

New record of the rare shark species *Parmaturus melanobranchius* (Scyliorhinidae)

from Taiwan

Running Title : New record of blackgill catshark

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ABSTRACT

The specimen of *Parmaturus melanobranchius* (Chondrichthyes: Carcharhiniformes) was collected in the waters off south-western Taiwan. After the description in 1966, only two specimens were collected, one from South China Sea and the other from Aragusuku Island of Ryukyu Archipelago. In this study, the third specimen was reported and its diagnostic characters, color photos and distribution map are given.

KEY WORDS : New record, Catshark, Taiwan, Scyliorhinid, Rare species

INTRODUCTION

Sharks obtain much attention recently because of the conservation issues. Some species of sharks are under the fishery pressure and natural population size of these species was declined very quickly (Myers et al., 2007). However, some shark species are originally rare, for example, the famous megamouth shark (Berra, 1997) was recorded for just 46 individuals (Lee & Shao, 2010) after the description. *Parmaturus melanobranchius* (Chan, 1966) is one of the rarest sharks, only two specimens were collected, one from South China Sea and the other from Aragusuku Island of Ryukyu Archipelago. During our deep-sea investigation cruise in 24 November 2001 off southwest Taiwan, a juvenile male specimen was collected from station CD141 of depth 985-1110 m with a bottom otter trawl employed as sampling tool.

The poorly known catshark genus *Parmaturus* Garman is defined by following characters: anal and subcaudal long, snout short and thick, nostrils near mouth, supracaudal crest of denticles, first dorsal fin above pelvic fins and second dorsal fin above anal fin (Garman, 1906; Séret & Last, 2007). However, due to the lack of specimens and bad condition of deep-sea specimens, the revision of *Parmaturus*, as well as the scyliorhinid genera *Galeus* Rafinesque and *Halaelurus* Gill, could not be finished. The status of these genera has been questioned because of the variability of some diagnostic features. The most useful diagnostic characters of genus *Parmaturus*

might be the soft body and presence of a crest of enlarged denticles on the upper caudal lobe compared with *Halaelurus* (Compagno, 1984; Séret & Last, 2007). In this study, the characters of the specimen are fully consistent with the species *P. melanobranchius*. This paper includes description of diagnostic characters and geographical distribution map of *P. melanobranchius*. Color photos are also given.

MATERIALS AND METHODS

Measurements were taken according to Compagno (2001) and Iglésias *et al.* (2004) and data were expressed in Table 1 in mm and percentages of total length (TL). Specimens were preserved in formalin and deposited in 70% alcohol permanently at the Research Museum of Biodiversity Research Center, Academia Sinica (BRCAS) with number ASIZP 60963. The capture localities of specimen in this study with other known specimens are shown in Figure 1. Fish names in Chinese were based on Latin-Chinese Dictionary of Fishes Names (Wu *et al.*, 1999).

Table 1 here

Figure 1 here

RESULTS

SPECIES ACCOUNT

Parmaturus melanobranchius (Chan, 1966) 黑鰓盾尾鯊

Material Examined. ASIZP 60963, 148 mm TL, juvenile male, collected from Southern Taiwan Strait in 24 November 2001 by authors.

Diagnosis. A scyliorhinid catshark with the following combination of characters: a soft body; blackish grey to light brown coloration; front edges and distal halves of fins, tip of snout, and lateral edge of nostrils blackish brown; skin with large bristle-like denticles; dermal denticles along dorsal margin of anterior half of caudal, as well as along ventral edge of caudal peduncle and front portion of lower caudal lobe, modified to form a crest of enlarged denticles, denticles bearing three points; teeth alike in both jaws, multicuspid, varying from three to five points; first two outer series on upper jaw without definite shape and typically devoid of pointed cusps; gill openings small, anterior edges strongly curved, closely set; two dorsal fins, first dorsal fin slightly behind middle of back; pelvic fins slightly in front of mid-body, prepelvic length 39% TL; vent at mid-length, pre-vent length 50% TL; snout relatively short, prenarial length 2.97% TL; mouth short, length 2.97% TL; labial furrows short, 1.89–2.03% TL, lower furrows subequal in length to upper furrows; head depressed, shorter than abdomen, length 11.22% TL, pectoral-pelvic length 27.3% TL; second dorsal fin larger than first, anterior margins of first and second dorsal fins 8.7% and 10.4% TL respectively; subterminal caudal lobe relatively small,

subterminal margin length 3.3% TL, terminal margin length 3.8% TL; vertebral data are: precaudal vertebral count = 102; caudal vertebral count = 38; total vertebral count = 140.

Figure 2 here

Figure 3 here

Coloration.

Color blackish grey in fresh specimen and light brown in preservation; front edges and distal halves of fins, tip of snout, and lateral edge of nostrils blackish brown; peritoneum throughout abdominal cavity, lining of gill chambers and externally the first four gill openings, brownish black; areas around stomach and gill chambers blackish grey.

Size. Holotype is a juvenile female of 235 mm in TL, specimen of this study is a juvenile male of 148 mm in TL. Maximum TL about 85 cm (Compagno & Niem, 1998).

Distribution. From the upper continental slopes off China, on mud bottom at depths of 549 to 1100 m. Known only from 3 specimens collected from the South China Sea (BMNH 1965.8.11.6), Taiwan Strait (ASIZP 60963, this study) and Japan (HUMZ 101534).

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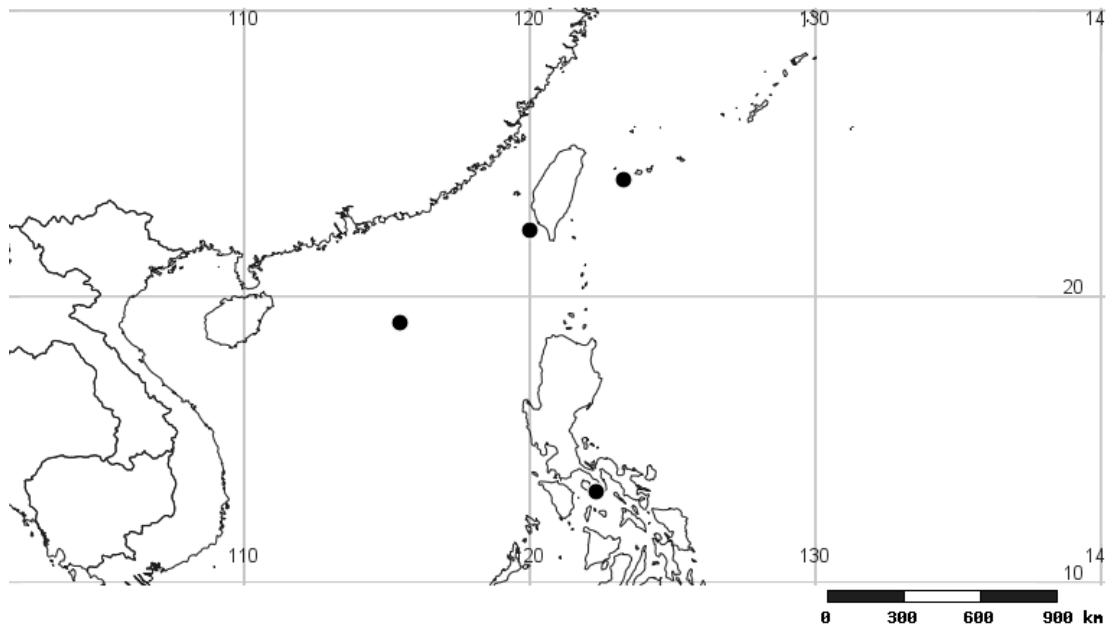


FIGURE 1 Distribution of *Parmaturus melanobranchius*.



FIGURE 2 *Parmaturus melanobranchius*, fresh specimen. (Juvenile: ASIZP 60963, 148 mm TL) A. Dorsal view. B. Ventral view. C. Lateral view.

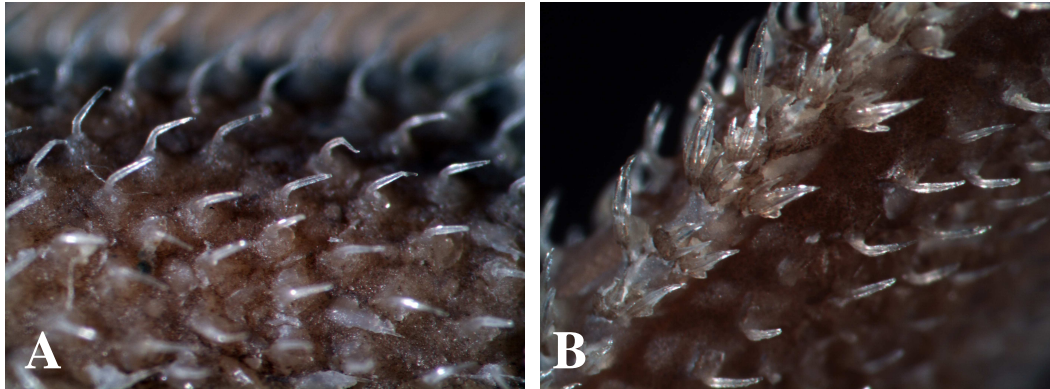


FIGURE 3 *Parmaturus melanobranchius*. A. Dermal denticles from dorsal surface in front of first dorsal fin. B. Supracaudal crests of enlarged denticles.

Table 1. Measurements of blackgill catshark. (ASIZP 60963)

	Measurements	% of Total Length
Total Length	148	100.00
Snout tip to anterior nostril	4.4	2.97
Snout tip to posterior nostril	7.3	4.93
Snout tip to mouth	7.2	4.86
Snout tip to eye	8.1	5.47
Snout tip to 1st gill opening	20.4	13.78
Snout tip to 5th gill opening	24.7	16.69
Snout tip to cloaca	60.5	40.88
Snout tip to 1st D origin	62.3	42.09
Snout tip to 2nd D origin	83.8	56.62
Snout tip to V origin	57	38.51
Snout tip to A origin	73	49.32
Head width	16.6	11.22
Eye horizontal diameter	4.8	3.24
Nostril diameter	4.4	2.97
Mouth width	12.9	8.72
Internarial space	3.9	2.64
Interorbital space	11.7	7.91
Length upper labial furrow	2.8	1.89
Length lower labial furrow	3	2.03
Length 1st gill opening	2.5	1.69
Length 3rd gill opening	2.4	1.62
Length 5th gill opening	1.2	0.81
Distance between D bases	11.8	7.97
Distance between D insertions	22.1	14.93
Distance between P insertion and V origin	29.7	20.07
Distance between P tip and V origin	20.4	13.78
Distance between V insertion and A origin	8.2	5.54
Distance between V insertion and A insertion	27.4	18.51
Distance between P and V origins	40.4	27.30
Distance between nostril and mouth	1.5	1.01
1st D overall length	12.1	8.18
1st D height	3.2	2.16
2nd D overall length	19.1	12.91
2nd D height	5.5	3.72
P anterior margin length	10	6.76
P width	2.2	1.49
V overall length	20.8	14.05
A base length	16.9	11.42
C lower margin	7.5	5.07
Caudal peduncle height	4.2	2.84

台灣新紀錄罕見鯊魚—黑鰓盾尾鯊

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摘要：黑鰓盾尾鯊自從 1966 年發表後，只有模式標本以及一尾來自日本琉球群島的新城島海域，共兩尾標本，極為罕見。本研究發表第三尾標本，同時也是台灣海域首次紀錄，除詳細描述，記錄標本之形態特徵，並附上分佈地圖、標本照片。

關鍵字：新紀錄，貓鯊，台灣，罕見種