

NEW AND RARE SPECIES OF FISHES FROM THE  
PERU-CHILE TRENCH, COLLECTED DURING THE  
11TH CRUISE OF R/V "ANTON BRUUN" (1965)

BY

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Six species of fishes from the Peru-Chile Trench are described, two of which are new: *Bathypterois quadrifilis peruanus* new subspecies and *Menziesichthys bacescui* new genus and new species.

The present contribution is the first of a series of studies of an extensive collection of fishes, obtained and preserved by Dr. Mihai C. Băcescu, during his trip aboard of R/V "Anton Bruun" in the South-East Pacific (Peru-Chile Trench) in the fall of 1965.

More than 600 fish specimens were obtained from the northern to central part of the Peru-Chile Trench (between 3°40' lat. South and 12°40' lat. South). The specimens were collected by means of the beam trawl, Menzies trawl and plankton nets (in some plankton stations).

We are particularly indebted to Dr. Mihai C. Băcescu for his kindness in giving us this collection for study. Special thanks go to Dr. Marie Louise Bauchot, Muséum National d'Histoire Naturelle, Paris, Dr. Yvonne Herman, Department of Geology, Washington State University, Pullman, Dr. Jorgen G. Nielsen, Universitetets Zoologiske Museum, Copenhagen, Dr. Daniel M. Cohen, U. S. National Museum, Washington, D. C., and to Dr. W. I. Follett, California Academy of Sciences, San Francisco, who provided us with useful informations and reprints.

All specimens, including the types, are deposited in the Natural History Museum fish collection, Bucharest.

## Fam. BATHYPTEROIDAE

**Bathypterois quadrifilis peruanus** subsp. nov.

Fig. 1 a-g

*Holotype*: Type Fish Collection Cat. Nr. 168, one adult female 115.2 mm in standard length, *Anton Bruun* Expedition, Peru-Chile Trench, October 1965, collected by Dr. Mihai C. Băcescu. No other data. The single specimen known.

*Diagnosis*. A *Bathypterois* with characteristic deeply pectinated scales under the base of pectorals, with a very long bifid superior pectoral ray. Preadipose space smaller than in *Bathypterois quadrifilis* Günther.

*Description*. Body long somewhat compressed, covered by moderate scales. Head depressed, with a large interorbital space. Eyes small. Mouth cleft large.

The arrangement of genipores: 9 on each side of the mandibula, 7 on each preoperculum, 5 supramaxillars on each side and 6 on each superior part of the head. Two tiny nostrils in front of each eye. Tiny teeth, present on the maxillaries, on both sides of the vomer, palatines, mandibula and on the tip of tongue. Branchial arches reach near the tip of tongue.

The following morphometric features are expressed in percentages of the standard length (in brackets are given the values for the type specimen of *B. quadrifilis* Günther, from Bauchot, 1): head 22.30 (21.40) eye 2.61 (3.33), interorbital space 7.56 (no data), preorbital space 6.54 (no data), postorbital space 13.30 (no data), length of maxillary 13.32 (12.90), greatest height of body 12.20 (12.60), depth of caudal peduncle 7.40 (no data), predorsal space 42.30 (43.80), preventral space 37.00 (38.20), preanal space 57.00 (59.40), preadipose space 72.60 (78.30), longest pectoral ray 97.00 (no data), longest ventral ray 24.75 (no data).

Scales moderate cycloid. Under the base of pectorals 5-6 pectinate scales are visible. The scales in the anterior part of lateral line are slightly pectinated. Under a highly magnifying microscope, (more than 700 $\times$ ) a characteristic structure appears in the subdorsal scales of the lateral line. Some of the circular striae are denticulated, having on the opposite part numerous long setae. The length of denticles varies from 0.2  $\mu$  to 0.7  $\mu$  while the length of setae varies from 1.2  $\mu$  to 1.5  $\mu$ . However, this interesting structure does not appear in all circular striae. Scales in lateral line 63 and 62.

The fin rays formula: D 14 + 1 (the last ray of the dorsal fin is very close to the 14th ray) A 9; V 9 and 9, the anterior two rays being longer than the others; P 2 + 1 + 10 in the left fin and 2 + 1 + 11 in the right fin; C 8 + 7 branched rays. The inferior part of insertion of the caudal fin has a peculiar structure as given in Fig. 1 g.

The longest (superior) pectoral rays are fused only in their anterior fourth. Unfortunately, all inferior pectoral rays, in both sides are broken and therefore it is impossible to define their length.

*Inner organisation.* The stomach is swollen and finishes in a narrow pyloric portion. Pyloric caeca absent. The intestine runs straight up to the anal orifice. The liver is relatively small with a short lobe on the left side. The gall-bladder is developed and detached from the liver. No gas-bladder. The ovaries are long, both having 24.3 mm in length including the ducts. Ovulae relatively large, from 500 to 700  $\mu$  in diameter.

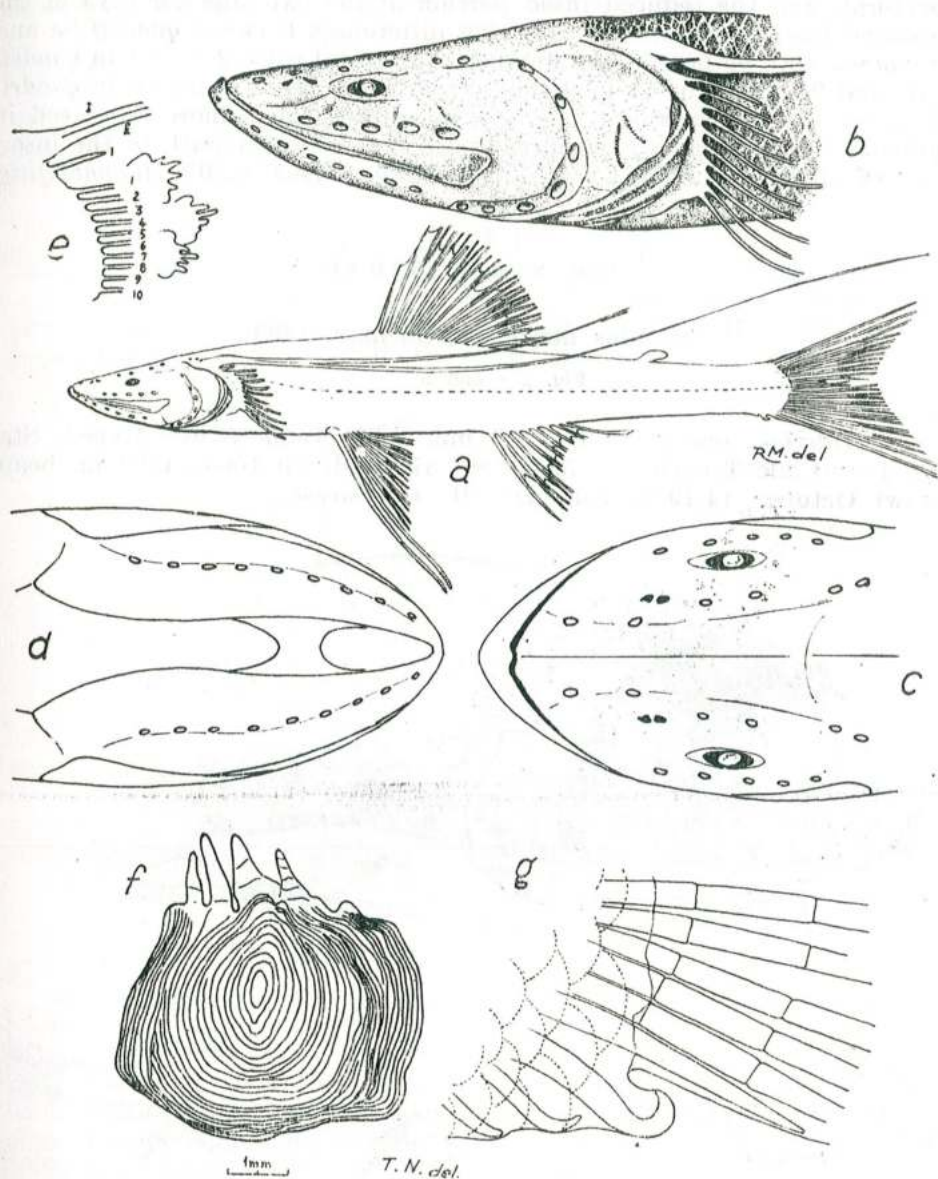


Fig. 1. — *Bathypterois longifilis peruanus* ssp. nov.; a. Outline of the holotype; b. Head lateral; c. Head dorsal; d. Head ventral; e. Details of the pectoral fin with pectinated scales; f. Details of a pectinated scale; g. Inferior part of the caudal insertion. Details.

*Colour.* Generally dusky brown. Each scale with a white margin. Lateral line marked as a straight white stripe. Maxillaries and the anterior part of the head translucent. Peritoneum deep brown. All fins including filaments, whitish.

*Remarks.* This new form is similar in some aspects with *B. quadrifilis* Günther, especially as regards the pectinate scales under the base of pectorals and the reduced fused portion of the two superior rays of the pectoral fins. However, the following differences between *quadrifilis* and *peruanus* may be noted: the number of pectoral rays, 2+8+1 in *quadrifilis* and 2+1+10 or 11 in *peruanus*; scales in lateral line, 60 in *quadrifilis*, 62-63 in *peruanus*; finally, the adipose fin is more advanced in *peruanus* than in *quadrifilis*, preadipose space (from mouth to the insertion of adipose fin) being 72.60% in *peruanus* versus 78.30% in *quadrifilis*.

Fam. STOMIATIDAE

*Stomias atriventer* Garman, 1899

Fig. 2 a and b

*Material:* one specimen 69.9 mm S.L., *Anton Bruun* Exped. Sta. 88, Peru-Chile Trench, 07° 58'S-80° 37'W, depth 1005-1024 m, beam trawl October 14, 1965, coll. Dr. M. C. Băcescu.

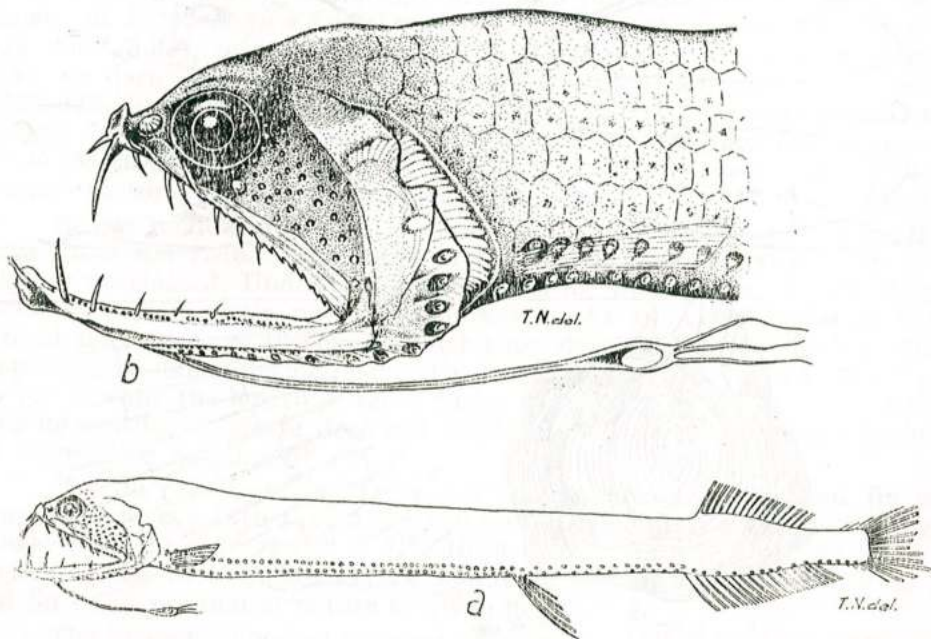


Fig. 2. — *Stomias atriventer* Garman; a. Outline of the specimen; b. Lateral view of the head, for the arrangement of photophores and dentition.

The total number of photophores in the ventral row are 81, disposed as follows: 9 on the isthmus, 45 from the root of pectorals to the root of ventrals, 12 from the ventrals to the anal origin and 15 from the anal origin to the base of caudal.

Fin rays formula: D 16, A 17, V 5, P 7, C 18.

*Remarks.* Possibly the 11 specimens of *Stomias boa boa* Risso mentioned by Bussing [3], may represent this species.

Fam. BROTULIDAE

*Bassogigas* sp.

Fig. 3 a-c

*Material:* one specimen 110.0 mm S.L., *Anton Bruun* Exped., Sta. 161, Peru-Chile Trench, 08°23'S—80°25'W, depth 2945—2966 m, beam trawl, October 31, 1965, Coll. Dr. M. C. Băcescu.

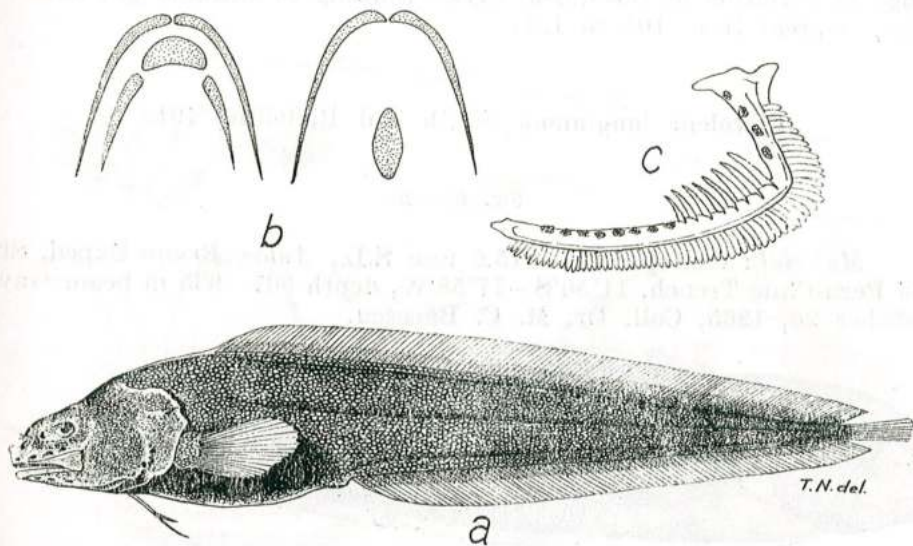


Fig. 3. — *Bassogigas* sp.; a. Lateral view of the specimen; b. The arrangement of denticles; c. The first left branchial arch.

The body is rather elongated and compressed, tapering gently to the caudal fin. Head robust. Eyes relatively small, covered by skin. Preoperculum slightly denticulated on its vertical edge but not with small spines as in *Neobythites*. Opercular spine robust. A strong carina between interorbital space and first ray of the dorsal fin.

Gill rakers on the first left branchial arch: 4 small tubercles +8 spines +8 small tubercles (total 20).

Tiny teeth on premaxillaries and palatines. Vomerine teeth arranged on a half-moon shaped plate. An elliptical patch of basibranchial teeth is present at the base of the tongue. Small papillae cover the entire mouth cavity and the tongue. Snout rounded, mouth terminal. Posterior margin of maxillary ends slightly beyond the vertical of the posterior rim of the orbit.

Fin rays formula: D 129, A 99, V 2, P 27, C 4 +5 (total 9).

Caudal fin free, not included by dorsal and anal.

Colour: generally gray-violet. Sides of head grayish-brown. A narrow postopercular blackish area. The abdomen is bluish-gray. The mouth cavity, the gill chamber and the peritoneum are deep brown pigmented. All fins pale.

*Remarks.* The present specimen appears to be distinct from all known species of *Bassogigas* by its greater number of dorsal and pectoral rays, serrated preoperculars and especially by the presence of a strong predorsal keel. However, among the other species of this genus, *B. digitatus* Garman may be considered as the closest relative to our specimen due to its general appearance, by its great number of dorsal rays. The range of variation of the dorsal rays according to Garman [5] meristic data, is great from 105 to 121.

#### *Dicrolene longimana* Smith and Radcliffe, 1913

Fig. 4 a-b

*Material:* one specimen 315.0 mm S.L., *Anton Bruun* Exped. Sta 144 Pera-Chile Trench, 11°50'S—77°58'W, depth 907—935 m beam trawl October 26, 1965, Coll. Dr. M. C. Băcescu.

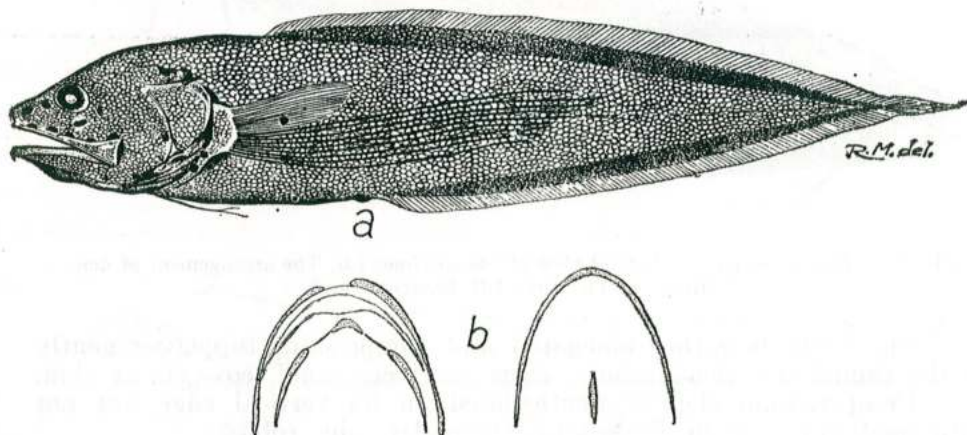


Fig. 4. — *Dicrolene longimana* Smith and Radcliffe; a. Lateral view of the specimen b. The arrangement of dentition.

Fin rays formula : D 111, A 90, V 2, P 13 +9, C 4 +5. Gill rakers 23, long. Tiny teeth present on maxillaries, vomer and palatines on the upper jaw. In the lower jaw the teeth are present on dentaries and in a narrow patch, on basibranchial.

*Remarks.* This present species seems to be conspecific with *D. filamentosa* Garman (5). However, our specimen differs from both *longimana* and *filamentosa*, especially by its fin rays formula.

For comparison, see also the original descriptions of these two species with Radcliffe [7] and Garman [5].

### *Hepthocara* sp.

Fig. 5 a-e

*Material:* one adult specimen 324.0 mm in standard length, *Anton Bruun* Exped., Peru-Chile Trench, October 1965, Coll. Dr. M. C. Băcescu. No other data. One juvenile specimen 64.8 mm in standard length, *Anton Bruun* Exped., Sta 95, Peru-Chile Trench, 08°31'S—81°40'W Menzies trawl, October 15, 1965, Coll. Dr. M. C. Băcescu.

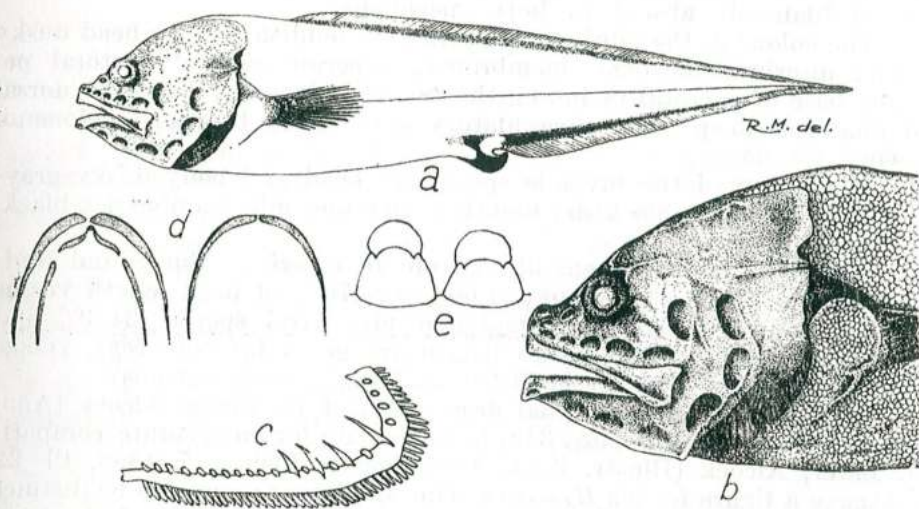


Fig. 5. — *Hepthocara* sp.; a. Outline of the adult male; b. Details of the head; c. The first left branchial arch in the same specimen; d. The arrangement of dentition, same specimen; e. Two chisel-like teeth from the mandible.

The body is long, very much attenuated posteriorly. Head robust and scaleless. The head bones are thin and smooth, being translucent in the juvenile specimen. Gill rakers on the left first arch in the adult male, 22 and 19 in the juvenile specimen. In the longest specimen there are 4 small tubercles (knots), 4 spines (between them 3 small tubercles) and

11 tubercles or knots. In the juvenile specimen, the arrangement of spines is as follow: 4 conspicuous obtuse and spiny knots, 5 denticulated long spines and 11 knots like the first four.

Pseudobranchiae present on the inner face of the operculum, as two minute diverticles. Tiny teeth on premaxillaries, vomer, palatines and dentaries in the juvenile specimen.

The teeth in the adult male are robust at the base, with a chisel like tip; on vomer and palatines the teeth are arranged in narrow bands. No teeth on basibranchial. Snout blunt, mouth terminal, lower jaw not included. The posterior margin of maxillaries extended beyond the posterior rim of the orbit.

Two nostrils, the posterior one being larger and situated in front of the eye.

In the adult specimen, a series of large pores are distributed as follow (on each side of the head): supranasal 2, supramaxillary 6, post-orbital 1, preopercular 3, mandibular 4.

In the juvenile specimen only the 4 mandibular pores are discernible.

Preoperculum without spines. Opercular spine weak in both specimens. Body covered by tiny cycloid scales. Whole head naked.

Dorsal and anal continuous with the caudal.

Fin rays formula (in brackets for the juvenile specimen): D 135 cca (140 cca), A 100 cca (114 cca), P 18 (19), C 4+4 (broken in juvenile). Ventral filaments absent in both specimens.

The colour in the adult male: generally reddish-brown; head dusky brown; interbranchiostegal membranae, superior part of pectoral peduncle, base of pectoral including the fin, are blackish; bases of dorsal and anal fins deep brown; copulatory organ deep brown; peritoneum brown.

The colour of the juvenile specimen: head and body dusky gray-brown the abdomen blackish; mouth cavity and gill chamber jet black. All fins pale brown.

*Remarks.* Our specimens differ from *H. crassiceps* Smith and Radcliffe, 1913 by a shorter snout (21.60%—23.70% of head length versus 27.70%), and by longer predorsal and preventral spaces (24.3% and respectively 37.30% of standard length are given for *crassiceps*, versus 29.40—30.06% and respectively 51.03—52.50% in our specimens).

Unfortunately, the original description of *H. simum* Alcock (Ann. Mag. Nat. Hist., 10 (6), 1892: 349) is inadequate for an accurate comparison. Later, Alcock (Illustr. Zool. Investigator, Fishes, 5, 1898, Pl. 22 fig. 1) gave a figure for his *H. simum*. Our specimens appear to be distinct from Alcock's *simum* in their head shape, the dorsal profile of the head being in *simum* more abrupt.

Fam. CYCLOPTERIDAE

*Menziesichthys* nov. gen.

Type species: *Menziesichthys bacescui* sp. nov.

*Diagnosis.* Disk absent. Head large, with a large terminal mouth. Acicular teeth present on dentaries, premaxillaries and vomer.



Eyes hidden under the skin. Nostril single. Two pairs of barbels on the lower jaw, the anterior being the longest. A small protuberance with two strong spines behind the upper part of the operculum.

*Description.* Body moderately heavy anteriorly, attenuated posteriorly. Head large, compressed, the cheeks are vertical. Mouth cleft large, with both jaws equal. The posterior margin of the mouth under the posterior rim of the orbit. Teeth in narrow bands, acicular, present on the dentaries, maxillaries and vomer. A single nostril on each side of the head in front of the eyes. The first pair of barbels inserted in the middle part of the lower jaw and the second pair inserted at the mouth corner. Eyes large, covered by skin, their contour being hardly discernible. Gill opening generally large, up to the pectoral insertion. Two postopercular spines on each side of the body, projected obliquely upward and downward. Disk absent. The pectoral fin deeply notched. Last vertebra much compressed as a hypural plate. Two pterygophore bones below the hypural. Caudal rays apparently lacking. No prickles on the body.

This genus is named *Menziesichthys*, in honour of Dr. Robert H. Menzies, the head scientist of the 11th cruise of the R/V "Anton Bruun".

### *Menziesichthys bacescui* sp. nova.

Fig. 6 a-f

*Holotype*: Type Fish Collection Cat. Nr. 169, one specimen 43.2 mm in S.L., *Anton Bruun* Exped. Sta. 94, Peru-Chile Trench, 08° 21'S—81° 25'W, depth 1296—1317 m, Menzies trawl, October 14, 1965, preserved by Dr. Mihai C. Băcescu. Only the type specimen is known.

Diagnosis and description as for the genus.

The following morphometric features are expressed in percentages of the standard length: greatest height (depth) of the body (and of the head): 19.47; head length: 23.20; horizontal diameter of the eye: 4.62; preorbital space (length of the snout): 4.62; postorbital space: 10.40; length of the maxillary 11.10; predorsal space: 24.30; preanal space 30.00. Values in percentages of the head length: horizontal diameter of the eye: 20.00; snout length: 20.00; postorbital space: 45.00; length of maxillary 48.00.

*Colour*: generally uniform yellowish. Eye bluish-gray, visible through the transparency of the skin. Abdomen deep gray. Peritoneum blackish. Mouth cavity unpigmented. All fins pale.

*Remarks.* The new genus and species, appear closely related to *Rhinoliparis*, but differ from it by the presence of two strong spines behind the upper part of the head and by the presence of two pairs of barbels on the lower jaw. For further details in comparison with *Rhinoliparis*, see Burke [2].

This species is named in honour of Dr. Mihai C. Băcescu who collected and preserved this very interesting Liparid fish.

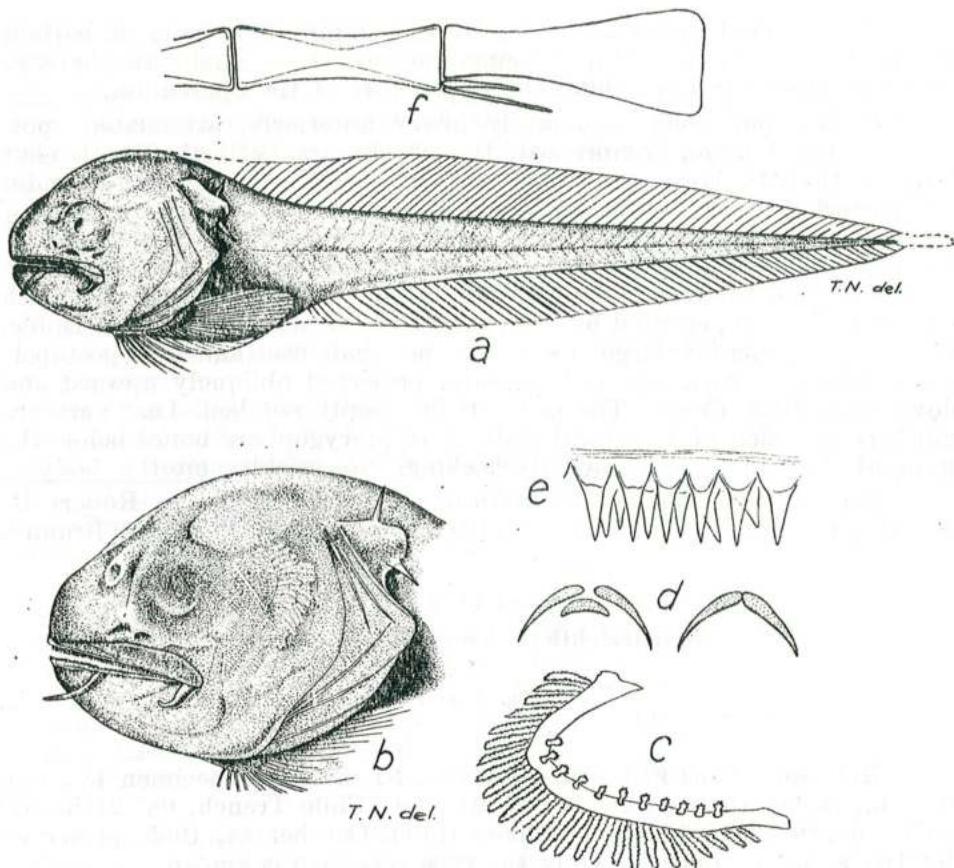


Fig. 6. — *Menziesichthys bacescui* gen. nov., sp. nov.; a. Lateral view of the holotype; b. Head, details; c. First right branchial arch; d. The arrangement of dentition; e. Maxillary teeth, detail; f. The last vertebral region.

#### BIBLIOGRAPHY

1. BAUCHOT M. L., Vie et milieu, 1962, 13, 4, 613—647.
2. BURKE V., *Revision of the Fishes of the Family Liparidae*. Bull. U.S. Nation. Mus., 1930, 150, 1—204.
3. BUSSING W. A., In George A. Llano (Editor), *Biology of the Antarctic Seas II.*, Amer. Geophys. Un., Ant. Res. Ser., 1965, 5, 1297, 185—227.
4. EGE W., *The Genus Stomias Cuvier, Taxonomy and Bio-Geography (Based on Adolescent and Adult Specimens)*. Dana Rept., 1934, 5, 1—58.
5. GARMAN S., *Reports on an Exploration off the West Coasts of Mexico, Central and South America, and off the Galapagos Islands etc.* . . 24. *The Fishes Mem. Comp. Zool. Harvard Coll.* 1899, 1—431.
6. GIBBS R. H., *Taxonomy, Sexual Dimorphism, Vertical Distribution, and Evolutionary Zoogeography of the Bathypelagic Fish Genus Stomias (Stomiidae)*. Smiths. Contrib. Zool., 31, 1—25.
7. RADCLIFFE L. Proc. U.S. Nation. Mus., 1913, 44, 1948, 135—176.

Received April 20, 1971

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