

A New Synphobranchid Eel, *Dysomma longirostrum* (Anguilliformes: Synphobranchidae), from the Northeastern Coast of Taiwan

Yu-Yun Chen and Hin-Kiu Mok*

Institute of Marine Biology, National Sun Yat-sen University, Kaohsiung, Taiwan 804, R.O.C.

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Yu-Yun Chen and Hin-Kiu Mok (2001) A new synphobranchid eel, *Dysomma longirostrum* (Anguilliformes: Synphobranchidae), from the northeastern coast of Taiwan. *Zoological Studies* 40(2): 79-83. A new species of the synphobranchid eel genus *Dysomma* is described from the northeastern coast of Taiwan based on 1 specimen collected by bottom trawl at depths from 100 to 150 m. It is characterized as having an exceptionally long snout and jaw (4.6% and 8.2% of total length, respectively), no premaxillary teeth, slender and multiserial teeth on the maxillary and dentary, five large compound teeth on the vomer, a tubelike groove connecting pairs of lateral line pores, and a brownish body color.

Key words: Synphobranchidae, *Dysomma longirostrum* n. sp., Nanfangao.

For a long time, only 2 synphobranchid species, *Dysomma anguillare* and *D. melanurum*, had been reported from Taiwanese waters (Chen and Wang 1967), and it was not until recently that an additional 2 species, *Meadia roseni* from Mok et al. (1991) and *D. opisthoproctus* from Chen and Mok (1995), were added. Lately, specimens collected from the southwestern and eastern coasts of Taiwan have notably increased the number of synphobranchid species in this region, for a total of 13 species in 6 genera. These new collections include *Simenchelys parasitica*, *Synphobranchus affinis*, *S. kaupii*, *Ilyophis brunneus*, *Meadia roseni*, *M. abyssale*, *Dysommia rugosa*, *Dysomma anguillare*, *D. dolichosomatum*, *D. goslinei*, *D. melanurum*, *D. opisthoproctus*, and *D. polycatodon*. In addition to these 13 species, a distinctly different specimen was collected in 1992 from northeastern Taiwan. We have compared it with its closest relatives, *D. goslinei* and *D. melanurum*, and treat it here as a new species.

MATERIALS AND METHODS

The holotype was collected by bottom trawl in

waters northeast of Taiwan at a depth of 100-150 m and landed at the Nanfangao fish market on the northeastern coast. Photographs of the holotype were taken after it had been fixed in 10% saline formalin and preserved in 70% ethanol. The holotype was temporarily stained with cyanine blue for observation and counts of the lateralis sensory pores (Saruwatari et al. 1997). Measurements were made by vernier calipers according to Saldanha and Merrett (1982). Radiographs were taken for counting vertebrae. The holotype is deposited at the Fish Collection, Institute of Marine Biology, National Sun Yat-sen University (NSYU).

Dysomma longirostrum n. sp. (Figs. 1A, 2A, 2B, 2C)

Holotype: NSYU 2732, 196 mm TL, 12 Sept. 1992, Nanfangao fish market, northeastern coast of Taiwan, bottom trawl in 100-150 m depth, obtained by YY Chen.

Diagnosis: Scaleless. Snout long, 4.6% of total length. Jaws long, slender but strong; upper jaw length 8.2% of total length, upper jaw longer than lower. Gill slits ventrolateral, separated below base of pectoral fin. Anus far forward, one gape length behind tip of pectoral fin. Premaxillary teeth absent.

*To whom correspondence and reprint requests should be addressed.

Multiserial, conical, and slender teeth on maxillary and dentary, five large compound vomerine teeth, equally spaced (Fig. 2B). Lateral line nearly complete on body, its length 95.6% of total length, with a tubelike groove connecting every other pair of lateral-line pores. Cephalic lateralis pores: infraorbital 8, supraorbital 5, preoperculomandibular 9 (Fig. 2A). Predorsal vertebrae 14, preanal vertebrae 24, total vertebrae 130.

Description: Body short, laterally compressed and tapering posteriorly. Body depth at anus moderately deep (5.1% of total length). Predorsal and preanal fin length 17.9% and 24.0% of total length, respectively. Head length 14.3% of total length. Pro-

portions as percent of head length: snout, 32.1; jaw, 57.1; diameter of eye, 7.1; gill slit, 5.6; and pectoral fin, 21.4 (Table 1). Origin of dorsal fin just above tip of pectoral fin. Anal fin origin just behind anus. Dorsal and anal fins well developed, confluent with caudal fin. Pectoral fins with moderate base and pointed tips, about 1 gape length behind the rictus.

Tip of snout with a forward fleshy protuberance extending beyond tip of lower jaw by a distance of 2/3 of eye diameter (Fig. 2A). Snout blunt, convex from midpoint of eye to fleshy tip of snout, with a groove in the middle of the dorsalis of snout. Anterior nostril a short tube above lip posterior to fleshy tip; posterior nostril covered with a flap before the anterior margin of eye. Eye moderate (7.1% of HL), at a position 2/3 along the jaws.

Lateralis system: Lateral-line pores nearly complete on entire body. Every other 2 pores connected, forming many tubelike grooves on lateral line (Fig. 2A).

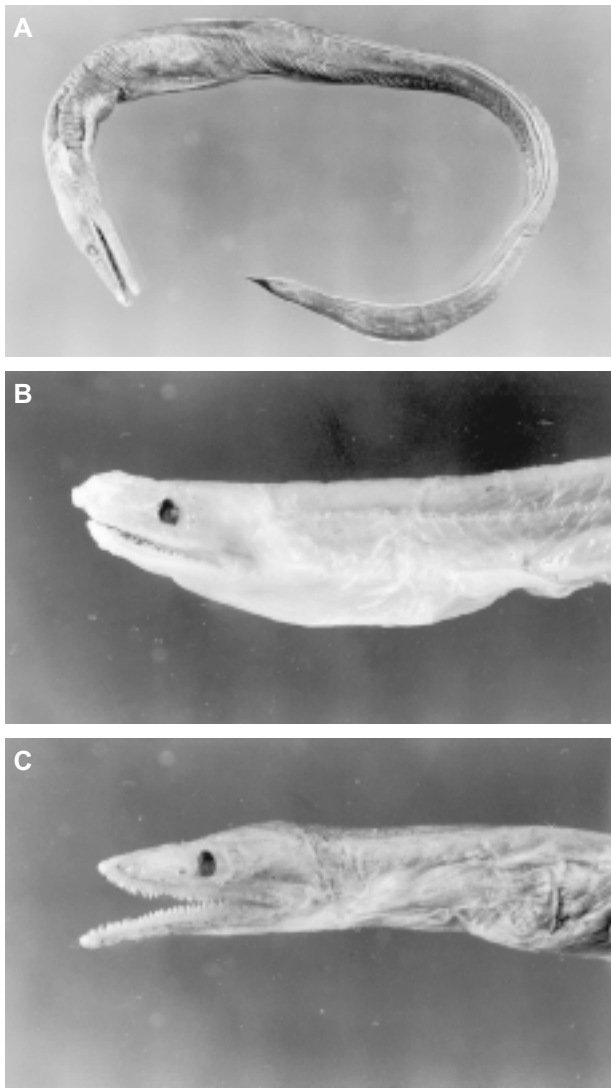


Fig. 1. Photographs of lateral view of A, *Dysomma longirostrum*, holotype NSYU 2732; B, head of *D. goslinei* (NSYU 2607); C, head of *D. melanurum* (NSYU 2504).

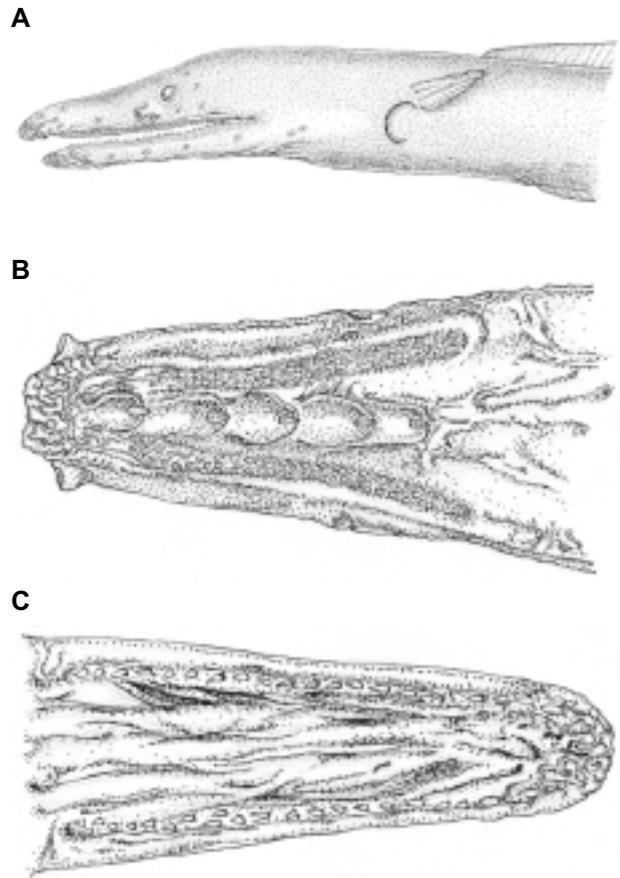


Fig. 2. Lateral view of the head region of *Dysomma longirostrum* (holotype NSYU 2732, 196 mm TL). A, head profile, lateralis system, gill slit, pectoral fin, and dorsal and anal origins; B, dentition of the maxillary; C, dentary.

Table 1. Measurements and proportional dimensions of the holotype of (A) *Dysomma longirostrum* (NSYU 2732), (B) *D. goslinei* (NSYU 2607), and (C) *D. melanurum* (NSYU 2504)

Body measurement	mm			Percent of total length			Percent of head length		
	A	B	C	A	B	C	A	B	C
Total length	196	197	237						
Standard length	189	192	231						
Head length	28	24	32	14.3	12.2	13.5			
Snout length	9	5	6	4.6	2.5	2.5	32.1	20.8	18.8
Jaw length (upper)	16	10	12	8.2	5.1	5.1	57.1	41.7	37.5
Diameter of eye (horizontal)	2	1	1				7.1	4.2	3.1
Gill slit length	1.5	1.9	1.7				5.6	7.9	5.3
Pectoral fin length	6	7	7	3.1	3.6	3.0	21.4	29.2	1.9
Predorsal length	35	21	37	17.9	10.7	15.6			
Preanal length	47	32	39	24.0	16.2	16.5			
Body depth at anus	10	9	9	5.1	4.6	3.8			

Color in alcohol: Body brownish. Dorsal and anal fins pale but slightly brown at base. Posterior anal and caudal fins black.

Etymology: We name this new species *longirostrum* from the Latin *longus* (long) and *rostrum* (snout).

Remarks: According to the characters described above, this specimen is in the subfamily Ilyophinae (Robins and Robins 1976 1989, Karrer and Klausewitz 1981, Mok et al. 1991, Chen and

Mok 1995).

The presence of additional characters (i.e., absence of scales, a longer upper than lower jaw, anus far forward, and 5 large compound teeth) indicate that this specimen should belong either to the genus *Dysomma* or to *Atractodenchelys*. *Atractodenchelys*, however has prominent premaxillary teeth, while this specimen lacks premaxillary teeth; this character would exclude it from membership in *Atractodenchelys*. Besides *D. longirostrum*, the absence of

Table 2. Comparison among *Dysomma* spp., including the holotype *D. longirostrum* (NSYU 2732). Data on *Dysomma* spp. are from Chen and Mok (1995) and Robins and Robins (1976 1989)

	<i>D. longirostrum</i>	<i>D. goslinei</i>	<i>D. melanurum</i>	<i>D. opisthoproctus</i>	<i>D. anguillare</i>	<i>D. bucephalus</i>
Pectoral fin	+	+	+	+	+	+
Anus posterior	–	–	–	+	–	–
Premaxillary teeth	0	0	0	2	2	2
Dentary teeth	numerous, inner row large	numerous, small	numerous, small	7 or 8 large, comp. ^a	10 large, comp.	35-40, comp.; posterior, tiny, 21-26
Vomerine teeth	5, comp. ^a	4, comp.	5, comp.	5, comp.	4-5, comp.	4, comp.
Vertebral counts	130	130-131 (123) ^b	137 (134) ^c	120	119-130	107
Body color	brownish	pale	pale	pale	pale	pale

	<i>D. polycatodon</i>	<i>D. brevirostre</i>	<i>D. muciparus</i>	<i>D. dolichosomatum</i>	<i>D. tridens</i>
Pectoral fin	+	–	–	–	–
Anus posterior	–	–	–	–	–
Premaxillary teeth	2	2	2	2	3
Dentary teeth	anterior 2 large, comp.; posterior, tiny, a row	anterior 3 large, comp.; posterior, small, a row	anterior 4 large, comp.; posterior, small, a band,	anterior 4-5 large, comp.; posterior, many, small	anterior 4 large, comp.; posterior, many, small
Vomerine teeth	5, comp.	5, comp.	5, comp.	4-5, comp.	3, comp.
Vertebral counts	140	193-204	153-162	146-153	175
Body color	pale	pale	pale	pale	pale

^acompound.

^bvertebrae count of *D. goslinei* (NSYU 2607).

^cvertebrae count of *D. melanurum* (NSYU 2504).

Table 3. Comparisons of *Dysomma longirostrum* (NSYU 2732), *D. goslinei* (NSYU 2607), and *D. melanurum* (NSYU 2504)

	<i>D. longirostrum</i>	<i>D. goslinei</i>	<i>D. melanurum</i>
Total length (TL)	196 mm	197 mm	237 mm
Head length (HL)	14.3% of TL	12.2% of TL	13.5% of TL
Jaw length (upper)	57.1% of HL	41.7% of HL	37.5% of HL
Snout length	32.1% of HL	20.8% of HL	18.8% of HL
Predorsal length	17.9% of TL	10.7% of TL	15.6% of TL
Preanal length	24.0% of TL	16.2% of TL	16.5% of TL
Scales	absent	absent	absent
Eye position	2/3 of jaws	middle of jaws	middle of jaws
Jaws	upper longer than lower	upper shorter than lower	upper longer than lower
Tubular groove on LL ^a	present separately	absent	present completely
LL pores	95.6% of body	anterior 23.0% of body	97.5% of body
Infraorbital pores	8	5	5
Supraorbital pores	5	3	3
Preoperculomandibular pores	9	6	6
Vertebral formula ^b	14-24-130	10-15-123	13-14-134
Dorsal-fin origin	above tip of pectoral fin	above base of pectoral fin	above middle of pectoral fin
Dorsal and anal fin	well developed	well developed	reduced
Position of anus	1 gape length behind tip of pectoral fin	little behind tip of pectoral fin	little before tip of pectoral fin
Teeth on vomer	1+1+1+1+1, comp. ^c	2+2, comp.	2+3, comp.

^alateral line.^bpredorsal-preanal-total^ccompound

premaxillary teeth also occurs in *D. goslinei*, *D. melanurum*, and *Dysommia rugosa*, while other dysommid eels have premaxillary teeth. *Dysomma longirostrum* differs from *D. goslinei* and *D. melanurum* in several characters (Table 3) including a distinct long snout (32.1% of head length, vs. the latter two at 20.8% and 18.8%), long gape (57.1% of head length, vs. 41.7% and 37.5%), long predorsal length (17.9% of total length, vs. 10.7% and 15.6%), and long preanal length (24.0% of total length, vs. 16.2% and 16.5%); more cephalic sensory pores (infraorbital 8, supraorbital 5, preoperculomandibular 9, while the latter two have 5, 3, and 6 counts, respectively, as do other *Dysomma* spp.); eye located more posteriorly (at a point 2/3 along jaws), while those of the latter two are both at the middle of the jaws; more preanal vertebrae (24, while the latter two have 15 and 14); the position of the dorsal fin and anal fin are more posterior to the pectoral fin, while in the latter two they are forward; distinct separate tubelike grooves on the lateral line, while in *D. goslinei* these grooves are lacking and in *D. melanurum* these tubelike grooves are connected continuously; and a flap covering the posterior nostril, while the other two have only a rim on it. According to these unique characters, we interpret this synphobranchid eel, *Dysomma longirostrum*, as a

new species.

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臺灣東北部海域的新種合鰓鰻，長吻前肛鰻

陳餘望 莫顯喬

本文描述之新種合鰓鰻屬於前肛鰻屬，是以底拖方式在臺灣東北部海域一百至一百五十公尺深處捕獲。其特徵在於有一個特別長的吻和顎(各佔全長的 4.6% 及 8.2%)，不具前頰齒，上下頰齒為細長形、呈多列，鋤骨齒有五顆、複合齒，具有管狀的側線孔溝，體色則呈棕色。

關鍵詞：合鰓鰻科，長吻前肛鰻，南方澳。

國立中山大學海洋生物研究所