

## Specimens of the family Belonidae (Actinopterygii: Teleostei) deposited in the Department of Zoology, The University Museum, The University of Tokyo

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### Abstract

A list of specimens of Belonidae deposited in the Department of Zoology, The University Museum, The University of Tokyo is provided. One hundred lots with 111 specimens representing ten species were confirmed. No types for the family were found.

### Introduction

The family Belonidae, a member of Beloniformes characterized by an elongated body, is represented by species mostly living just below the water surface. Long considered as comprising only species with both jaws extended into long beaks, and the dorsal and anal fins without finlets – the so-called “needle-gars” or “needlefishes” (Collette 1999; Pisces Publishers 2001, 2004; Aizawa and Doiuchi 2013b), recent phylogenetic studies (Lovejoy et al. 2014; Toyama et al. 2020) have shown that Belonidae also includes four genera previously placed in the family Scomberesocidae, and characterized by dorsal and ventral finlets on the caudal peduncle, and jaws not extended (Hubbs and Wisner 1980; Noichi 1997).

In Japan, *Cololabis saira* (Brevoort, 1856), previously included in Scomberesocidae, has been abundantly fished and used as food. However, although the catch of the species in other countries has been increased, catches in Japan have rapidly decreased in recent times (Hata 2020b).

Although species of some needle-gar genera, such as *Strongylura* and *Tylosurus*, are abundantly caught in southern Japan, they are not utilized as food due to their flesh appearing greenish-blue, due to large amounts of biliverdin contained in the bones (Hata 2020a). Moreover, these needle-gars are known to be phototactic, with reported incidents in which they pierced divers using underwater lights at night (Araki et al. 1990; Tomihara and Araki 2014). In addition, some river-inhabiting needle-gars in tropical areas, such as *Potamorhaphis guianensis* (Jardine, 1843) and *Xenentodon cancila* (Hamilton, 1822), are included in the aquarium trade (Pisces Publishers 2001, 2004).

During the survey of the fish collection deposited in the Department of Zoology, The University Museum, The University of Tokyo (ZUMT), a number of specimens of the family Belonidae, collected from Japan and elsewhere, were found. They are detailed in the following list.

### Materials and Methods

Specimens of Belonidae in the Department of Zoology, The University Museum, The University of Tokyo (abbreviated as ZUMT) were identified during the present study, following Hubbs and Wisner (1980), Collette (1999) and Aizawa and Douichi (2013a, b).

Contents included in parentheses following registration numbers are as follows: [specimen counts, standard length; postorbital length (PL: measured from posterior margin of eye to posterior margin of hypural; not indicated in *Cololabis saira* and *Scomberesox saurus*); collection locality; collection date; collector]. Collection data of specimens are omitted if the same as that for the previous specimen.

The ZUMT specimens listed herein were primarily stored in Room 406 (specimen storage room) in the museum building. Most were stored in shelved containers, although some larger specimens were stored in a glass tank in the same room, with the glass lid sealed with a silicon adhesive (as of Apr. 2022). Although some of the ZUMT specimens, collected by Dr. Tokiharu Abe, had not been registered into the ZUMT collection, with the collection data of most missing, they are listed herein together with their ZUMT ABE number (number with underbar written on the specimen label), in the hope that Dr Abe's catalog books with collection data will be rediscovered in the future. Additionally, specimens with catalogue numbers ZUMT ABE 2700 to 6000 were collected from Palau by Dr. Abe between 1936 and 1937 (Koeda et al. 2022).

## Results

One hundred lots, including 111 specimens representing 10 belonid species, were confirmed in the ZUMT fish collection. No types are known for the family in the collection.

## Species accounts

**Family Belonidae** ダツ科  
**Subfamily Tylosurinae** ダツ亜科  
*Ablennes hians* (Valenciennes, 1846) ハマダツ

### JAPAN

- ZUMT 31332 [approx. 528 mm PL (bisected into anterior and posterior halves); Matsue City, Shimane Pref.; coll. by R. Yanai]  
ZUMT 33737 [354 mm SL; 271 mm PL; probably collected from Kagoshima Pref.; donated by T. Arie (Sendai Junior High School, Kagoshima Pref.)]  
ZUMT 50027 [458+ mm SL; 375 mm PL; Miiraku, Goto City (Fukue-jima Island, Goto Islands); 13 Oct. 1953; collected by I. Tomiyama]  
ZUMT 50157 [524 mm SL; 407 mm PL; Arikawa, Shinkamigoto Town (Nakadori-jima Island, Goto Islands); 17 Oct. 1953; collected by I. Tomiyama]  
ZUMT 50355 (356 mm SL; 274 mm PL; obtained at Hiradoguchi Fish Market; 24 Oct. 1953; collected by I. Tomiyama)  
ZUMT 50412 (390 mm SL; 296 mm PL), ZUMT 50413 (304 mm SL; 239 mm PL; Motoura, Ikitsuki, Hirado City; 25 Oct. 1953; collected by I. Tomiyama)  
ZUMT 55827 (548 mm SL; 433 mm PL; Hayase, Mihama Town Fukui Pref.; 1 Nov. 1986; collected by M. Aizawa, H. Senou, T. Urano et al.)  
ZUMT 23810 (335+ mm SL; 251 mm PL), ZUMT 23811 (331+ mm SL; 263.6 mm PL), ZUMT 23812 (349+ mm SL; 254 mm PL; Naya, Kagoshima City, Kagoshima Pref.)  
ZUMT 23997 (224.5 mm SL; 166.3 mm; Shibushi City, Kagoshima Pref.)  
ZUMT 31326 (501+ mm SL; 426 mm PL; Matsue City, Shimane Pref.; coll. by R. Yanai)

### LOCALITY UNKNOWN

- ZUMT ABE 60-1546 (356 mm SL; 275 mm PL), ZUMT ABE 60-1547 (355 mm SL; 274 mm PL; no data)

*Strongylura anastomella* (Valenciennes, 1846) ダツ

### JAPAN

- ZUMT 15409 [681 mm SL; 558 mm PL; obtained at Morioka Market, Iwate Pref. (landed at Ishinomaki Port, Miyagi Pref.); 5 June 1925; collected by G. Toba]  
ZUMT 18088 (305 mm SL; 237 mm PL), ZUMT 18089 (279 mm SL; 217 mm PL; Ariake Sea; donation from Fukuoka Prefectural Fisheries Experimental Station)

ZUMT 18670 (183 mm SL; 137 mm PL; Susaki City, Kochi Pref.; 20 Aug. 1925; collected by K. Akamatsu)  
ZUMT 24977 [550 mm SL; 421 mm PL; Horie Village (currently northern part of Matsuyama City), Ehime Pref.; Oct. 1931; collected by J. Ishikawa]  
ZUMT 31184 [approx. 187 mm SL; approx. 144 mm PL (bisected into anterior and posterior halves)], ZUMT 31254 (434 mm SL; 359 mm PL; Matsue City, Shimane Pref.; coll. by R. Yanai)  
ZUMT 33739 [264 mm SL; 210 mm PL; probably collected from Kagoshima Pref.; donated by T. Arie (Sendai Junior High School, Kagoshima Pref.)]  
ZUMT 35769 (278 mm SL; 215 mm PL), ZUMT 35770 (244 mm SL; 181 mm PL; Ariake Sea; Oct. 1931; collected by I. Tomiyama)  
ZUMT 48081 (632 mm SL; 523 mm PL; obtained at Aiura Fish Market, Sasebo City; 1 June 1953; collected by I. Tomiyama)  
ZUMT 49572 (646 mm SL; 476 mm PL; Aburatsubo, Misaki, Miura City, Kanagawa Pref.; 10 June 1959; collected by Y. Tominaga)  
ZUMT 50524 (342 mm SL; 249 mm PL), ZUMT 50753 (209 mm SL; 174 mm PL; Ariake Sea; 19 Apr. 1959; collected by Y. Tominaga)

#### LOCALITY UNKNOWN

ZUMT 21104 (316 mm SL; 230 mm PL; locality unknown; Owston Collection)

#### *Strongylura incisa* (Valenciennes, 1846) リュウキュウダツ

#### JAPAN

ZUMT 14740 (421+ mm SL; 284.9 mm PL), ZUMT 14741 (367 mm SL; 255 mm PL; Yaeyama Islands, Ryukyu Archipelago; coll. by H. Yashiro)  
ZUMT 37587 (747 mm SL; 587 mm PL; Japan, precise locality unknown)

#### PALAU

ZUMT ABE 2763 (418 mm SL; 291 mm PL), ZUMT ABE 2813 (532+ mm SL; 370 mm PL), ZUMT ABE 2907 (554+ mm SL; 387 mm PL), ZUMT ABE 2908 (610 mm SL; 434 mm PL), ZUMT ABE 2909 (440+ mm SL; 304 mm PL), ZUMT ABE 2922 (293 mm SL; 204 mm PL), ZUMT ABE 3415 (258 mm SL; 181 mm PL), ZUMT ABE 3753 (593+ mm SL; 417 mm PL), ZUMT ABE 3756 (419 mm SL; 308 mm PL; Palau)

#### *Strongylura strongylura* (van Hasselt, 1823) コクテンダツ

#### TAIWAN

ZUMT 34322 (214 mm SL; 161 mm PL; Taiwan)

#### PHILIPPINES

ZUMT 42245 (252 mm SL; 168 mm PL; Philippines; 1926; collected by U. Yamamura)

#### *Strongylura urvillii* (Valenciennes, 1846)

#### PHILIPPINES

ZUMT 42175 (251.9 mm SL; 169.5 mm PL; Philippines; 1926; collected by U. Yamamura)

*Tylosurus acus melanotus* (Bleeker, 1850) テンジクダツ

**JAPAN**

- ZUMT ABE 9490 (400 mm SL; 302 mm PL; Tokyo Market, Tokyo Met.)  
ZUMT 16842 (495 mm SL; 384 mm PL; Onna Village, Okinawa-jima Island, Okinawa Islands, Ryukyu Archipelago; collected by S. Tanabe)  
ZUMT 16973 [259+ mm SL; 169+ mm PL (head only); Itoman City, Okinawa-jima Island, Okinawa Islands, Ryukyu Archipelago; collected by S. Tanabe]  
ZUMT 19084 (745+ mm SL; 625 mm PL), ZUMT 19085 (733 mm SL; 619 mm PL; probably collected from Okinawa Pref.; donation from Okinawa Prefectural Fisheries Experimental Station)  
ZUMT 32644 (166 mm SL; 128 mm PL; probably collected from Shizuura, Numazu City; Jan. 1932)  
ZUMT 40529 (697 mm SL; 558 mm PL), ZUMT 40530 (685+ mm SL; 555 mm PL; Hachijo-jima Island, Izu Islands)  
ZUMT 50155 [approx. 925 mm SL; approx. 742 mm PL (cut into four parts)], ZUMT 50156 [281+ mm PL (head only); Arikawa, Shinkamigoto Town (Nakadori-jima Island, Goto Islands); 17 Oct. 1953; collected by I. Tomiyama]  
ZUMT 64079 (470+ mm SL; 378 mm PL), ZUMT 64080 (651+ mm SL; 533 mm PL; Ogasawara Islands; Mar. 1913)

**LOCALITY UNKNOWN**

- ZUMT 63921 [(420+ mm PL (cut into anterior and posterior portions; no head); no data)], ZUMT ABE 60-1025 (158 mm SL; 126 mm PL; no data)

*Tylosurus crocodilus crocodilus* (Péron & Lesueur, 1821) オキザヨリ

**JAPAN**

- ZUMT 2392 (169 mm SL; 129 mm PL; Fukuoka Pref.)  
ZUMT 18703 (165 mm SL; 125.0 mm PL; Kashiwa-jima Island, Otsuki Town, Kochi Pref.; Aug. 1928; collected by T. Kamohara)  
ZUMT 19082 (748.0 mm SL; 617.0 mm PL), ZUMT 19083 (768.0 mm SL; 624.0 PL; probably collected from Okinawa Pref.; 18 May 1928; donation from Okinawa Prefectural Fisheries Experimental Station)  
ZUMT 21111 (234.0 mm SL; 180.0 mm PL; off Nagasaki Pref.; trawl, collected by T. Kuraba)  
ZUMT 21931 (167.0 mm SL; 134.0 mm PL; Kochi Pref.; donation from Kochi Prefectural Fisheries Experimental Station)  
ZUMT 23996 (231.0 mm SL; 174.0 mm PL; Shibushi City, Kagoshima Pref.)  
ZUMT 25404 [839.0 mm+ SL; 671.0 mm PL; probably collected from Hiroshima Prefecture; donated by Y. Ozaki (Hiroshima City)]  
ZUMT 33738 [195.0 mm SL; 147.0 mm PL; probably collected from Kagoshima Pref.; donated by T. Aarii (Sendai Junior High School, Kagoshima Pref.)]  
ZUMT 47894 [693.0 mm SL; 555.0 mm PL; Tamanoura, Goto City (Fukue-jima Island, Goto Islands); 23 May 1953; collected by I. Tomiyama]  
ZUMT 50158 (364.0 mm SL; 282.0 mm PL), ZUMT 50159 [345.0 mm SL; 278.0 mm PL; Arikawa, Shinkamigoto Town (Nakadori-jima Island, Goto Islands); 17 Oct. 1953; collected by I. Tomiyama]  
ZUMT 50329 (408.0 mm SL; 325.0 mm PL; Hirado City, Nagasaki Pref.; 10 June 1953; collected by I. Tomiyama)  
ZUMT 50752 (183.0 mm SL; 139.0 mm PL; Ariake Sea; 19 Apr. 1959; collected by Y. Tominaga)  
ZUMT 64078 (652.0 mm+ SL; 513.0 mm PL; Ogasawara Islands; Mar. 1913)

**PALAU**

- ZUMT ABE 3755 (843 mm SL; 674 mm PL; Palau)

#### LOCALITY UNKNOWN

ZUMT 62837 (481.0 mm SL; 373.0 mm PL; no data)

**Subfamily Beloninae** サンマ亜科  
***Cololabis saira* (Brevoort, 1856)** サンマ

#### JAPAN

ZUMT 12784 (133.6 mm SL; obtained at Tokyo Market, Tokyo Met.)

ZUMT 13133 (299.3 mm SL; probably collected from Iwate Pref.; coll. by personnel of Kamaishi Fisheries Experimental Station)

ZUMT 20289 (128.6 mm SL; Wakayama Pref.)

ZUMT 20572 (90.9 mm SL), ZUMT 20761 (105.8 mm SL; Wakayama Pref.; Jan. 1920)

ZUMT 23412 (256.1 mm SL; Owase City, Mie Pref.)

ZUMT 24577 (183.8 mm SL; Taneichi, Hirono Town, Iwate Pref.; 17 Aug. 1925; coll. by H. Fukuda)

ZUMT 33352 (112.5 mm SL), ZUMT 33353 (109.6 mm SL; Shizuoka Pref.)

ZUMT 50515 (133.8 mm SL; Aburatsubo, Misaki, Miura City, Kanagawa Pref.; 7 July 1959; coll. by Y. Tominaga)

ZUMT 64477 (278.0 mm SL; Miho, Shimizu, Shizuoka City, Shizuoka Pref.; 16 Apr. 1976; coll. by M. Aizawa)

#### LOCALITY UNKNOWN

ZUMT 64076 (277.2 mm SL), ZUMT ABE 2384 (152.2 mm SL), ZUMT ABE 2385 (139.6 mm SL), ZUMT ABE 57-346 (4 specimens, 46.8–100.5 mm SL), ZUMT 59-102 (278.5 mm SL), ZUMT 59-133 (120.3 mm SL), ZUMT ABE 60-85 (61.9 mm SL), ZUMT ABE 60-95 (86.1 mm SL; no data)

ZUMT 64077 (9 specimens, 78.2–119.6 mm SL; no locality; tagged as“マ 37”)

***Platybelone argalus platyura* (Bennett, 1832)** ヒメダツ

#### LOCALITY UNKNOWN

ZUMT ABE 56-119 (314 mm SL; 237 mm PL), ZUMT 62847 (359 mm SL; 267 mm PL), ZUMT 62848 (376 mm SL; 278 mm PL; no data)

***Scomberesox saurus* (Walbaum, 1792)**

#### LOCALITY UNKNOWN

ZUMT ABE 18191 (330.0+ mm SL; no data)

**Remarks.** The species is distributed in temperate waters of the North Atlantic and Southern Hemisphere (Hubbs and Wisner 1980)

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