Lepidopus* sp.
- 1b. Posterior confluence of frontal crests behind middle of orbits; sagittal crest, if present, confined to nape; interorbital space usually concave or flat (convex only in *L. dubius*); orbits nearly touching dorsal profile (Fig. 166 and 167) ..... → 2

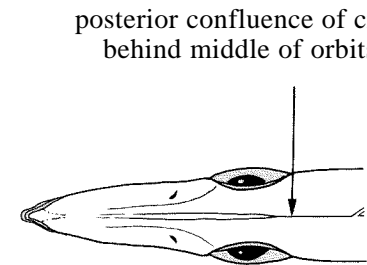


Fig. 166 Dorsal view of head

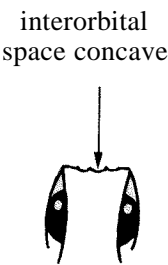


Fig. 167 Front view of  
upper head

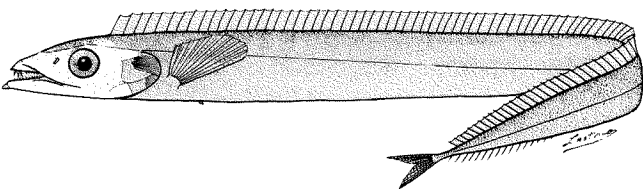


Fig. 168 *Lepidopus* sp.

- 2a. Upper head profile concave; dorsal-fin elements 91 to 110; vertebrae total 98 to 114 ..... → 3
- 2b. Upper head profile slightly convex; dorsal-fin elements 78 to 89; vertebrae total 82 to 96 ..... → 4

- 3a. Second anal-fin spine spur-like, longer than pupil; dorsal-fin elements 91 to 93, anal-fin soft elements 44 to 47; vertebrae total 98 to 100 (Fig. 169) ..... *L. calcar*
- 3b. Second anal-fin spine plate-like, twice or more shorter than pupil; dorsal-fin elements 98 to 110, anal-fin soft elements 59 to 66; vertebrae total 105 to 114 (Fig. 170) ..... *L. caudatus*

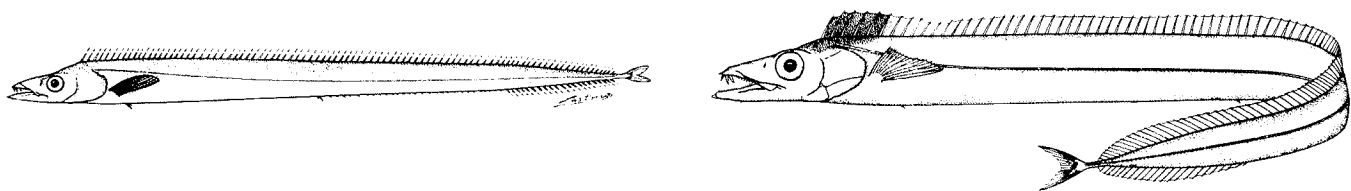


Fig. 169 *L. calcar*

Fig. 170 *L. caudatus*

- 4a. Interorbital space convex, sagittal crest confined to nape; head length 6.4 to 6.8 times in standard length; body depth 16 to 18 times in standard length; second anal-fin spine cardiform, equal to length of pupil ..... *L. dubius*
- 4b. Interorbital space concave, no sagittal crest; head length 4.2 to 5.5 times in standard length; body depth 9 to 13 times in standard length; second anal-fin spine plate-like, shorter than length of pupil .....→ 5  
sagittal crest confined to nape

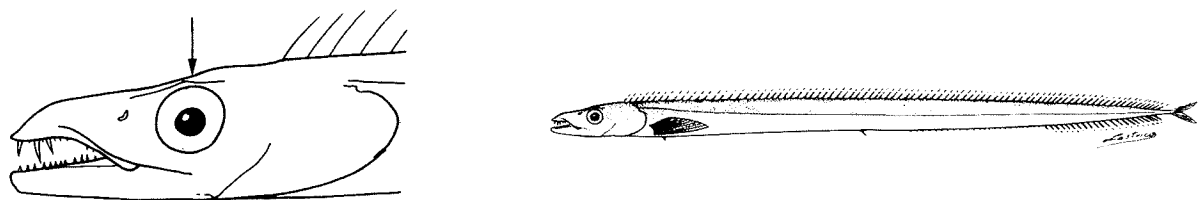


Fig. 171 *L. dubius*

- 5a. Eye diameter 4.9 to 6.2 times in head length; caudal-fin span less than length of upper caudal-fin lobe; dorsal-fin elements 78 to 87; vertebrae total 82 to 93 ..... *L.fitchi*
- 5b. Eye diameter about 4.0 times in head length; caudal-fin span greater than length of upper caudal-fin lobe; dorsal-fin elements 89; vertebrae total 94 ..... *L. manis*

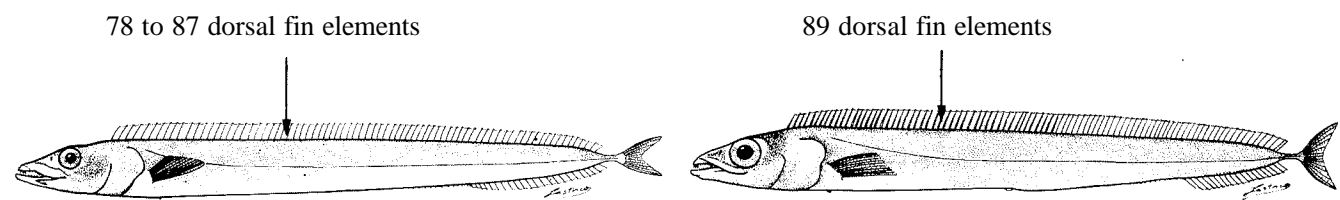


Fig. 172 *L. fitchi*

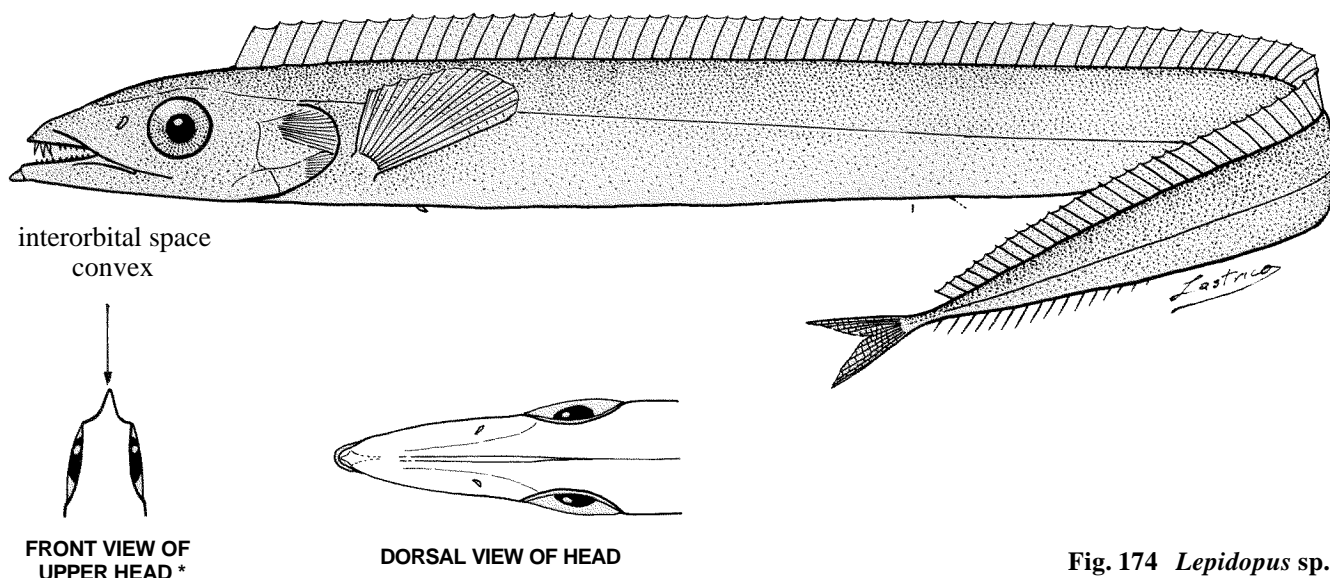
Fig. 173 *L. manis*

***Lepidopus* sp.****TRICH Lepid 6**

(to be described by Parin and Collette, 1993 in Archiv. Fischereiwiss.)

**Synonyms:** None.

**FAO Names:** **En** - Crested scabbardfish; **Fr** - Poisson sabre crénelé; **Sp** - Pez cinto encrestado.



**Fig. 174** *Lepidopus* sp.  
(adapted from Tucker, 1957)

\* (after Parin and Mikhailin, 1981)

**Field Characters:** Body silvery to brownish, darker along lateral line. Interorbital space strongly convex.

**Diagnostic Features:** Body elongate and compressed; body depth 10.9 to 13.0 times in standard length; anus situated below 36th to 40th soft dorsal-fin ray. Head length 5.9 to 6.5 times in standard length; snout length 2.5 to 2.7 times in head length; upper head profile almost straight, gently rising from snout to dorsal-fin origin; posterior confluence of frontal crests before middle of orbits; sagittal crest prominent, extending through nape; orbits far, not reaching upper profile, interorbital space strongly convex; eye diameter 4.9 to 5.1 times in head length; interorbital width 1.6 to 1.8 times in eye diameter; upper jaw length 2.8 to 3.0 times in head length; lateral teeth 15 to 20 in maxillary, 15 to 21 in dentary; a few teeth on palatines. Gill rakers 17 or 18. Dorsal-fin elements 90 to 96; anal fin with 11 spines, the second spine flat, triangular, twice shorter than the distance from its origin to anus inserted below 37th to 40th dorsal-fin soft ray, and 52 to 58 soft rays, posterior 19 to 23 connected by membrane; pelvic fins inserted below 9th to 10th dorsal-fin soft ray, about half eye diameter behind posterior end of pectoral-fin base. Pyloric caeca about 20. Vertebrae total 98 to 107, including 37 to 40 precaudal and 61 to 67 caudal. **Colour:** Body silvery to brownish, darker along lateral line; inside of gill cavity black.

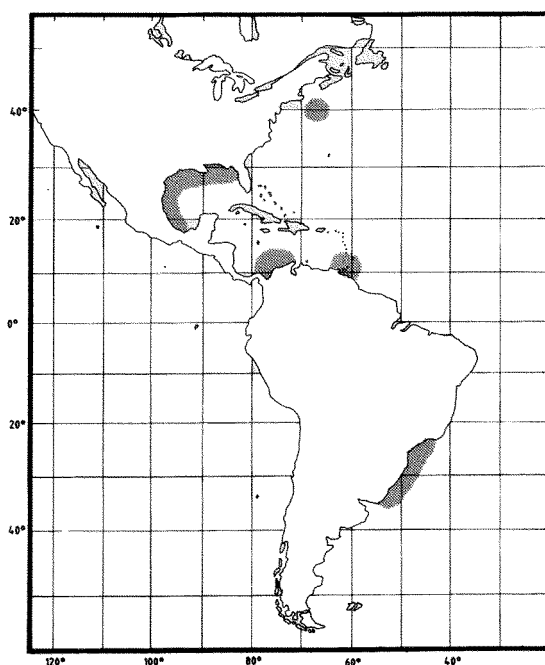
**Geographical Distribution:** Western Atlantic Ocean from 43°N off the Scotian Shelf to 35°S off southern Brazil (Fig. 175).

**Habitat and Biology:** Benthopelagic from 200 to 500 m, juveniles pelagic.

**Size:** Maximum 66 cm standard length.

**Interest to Fisheries:** No data available. **Local Names:**

**Literature:** Tucker (1957, as *Evoxymetopon taeniatus*); Parin and Mikhailin (1981, as *Lepidopus* sp.).

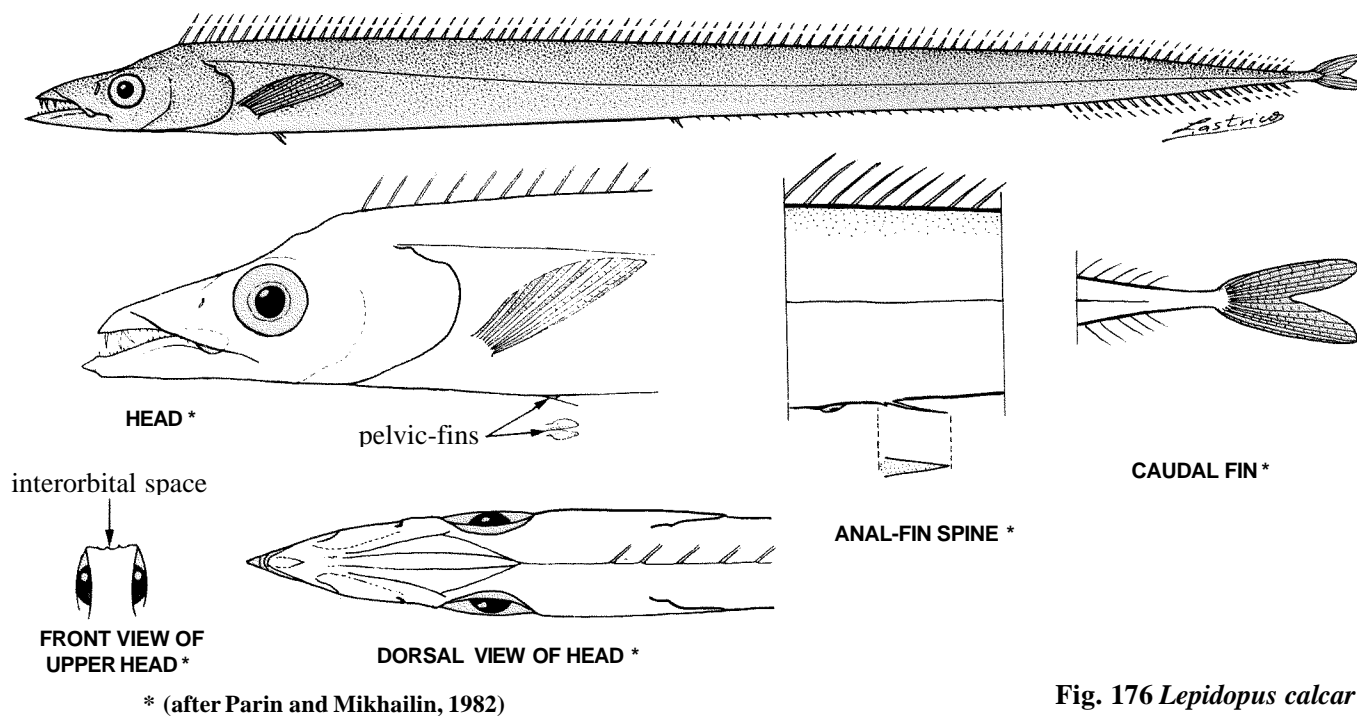


**Fig. 175**

*Lepidopus calcar* Parin and Mikhailin, 1982

Fig. 176

TRICH Lepid 2

*Lepidopus calcar* Parin and Mikhailin, 1982a:27 (Colahan Seamount, Hawaiian Ridge).**Synonyms:** None.**FAO Names:** **En** - Hawaiian ridge scabbardfish; **Fr** - Poisson sabre hawaïien; **Sp** - Pez cinto expolín.Fig. 176 *Lepidopus calcar***Field Characters:** Body dark brown. Second anal-fin spine stout, spur-like, longer than pupil of eye.

**Diagnostic Features:** Body elongate and compressed; body depth 10.5 to 13.9 times in standard length; anus situated below 40th to 43th dorsal-fin ray. Head length 5.9 to 6.4 times in standard length; snout length 2.5 to 2.6 times in head length; upper head profile oblique-concave, rising gently from tip of snout to middle of orbits and more steeply to dorsal origin; posterior confluence of frontal ridges before rear margin of orbits; sagittal crest confined to nape; orbits nearly touching upper profile, interorbital space slightly concave; eye diameter 4.7 to 5.1 times in head length; interorbital width 1.7 to 1.8 times in eye diameter; upper jaw length 2.8 times in head length; lateral teeth 15 to 17 in maxillary, 15 to 19 in dentary; teeth present on palatines. Gill rakers 13 to 16. Dorsal-fin elements 91 to 93; anal fin with 11 spines, second spur-like, very stout, 1.7 to 1.8 times longer than distance from its origin to anus, (inserted below 44th to 45th dorsal-fin soft ray), 44 to 47 soft rays, posterior 10 to 20 soft rays connected by membrane; pelvic fins inserted below seventh to eighth dorsal-fin soft ray with a distance of 0.6 to 0.7 times eye diameter behind posterior end of pectoral base. Pyloric caeca 18. Vertebrae total 98 to 100, including 43 to 44 precaudal and 54 to 57 caudal. **Colour:** Body dark brown, much paler below (might be silvery iridescent in life); opercle black, inside of mouth and gill cavities black.

**Geographical Distribution:** So far recorded only from type locality at Colahan Seamount of Hawaiian Submarine Ridge (31°01'N, 175°53'W) (Fig. 177).

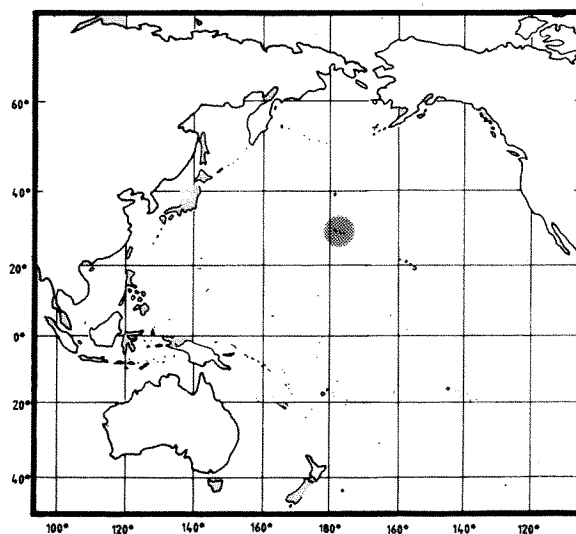


Fig. 177

**Habitat and Biology:** Benthopelagic from 270 to 350 m.

**Size:** Maximum 79 cm standard length (known from 3 specimens).

**Interest to Fisheries:** No data available.

**Local Names:**

**Literature:** Borets (1986).

*Lepidopus caudatus* (Euphrasen, 1788)

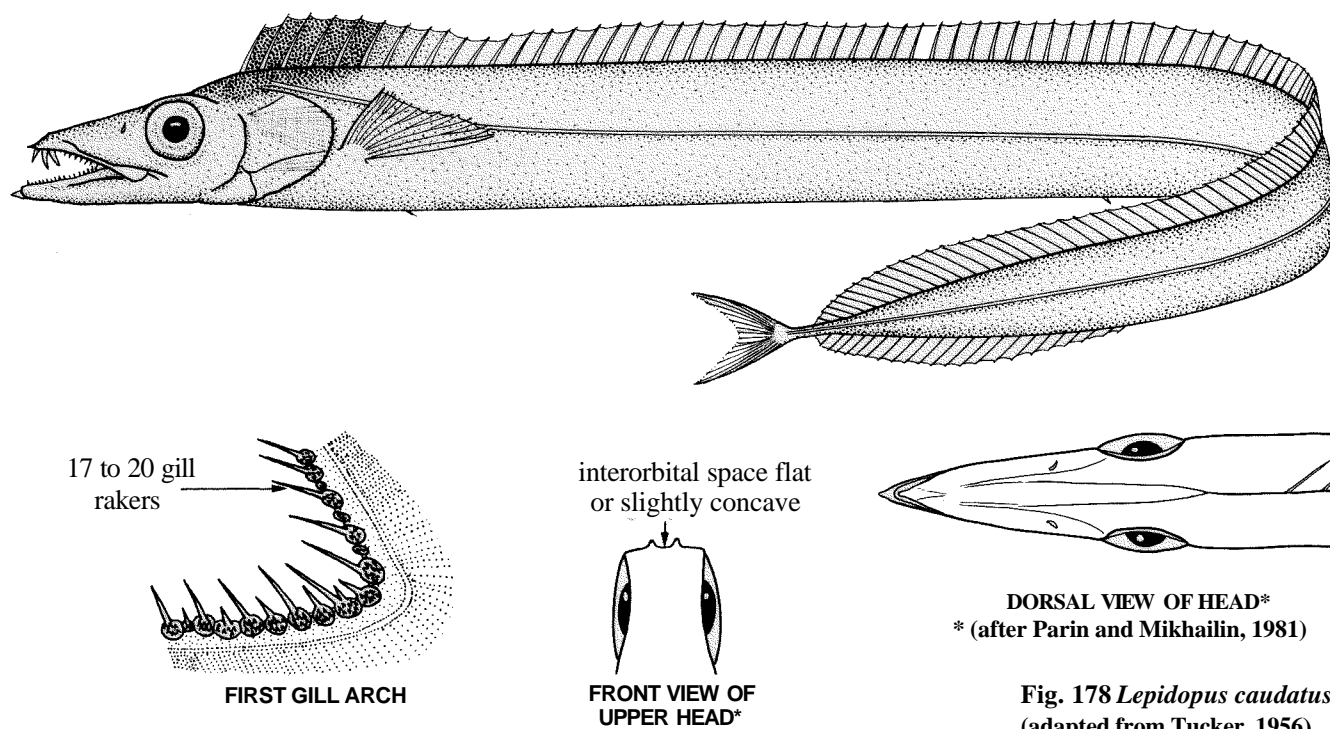
Fig. 178

TRICH Lepid 1

*Trichiurus caudatus* Euphrasen, 1788:52, pl. 9 (Cape of Good Hope).

**Synonyms:** *Lepidopus argenteus* Bonnaterre, 1788. *Trichiurus ensiformis* Vandelli, 1797. *Lepidopus gouanianus* Lacepède, 1800. *Trichiurus gladius* Holten, 1802. *Vandellius lusitanicus* Shaw, 1803. *Lepidopus peronii* Risso, 1810. *Scarcina argyrea* Rafinesque, 1810. *Ziphotheca tetradens* Montague, 1811. *Lepidopus xantusi* Goode and Bean, 1895. *Lepidopus lex* Phillips, 1932.

**FAO Names:** En - Silver scabbardfish; Fr - Sabre argenté (Sabre in Area 37); Sp - Pez cinto.



DORSAL VIEW OF HEAD\*  
\* (after Parin and Mikhailin, 1981)

Fig. 178 *Lepidopus caudatus*  
(adapted from Tucker, 1956)

**Field Characters:** Body uniformly silvery. Second anal-fin spine plate-like, twice or more shorter than pupil.

**Diagnostic Features:** Body elongate and compressed; body depth 10.9 to 15.4 times in standard length; anus situated below 36th to 40th dorsal-fin soft ray. Head length 5.7 to 6.8 times in standard length; snout length 2.4 to 2.7 times in head length; upper head profile oblique concave, rising gently from tip of snout to middle of orbits and more steeply to dorsal origin; posterior confluence of frontal ridges behind rear margin of orbits; sagittal crest confined to nape; orbits nearly touching dorsal profile, interorbital space flat or slightly concave; eye diameter 4.9 to 6.1 times in head length; interorbital width 1.3 to 1.6 times in eye diameter; upper jaw length 2.7 to 3.0 times in head length; palatine teeth present. Gill rakers 17 to 20. Dorsal-fin elements 98 to 110; anal fin with 11 spines, second plate-like or triangular, shorter than pupil, (inserted below 38th to 42nd dorsal-fin soft ray), 59 to 66 soft rays, posterior 15 to 24 soft rays connected by membrane; pelvic fins inserted below eighth to ninth dorsal-fin soft ray, about 1 eye diameter behind posterior end of pectoral-fin base. Pyloric caeca 20 to 29. Vertebrae total 105 to 114, including 38 to 44 precaudal and 65 to 72 caudal. **Colour:** Body uniformly silvery; dorsal fin blackish grey (in North Atlantic populations) or with black margin of membrane between first 3 soft dorsal-fin rays and seventh to ninth soft rays (in South Hemisphere populations).



**Geographical Distribution:** Eastern North Atlantic from France to Senegal, including Azores, Madeira, Canaries and offshore seamounts, western Mediterranean (individual stragglers as far north as Iceland and east to Black Sea), off South Africa from Cape Frio to Agulhas Bank, including northern Walvis Ridge, seamounts in southern Indian Ocean along 30 to 35°S, Australia from New South Wales to southern West Australia, and New Zealand (Fig. 179). A doubtful record from Cape San Lucas, Mexico (Rosenblatt and Wilson, 1987).

**Habitat and Biology:** Benthopelagic on continental shelf, along its edge and upper slope down to 400 m (600 m in Australia), usually over sandy and muddy bottoms from 100 to 250 m (over 300 m in Australia). Migrates into midwater at night. Occasionally found inshore in upwelling of deep water when it appears at surface. Schooling species. Feeds on crustaceans, small squid and fish. In the southern East Atlantic the most important forage items are *Euphausia hanseni*, *E. luceus*, *Pasiphaea semispinosa*, *Sergesthes* spp., *Todaropsis eblanae*, *Engraulis capensis*, *Etrumeus terres*, *Sardinops ocellata*, *Maurolicus muelleri*, *Symbolophorus humboldti*, *Diaphus dumerili*, *Lampanyctodes hectoris*, *Chlorophthalmus* sp. and *Scomber japonicus* (Mikhailin, 1978). Attains length of 125 cm at 9 years of age in southern East Atlantic and 160 cm at age of 13 years in northern East Atlantic (Mikhailin, 1976a). Spawns from end of winter to early spring off North African coast (Wheeler, 1969) and spring to autumn in New Zealand waters (Robertson, 1980).

**Size:** Maximum 205 cm standard length and about 8 kg weight in eastern North Atlantic, usually 100 to 135 cm and 1.0 to 2.3 kg.

**Interest to Fisheries:** Important commercial fish species in the eastern North Atlantic, mainly off Portugal and Morocco. Also caught by trawls off Namibia and New Zealand. World annual catches varied in 1985 to 1990 from 7 839 to 21 748 t (FAO, 1992). Flesh excellent.

**Local Names:** AUSTRALIA: Southern frostfish; FRANCE: Sabre; GERMANY: Degenfisch; GREECE: Spadopsaro; ITALY: Pesce sciabola; MALTA: Fjamma; NEW ZEALAND: Scabbard fish, Frostfish; PORTUGAL: Espada branca; RUSSIA: Lepidop; SPAIN: Espadiella; SOUTH AFRICA: Bottersnoek, Buttersnoek; UK: Frostfish, Scabbard fish; YUGOSLAVIA: Zmijicnjak repas.

**Literature:** Tucker (1956); Wheeler (1969); Mikhailin (1977); Scott et al. (1980); Last et al. (1983); Duhamel (1984); Portsev and Nikolaev (1984); Nakamura (1986c, 1990a); May and Maxwell (1986); Parin (1986, 1990c); Rosenblatt and Wilson (1987); Shcherbachev et al. (1989).

**Remarks:** Comparisons of populations of the main distributional areas, that is, the eastern North Atlantic-Mediterranean, South Africa, southern Indian Ocean and Australia-New Zealand, have never been based on adequate material. However, samples from southwest Africa (304 specimens) and the Azores (102 specimens) differ significantly in dorsal-fin pigmentation (see above) and meristic characters (Mikhailin, 1977). Surprisingly, Mikhailin's samples (if they were not mislabelled) from Gettysburg Seamount (36°22'N, 11°37'W) agree with the southern population in vertebral and dorsal counts. Morphometric studies of *L. caudatus* require further elaboration.

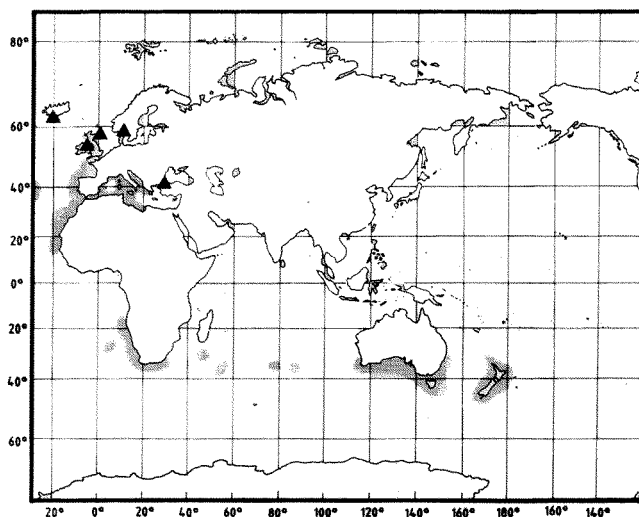


Fig. 179

*Lepidopus dubius* Parin and Mikhailin, 1981

Fig. 180

TRICH Lepid 3

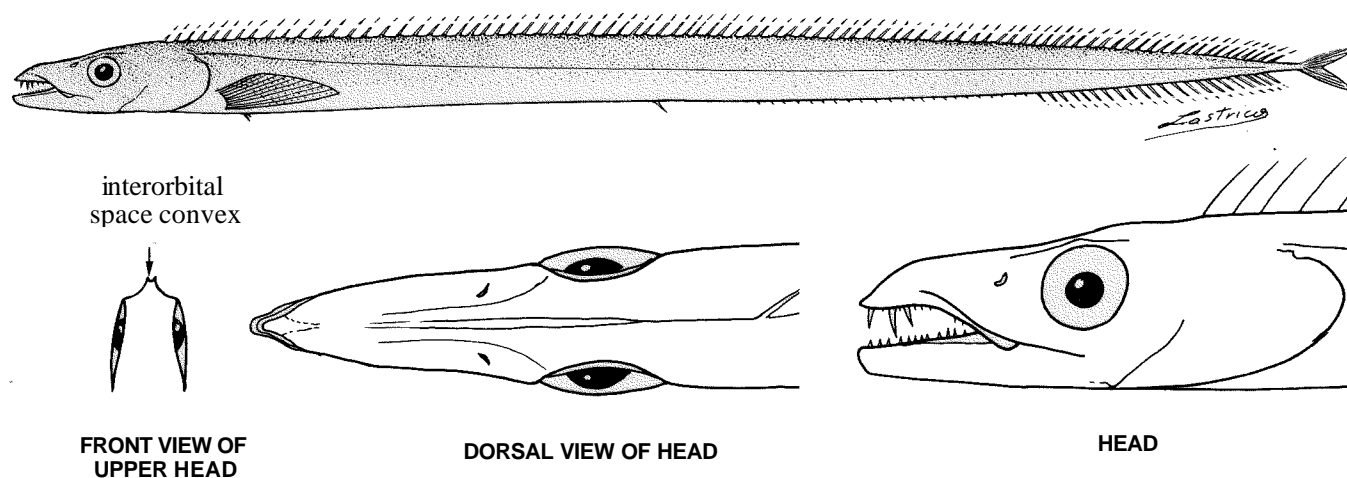
*Lepidopus dubius* Parin and Mikhailin, 1981:403, fig. 1 (off Angola, East Atlantic Ocean).**Synonyms:** None.**FAO Names:** **En** - Doubtful scabbardfish; **Fr** - Poisson sabre énigme; **Sp** - Pez cinto enigma.

Fig. 180 *Lepidopus dubius*  
(adapted from Parin and Mikhailin, 1981)

**Field Characters:** Body silvery, edges of jaws and opercle blackish. Interorbital space convex. Sagittal crest confined to nape.

**Diagnostic Features:** Body elongate and compressed; body depth 16.4 to 18.5 times in standard length; anus situated below 33th to 35th soft dorsal-fin ray. Head length 6.4 to 6.8 times in standard length; snout length 2.6 to 2.8 times in head length; upper head profile slightly convex, rising very gently from snout to nape; posterior confluence of frontal ridges before rear margin of orbits, sagittal crest confined to nape; orbits nearly touching upper profile, interorbital space strongly convex; eye diameter 5.3 to 5.6 times in head length; interorbital width 1.7 to 1.9 times in eye diameter; upper jaw length 2.8 to 3.2 times in head length; lateral teeth 15 to 20 in maxillary, 11 to 17 in dentary; a few teeth on palatines. Dorsal-fin elements 85 to 89 (rarely 83); anal fin with 11 spines, second spine weak, cardiform and a little longer than the distance from its origin to anus (inserted below 35th to 37th dorsal-fin soft ray), 48 to 53 soft rays, posterior 20 to 25 soft rays connected by membrane; pelvic fins inserted below seventh to ninth dorsal-fin soft ray, about an eye diameter behind posterior end of pectoral-fin base. Pyloric caeca 13. Vertebrae total 91 to 96, including 33 to 37 precaudal and 55 to 61 caudal. **Colour:** Body silvery; edges of jaws and opercle blackish.

**Geographical Distribution:** Along shores of West Africa from Equator to 14°30'S (Fig. 181).

**Habitat and Biology:** Benthopelagic from 320 to 495 m, juveniles epi- to mesopelagic from 20 to 220 m.

**Size:** Maximum known standard length is 43 cm.

**Interest to Fisheries:** No data available.

**Local Names:**

**Literature:** Parin et al. (1978, as *Evoxymetopon taeniatus* ?); Parin (1990c).

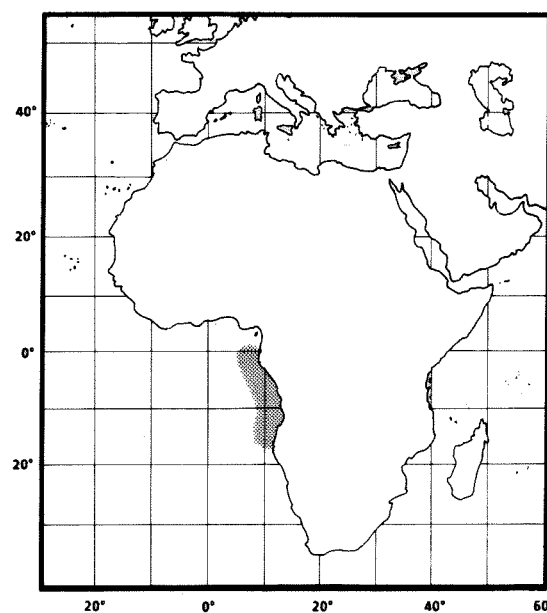
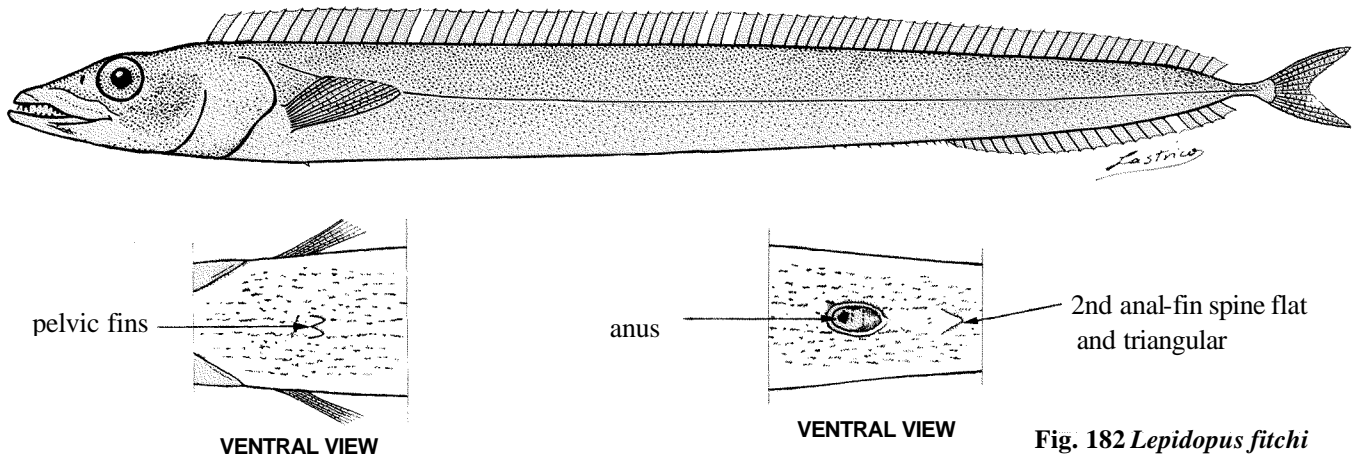


Fig. 181

*Lepidopus fitchi* Rosenblatt and Wilson, 1987

Fig. 182

TRICH Lepid 4

*Lepidopus fitchi* Rosenblatt and Wilson, 1987:348, fig. 6 (North Coronado Island, Baja California Norte, Mexico).**Synonyms:** None.**FAO Names:** **En** - Fitch's scabbardfish; **Fr** - Poisson sabre yatagan; **Sp** - Fez cinto de Fitch.Fig. 182 *Lepidopus fitchi*

(adapted from Rosenblatt and Wilson, 1987)

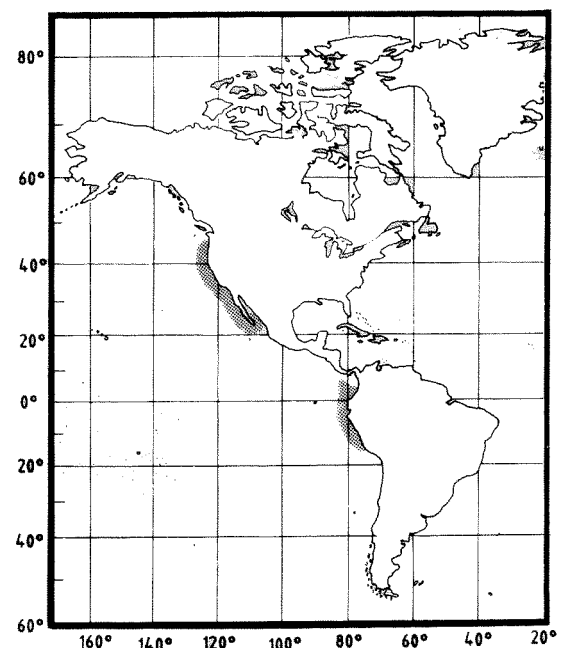
**Field Characters:** Body black or brown with a silvery sheen along abdomen. Caudal span less than length of upper caudal-fin lobe.**Diagnostic Features:** Body moderately elongate and compressed; body depth 9.2 to 13.3 times in standard length; anus situated below 35th or 36th dorsal-fin ray. Head length 4.2 to 5.5 times in standard length; snout length 2.7 to 3.1 times in head length; upper head profile slightly convex, rising gently from snout to dorsal-fin origin; posterior confluence of frontal crests just behind rear margin of orbits; sagittal crest absent; orbit touching dorsal profile; interorbital space slightly concave; eye diameter 4.9 to 6.0 times in head length; interorbital width 1.3 to 1.8 times in eye diameter; upper jaw length 2.7 to 3.4 times in head length; lateral teeth 20 to 27 in maxillary, 18 to 30 indentary; a few teeth on palatines. Gill rakers 12 to 17. Dorsal-fin elements 78 to 87; anal fin with 11 spines, second spine flat, triangular, much shorter than distance from its origin to anus, inserted below 37th to 38th dorsal-fin soft ray, 41 to 50 soft rays, posterior 23 to 27 connected by membrane; pelvic fins inserted below eighth to ninth dorsal-fin soft ray, less than eye diameter behind posterior end of pectoral-fin base; caudal fin lunate, its span less than length of upper caudal-fin lobe. Pyloric caeca 16 to 18. Vertebrae total 84 to 93, including 32 to 37 precaudal and 48 to 57 caudal. **Colour:** Body black or brown with a silvery shine along abdomen.**Geographical Distribution:** Eastern Pacific Ocean from Cape Kiwanda, Oregon (45°N) to Gulf of California and from 5°N to southern Peru (Fig. 183).**Habitat and Biology:** Benthopelagic from 175 to 500 m, juveniles epipelagic at upper 150 m. Apparently schooling species. Feeds on euphausiids and small fishes, including *Engraulis mordax* and juvenile *Merluccius productus*. Attains a length of 80 to 90 cm at 11 to 18 years (Fitch and Gotshall, 1972).**Size:** Maximum 102 cm standard length and 1.4 kg.**Interest to Fisheries:** No special fishery for this species, but a catch of 1 360 kg was once taken by otter trawl at 250 m off Newport Beach, California.**Local Names:** USA: Black scabbardfish.**Literature:** Fitch and Lavenberg (1968, as *L. xantusi*); Fitch and Gotshall (1972, as *L. xantusi*); Chirichigno (1974, as *L. xantusi*); Hubbs et al. (1979, as *L. xantusi*); Mikhailin (1982, as *L. xantusi*).

Fig. 183

**Remarks:** Northern and southern populations of *L. fitchi* differ in number of vertebrae, dorsal- and anal-fin soft rays (see Mikhailin, 1982; Rosenblatt and Wilson, 1987) and may warrant taxonomic recognition.

***Lepidopus manis*** Rosenblatt and Wilson, 1987

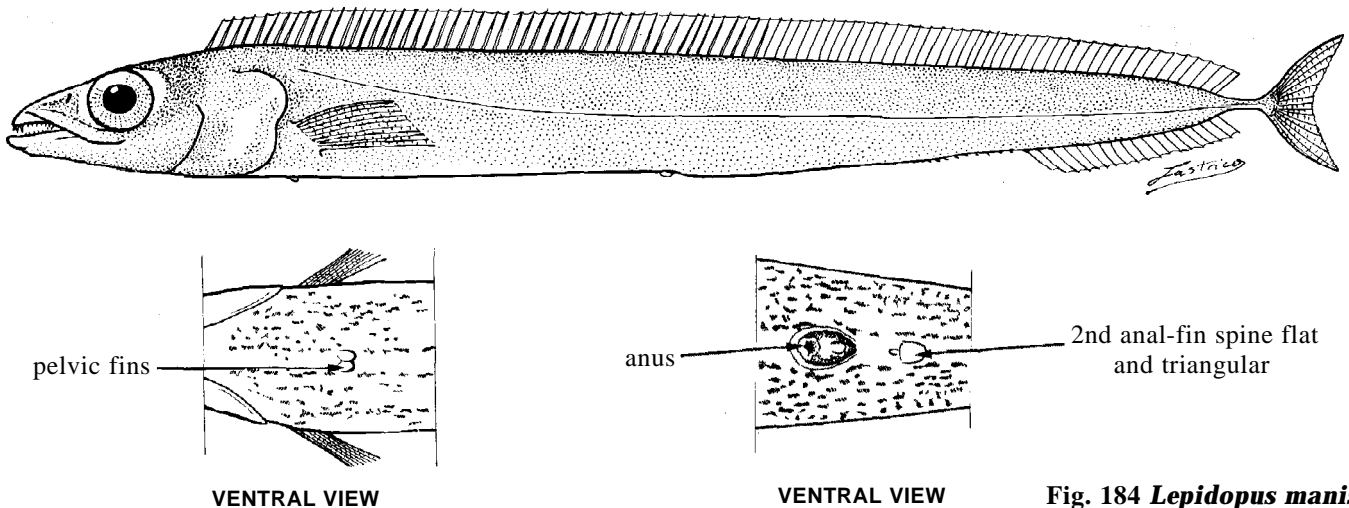
Fig. 184

**TRICH Lepid 5**

*Lepidopus manis* Rosenblatt and Wilson, 1987:344, fig. 5 (Isla Isabela, Galapagos Islands).

**Synonyms:** None.

**FAO Names:** **En** - Ghost scabbardfish; **Fr** - Poisson sabre fantôme; **Sp** - Pez cinto fantasma.



VENTRAL VIEW

**Fig. 184 *Lepidopus manis***

(adapted from Rosenblatt and Wilson, 1987)

**Field Characters:** Body light tan, head uniformly brown. Caudal-fin span greater than length of upper caudal-fin lobe.

**Diagnostic Features:** Body moderately elongate and strongly compressed; body depth 9.1 times in standard length. Head length 4.2 times in standard length; snout length 3.0 times in head length; upper head profile slightly convex, rising gently from tip of snout to dorsal-fin origin; posterior confluence of frontal ridges just behind rear margin of orbits; sagittal crest absent; orbits entering dorsal profile; interorbital space slightly concave; eye diameter 3.9 times in head length; interorbital width 1.8 times in eye diameter; upper jaw length 2.7 times in head length; lateral teeth 29 in maxillary, 26 in dentary; no palatine teeth. Gill rakers 24. Dorsal-fin elements 89; anal fin with II spines, second spine flat, plate-like, much shorter than the distance between its origin to anus, 50 soft rays, posterior 24 connected by membrane; pelvic fins inserted with a distance less than eye diameter behind posterior end of pectoral-fin base; caudal fin lunate, its span greater than length of upper caudal-fin lobe. Vertebrae total 94, including 37 precaudal and 57 caudal.

**Colour:** Body light tan, head uniformly brown.

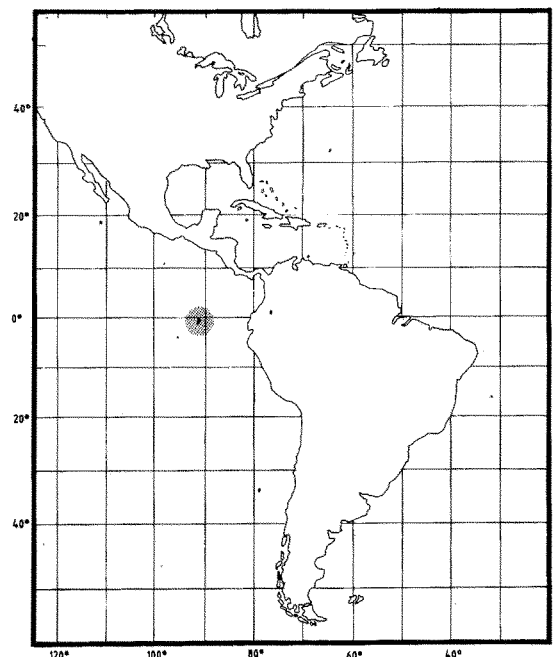
**Geographical Distribution:** Isla Isabela, Galapagos Islands (Fig. 185).

**Habitat and Biology:** Unknown (holotype found dead in a cove).

**Size:** 69 cm standard length (species known only from holotype).

**Interest to Fisheries:** No data available.

**Local Names:**



**Fig. 185**