

Benthodesmus Goode and Bean, 1882

TRICH Benth

Benthodesmus Goode and Bean, 1882:380. Type species, *Lepidopus elongatus* Clarke, 1879, by original designation (also monotypic).

Synonyms: None.

Diagnostic Features: Body extremely elongate and compressed. Head profile smooth, gently rising from tip of snout to origin of dorsal fin; frontal ridges not elevated, nape flattened without sagittal crest; lower hind margin of gill cover convex; lower jaw extends anterior to upper jaw; tips of both jaws with a short dermal process in larger specimens; jaw dentition includes anterior fangs and slightly compressed lateral teeth; no vomerine teeth; uniserial teeth present on palatines. Gill rakers on first arch spinescent. Dorsal fin long, with XXXI to XLVI spines and 68 to 112 soft rays (total 102 to 155 fin elements), partially divided by a shallow notch, base of spinous part about half as long as base of soft part; anal fin with II spines closely drawn together, the first rudimentary, completely concealed in adults, the second with a delicate cardiform shape, well detached from the rest of the fin, and 64 to 102 soft rays, external rays developed throughout or confined to posterior portion of the fin; pectoral fins with 12 soft rays; pelvic fins diminutive, composed of a scale-like spine and a rudimentary soft ray, inserted before, below or behind base of pectoral fins; small forked caudal fin present. **Colour:** Body silvery, jaws and opercle blackish. Inside of mouth and gill cavities black.

Biology, Habitat and Distribution: Benthopelagic, mostly at upper to middle continental slope (200 to 960 m), juveniles epi- to mesopelagic. Feeds on a variety of fish, squid and crustaceans. Distributed in all temperate and tropical oceans.

Interest to Fisheries: None.

Species: Eleven species, eight of which were recognized in recent revision (Parin and Becker, 1972). In addition, at least two undescribed species are known from juvenile specimens in the eastern tropical Pacific and off Ryukyu Islands. The possibility that *B. tenuis* represents a complex of different species is currently being studied by N. Parin.

Illustrated Key to Species of *Benthodesmus*:

- 1a. Pelvic fins inserted before or below pectoral-fin base (Fig. 124) → 2
- 1b. Pelvic fins inserted behind pectoral-fin base (Fig. 124) → 8

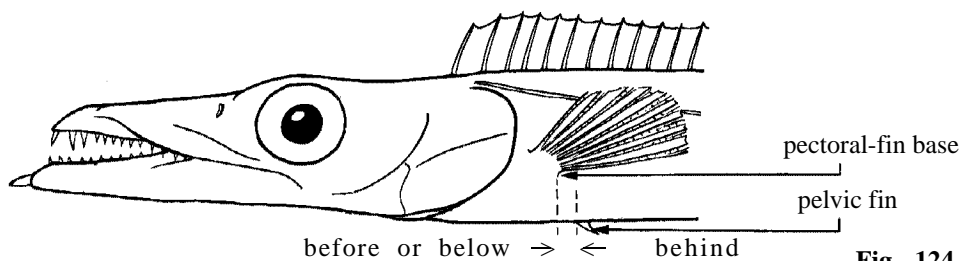


Fig. 124 Pelvic-fin position

- 2a. Dorsal-fin spines XXXI to XXXIV, total dorsal-fin elements 102 to 105; vertebrae total 105 to 109 *B. oligoradiatus*
- 2b. Dorsal-fin spines XXXIV to XLIV, total dorsal-fin elements 113 to 150; vertebrae total 119 to 155 (Fig.125) → 3

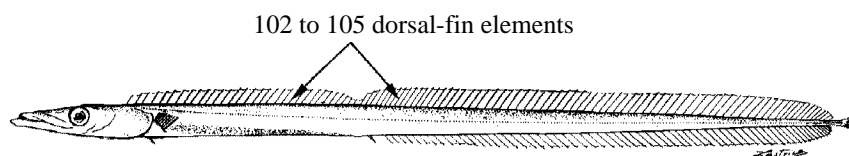


Fig. 125 *B. oligoradiatus*

- 3a. Total dorsal-fin elements 150; anal fin with 102 soft rays; vertebrae total 155 (Fig. 126) *B. papua*
- 3b. Total dorsal-fin elements 113 to 137; anal fin with 69 to 92 soft rays; vertebrae total 119 to 142 → 4

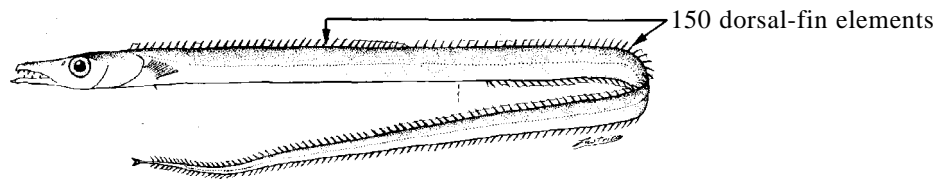


Fig. 126 *B. papua*

- 4a. Total dorsal-fin elements 113 to 129; vertebrae total 119 to 132 → 5
- 4b. Total dorsal-fin elements 129 to 137; vertebrae total 133 to 142 → 7
- 5a. Dorsal-fin spines XXXVIII to XLII (Fig. 127) *B. tenuis*
- 5b. Dorsal-fin spines XXXIV to XXXVII → 6

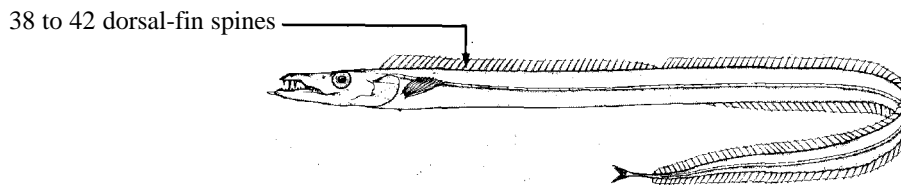


Fig. 127 *B. tenuis*

- 6a. Anal fin with 70 to 76 soft rays; vertebrae total 119 to 124 (Fig. 128) *B. macrophthalmus*
- 6b. Anal fin with 80 to 84 soft rays; vertebrae total 126 to 129 (Fig. 129) *B. neglectus*

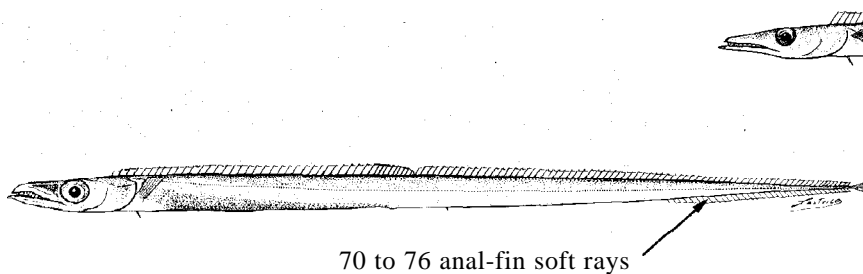


Fig. 128 *B. macrophthalmus*

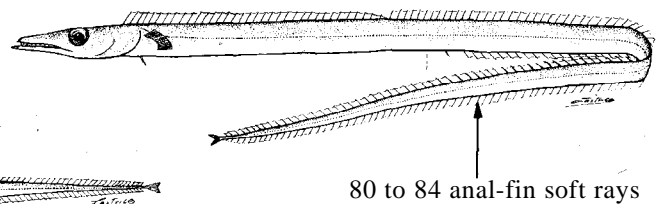


Fig. 129 *B. neglectus*

- 7a. Dorsal-fin spines XXXIX-XLIV, anal fin with 73 to 83 soft rays; anal-fin spines situated below the 8th to 11th dorsal-fin soft ray (Fig. 130) *B. tuckeri*
- 7b. Dorsal-fin spines XXXVI-XXXIX, anal fin with 86 to 92 soft rays; anal-fin spines situated below the second to sixth dorsal-fin soft ray (Fig. 131) *B. suluensis*

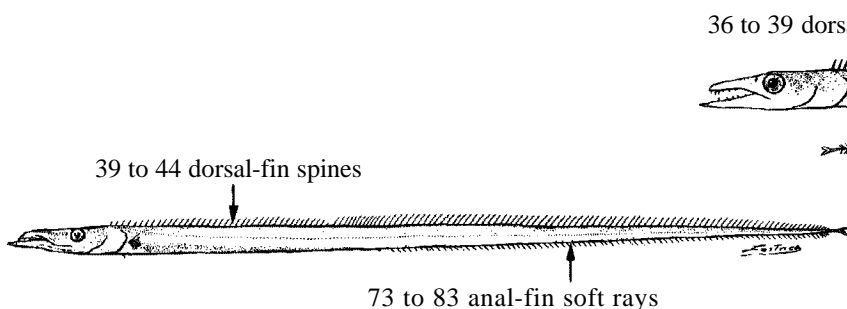


Fig. 130 *B. tuckeri*

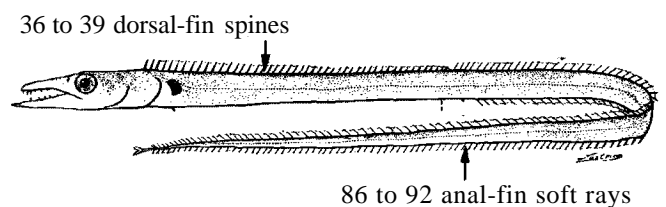


Fig. 131 *B. suluensis*

- 8a. Total dorsal-fin elements 131 to 136; anal fin with 80 to 85 soft rays; vertebrae total 137 to 142 (Fig. 132) *B. vityazi*
- 8b. Total dorsal-fin elements 140 to 155; anal fin with 89 to 101 soft rays; vertebrae total 149 to 159 → 9

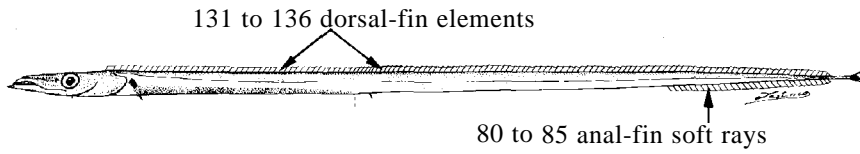


Fig. 132 *B. vityazi*

- 9a. Head length in juveniles and adults (standard length >20 cm) 8.5 to 9.5 times in standard length; body depth in adults (standard length >60 cm) 30 to 46 times in standard length (Fig.133) *B. elongatus*
- 9b. Head length in juveniles and adults (standard length >20 cm) 7.0 to 8.0 times in standard length; body depth in adults (standard length >60 cm) 22 to 27 times in standard length → 10

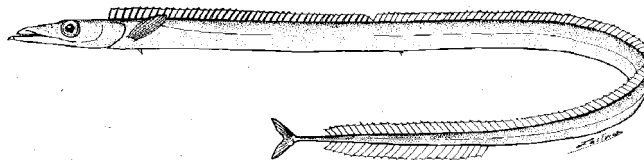


Fig. 133 *B. elongatus*

- 10a. Total dorsal-fin elements 142 to 148; vertebrae total 149 to 153 (Fig. 134) *B. pacificus*
- 10b Total dorsal-fin elements 148 to 155; vertebrae total 153 to 158 (Fig. 135) *B. simonyi*

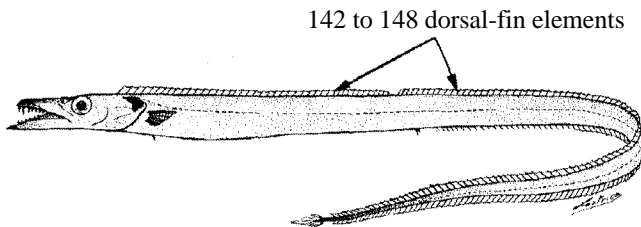


Fig. 134 *B. pacificus*

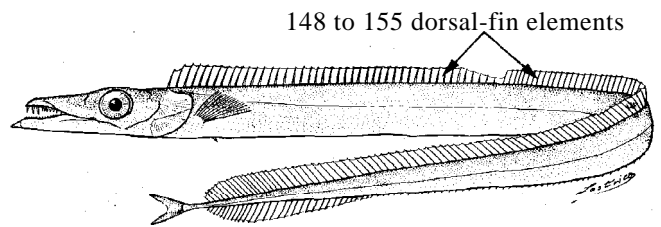
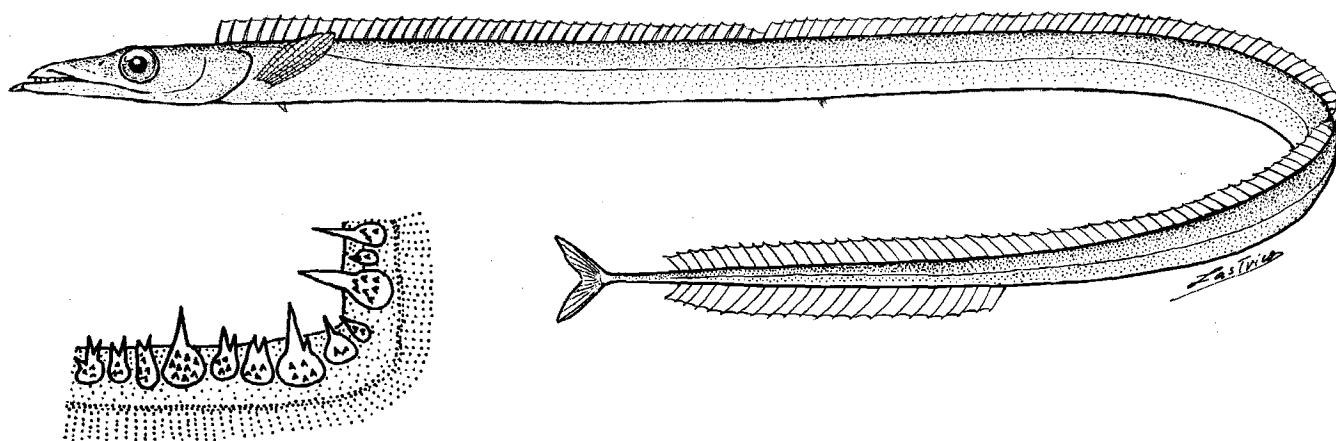


Fig. 135 *B. simonyi*

Benthodesmus elongatus (Clarke, 1879)

Fig. 136

TRICH Benth 2

Lepidopus elongatus Clarke, 1879:294, pl. 14 (New Zealand, Hokitika, South Island).**Synonyms:** None.**FAO Names:** En - Elongate frostfish; Fr - Poisson sabre long; Sp - Cintilla elongada.

FIRST GILL ARCH

Fig. 136 *Benthodesmus elongatus*
(adapted from Tucker, 1953)

Diagnostic Features: Body depth 30.6 to 46.3 times in standard length; anus under first to fourth soft dorsal-fin soft ray; distance from snout to anus 2.6 to 2.8 times in standard length. Head length 8.6 to 9.3 times in standard length; snout length 2.2 to 2.5 times in head length; eye diameter 4.7 to 6.2 times in head length; interorbital width 2.8 to 3.9 times in eye diameter; maxillary length 2.6 to 3.1 times in head length. Dorsal fin with XLII to XLVI spines and 99 to 108 soft rays (total 143 to 152 fin elements); anal fin with II spines, its origin situated below fourth to eighth soft dorsal-fin ray, and 91 to 98 soft rays, external soft rays developed only in the last third of its base; pelvic fins inserted behind pectoral-fin base. Vertebrae total 151 to 159.

Geographical Distribution: Subtropical and temperate waters of Southern Hemisphere: off south Brazil and Argentina, Rio Grande Rise, southeastern Africa, Madagascar Ridge, southeastern Australia, New Zealand, Sala y Gomez Ridge (Fig. 137).

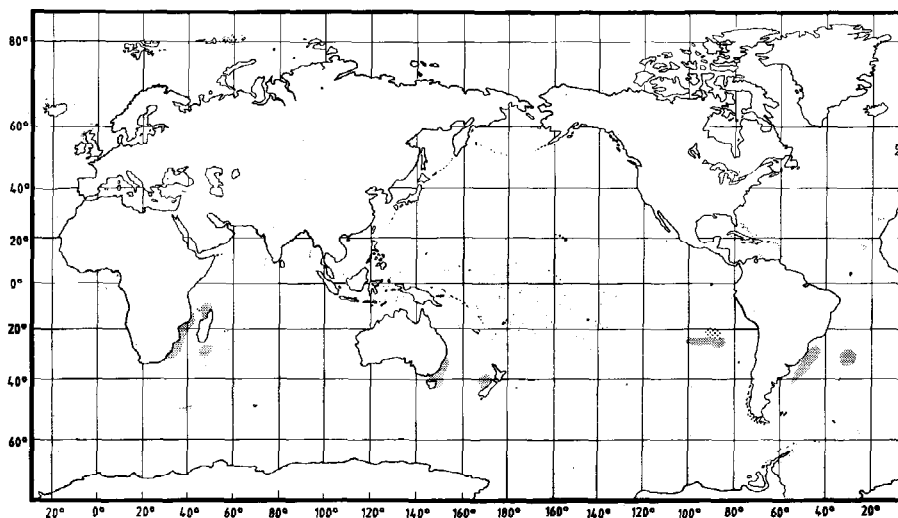


Fig. 137

Habitat and Biology: Benthopelagic from 260 to 575 m at Sala y Gomez Ridge, 380 to 950 m elsewhere, juveniles mesopelagic. Feeds on crustaceans (mainly prawns and euphausiids), small fishes (e.g. *Maurolicus*) and squid (Parin et al., 1990b). Attains a length of 88 cm at age of 9 years (Kotlyar and Parin, 1990).

Females mature at 57 cm and males at 71 cm, 5 to 6 years old. Batch spawners with 5 000 to 16 000 eggs per spawn (Andrianov et al., 1990).

Size: Maximum 93 cm standard length.

Interest to Fisheries: No data available.

Local Names: AUSTRALIA: Slender frostfish; NEW ZEALAND: Bigeyed scabbardfish; SOUTH AFRICA: Slank kalkvis, Slender frostfish.

Literature: Tucker (1953); Parin et al. (1981); May and Maxwell (1986); Nakamura (1984b, 1986a); Paulin et al. (1989); Parin (1990b).

Benthodesmus macrophthalmus Parin and Becker, 1970

Fig. 138

TRICH Benth 3

Benthodesmus macrophthalmus Parin and Becker, 1970:356, fig. 2 (Arafura Sea).

Synonyms: None.

FAO Names: En - Bigeye frostfish; Fr - Poisson sabre gros yeux; Sp - Cintilla ojogrande.

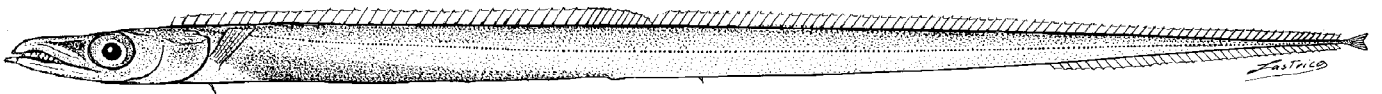


Fig. 138 *Benthodesmus macrophthalmus*
(adapted from Parin and Becker, 1970 and 1972)

Diagnostic Features: Body depth 20.8 to 30.2 times in standard length; anus situated below third to fifth dorsal-fin soft ray; distance from snout to anus 2.2 to 2.3 times in standard length. Head length 7.0 to 7.8 times in standard length; snout length 2.2 to 2.6 times in head length; eye diameter 4.4 to 5.0 times in head length; interorbital width 2.5 to 3.5 times in eye diameter; maxillary length 2.3 to 2.8 times in head length. Dorsal fin with XXXIV to XXXVII spines and 78 to 85 soft rays, (total 113 to 120 fin elements); anal fin with II spines, inserted below fifth to eighth dorsal-fin soft ray, and 70 to 76 fin elements, external soft rays developed only in posterior half of its base; pelvic fins inserted below pectoral-fin base. Vertebrae total 119 to 124.

Geographical Distribution: Arafura Sea and Indian Ocean off Java (Fig. 139).

Habitat and Biology: Benthopelagic from 320 to 600 m.

Size: Maximum 50 cm standard length.

Interest to Fisheries: No data available.

Local Names:

Literature: Parin and Becker (1972).

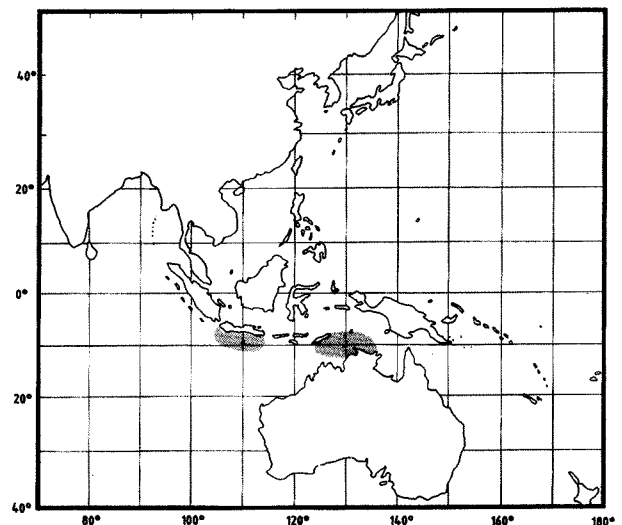
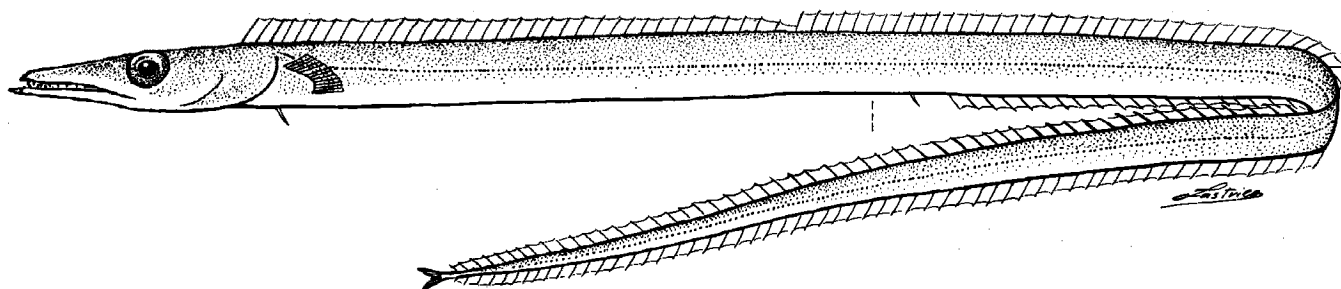


Fig. 139

Benthodesmus neglectus Parin, 1976

Fig. 140

TRICH Benth 4

Benthodesmus neglectus Parin, 1976a:192 (Halmahera Sea).**Synonyms:** None.**FAO Names:** En - Neglected frostfish; Fr - Poisson sabre négligé; Sp - Cintilla descuido.Fig. 140 *Benthodesmus neglectus*

Diagnostic Features: Body depth 37.0 times in standard length; anus situated below third to seventh soft dorsal-fin soft ray; distance from snout to anus 2.6 times in standard length. Head length 8.0 times in standard length; snout length 2.2 times in head length; eye diameter 5.9 times in head length; interorbital width 4.3 times in eye diameter; lower jaw (mandible) length 3.1 times in head length (proportions of holotype 227 mm standard length). Dorsal fin with XXXIV to XXXV spines and 85 to 90 soft rays, (total 118 to 126 fin elements); anal fin with II spines, situated below fifth to ninth soft dorsal-fin ray, and 80 to 84 soft rays, external soft rays developed throughout its base; pelvic fins inserted below pectoral-fin base. Vertebrae total 126 to 129.

Geographical Distribution: Halmahera and Flores Sea, Pacific Ocean, north of New Guinea (Fig. 141). 401)

Habitat and Biology: Probably benthopelagic, juveniles mesopelagic from 200 to 800 (1 000) m.

Size: Maximum 23 cm standard length (known from 5 juvenile specimens).

Interest to Fisheries: No data available.

Local Names:

Literature: Parin et al. (1977); Parin (1978).

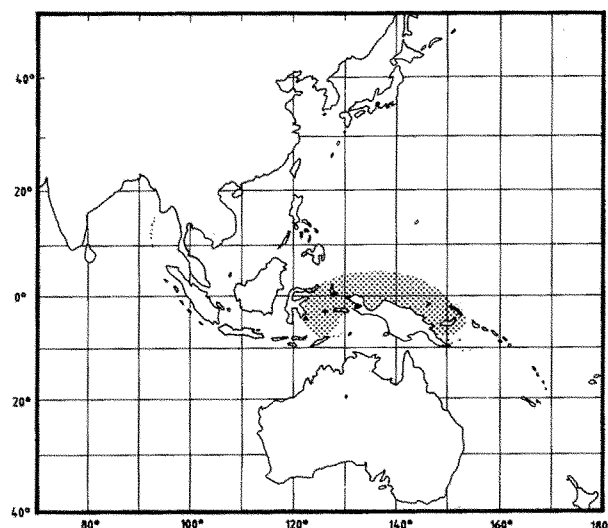


Fig. 141

Benthodesmus oligoradiatus Parin and Becker, 1970

Fig. 142

TRICH Benth 5

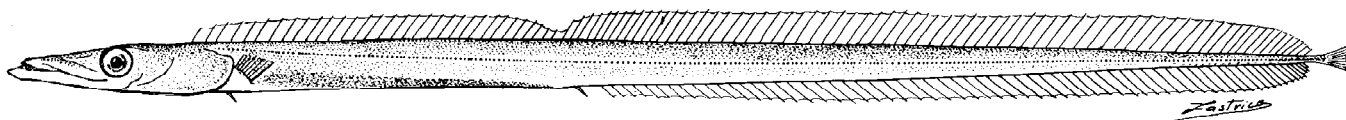
Benthodesmus oligoradiatus Parin and Becker, 1970:355, fig. 2 (Arabian Sea).**Synonyms:** None.**FAO Names:** **En** - Sparse-rayed frostfish; **Fr** - Poisson sabre chauve; **Sp** - Cintilla rastrillo.

Fig. 142 *Benthodesmus oligoradiatus*
(adapted from Parin and Becker, 1970 and 1972)

Diagnostic Features: Body depth 16.7 to 25.6 times in standard length; anus situated below penultimate dorsal-fin spine to first soft ray; distance from snout to anus 2.2 to 2.4 times in standard length. Head length 5.8 to 6.6 times in standard length; eye diameter 4.9 to 5.6 times in head length; interorbital width 2.7 to 3.7 times in eye diameter; maxillary length 2.9 to 3.1 times in head length. Dorsal fin with XXXI to XXXIV spines and 68 to 74 soft rays (total 102 to 105 fin elements); anal fin with II spines, situated below first to third dorsal-fin soft ray, and 64 to 67 soft rays, external soft rays developed only in posterior half of its base; pelvic fins inserted before or below pectoral-fin base. Vertebrae total 105 to 109.

Geographical Distribution: Arabian Sea and Bay of Bengal (Fig. 143).

Habitat and Biology: Benthopelagic on seamounts and the continental slope from 375 to 600 m, juveniles mesopelagic from 100 to 300 (1 000) m.

Size: Maximum 51 cm standard length.

Interest to Fisheries: No data available.

Local Names:

Literature: Brauer (1906, as *Lepidopus argenteus*); Parin and Becker (1972); Shcherbachev et al. (1986); Shcherbachev (1987).

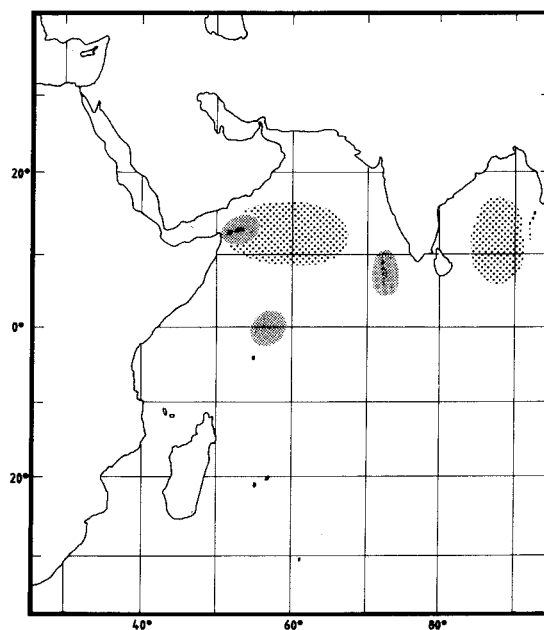
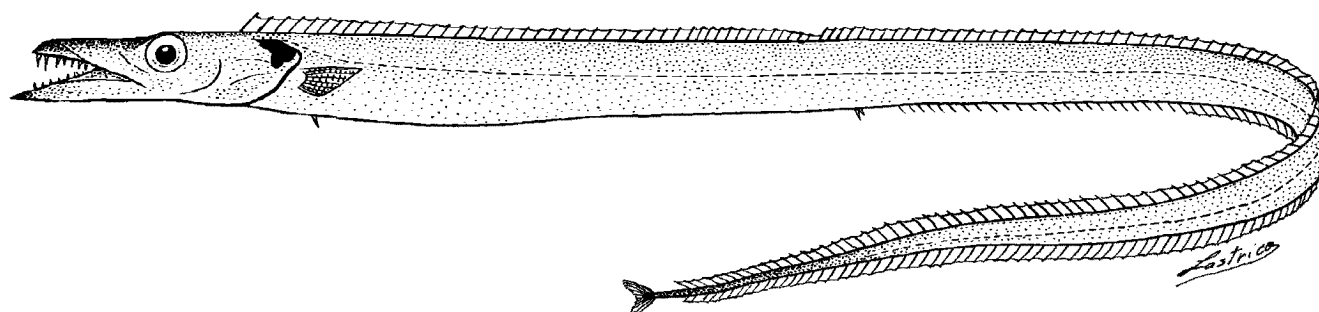


Fig. 143

Benthodesmus pacificus Parin and Becker, 1970

Fig. 144

TRICH Benth 6

Benthodesmus elongatus pacificus Parin and Becker, 1970:355, fig. 2 (off northern Honshu, Japan).**Synonyms:** None.**FAO Names:** **En** - North-Pacific frostfish; **Fr** - Poisson sabre nord-pacifique; **Sp** - Cintilla del Pacifico.Fig. 144 *Benthodesmus pacificus*

Diagnostic Features: Body depth 22.0 to 26.5 times in standard length; anus situated below penultimate dorsal-fin spine to second dorsal-fin soft ray; distance from snout to anus 2.5 times in standard length. Head length 7.2 to 7.5 times in standard length; snout length 2.1 to 2.5 times in head length; eye diameter 5.1 to 6.5 times in head length; interorbital width 2.8 to 3.1 times in eye diameter; maxillary length 2.6 to 2.9 times in head length. Dorsal fin with XLIV to XLVI spines and 99 to 104 soft rays (total 142 to 148 fin elements); anal fin with II spines, situated below third to sixth dorsal-fin soft ray, and 90 to 94 soft rays, external soft rays developed only in the last third of its base; pelvic fins inserted behind pectoral-fin base. Vertebrae total 149 to 153.

Geographical Distribution: North Pacific Ocean (known from off Japan, Ryukyu Islands, Kyushu-Palau Ridge, British Columbia, and California) (Fig. 145).

Habitat and Biology: Benthopelagic from 305 m (depth of specimens hooked off Manazuru, Japan) and deeper, sometimes migrates to surface, juveniles mesopelagic from 100 to 500 (1 000) m.

Size: Maximum 112 cm standard length.

Interest to Fisheries: No data available.

Local Names: CANADA: North Pacific frostfish; JAPAN: Yamamoto-tachimodoki, Hoso-tachimodoki; USA: North Pacific frostfish.

Literature: Franz (1910, as *Lepidopus tenuis*); Gilbert (1817, as *B. atlanticus*); Parin and Becker (1972); Abe and Kobata (1974); Anderson and Caillet (1975); Parin et al. (1977); Peden (1974, 1980); Belyanina (1982); Nakamura (1982b, 1984b).

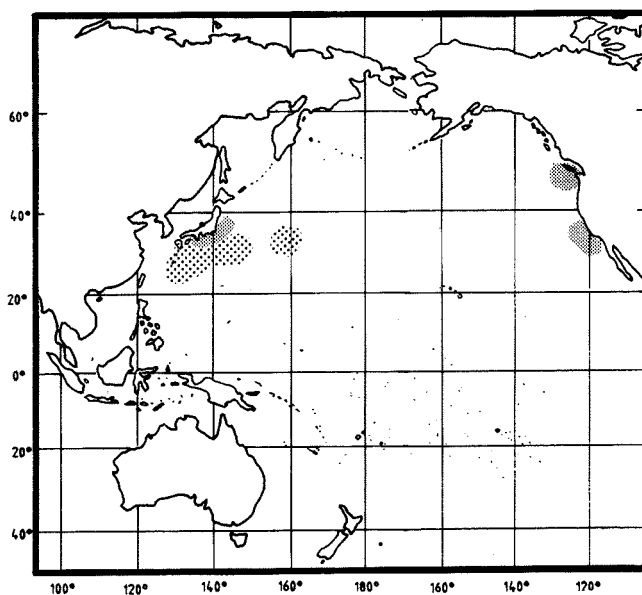
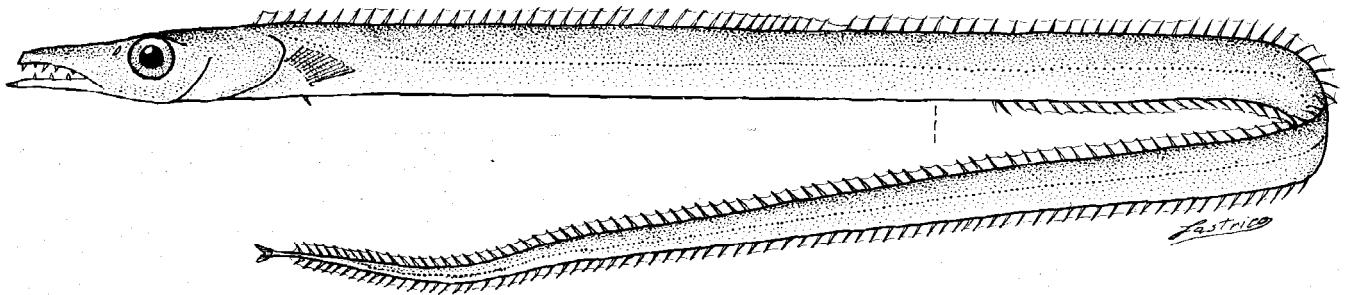


Fig. 145

Benthodesmus papua Parin, 1978

Fig. 146

TRICH Benth 7

Benthodesmus papua Parin, 1978:164 (Coral Sea).**Synonyms:** None.**FAO Names:** **En** - Papuan frostfish; **Fr** - Poisson sabre papou; **Sp** - Cintilla Papua.Fig. 146 *Benthodesmus papua*

Diagnostic Features: Body depth 33.3 times in standard length; anus situated below sixth dorsal-fin soft ray; distance from snout to anus 2.7 times in standard length. Head length 8.8 times in standard length; snout length 2.5 times in head length; eye diameter 5.9 times in head length; interorbital width 3.5 times in eye diameter; maxillary length 2.9 times in head length (proportions of holotype 243 mm standard length). Dorsal fin with XXXVIII spines and 112 soft rays (total 150 fin elements); anal fin with II spines, situated below ninth soft dorsal-fin ray, and 102 soft rays, external soft rays developed throughout its base; pelvic fins inserted below posterior edge of pectoral-fin base. Vertebrae total 155.

Geographical Distribution: Coral Sea, southeast of Gulf of Papua (Fig. 147).

Habitat and Biology: Probably benthopelagic, juveniles mesopelagic at 200 m.

Size: Maximum 24 cm standard length (species known from a single pelagic juvenile).

Interest to Fisheries: No data available.

Local Names:

Literature: None.

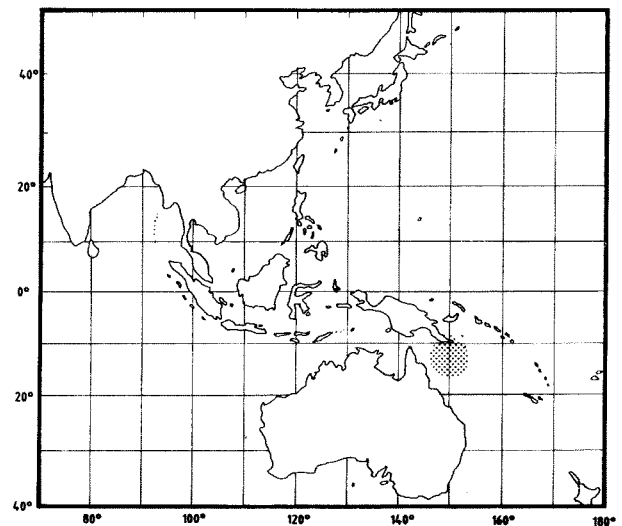


Fig. 147

Benthodesmus simonyi (Steindachner, 1891)

Fig. 148

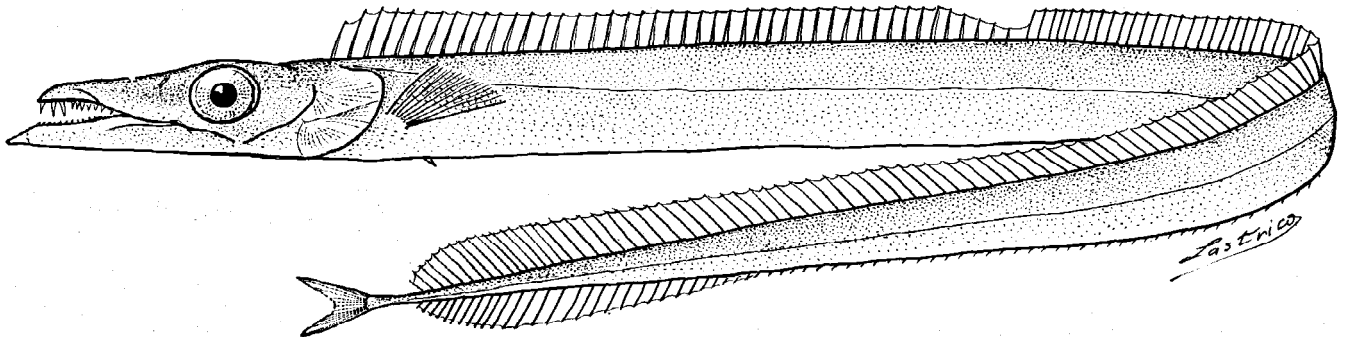
TRICH Benth 8***Aphanopus simonyi*** Steindachner, 1891:356 (Santa Cruz de Tenerife, Canary Islands).**Synonyms:** *Benthodesmus atlanticus* Goode and Bean, 1896.**FAO Names:** En - Simony's frostfish; Fr - Poisson sabre ganse; Sp - Cintilla de Simony.

Fig. 148 *Benthodesmus simonyi*
(adapted from Tucker, 1956)

Diagnostic Features: Body depth 22.0 to 27.1 times in standard length; anus situated below last dorsal-fin spine to second dorsal-fin soft ray; distance from snout to anus 2.4 to 2.5 times in standard length. Head length 7.0 to 8.0 times in standard length; snout length 2.2 to 2.6 times in head length; eye diameter 5.1 to 5.8 times in head length; interorbital width 2.6 to 3.0 times in eye diameter; maxillary length 2.5 to 2.6 times in head length. Dorsal fin with XLIV to XLVI spines and 104 to 109 soft rays (total 148 to 155 fin elements); anal fin with II spines, situated below fifth to seventh soft dorsal-fin ray, and 93 to 102 soft rays; external soft rays developed only in the last third of its base; pelvic fins inserted behind pectoral-fin base. Vertebrae total 153 to 158.

Geographical Distribution: North Atlantic Ocean (known from off Newfoundland, Bermuda, New England and Middle Atlantic Ridges, Iceland, Norway, Portugal, Madeira and Canary Islands) (Fig. 149).

Habitat and Biology: Benthopelagic from 200 to 900 m on continental slope and underwater rises, juveniles mesopelagic.

Size: Maximum 130 cm standard length.

Interest to Fisheries: No data available

Local Names: FRANCE: Sabre d'argent; RUS-SIA: Benthodema; UK: Frostfish.

Literature: Maul (1953); Tucker (1953, 1955, 1956); Grey (1955); Leim and Scott (1966); Wheeler (1969); Parin and Becker (1972); Gushchin and Kukuev (1981); Kukuev (1982); Parin (1986).

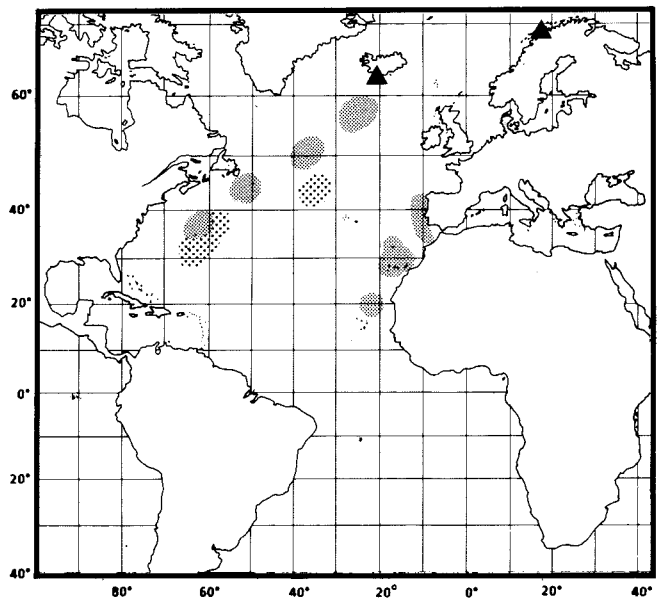
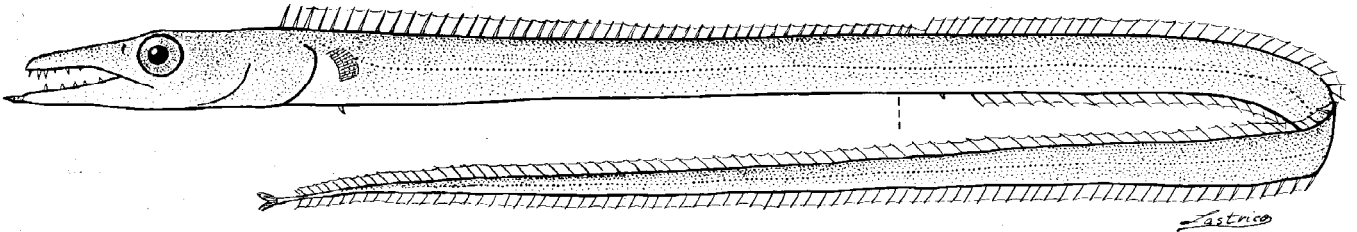


Fig. 149

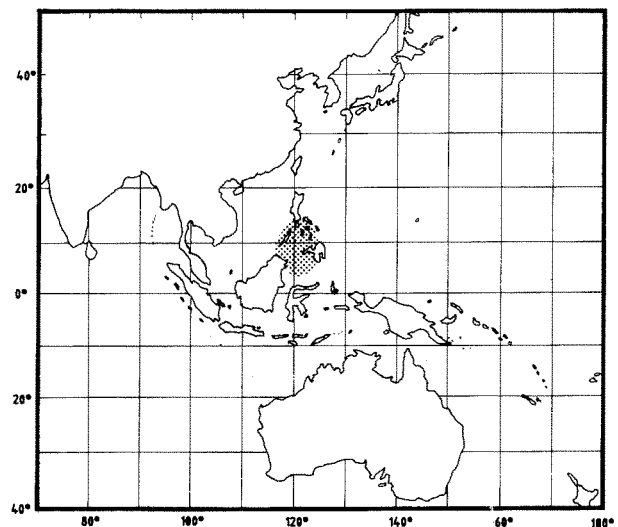
Benthodesmus suluensis Parin, 1976

Fig. 150

TRICH Benth 9

Benthodesmus suluensis Parin, 1976a:191 (Sulu Sea).**Synonyms:** None.**FAO Names:** En - Philippine frostfish; Fr - Poisson sabre philippin; Sp - Cintilla filipina.**Fig. 150** *Benthodesmus suluensis*

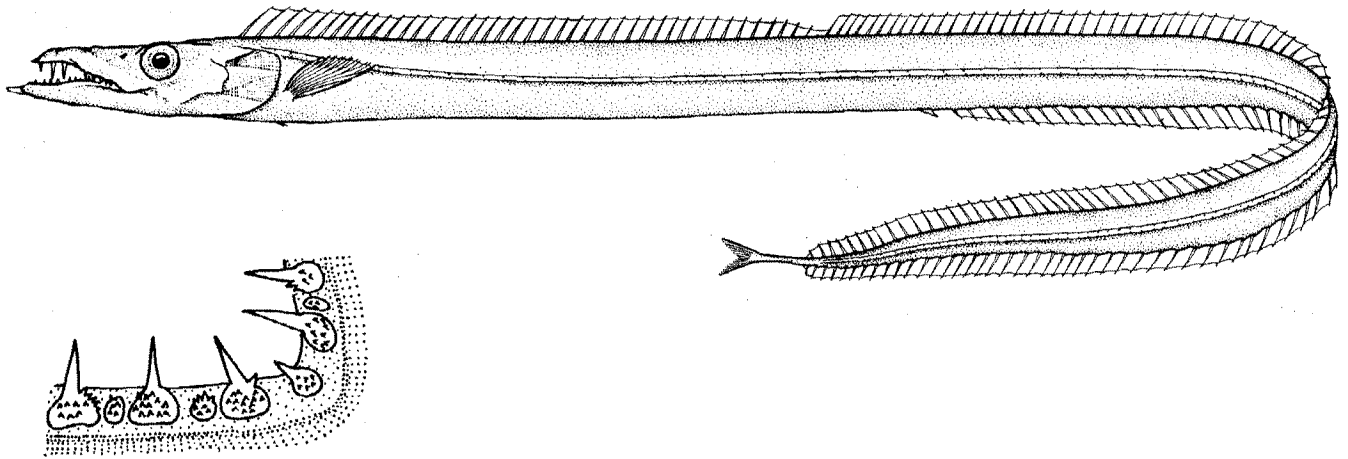
Diagnostic Features: Body depth 32.2 times in standard length; anus situated below last dorsal-fin spine to behind third dorsal-fin soft ray; distance from snout to anus 2.7 times in standard length. Head length 7.9 times in standard length; snout length 2.6 times in head length; eye diameter 6.4 times in head length; interorbital width 2.9 times in eye diameter; maxillary length 3.4 times in head length (proportions of holotype 181 mm standard length). Dorsal fin with XXXVI to XXXIX spines and 92 to 99 soft rays (total 129 to 137 fin elements); anal fin with II spines, situated below second to sixth soft dorsal-fin ray, and 86 to 92 soft rays, external soft rays developed only in posterior half of its base; pelvic fins inserted below posterior part of pectoral-fin base. Vertebrae total 133 to 137.

Geographical Distribution: Sulu Sea (Fig. 151).**Habitat and Biology:** Probably benthopelagic, juveniles mesopelagic from 200 to 500 m.**Size:** Maximum 18 cm standard length (species known from 9 juvenile specimens).**Interest to Fisheries:** No data available.**Local Names:****Literature:** Parin (1976b); Parin et al. (1977).**Fig. 151**

Benthodesmus tenuis (Günther, 1877)

Fig. 152

TRICH Benth 1

Lepidopus tenuis Günther, 1877:437 (Sagami Bay, Japan).**Synonyms:** *Lepidopus aomori* (Jordan and Snyder, 1901). *Benthodesmus benjamini* Fowler, 1938.**FAO Names:** En - Slender frostfish; Fr - Sabre fleuret; Sp - Cintilla.

FIRST GILL RAKER

Fig. 152 *Benthodesmus tenuis*
(adapted from Tucker, 1956)

Diagnostic Features: Body depth 18.3 to 35.2 times in standar length; anus situated below fourth to seventh dorsal-fin soft ray; distance from snout to anus 2.2 to 2.4 times in standard length. Head length 7.1 to 8.7 times in standard length; snout length 2.3 to 2.8 times in head length; eye diameter 5.9 to 7.5 times in head lenth; interorbital width 1.3 to 2.0 times in eye diameter; maxillary length 2.3 to 2.8 times in head length. Dorsal fin with XXXVIII to XLII spinesand 78 to 87 soft rays (total 118 to 128 fin elements); anal fin with II spines, situated below 6th to 11th soft dorsal-fin ray, and 69 to 76 soft rays, external soft rays developed throughout its base; pelvic fins inserted before or below pectoral-fin base. Vertebrae total 122 to 132.

Geographical Distribution: In the western Atlantic off Cape Hatteras, Gulf of Mexico, Surinam and southern Brazil; in the eastern Atlantic from Gulf of Guinea to Angola; in the western Pacific from the Emperor Seamounts, Japan, Ryukyu Islands, Vietnam, and the Sulu Sea; and in the Indian Ocean from south of Java (Fig. 153).

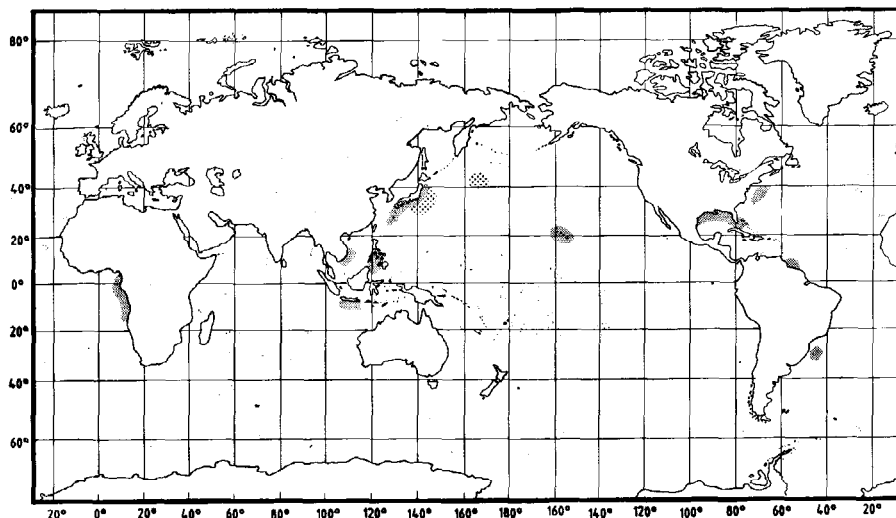


Fig. 153

Habitat and Biology: Benthopelagic from 200 to 850 m, juveniles mesopelagic.

Size: Maximum 72 cm standard length, maybe more.

Interest to Fisheries: No data available.

Local Names: JAPAN: Tachimodoki.

Literature: Tucker (1953, 1955, 1957); Parin and Becker (1972); Parin et al. (1977); Fujii in Uyeno et al. (1983); Nakamura (1984b); Machida (1985); Parin (1990c).

Remarks: Tucker (1955) showed that the two Atlantic populations of *B. tenuis* differ significantly in number of vertebrae and total dorsal-fin spinous and soft ray elements: in Gulf of Guinea specimens, the number of vertebrae total 123 to 128 and dorsal-fin elements total 125 to 129, and in the Gulf of Mexico specimens, vertebrae total 129 to 131 and dorsal-fin elements total 125 to 129. The Indo-West Pacific populations overlap in these characters with both Atlantic populations with number of vertebrae total 122 to 132 and dorsal-fin elements 118 to 128. The eastern tropical Pacific "*B. tenuis*" appears to be a separate species (Clemens and Nowell, 1963). Differences among populations of *B. tenuis* are currently being studied by N. Parin.

Benthodesmus tuckeri Parin and Becker, 1970

Fig. 154

TRICH Benth 10

Benthodesmus tuckeri Parin and Becker, 1970:359, fig. 2 (off Sombrero Island, Philippines).

Synonyms: None.

FAO Names: En - Tucker's frostfish; Fr - Poisson sabre ruban; Sp - Cintilla de Tucker.

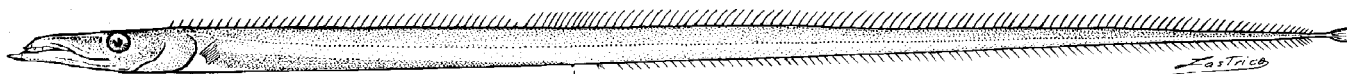


Fig. 154 *Benthodesmus tuckeri*

(adapted from Parin and Becker, 1970 and 1972)

Diagnostic Features: Body depth 20.2 to 30.0 times in standard length; anus situated below fifth or seventh dorsal-fin soft ray; distance from snout to anus 2.4 to 2.5 times in standard length. Head length 7.2 to 8.3 times in standard length; snout length 2.0 to 2.5 times in head length; eye diameter 7.2 to 8.2 times in head length; interorbital width 1.2 to 2.2 times in eye diameter; maxillary length 2.4 to 2.8 times in head length. Dorsal fin with XXXIX to XLIV spines and 88 to 96 soft rays (total 130 to 137 fin elements); anal fin with II spines, situated below 8th to 11th dorsal-fin soft ray, and 76 to 83 soft rays, external rays developed throughout its base; pelvic fins inserted before or below anterior edge of pectoral-fin base. Vertebrae total 133 to 142.

Geographical Distribution: In the western Pacific Ocean known from the Philippines, Vietnam, Molucca Islands and southeastern Australia and in the Indian Ocean from Socotra Island, Saya de Malha Bank, Mozambique Channel and south of Java (Fig. 155).

Habitat and Biology: Benthopelagic from 550 to 790 m, juveniles mesopelagic at 500 m.

Size: Maximum 77 cm standard length.

Interest to Fisheries: No data available.

Local Names:

Literature: Parin and Becker (1972); Parin et al. (1977).

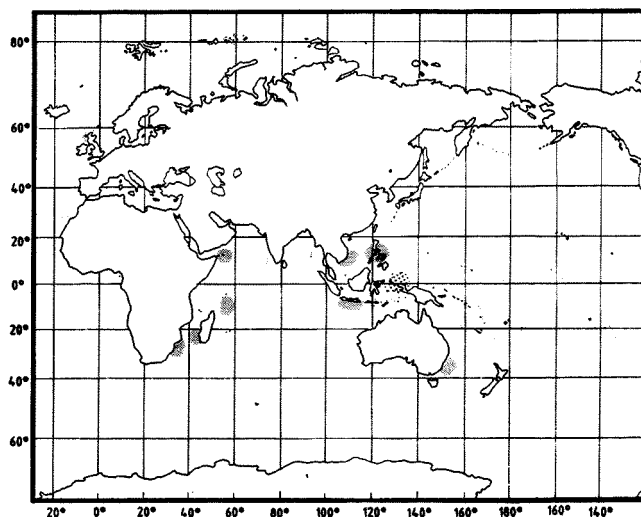


Fig. 155

Benthodesmus vityazi Parin and Becker, 1970

Fig. 156

TRICH Benth 11

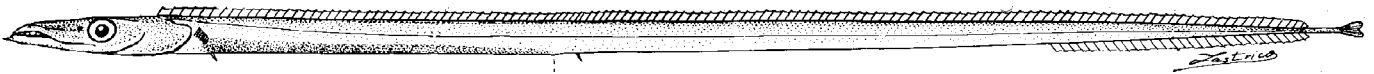
Benthodesmus vityazi Parin and Becker, 1970:360, fig. 2 (Central Equatorial Pacific).**Synonyms:** None.**FAO Names:** En - Vityaz' frostfish; Fr - Poisson sabre galon; Sp - Cintilla de Vityaz.

Fig. 156 *Benthodesmus vityazi*
(adapted from Parin and Becker, 1970 and 1972)

Diagnostic Features: Body depth 30.5 to 40.0 times in standard length; anus situated below first to fourth dorsal-fin soft ray; distance from snout to anus 2.3 to 2.6 times in standard length. Head length 7.0 to 7.9 times in standard length; snout length 2.4 to 2.7 times in head length; eye diameter 5.2 to 5.9 times in head length; interorbital width 2.5 to 3.1 times in eye diameter; maxillary length 2.7 to 3.3 times in head length. Dorsal fin with XLI to XLIV spines and 88 to 93 soft rays (total 131 to 136 fin elements); anal fin with II spines, situated below fourth to seventh dorsal-fin soft ray, and 80 to 85 soft rays, external rays developed only in the last third of its base; pelvic fins inserted behind pectoral-fin base. Vertebrae total 137 to 142.

Geographical Distribution: Central and western Pacific, seas of Indo-Australian Archipelago, north-eastern and northwestern Indian Ocean (Fig. 157).

Habitat and Biology: Benthopelagic from 640 to 820, juveniles mesopelagic from 170 to 900 m.

Size: Maximum 77 cm standard length.

Interest to Fisheries: No data available.

Local Names:

Literature: Fourmanoir (1971 b, as *B. elongatus*); Parin and Becker (1972); Parin (1975, 1978); Parin et al. (1977); Belyanina (1982); Gloerfelt-Tarp and Kailola (1984); Shcherbachev et al. (1986); Scherbachev (1987).

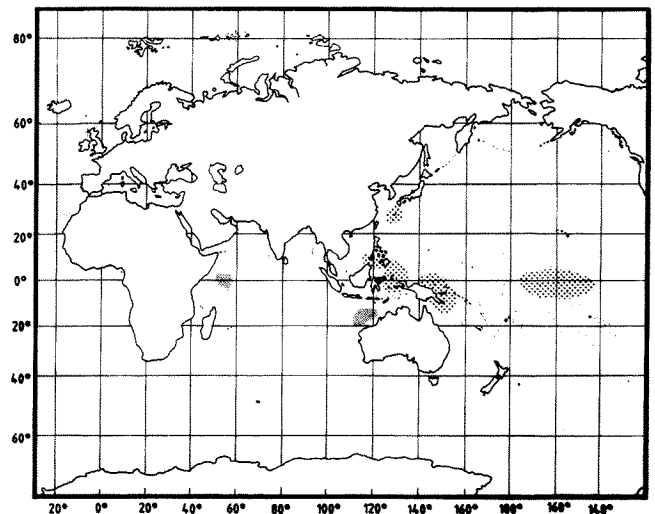


Fig. 157

Eupleurogrammus Gill, 1862

TRICH Eupl

Eupleurogrammus Gill, 1862:126. Type species, *Trichiurus muticus* Gray, 1831, by original designation (also monotypic).

Synonyms: None

Diagnostic Features: Body elongate and remarkably compressed. Lower hind margin of gill cover convex. Pectoral fins fairly long, extending beyond lateral line; pelvic fins small, reduced to a scale-like process; caudal fin absent, posterior part of body tapering to a point.

Biology, Habitat and Distribution: Benthopelagic, mostly on continental shelf, but often comes near surface at night. Feeds on a wide variety of small coastal fishes, squids and crustaceans. Shows a typical Indo-West Pacific distribution.

Interest to Fisheries: Caught commercially with shore seines, bag nets and coastal bottom trawls around Indian coastal waters.

Species: Two species are recognized (Nakamura, 1984a).

Key to Species of *Eupleurogrammus*:

- 1a. A pair of fangs on tip of lower jaw; dorsal-fin membrane slightly tinged with black along spines; dorsal side of posterior part of body slightly black; a black spot just behind dermal process of lower jaw; pelvic fins situated below 11 th to 14th dorsal-fin soft ray . *E. glossodon*
- 1b. No fangs on tip of lower jaw; dorsal-fin membrane pale; both dorsal and ventral sides of posterior part of body black; no black spot behind dermal process on ventral side of lower jaw; pelvic fins situated below 15th to 18th dorsal-fin soft ray *E. muticus*

Eupleurogrammus glossodon (Bleeker, 1860)

Fig. 158

TRICH Eupl 1

Trichiurus glossodon Bleeker, 1860b:38 (Borneo).

Synonyms: *Eupleurogrammus intermedius* (Gray, 1831). *Trichiurus intermedius* Gray, 1831.

FAO Names: En - Longtooth hairtail; Fr - Poisson sabre dentu; Sp - Pez sable dentón.

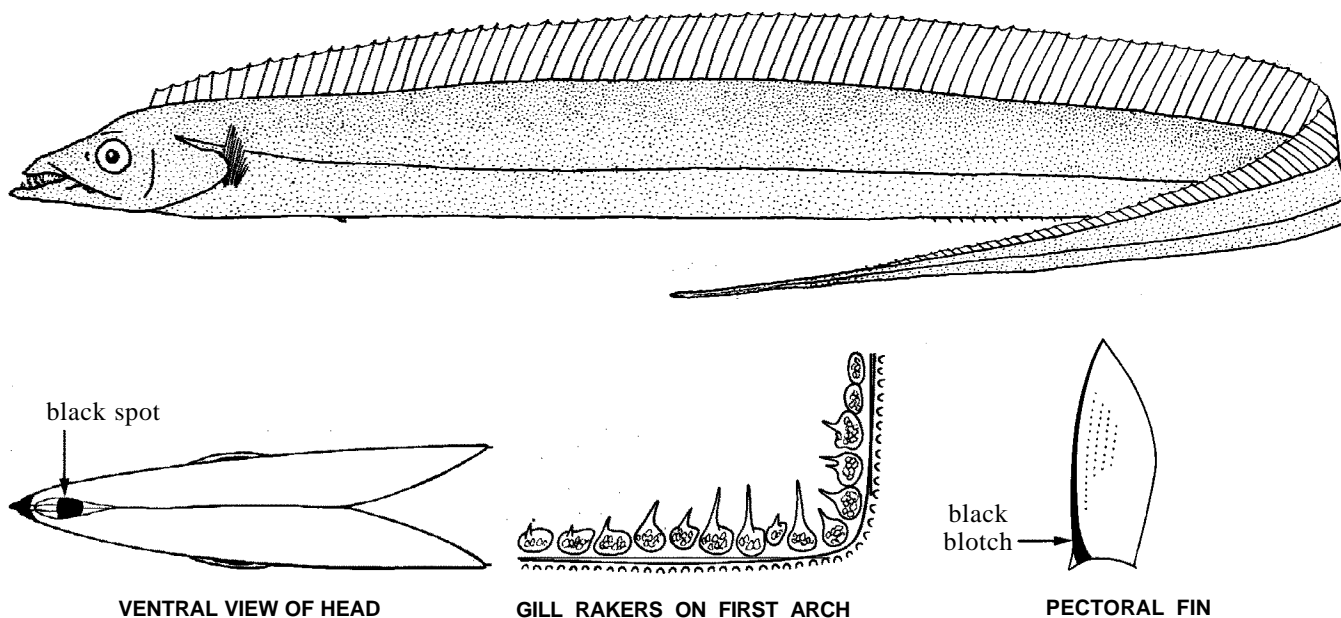


Fig. 158 *Eupleurogrammus glossodon*

Field Characters: A pair of fangs on tip of lower jaw. Eye small, its diameter about 7 or 8 times in head length, located close to dorsal profile of head. A black spot just behind dermal process on bottom of lower jaw. A fairly noticeable black blotch on base of anterior margin of pectoral fins.

Diagnostic Features: Body extremely elongate and compressed, ribbon-like, tapering to a point; anus elongate and fairly large. Mouth large with a dermal process on tip of each jaw; lower hind margin of gill cover convex; eye small, its diameter about 7 or 8 times in head length, located close to dorsal profile of head; 2 or 3 fangs (usually without barbs) in upper jaw, a pair of fangs on tip of lower jaw; a single series of sharp compressed lateral teeth in both jaws. Dorsal-fin elements 118 to 132; anal fin reduced to minute spinules buried in skin, its origin situated below 31 st to 35th dorsal-fin soft ray; pectoral fins slightly shorter than snout, with I spine and 13 soft rays; pelvic fins reduced to scale-like spines, situated below 11 th to 14th dorsal-fin soft ray; caudal fin absent, posterior part of body tapering to a point. Lateral line running almost straight, closer to ventral contour. **Colour:** In fresh specimens, body steely blue with metallic reflections, becoming silvery grey after death; dorsal-fin membrane slightly tinged with black along spines, dorsal side of posterior part slightly tinged with black; dermal processes at tip of each jaw black, a black

spot present just behind dermal process on bottom of lower jaw, a fairly noticeable black blotch on base of anterior margin of pectoral fins.

Geographical Distribution: Indo-West Pacific including The Gulf, India, Sri Lanka, Malaysia, Singapore, Indonesia and Thailand (Fig. 159).

Habitat and Biology: Benthopelagic, in coastal waters down to about 80 m depth, often comes near surface at night. Feeds on crustaceans, squid and fishes (species of *Atherina*, *Stolephorus*, *Escualosa*, *Sardinella*, *Dussurneria*, *Thryssa*, *Sphyraena*, *Hemiramphus*, *Leiognathus*, *Eupleurogrammus*, etc., in Palk Bay, India).

Size: Maximum 50 cm total length, common 15 to 40 cm.

Interest to Fisheries: Caught mainly with shore seines, bag nets and bottom trawls in coastal waters down to 50 m depth in West Bengal to Madras, Palk Bay and Gulf of Mannar. Marketed mostly dried, mixed with other trichiurids, also salted or fresh.

Local Names:

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

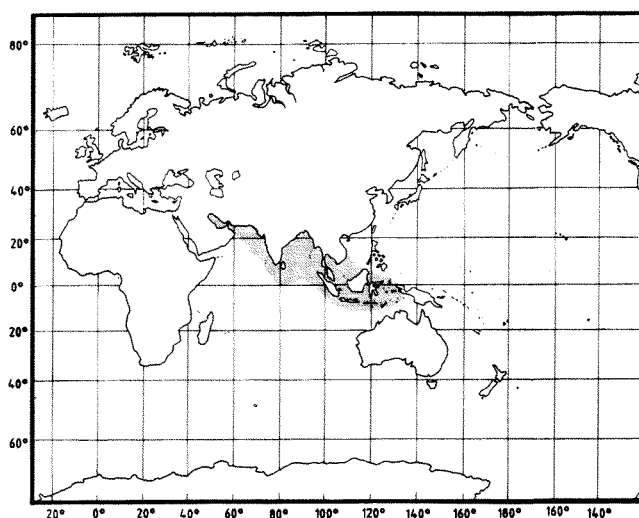


Fig. 159

Eupleurogrammus muticus (Gray, 1831)

Fig. 160

TRICH Eupl 2

Trichiurus muticus Gray, 1831:10 (India).

Synonyms: None.

FAO Names: En - Smallhead hairtail; Fr - Poisson sabre asbas; Sp - Pez sable asbas.

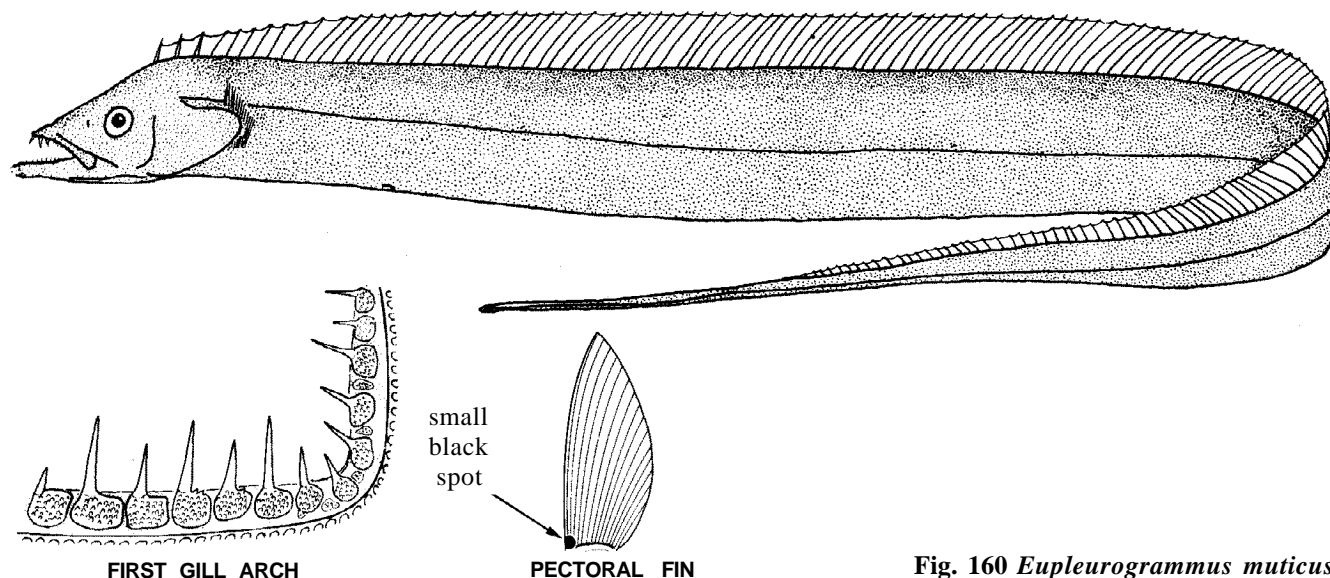


Fig. 160 *Eupleurogrammus muticus*

Field Characters: No fangs on tip of lower jaw. Eye small, its diameter 6 to 8 times in head length, located far from dorsal profile of head. A small pale black spot on base of anterior margin of pectoral fins.

Diagnostic Features: Body extremely elongate and compressed, ribbon-like, tapering to a point; anus small. Mouth large with a dermal process at tip of each jaw; lower hind margin of gill cover convex; eye small, its diameter 6 to 8 times in head length, located far from dorsal profile of head; 2 or 3 (usually 3) fangs (usually