

List of specimens of the families Echeineidae and Rachycentridae (Actinopterygii: Teleostei: Perciformes) deposited in the Department of Zoology, The University Museum, The University of Tokyo

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Abstract

A list of specimens of Echeineidae and Rachycentridae deposited in the Department of Zoology, The University Museum, The University of Tokyo is provided. 192 echeineid and 10 rachycentrid specimens including the holotype of *Echeneis nubifera* Tanaka, 1915 represented by all known echeineid species, except for *Echeneis naucratoides* Zuiew, 1789, and *Rachycentris canadum* (Linnaeus, 1766), the sole extant species of Rachycentridae, are found.

Introduction

The sharksuckers or discfishes included in the family Echeineidae are currently regarded as comprising eight species in three genera (Strasburg 1964; Lachner 1973, 1986; Collette 2002a; Gray et al. 2009). All are characterized by a singular life strategy, attaching themselves via a sucking disc on the head to various marine vertebrates, including sharks, manta rays, swordfishes, sea turtles, dolphins, and whales (Strasburg 1964; Kishida 1997; Collette 1999a; Hata et al. 2018; Hata 2020a, c; Hata and Koeda 2021). They have also been observed attached to artificial objects, such as long-line fishing floats (Morota and Fujita 1995). Although echeineids are mainly distributed in warm marine waters, they occasionally occur in rivers or high-latitude waters (such as Okhotsk Sea or off Canada), together with their hosts (Storer 1839; Hart 1973; Ogimoto et al. 2014; Kyne 2015).

The family Rachycentridae comprises the single extant species *Rachycentron canadum* (Linnaeus, 1766), in addition to the fossil species *Rachycentron stremphaenkus* Godfrey and Carnevale, 2020, described from a late Miocene (Tortonian) fossil in the St. Marys Formation, Maryland State, U.S. (Collette 1999b; Godfrey and Carnevale 2020). The family has been frequently treated as a member of Carangiformes in recent years, and believed to be related to Echeineidae (both families included in the superfamily Echeineioidea) (O'Toole 2002; Girard et al. 2020). Although similar to some echeineid species in overall body shape and coloration, *R. canadum* clearly differs from the latter in having the first dorsal fin comprising isolated fin spines (not connected by membrane) instead of a sucking disc (Collette 1999a, b, 2002a, b,

2016a, b). Although *R. canadum* does not attach itself to other organisms, the species frequently associates with large vertebrates, such as large-bodied rays and groupers (Takamatsu 1967; Smith and Merriner 1982; Sasaki 1997; Félix and Hackradt 2008). It is widely distributed in warm parts of the Indo-West Pacific and Atlantic oceans, where it attains up to 2 m in total length, and is fished and aquacultured in warm regions, including Japan (Collette 1999b, 2002b, 2016b; Xan 2005; Koeda 2019; Hata 2020b).

During a survey of the fish collection deposited in the Department of Zoology, The University Museum, The University of Tokyo (ZUMT), specimens of Echeineidae and Rachycentridae collected from various areas, including the holotype of *Echeneis nubifera* Tanaka, 1915, were found. A list of these ZUMT specimens is given below.

Materials and Methods

Specimens of Echeineidae and Rachycentridae in the Department of Zoology, The University Museum, The University of Tokyo (abbreviated as ZUMT) were identified during the present study, following Strasburg (1964), Collette (1999a, 2002a, 2016a) and Hatooka and Kai (2013), and Collette (1999b) and Senou (2013), respectively. The classification of genera and subfamilies of the family Echeineidae followed Gray et al. (2009). Species are arranged in alphabetical order by species name. Each specimen-lot contains a single specimen. Parentheses following registration numbers include [standard length (in mm); counts of laminae on the head sucking disc (not applicable to Rachycentridae); collection locality; collection date; collector; remarks]. Collection data of specimens are omitted when matching that of immediately following specimens. The ZUMT specimens listed herein were primarily stored in Room 406 (specimen storage room), with additional specimens in Room 407 (including types and S. Tanaka specimens), in the museum building. Most were stored in containers on shelves, although 12 larger echeineid specimens [ZUMT 48593 (*Remora osteochir*), ZUMT 48596, 52028 (*Remora remora*), ZUMT ABE 2787, 3748, 10091, 10452, ZUMT 41235, 49076 50997, 50998, and 51471 (*Echeneis naucrates*)], and all rachycentrid specimens were stored in Room 406 (as of Nov. 2021) in a glass tank (labelled “Echeineidae 313-A” and “Rachycentridae”, respectively), with the glass lid sealed with a silicon adhesive. 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 written on the label), in the hope that Dr. Abe’s catalog books with collection data will be rediscovered in the future.

Results

Examples of all known echeineid species (except *Echeneis naucratoides* Zuiew, 1789, endemic to the western Atlantic; Collette 2002a), comprising 192 specimens, were confirmed in the ZUMT collection. In addition, ten examples of *Rachycentron canadum* from Japan and the East China Sea were found. Counts of disc laminae of the ZUMT specimens of each echeineid species (shown in Table 1) generally closely matched counts in Strasburg (1964), Collette (2002a, 2016a), and Hatooka and Kai (2013), although a single specimen of *Remora australis* had 29 laminae [24–28 in Collette (2002a, 2016a) and Hatooka and Kai (2013)]. Four specimens figured in Tanaka (1914a, b, 1915a, b, 1916: series of “Figures and descriptions of

the fishes of Japan including Riukiu Islands, Bonin Islands, Formosa, Kurile Islands, Korea and southern Sakhalin”), on two of which were based the standard Japanese names “Suji-Koban” and “Abura-koban, plus the holotype of *Echeneis nubifera* Tanaka, 1915, were found. However, examples of *E. naucrates* and *R. osteochir*, included in Tanaka (1916), were not found (see Remarks following each species).

Species accounts

Family Echeneidae Subfamily Echeneinae

Echeneis naucrates Linnaeus, 1758 コバンザメ (Fig. 1A)

JAPAN

ZUMT 2458 (131.4 mm SL; disc laminae 24; Nagasaki Pref.; Aug. 1909)

ZUMT 5464 (92.1 mm SL; 24; Izuhara, Tsushima City, Tsushima Island, Nagasaki Pref.; 29 Sept. 1903; coll. by S. Watase and S. Yasuda)

ZUMT 13309 (235.2 mm SL; 23; Nyumaizaki, Fukaura Town, Aomori Pref.; coll. by S. Tanabe)

ZUMT 25662 (112.3 mm SL; 23; probably Toyama Pref.; donated from Toyama Prefectural Fisheries Training Center)

ZUMT 26053 (96.6 mm SL; 23; Toyama Pref.; 22 July 1933; coll. by K. Kikuchi)

ZUMT 41235 (321.0 mm SL; 24; Uozu or Namerikawa City, Toyama Pref.; coll. by I. Tomiyama)

ZUMT 41659 (217.0 mm SL; 24; Ogasawara Islands)

EAST CHINA SEA

ZUMT 50997 (520.0 mm SL; 24), ZUMT 50998 (521.0 mm SL; 26; East China Sea; Sept. 1959)

ZUMT 51471 (625.0 mm SL; 23; East China Sea)

PALAU

ZUMT 31710 [77.6 mm SL; 24; probably Palau; labelled as「南洋」(“nan-yo”, general term for Micronesian Islands)]

ZUMT ABE 2787 (550.0 mm SL; 24), ZUMT ABE 3748 (523.0 mm SL; 23; Palau)

INDONESIA

ZUMT 49076 [485.6 mm SL; 23; Fordate Island, Moluccas (7°00'N, 132°00'E)]

ZUMT 49086 (224.5 mm SL; 23; Fordate Island, Moluccas; 31 Jan. 1955; coll. by Z. Maekawa and S. Suzuki)

INDIAN OCEAN

ZUMT 49030 [113.7 mm SL; 26; Indian Ocean (3°55'00"N, 90°49'00"E; approx. 500 km west of northern tip of Sumatra, Indonesia); by 17 Apr. 1957; coll. by Z. Maekawa and S. Suzuki]

LOCALITY UNKNOWN

ZUMT ABE 9071 (139.8 mm SL; 24), ZUMT ABE 10091 (367.7 mm SL; 25), ZUMT ABE 10452 (448.0 mm SL; 26), ZUMT ABE 10458 (248.6 mm SL; 24; no data)

Remarks. Tanaka (1916) reported this species as *Leptoecheneis naucrates*, based on ZUMT 4308 (33.5 cm total length), collected from Misaki, Kanagawa Pref., Japan. However, that specimen was not found during this investigation.

Phtheirichthys lineatus (Menziés, 1791) スジコバン

(Fig. 1B)

JAPAN

ZUMT 5463 [56.8 mm SL; disc laminae 10; Koajiro, Miura City, Kanagawa Pref.; 11 Aug. 1903; coll. by K. Aoki; attached to *Chilomycterus reticulatus* (Linnaeus, 1758)]

ZUMT 22542 (64.1 mm SL; 11; Tanabe City, Wakayama Pref.; Jan. 1920; coll. by N. Ui)

ZUMT 54381 (177.6 mm SL; 10; Matsuwa, Miura City, Kanagawa Pref.)

KIRIBATI

ZUMT 48754 (49.9 mm SL; 10), ZUMT 48800 [45.1 mm SL; 9; approx. 70 km southwest of Banaba (1°25'S, 169°15'E); 2 Apr. 1956; coll. by Z. Maekawa and S. Suzuki]

INDONESIA

ZUMT 48931 (48.2 mm SL; 9), ZUMT 48932 (50.4 mm SL; 10; Banda Sea, Molu Island; Jan. 1956; coll. by Z. Maekawa and S. Suzuki)

Remarks. Tanaka (1914a) gave a detailed description and illustration of ZUMT 54381, being the first record of the species from Japanese waters, as well as proposing the new Japanese name “Suji-koban” for the species.

Subfamily Remorinae

Remora albescens (Temminck & Schlegel, 1850) シロコバン

(Fig. 1C)

JAPAN

ZUMT 4326 (131.0 mm SL; disc laminae 12; obtained at Tokyo Market)

ZUMT 23222 (131.8 mm SL; 13; Toyama Bay, Toyama Pref.; coll. by K. Kikuchi)

ZUMT 24224 (79.0 mm SL; 13), ZUMT 24226 [50.5 mm SL; 13; probably collected from Niigata Pref.; coll. by Y. Hiramatsu (Niigata Prefectural Takada Normal School)]

ZUMT 41292 (190.1 mm SL; 13; Uozu or Namerikawa City, Toyama Pref.; coll. by I. Tomiyama)

ZUMT 54383 (130.0 mm SL; 12; Matsuwa, Miura City, Kanagawa Pref.)

ZUMT 62278 (37.9 mm SL; 12; Misaki, Miura City, Kanagawa Pref.; Oct. 1898)

EAST CHINA SEA

ZUMT 52026 (191.1 mm SL; 13), ZUMT 52027 (224.3 mm SL; 14; East China Sea; July, 1960)

LOCALITY UNKNOWN

ZUMT 4210 (70.0 mm SL; 12; no data)

Remarks. Tanaka (1915a) gave a detailed description and illustration of ZUMT 54383 as *Echeneis clypeata* Günther, 1860, and proposed the new Japanese name “Abura-koban”. The nominal species is currently regarded as a junior synonym of *R. albescens* (Matsubara 1955; Kamohara 1958, 1964; Lachner 1973, 1986; Lachner and Post 1990).

Remora australis (Bennett, 1840) オオコバン

(Fig. 1D)

JAPAN

ZUMT 16289 (69.5 mm SL; disc laminae 27), ZUMT 16290 (77.0 mm SL; 29; Kinkasan Island, Ishinomaki City, Miyagi Pref.; Aug. 1925; donated from S. Goto; attached to *Balaenoptera borealis* Lesson, 1828)

ZUMT 38040 (192.3 mm SL; 26; probably Japan)

LOCALITY UNKNOWN

ZUMT 62135 (117.3 mm SL; 26), ZUMT 62136 (156.0 mm SL; 27; no data).

Remarks. Hata and Koeda (2021) reported ZUMT 16289 and 16290 as the first records of *R. australis* from Miyagi Pref., Japan.

Remora brachyptera (Lowe, 1839) クロコバン

(Fig. 1E)

JAPAN

ZUMT 5465 (106.2 mm SL; disc laminae 18), ZUMT 62277 (94.7 mm SL; 15; Izuhara, Tsushima City, Tsushima Island, Nagasaki Pref.; 14 Sept. 1903; coll. by S. Watase and S. Yasuda)

ZUMT 5669 (144.9 mm SL; 16; Izuhara, Tsushima City, Tsushima Island, Nagasaki Pref.; 27 Sept. 1903; coll. by S. Watase and S. Yasuda)

ZUMT 7271 (139.9 mm SL; 16; Nagasaki Pref.; coll. by I. Kaneko)

ZUMT 13039 (165.1 mm SL; 17; Miyako Bay, Iwate Pref.; coll. by S. Tanabe)

ZUMT 25856 (1, 125.5 mm SL; 16; Toyama Pref.; 22 July 1933; coll. by K. Kikuchi)

ZUMT 26287 (200.6 mm SL; 16; Onahama, Iwaki City, Fukushima Pref.)

ZUMT 32568 (144.4 mm SL; 16; Misaki, Miura City, Kanagawa Pref.)

ZUMT 32828 (96.3 mm SL; 16; probably obtained at Tokyo Fish Market)

ZUMT 41440 (138.3 mm SL; 16; Uozu or Namerikawa City, Toyama Pref.; coll. by I. Tomiyama)

ZUMT 43402 (132.1 mm SL; 16), ZUMT 43403 (106.4 mm SL; 16), ZUMT 43404 (89.4 mm SL; 16; obtained at Tokyo Fish Market, donated from Yamakoshi Specimen Shop)

ZUMT 45717 (113.4 mm SL; 16; Uozu or Namerikawa City, Toyama Pref.; coll. by I. Tomiyama)

ZUMT 50011 (133.2 mm SL; 16), ZUMT 50199 [118.7 mm SL; 18; Arikawa, Shinkamigoto Town (Nakadori-jima Island, Goto Islands), Nagasaki Pref.; 18 Oct. 1953; coll. by I. Tomiyama]

ZUMT 54382 (151.4 mm SL; 17), ZUMT 54385 (171.3 mm SL; 16; Matsuwa, Miura City, Kanagawa Pref.)

ZUMT 62131 (124.9 mm SL; 17), ZUMT 62132 (137.2 mm SL; 17), ZUMT 62133 (133.2 mm SL; 16), ZUMT 62160 [156.4 mm SL; 16; Satsunan Area (water area from the mainland of Kagoshima Pref. to Tokara Islands), Kagoshima Pref.; 1949]

ZUMT 62169 [106.5 mm SL; 16; Lot's Wife (Sofu-gan Rock), Zunan Islands; 6 July 1927; attached to ventral surface of *Prionace glauca* (Linnaeus, 1758)]

TAIWAN

ZUMT 12378 (101.0 mm SL; 16; Orchid Island; coll. by T. Aoki)

ZUMT 19027 (151.1 mm SL; 16; Taipei City; coll. by H. Sato)

INDONESIA

ZUMT 48343 (102.9 mm SL; 16; Banda Sea; 18 Feb. 1953)

ZUMT 48705 [64.1 mm SL; 16; Banda Sea (5°57'S, 128°59'E); 20 Jan. 1956; coll. by Z. Maekawa and S. Suzuki]

ZUMT 48723 (109.4 mm SL; 17), ZUMT 48724 (106.6 mm SL; 16; Molu Island, Moluccas; 29 Jan. 1956; coll. by Z. Maekawa and S. Suzuki)

ZUMT 48933 (47.8 mm SL; 18), ZUMT 48934 (31.8 mm SL; 18; Molu Island, Moluccas; Jan. 1956; coll. by Z. Maekawa and S. Suzuki)

KIRIBATI

ZUMT 48767 [99.6 mm SL; 15; approx. 70 km southwest of Banaba (1°16'S, 169°14'E); 3 Apr. 1956; coll. by Z. Maekawa and S. Suzuki]

LINE ISLANDS

ZUMT 48986 [108.1 mm SL; 16; approx. 130 km northwest of Jarvis Island (0°37'N, 160°45'W); 26 Oct. 1956; coll. by Z. Maekawa and S. Suzuki]

INDIAN OCEAN

ZUMT 49054 [135.7 mm SL; 16; eastern Indian Ocean (9°15'S, 88°01'E; approx. 1000 km northwest of Cocos-Keeling Islands); 23 Feb. 1955; obtained from stomach of *Xiphias gladius* Linnaeus, 1758]

LOCALITY UNKNOWN

ZUMT 39362 (140.9 mm SL; 16), ZUMT 39363 (119.4 mm SL; 17), ZUMT 62118 (213.4 mm SL; 16), ZUMT 62119 (127.5 mm SL; 18), ZUMT 62120 (167.2 mm SL; 16), ZUMT 62121 (125.0 mm SL; 16), ZUMT 62122 (155.9 mm SL; 16), ZUMT 62123 (154.3 mm SL; 17), ZUMT 62124 (133.3 mm SL; 16), ZUMT 62125 (108.8 mm SL; 17), ZUMT 62126 (122.9 mm SL; 16), ZUMT 62127 (147.7 mm SL; 16), ZUMT 62128 (141.8 mm SL; 15), ZUMT 62129 (136.7 mm SL; 17), ZUMT 62130 (132.6 mm SL; 16), ZUMT 62138 (156.5 mm SL; 16), ZUMT 62152 (148.4 mm SL; 16), ZUMT 62153 (122.2 mm SL; 17), ZUMT 62154 (80.3 mm SL; 16), ZUMT 62155 (81.3 mm SL; 16), ZUMT 62156 (177.7 mm SL; 17), ZUMT 62157 (165.6 mm SL; 17), ZUMT 62158 (156.4 mm SL; 16), ZUMT 62161 (168.8 mm SL; 16), ZUMT 62167 (157.1 mm SL; 17), ZUMT 62168 (181.1 mm SL; 16), ZUMT ABE 8140 (154.3 mm SL; 18), ZUMT ABE 9791 (143.3 mm SL; 16), ZUMT ABE 9837 (94.1 mm SL; 16), ZUMT ABE 9838 (156.0 mm SL; 15), ZUMT ABE 10087 (140.1 mm SL; 18), ZUMT ABE 10513 (167.0 mm SL; 16), ZUMT ABE 59-514 (182.8 mm SL; 17), ZUMT ABE 55-18 (88.1 mm SL; 17), ZUMT ABE 60-310 (135.3 mm SL; 16), ZUMT ABE 60-980 (95.7 mm SL; 17; no data)

Remarks. Although ZUMT 54382 was shown as *Echeneis remora* by Tanaka (1914b), the specimen is re-identified as *R. brachyptera* in this study. Subsequently, Tanaka (1915b) gave a detailed description and illustration of ZUMT 54385 as *Echeneis brachyptera*.

***Remora osteochir* (Cuvier, 1829) ヒシコバン**

(Fig. 1F)

JAPAN

ZUMT 18619 (96.0 mm SL; disc laminae 18; Kashiwa-jima Island, Otsuki Town, Kochi Pref.; Aug. 1928; coll. by T. Kamohara)

ZUMT 24225 [83.6 mm SL; 18; probably collected from Niigata Pref.; coll. by Y. Hiramatsu (Niigata Prefectural Takada Normal School)]

ZUMT 26052 (61.5 mm SL; 18; Toyama Pref.; 22 July 1933; coll. by K. Kikuchi,)

ZUMT 38643 (266.7 mm SL; 18; Katsuura City, Chiba Pref.)

ZUMT 59498 (150.8 mm SL; 20), ZUMT 59499 (186.3 mm SL; 18; Japan; 27 Dec. 1989)

ZUMT 62137 [180.1 mm SL; 18; Satsunan Area (water area from the mainland of Kagoshima Pref. to Tokara Islands), Kagoshima Pref.; 1949]

TAIWAN

ZUMT 12379 (106.4 mm SL; 19), ZUMT 12380 (79.3 mm SL; 18; Orchid Island; coll. by T. Aoki)

INDONESIA

ZUMT 48714 (67.0 mm SL; 18; approx. 30 km northwest of Nila Island (6°33'S, 129°16'E); 22 Jan. 1956; coll. by Z. Maekawa and S. Suzuki)

ZUMT 48737 [72.0 mm SL; 19; approx. 50 km north of Molu Island (6°15'S, 131°24'E); 29 Jan. 1956]

INDIAN OCEAN

ZUMT 49072 [251.4 mm SL; 18; eastern Indian Ocean (10°09'S, 90°52'E; approx. 700 km northwest of Cocos-Keeling Islands)]

LOCALITY UNKNOWN

ZUMT 4286 (86.9 mm SL; 17), ZUMT 8245 (55.8 mm SL; 18), ZUMT 39361 (104.3 mm SL; 18), ZUMT 62151 (79.1 mm SL; 18), ZUMT ABE 61-913 (102.4 mm SL; 19), ZUMT ABE 61-914 (82.2 mm SL; 19), ZUMT ABE 61-915 (101.4 mm SL; 18), ZUMT ABE 61-916 (83.5 mm SL; 18; no data)

ZUMT 48593 (343.4 mm SL; 19; precise locality unknown; 3 Apr. 1956; coll. by Z. Maekawa and S. Suzuki)

ZUMT 62139 (279.7 mm SL; 19; locality unknown; 27 Feb. to 7 Mar. 1950)

Remarks. Tanaka (1916) reported *Rhombochirus megalodiscus* (Franz, 1910) [currently regarded as a junior synonym of *R. osteochir* (Lachner 1973, 1986; Lachner and Post 1990)] based on ZUMT 4211 (29.5 cm total length), collected from Misaki, Kanagawa Pref., Japan. However, the specimen was not found during this investigation.

***Remora remora* (Linnaeus, 1758) ナガコバン**

(Fig. 1G)

JAPAN

ZUMT 17834 (109.6 mm SL; 18), ZUMT 17835 (83.2 mm SL; 18), ZUMT 17836 (108.7 mm SL; 17), ZUMT 17837 (88.7 mm SL; 18), ZUMT 17838 [85.0 mm SL; 17; off Muroran City, Hokkaido; Oct. 1926; coll. by S. Katsuki; attached to *Prionace glauca*]

ZUMT 18288 (150.5 mm SL; 17; Kamaishi City, Iwate Pref.; 5 Sept. 1927; coll. by G. Toba)
ZUMT 19989 (145.8 mm SL; 18), ZUMT 26951 (111.0 mm SL; 18; Kagoshima Pref.)
ZUMT 21128 (48.5 mm SL; 18; obtained at Tokyo Fish Market)
ZUMT 25857 (89.5 mm SL; 17; Toyama Pref.; 22 July 1933; coll. by K. Kikuchi)
ZUMT 32525 (86.4 mm SL; 18; Misaki, Miura City, Kanagawa Pref.)
ZUMT 33383 (77.0 mm SL; 17; Shizuoka Pref.)
ZUMT 34066 [76.1 mm SL; 17; probably collected from Fukushima Pref.; donated from H. Kakuda (Onahama, Iwaki City, Fukushima Pref.)]
ZUMT 37675 (107.3 mm SL; 18; Onahama, Iwaki City, Fukushima Pref.)
ZUMT 43393 [169.7 mm SL; 17; probably collected from Miyazaki Pref.; donated from S. Nakajima (Miyazaki Agriculture and Forestry Higher School)]
ZUMT 43401 (84.9 mm SL; 17; obtained at Tokyo Fish Market; donated from Yamakoshi Specimen Shop)
ZUMT 44404 (130.9 mm SL; 17; Oshima, Kominato, Chiba Pref.)
ZUMT 47705 (155.5 mm SL; 18; Okinawa-jima Island, Okinawa Pref.; July 1936; coll. by S. Inuo)
ZUMT 48342 (174.8 mm SL; 18; obtained at Tokyo Fish Market; Nov. 1952)
ZUMT 54384 (121.3 mm SL; 18; Matsuwa, Miura City, Kanagawa Pref., holotype of *Echeneis nubifera* Tanaka, 1915)
ZUMT 62134 (122.3 mm SL; 17), ZUMT 62159 [161.5 mm SL; 18; Satsunan Area (water area from the mainland of Kagoshima Pref. to Tokara Islands), Kagoshima Pref.; 1949]
ZUMT 62234 (101.3 mm SL; 18; Matsuwa, Miura City, Kanagawa Pref.)

EAST CHINA SEA

ZUMT 52028 (434.9 mm SL; 18; East China Sea; July 1960)

INDONESIA

ZUMT 48344 (72.4 mm SL; 18; Banda Sea; 18 Feb. 1953)
ZUMT 48713 [78.3 mm SL; 17; northwest of Nila Island (6°33'S, 129°16'E); 22 Jan. 1956; coll. by Z. Maekawa and S. Suzuki]
ZUMT 48935 (27.3 mm SL; 19; Banda Sea, Molu Island; Jan. 1956; coll. by Z. Maekawa and S. Suzuki)

WESTERN PACIFIC

ZUMT 48773 [83.8 mm SL; 17; Western Pacific (3°09'S, 171°07'E; approx. 300 km southeast of Banaba, Kiribati); 30 Mar. 1956; coll. by Z. Maekawa and S. Suzuki]

INDIAN OCEAN

ZUMT 49053 [167.4 mm SL; 17; eastern Indian Ocean (9°15'S, 88°01'E; approx. 1000 km northwest of Cocos-Keeling Islands); 23 Feb. 1955; obtained from stomach of *Xiphias gladius*]

LOCALITY UNKNOWN

ZUMT 4306 (60.8 mm SL; 18), ZUMT 39360 (108.8 mm SL; 18), ZUMT 62116 (126.3 mm SL; 18), ZUMT 62117 (102.4 mm SL; 17), ZUMT 62140 (67.7 mm SL; 17), ZUMT 62141 (68.3 mm SL; 18), ZUMT 62142 (64.5 mm SL; 18), ZUMT 62143 (79.6 mm SL; 17), ZUMT 62144 (64.3 mm SL; 17), ZUMT 62145 (61.5 mm SL; 18), ZUMT 62146 (87.7 mm SL; 18), ZUMT 62147 (65.2 mm SL; 18), ZUMT 62148 (68.6 mm SL; 18), ZUMT 62149 (66.2 mm

SL; 18), ZUMT 62150 (145.7 mm SL; 17), ZUMT 62162 (172.2 mm SL; 17), ZUMT 62163 (180.2 mm SL; 17), ZUMT 62164 (169.0 mm SL; 17), ZUMT 62165 (182.4 mm SL; 17), ZUMT 62166 (194.3 mm SL; 18), ZUMT ABE 8641 (105.1 mm SL; 17), ZUMT ABE 9789 (127.0 mm SL; 18), ZUMT ABE 9833 (91.6 mm SL; 17), ZUMT ABE 9834 (109.3 mm SL; 18), ZUMT ABE 9835 (100.2 mm SL; 18), ZUMT ABE 9836 (101.9 mm SL; 18), ZUMT ABE 10674 (126.3 mm SL; 18), ZUMT ABE 55-25 (107.2 mm SL; 18), ZUMT ABE 55-62 (149.7 mm SL; 17), ZUMT ABE 55-63 (91.8 mm SL; 18; no data)
ZUMT 48596 (319.3 mm SL; 18; precise locality unknown; 18 Apr. 1956; coll. by Z. Maekawa and S. Suzuki)

Remarks. ZUMT 54384 was designated as the holotype of *Echeneis nubifera* by Tanaka (1915b) in his original description of the species, for which he proposed the Japanese name “Kumo-koban”. Currently, *E. nubifera* is regarded as a junior synonym of *R. remora* (Matsubara 1955; Lachner 1973; Lachner and Post 1990; Parenti 2021).

Family Rachycentridae

Rachycentron canadum (Linnaeus, 1766) スギ

JAPAN: ZUMT 31505 [286.2 mm SL+, anterior part of body only; probably collected from Shimane Pref.; donated from R. Yanai (Matsue High School)]

ZUMT 50026 [327.6 mm SL; Miiraku, Goto City (Fukue-jima Island, Goto Islands), Nagasaki Pref.; 13 Oct. 1953; coll. by I. Tomiyama]

ZUMT 50423 (319.8 mm SL; Ichibu, Ikitsuki-shima Island, Hirado City, Nagasaki Pref.; 26 Oct. 1953; coll. by I. Tomiyama)

EAST CHINA SEA

ZUMT 51420 (267.4 mm SL), ZUMT 51470 (362.8 mm SL; East China Sea)

LOCALITY UNKNOWN

ZUMT 62263 (503.9 mm SL), ZUMT 62728 (327.1 mm SL), ZUMT 62729 (403.7 mm SL), ZUMT 62731 (315.2 mm SL), ZUMT 62732 (330.9 mm SL; no data)

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Fig. 1. Lateral (a), dorsal (b), and (c) ventral views of species of Echeneidae deposited in the Department of Zoology, The University Museum, The University of Tokyo (ZUMT). A: *Echeneis naucrates*, ZUMT 13309, 235.2 mm standard length (SL), Fukaura Town, Aomori Pref., Japan; B: *Phtheichthys lineatus*, ZUMT 48931, 48.2 mm SL, Banda Sea, Indonesia; C: *Remora albescens*, ZUMT 41292, 190.1 mm SL; D: *Remora australis*, ZUMT 38040, 192.3 mm SL, probably Japan; E: *Remora brachyptera*, ZUMT 62169, 106.5 mm SL, Sofu-gan Rock, Zunan Islands, Japan; F: *Remora osteochir*, ZUMT 49072, 251.4 mm SL, eastern Indian Ocean; G: *Remora remora*, ZUMT 54384, holotype of *Echeneis nubifera* Tanaka, 1915, 121.3 mm SL, Sagami Bay, Kanagawa Pref., Japan.