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New Record for *Neenchelys daedalus* (Ophichthidae) from Japan

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A single specimen of the ophichthid eel was trawled from the Pacific Ocean off Suruga Bay of central Japan, during KT-83-18 cruise of the R/V Tansei-Maru of the Ocean Research Institute, University of Tokyo (ORIUT) in 1983. It had a short but rayed caudal fin, a well-developed pectoral fin, and a slit-like posterior nostril on the side of the head above the lip, characters diagnostic of *Neenchelys* according to McCosker (1977, 1982). Although it had more vertebrae and cephalic sensory pores than the type specimens of *Neenchelys daedalus* McCosker, 1982, we identified our material as *N. daedalus*. This is the first occurrence of the genus from Japan, and *N. daedalus* is hitherto known only from Papua New Guinea and the Banda Sea (McCosker, 1982). We herein give a description and figure of the species on the basis of the Japanese specimen.

All measurements are straight-line measurements. Head length was measured from the tip of the snout to the posterior margin of the gill opening. Trunk length was taken from the posterior end of the gill opening to the middle of the anus. Number of vertebrae was counted on soft X-ray negatives. Total length is expressed as TL. The present specimen has been deposited in ORIUT.

Neenchelys daedalus McCosker, 1982
(New Japanese name: Mukashi-umihebi)
(Figs. 1-3)

Neenchelys daedalus McCosker, 1982: 63, figs. 4-5 (original description; type locality Astrolabe Bay, south of Madang, Papua New Guinea); Smith and Böhlke, 1983: 83.

Material. *Neenchelys daedalus*, ORIUT·KT·8318·11·0101, 1 specimen, 561 mm TL, female with unripened eggs, 35°00.00′N, 138°40.00′E-34°58.02′N, 138°40.00′E, Pacific Ocean off Heda facing Suruga Bay, central Japan, depths 1376-1450 m, 3-m ORE beam trawl, Nov. 13, 1983.

Description. Counts and measurements are given in Table 1. Head and body compressed. Body extremely elongate (Fig. 1); tail much longer than head and trunk length, ca. 3/4 TL. Snout long, acute. Lower jaw included. Snout and lower lip with numerous small papillae. Anterior nostril tubular. Posterior nostril an elongate slit, as long as eye diameter, placed side of head above upper lip just before eye. Eye rather small, circular. Mouth large, the gape extending 2/3 eye diameter beyond rear margin of eye. Gill opening low on side, a constricted hole slightly larger than eye. Dentition is shown in Fig. 2.

Sensory pores on head are as follows: 1 on interorbital, 1 on supratemporal commissure, 6 (left) or 5 (right) on supraorbital, 2 on postorbital, 4 on infraorbital, 6 (left) or 7 (right) on mandible, 2 on preopercle, and 1 on temporal (Fig. 3). Lateral line pores 15 on head, 69 before anus.

Pectoral fin well developed. Dorsal-fin origin anterior to mid-trunk. Anal-fin rays much longer than dorsal-fin rays. Caudal-fin rays short but distinct.

Coloration in alcohol: Head and body uniformly light brown. Median fins whitish except for dorsal and anal fins on posterior 1/5 of tail edged with black. Pectoral fin pale.

Remarks. According to Smith and Böhlke (1983), the worm eel genus *Neenchelys* is represented by five nominal species: *N. mircotretus* Bamber, 1915 (Red Sea); *N. buitendijki* Weber et de Beaufort, 1916 (Indian Ocean); *N. parvipectoralis* Chu, Wu et Jin, 1981 (South China Sea); *N. daedalus* McCosker, 1982 (Papua New Guinea and Banda Sea); and *N. retropinna* Smith et Böhlke, 1983 (Gulf of Oman and Arafura Sea). The former three species have a robust body with a large, deep branchial area and a very small head, and the pectoral fin is present though sometimes small, whereas other species have an elongated body and a well-developed pectoral fin (Smith and Böhlke, 1983). However, *N. retropinna* may ultimately be placed in a new genus or be combined with one or more other species into an existing genus (Smith and Böhlke, 1983).

It is clear that our material is not *N. retropinna*, the most recently described species in the genus, which has a dorsal-fin origin posterior to the anal-fin origin (Smith and Böhlke, 1983). It also differs from *N. retropinna* in having a pectoral fin longer than snout (vs. shorter than snout) and 265 vertebrae (vs. 181-184). McCosker (1982) compared four nominal *Neenchelys* species, and considered that *N. daedalus* may be separated from its congeners in head length, tail length, body depth and total vertebral count.

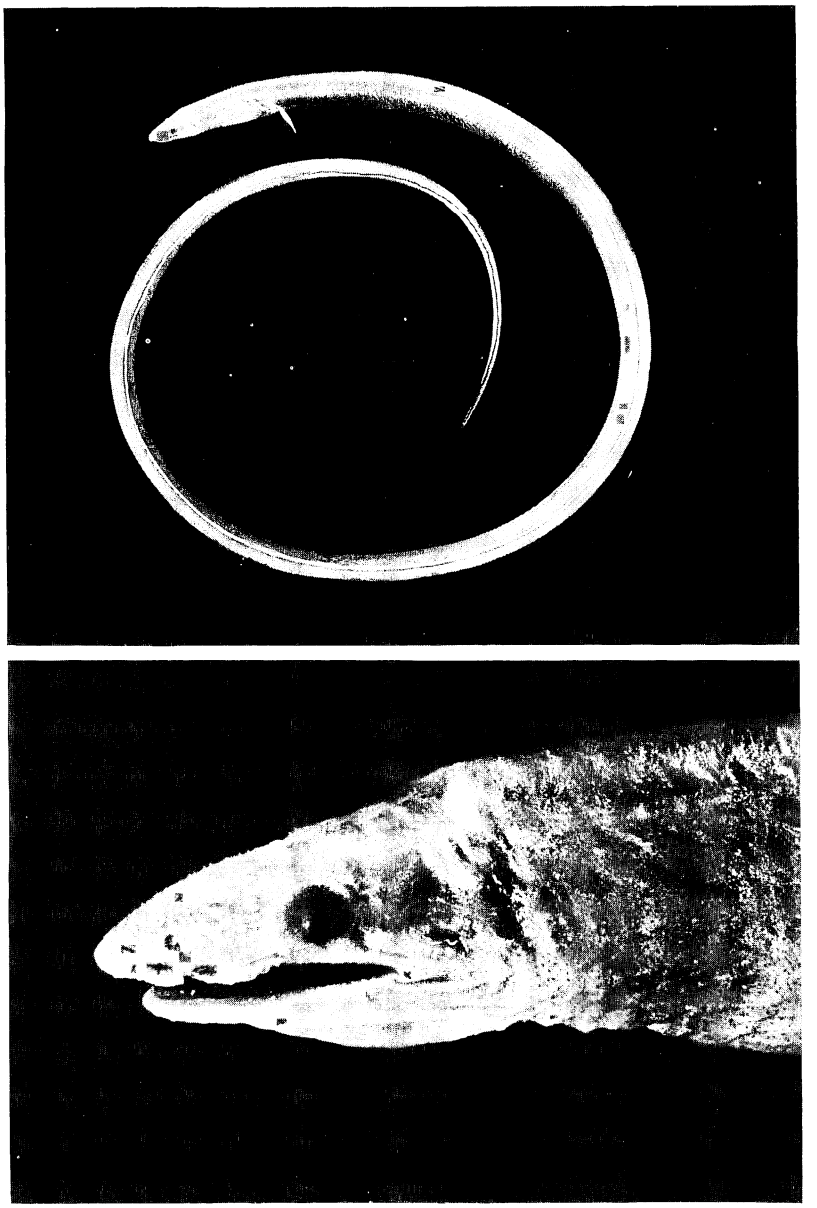

Fig. 1. *Neenchelys daedalus*, ORIUT・KT・8318・11・0101, 561 mm TL, from the Pacific Ocean off central Japan. Note well developed pectoral fin and posterior part of dorsal fin edged with black (top), and posterior nostril above upper lip before eye and snout with papillae (bottom).

Judging from McCokser (1982: 64, Table 1), the present material agrees well with *N. daedalus* in its head length being 6.5% TL (6.9–7.8% TL in *N. daedalus*), tail length 74% TL (73–74%), and body depth 1.8% TL (1.9–2.2%). McCosker (1982) counted 235 vertebrae in the holotype and 225 in the paratype of *N. daedalus* (Table 1). Total vertebrae of our specimen apparently differs from those of the type-specimens of *N. daedalus*. However, McCosker (1982) referred to the presence of 11 specimens which were all small and appeared identical in proportions to the *N. daedalus* type-specimens. He tentatively identified them as *N. daedalus*, because eight of them had 251–274 vertebrae. McCosker (1982)

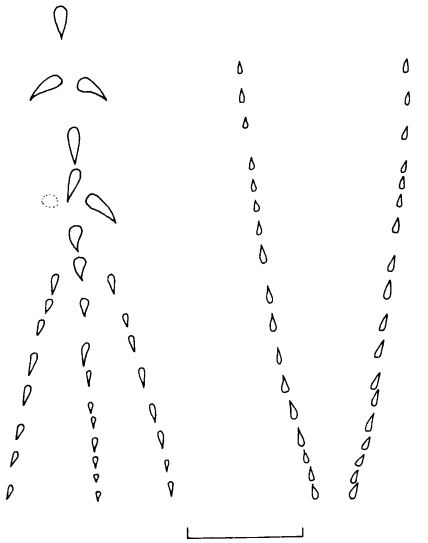

Fig. 2. Upper (left) and lower (right) jaw dentition in *Neenchelys daedalus*. ORIUT·KT·8318·11·0101. Scale bar indicates 2 mm.

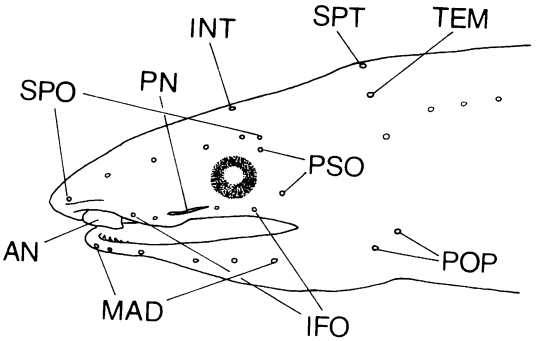

Fig. 3. Nostrils and cephalic sensory pores in *Neenchelys daedalus*, ORIUT · KT · 8318 · 11 · 0101. AN, anterior nostril; PN, posterior nostril; SPO, supraorbital pores; INT, interorbital pore; SPT, supratemporal pore; TEM, temporal pore; PSO, postorbital pores; IFO, infraorbital pores; MAD, mandibular pores; POP, preopercular pores.

noted, "I am unable to account for such a large mean difference and broad range in vertebral number for conspecifics in such close geographical proximity, and therefore have not made them type-specimens." Although our material is far larger than the holotype (341.5 mm TL) and paratype (272.9 mm TL) of *N. daedalus*, its vertebral count falls within the range for non-type material in McCosker's (1982) study. The present material strongly supports that *N. daedalus* exhibits a broad range in its vertebral number.

A slight difference can be seen in the counts of cephalic sensory pores between our material and the

Table 1. Comparison between the Japanese specimen and type-specimens of *Neenchelys daedalus*. *, McCosker (1982)

	Japanese specimen	Holotype*	Paratype*
TL (mm)	561.0	341.5	272.9
Head length (mm)	36.3	23.5	21.4
Total vertebrae	265	235	225
Preanal vertebrae	69	59	58
Predorsal vertebrae	32		
In TL (% in parentheses)			
Head length	15.5 (6.5)	14.5 (6.9)	12.8 (7.8)
Head plus trunk length	3.8 (26.4)	3.9 (25.9)	3.6 (27.4)
Tail length	1.4 (73.6)	1.3 (74.1)	1.4 (72.6)
Body depth at gill opening	53.9 (1.9)	51.7 (1.9)	46.3 (2.2)
Body width at gill opening	96.7 (1.0)	72.7 (1.4)	68.2 (1.5)
Body depth at anus	56.1 (1.8)	55.1 (1.8)	54.6 (1.8)
Body width at anus	70.1 (1.4)	81.3 (1.2)	78.0 (1.3)
Predorsal length	7.4 (13.5)	6.9 (14.5)	5.5 (15.4)
In head length			
Pectoral fin length	4.2 (24.0)	4.5 (22.1)	4.3 (23.4)
Snout length	5.8 (17.2)	6.0 (16.6)	5.6 (17.8)
Upper jaw length	3.7 (27.0)	3.8 (26.4)	4.1 (24.3)
In upper jaw length			
Eye diameter	5.3 (18.9)	5.2 (19.4)	4.3 (23.1)
Interorbital width	2.8 (35.7)	3.0 (33.1)	2.9 (34.6)

original description and figure of *N. daedalus* (McCosker, 1982): six (left) or five (right) vs. five supraorbital pores, and six (left) or seven (right) vs. five mandibular pores. Apparently these counts in our material are anomalous, and it is uncertain whether the higher count of mandibular pores in our material is owing to geographical variation within a species. McCosker (1982) noted that fins are colorless in the original description of the species. However, the figure of the holotype (McCosker, 1982: 63, Fig. 4) shows that posterior ends of the dorsal and anal fins of the holotype are faintly edged with black. The coloration of the dorsal and anal fins in our material may agree with that of the holotype.

Although all specimens of *N. daedalus* reported by McCosker were taken from midwater, there is a possibility that the adults are benthic eels (McCosker, 1982). It is probable that the present specimen was caught on the bottom at the time of capture. However, this new record for *N. daedalus* from Japan represents a significant northern range extension of the species.

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Literature Cited

McCosker, J. E. 1977. The osteology, classification, and relationships of the eel family Ophichthidae. Proc. Calif. Acad. Sci., Ser. 4, 41: 1–123.

McCosker, J. E. 1982. A new genus and two new species of remarkable Pacific worm eels (Ophichthidae, subfamily Myrophinae). Proc. Calif. Acad. Sci., 43: 59–66.

Smith, D. G. and J. E. Böhlke. 1983. *Neenchelys retropinna*: a new worm eel (Pisces: Ophichthidae) from the Indian Ocean. Proc. Acad. Nat. Sci. Philad., 135: 80–84.

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本邦初記録のムカシウミヘビ（新称）

町田吉彦・太田　秀

1983年に駿河湾の水深 1376–1450 m でトロールにより採集したウミヘビ科の1標本を，ニンギョウアナゴ亜科 *Neenchelys* 属（ムカシウミヘビ属：新称）の *N. daedalus* と査定し，新和名ムカシウミヘビを与えた．本属は尾部が著しく長いこと，背鰭が躯幹部のほぼ中央から始まること，胸鰭があること，前鼻孔が筒状であること，後鼻孔は裂孔状で，眼の直前に位置することを特徴とする．本標本は頭部感覚孔の数が一部左右で一致せず，かつ *N. daedalus* の原記載より若干多い．しかし，本属内の種を識別するのに重要な測定形質が *N. daedalus* と良く一致することで本種と査定した．同時に，本標本の総脊椎骨数は模式標本より明らかに多いが，それ以外の標本で報告された数に一致し，本種の総脊椎骨数は 225–274 と著しい変異を示すことが裏付けられた．本種は原記載におけるパプア・ニューギニアとバンダ海以外からの報告がなく，本報告が本邦近海のみならず，北半球からの初記録となる．なお，新称は本属が原始的形質を保有するとされていることに由来する．

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