

Hagfishes of Taiwan (I): A Taxonomic Revision with Description of Four New *Paramyxine* Species

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Chien-Hsien Kuo, Kao-Fong Huang and Hin-Kiu Mok (1994) Hagfishes of Taiwan (I): A taxonomic revision with description of four new *Paramyxine* species. *Zoological Studies* 33(2): 126-139. Hagfishes from the north-east, east and southwest coasts of Taiwan were subjected to morphological analysis. Nine species (*Eptatretus okinoseanus*, *E. burgeri*, *Paramyxine nelsoni*, *P. yangi*, *P. cheni*, *P. sheni*, *P. taiwanae*, *P. fernholmi* and *P. wisneri*) were identified. Among them, *Paramyxine nelsoni*, *P. sheni*, *P. fernholmi* and *P. wisneri* are new species; *Eptatretus okinoseanus* is a new record. Descriptions and diagnostic characteristics are given for all hagfish species reported in Taiwan waters.

Key words: Taxonomy, *Eptatretus*, *Paramyxine*, Taiwan.

Shen and Tao (1975) revised the taxonomy of hagfishes from Taiwan. They provided new data on *Eptatretus burgeri* (Griard) and *Paramyxine yangi* (Teng), as well as describing two new species, *Paramyxine cheni* and *P. taiwanae*. Despite their increasing economic value as food and ornament no further work on Taiwanese hagfishes has appeared since then. During a survey cruise in 1988 off the southwest coast of Taiwan 240 hagfish specimens were collected. Subsequently, northeast and east coast specimens were obtained. These have provided additional information on hagfish taxonomy. The present paper reports on the hagfishes of Taiwan and gives detailed descriptions of four new species of *Paramyxine*.

fish collection at the Institute of Marine Biology, National Sun Yat-sen University (NSYSU). They were straightened to approximate their life form to ensure accurate measurements. All counts (Fig. 2) were taken from the left side. Only those taxonomic characteristics which were deemed useful by previous researchers (Shen and Tao 1975, Fernholm and Hubbs 1981, McMillan and Wisner 1984) were recorded. They included: total length, head length, preocular length, prebranchial length, branchial length, trunk length, tail length, tail depth, body width, gill aperture and pouche counts, slime pores, fused unicuspid teeth, dental formula, and coloration (e.g., occurrence of eye spots and whitish mid-dorsal stripe) were recorded. No specimen of *Paramyxine cheni* was captured during this study. The holotype and two paratypes of *P. cheni* from the Department of Zoology, National Taiwan University (NTU) were examined.

MATERIALS AND METHODS

From February, 1988 to May, 1991 hagfishes were collected by shrimp traps from the coastal waters off the northeast, southwest and east coasts of Taiwan (Fig. 1). Terminology, count and measurement method follow those of Dean (1904), Shen and Tao (1975), Fernholm and Hubbs (1981), as well as McMillan and Wisner (1984). Specimens preserved in 10% formalin were deposited in the

RESULTS

Key to myxinid genera discussed herein

- 1a. All efferent ducts approximately equal in length *Eptatretus*
- 1b. Anterior efferent ducts notably longer than the most posterior one *Paramyxine*