

# Report on specimens of the family Pempheridae (Teleostei: Perciformes) deposited in the Department of Zoology, The University Museum, The University of Tokyo

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## Abstract

A detailed investigation of the Pempheridae (Teleostei: Perciformes) collection deposited in the Department of Zoology, The University Museum, The University of Tokyo (ZUMT) found 1064 specimens in 365 lots, including holotypes and paratypes of *Pempheris nyctereutes* Jordan & Evermann, 1902 and *Pempheris xanthoptera* Tominaga, 1963, and non-type specimens of 13 species in 2 genera. The paratypes of *P. xanthoptera*, for which the catalog numbers had not been noted in the original description, were determined on the bases of collection localities and dates.

## Introduction

The fish collection preserved in the Department of Zoology, The University Museum, The University of Tokyo (ZUMT) includes specimens collected during the early period of modern-day ichthyology in Japan (from 1890's to 1930's) by Dr. Shigeo Tanaka (田中茂穂), a Professor of Zoology at the Imperial University of Tokyo. Dr. Tanaka collected many fish specimens from around Japan, most of them being retained in the collection, with some being used in the series "Figures and descriptions of the fishes of Japan, including Riukiu Islands, Bonin Islands, Formosa, Kurile Islands, Korea, and Southern Sakhalin" (Tanaka 1911). Ichthyological positions in the museum were subsequently held by Drs. Ichiro Tomiyama (富山一郎) and Tokiharu Abe (阿部宗明), both former disciples of Dr. Tanaka, and later by Dr. Yoshiaki Tominaga (富永義昭), a former disciple of Dr. Tomiyama. In total, the ZUMT collection includes more than 300,000 specimens, registered under more than 60,000 catalog numbers, including the type series of more than 300 species, that had been collected mainly by the aforementioned researchers or their collaborators up to the 1980's.

The family Pempheridae (Perciformes) was one of the main groups of interest for Dr. Tominaga, who was interested in phylogenetic relationships based on anatomy (Uyeno 1994), and published many significant papers on the group (Tominaga 1965, 1968, 1986). His review of the family in Japan (Tominaga 1963) included the new species *Pempheris xanthoptera* Tominaga, 1963, although most subsequent publications continued to include that species under *Pempheris schwenkii* Bleeker, 1855 [e.g., Hatooka and Yagishita (2013)], due to the

morphological similarity of both species. Recently, *P. schwenkii* was tentatively recognized as having “Pacific” and “southern Japan” types, the latter closely matching *P. xanthoptera* sensu Tominaga (1963) [e.g., Koeda (2017, 2018ab, 2020), and Kimura et al. (2017)]. *Pempheris xanthoptera* is used in the present report for the latter type, on the basis of morphological and genetic data (K. Koeda, unpublished). However, the application of the Japanese standard name “Minami-hatampo” is not considered here, the name being tentatively used for both species.

In the recent studies on the family of Japanese waters, two new species and two new records of pempherid species from Japanese waters were described by Koeda et al. (2010a,b, 2013a) and Koeda and Motomura (2017). In addition, the previously confused use of the standard Japanese name especially for “Ryukyu-hatampo” for *Pempheris adusta* Bleeker, 1877 was clarified (Koeda et al. 2013b).

## Materials and Methods

The specimens of Pempheridae in ZUMT were re-identified by the first author in the present study, generally following Koeda et al. (2010a,b, 2013a,b) and Koeda and Motomura (2017), together with some unpublished taxonomic studies, and confirmation of at least one diagnostic character. Generally, the standard length (SL) of each specimen was measured, but only of the largest and smallest in cases of a large number of specimens in a single lot. Although, some of the ZUMT specimens collected by Dr. Abe had not been formally cataloged into the ZUMT collection (and the data of some specimens not retained), such specimens which can recognize by having underbar with the number on the accompanying label, are listed herein with the number ZUMT ABE XXXX, due to the possibility of future discovery of Dr. Abe’s remaining catalog books with collection data. A similar situation existed for Dr. Tominaga, who catalogued Pempheridae specimens as “P-XX (number)”, together with collection data. Those specimens are listed herein as ZUMT P-XX (number). Species are arranged in alphabetical order by species name. Specimens with the same collection locality and date are listed together. Local and personal names are given in Japanese (in parentheses) for specimens thus treated in Japanese in the specimen ledger. The list includes collection locality, ZUMT number with number of specimens in parentheses when two or more, size, type (abbreviated when non-type), collection date, collector or donator and affiliation, collection method, and remarks when available.

## Collection of Pempheridae in ZUMT

Examination of the specimens of Pempheridae deposited at ZUMT disclosed 365 lots, comprising 209 ZUMT lots, 119 ZUMT P lots, and 36 ZUMT ABE lots, a total of 1064 specimens. Two genera and 14 species were confirmed, including the holotypes of *Pempheris nyctereutes* Jordan & Evermann, 1902 and *P. xanthoptera*. The latter species, described by Tominaga (1963), and he listed the paratypes as follows: more than 300 paratype specimens (15 to 135 mm SL), from Kominato, Chiba Pref.; Misaki and Manazuru, Kanagawa Pref., Oshima I. (Izu-oshima I.), off Sagami Bay; Hachijo I.; off Narayama, Shizuoka Pref.; Mie Pref.; Tanabe, Wakayama Pref.; Suzaki, Kochi Pref.; Totoro, Miyazaki Pref.; Taniyama, Kagoshima Pref.; Goto Is.; Tanegashima I.; and Okinawa I. Although the catalog numbers of the specimens were not given in the original description, the paratypes were determined on the bases of collection localities and dates, as are indicated in the list. Some pempherid specimens were dissected or stained by Dr. Tominaga for his research.

**Pempheridae** ハタンボ科

*Parapriacanthus* Steindachner, 1870 キンメモドキ属

*Parapriacanthus ransonneti* Steindachner, 1870 キンメモドキ

**[Japan]**

**Chiba Pref.**

Kamogawa (鴨川), Kominato (小湊): ZUMT 44402, 54.8 mm SL, Aug. 1936; Hatakeyama (畠山; name unknown): ZUMT P-15, 52.4 mm SL, Sept. 1958, Yasuda (安田).  
Tateyama (館山): ZUMT P-16, 61.1 mm SL, ZUMT P-17, 37.9 mm SL, 27 Oct. 1959, Y. Tominaga; ZUMT P-19, 21, 23, 25–31 (11), 56.5–63.1 mm SL, Oct. 1959, Ueno (上野; name unknown).

Remarks: Collection locality written as “Kouzu (香津)”, but not known in Tateyama.

**Tokyo Met.**

Izu Is. (伊豆諸島), Hachijo-jima Island (八丈島): ZUMT 41859 (117), 22.3–29.3 mm SL, M. Uchiyama; ZUMT 42900 (41), 31.6–44.6 mm SL, Sept. 1922, M. Uchiyama (内山 操).  
Tokyo Market (東京市場; details of collection unknown): ZUMT 32274, 68.4 mm SL, ZUMT 33275, 67.2 mm SL.

**Kanagawa Pref.**

Miura (三浦), Misaki (三崎): ZUMT 49161, 51.4 mm SL, ZUMT 49162, 49.6 mm SL, 1956, I. Tomiyama; Aburatsubo (油壺): ZUMT P-5, 50.7 mm SL, stained and dissected, ZUMT P-6, 50.0 mm SL, stained, 11 July 1957, Yasuda, Masu-ami (升網; small-sized set net); ZUMT P-8, 56.9 mm SL, 20 July 1954, Yasuda, Masu-ami; ZUMT P-260–270, 271–273, 275, 277, 278 (16), 48.2–56.2 mm SL, 30 June 1960, Choko-ami (チョコ網; details unknown).  
Manazuru (真鶴): ZUMT P-491, stained and dissected (size N/A), 25 Sept. 1960.

**Wakayama Pref.**

Kushimoto Market (串本市場): ZUMT 55808, 57.4 mm SL, 15 Aug. 1965.  
Tanabe (田辺) [written as Kishu-tanabe (紀州田辺)]: ZUMT 22524, 22537, 22575 (3), 65.6–68.5 mm SL, Jan. 1920, N. Ui (宇井縫蔵); ZUMT 44058, 63.6 mm SL, ZUMT 44061, 58.7 mm SL.

**Kochi Pref.**

Muroto (室戸), Kiragawa (吉良川): ZUMT 19934, 69.5 mm SL, 3 Jan. 1930, T. Kamohara (蒲原稔治: 高知高等学校).  
Susaki (須崎): ZUMT 19003, 73.3 mm SL, Aug. 1928.  
Unknown: ZUMT 34621, 69.7 mm SL, ZUMT 34622, 66.4 mm SL.

**Miyazaki Pref.**

Nobeoka (延岡), Totoro (土々呂): ZUMT 52155, 66.6 mm SL, 4 Aug. 1960; ZUMT P-34–39, 41, 42, 44, 45, 49–56, 59, 61–67, 70, 72–74, 77, 78, 80, 81, 84, 85, 87–101, 104–106, 108–111, 113, 114 (60), 30.8–63.0 mm SL, some specimens stained, 10 Sept. 1959, Kodai-ami (コダイ網; details unknown), Y. Tominaga.

### **Kagoshima Pref.**

Minamisatsuma (南さつま), Akime (秋目): ZUMT 24145, 24153–24159 (8), 40.4–73.4 mm SL.

### **Nagasaki Pref.**

Hirado (平戸), Ikitsuki (生月), Honura (本浦): ZUMT 50410, 63.7 mm SL, 25 Oct. 1953.

Goto Is. (五島列島), Nakadori-jima I. (中通島): ZUMT 50187–50189 (3), 56.1–60.2 mm SL, 18 Oct. 1953, I. Tomiyama.

Goto Is., Madara-jima I. (斑島): ZUMT 50219–50222 (4), 60.8–61.5 mm SL, 20 Oct. 1953, I. Tomiyama.

Goto Is., Fukue-jima I. (福江島), Tamanoura (玉之浦): ZUMT 48210–48219 (10), 46.0–67.2 mm SL, 23 May 1953, I. Tomiyama; ZUMT P-253–259 (7), 49.2–68.6 mm SL, 18 May 1960, set net; locality details unknown: ZUMT 59878, 64.4 mm SL, 10 June 1953, I. Tomiyama.

Remarks: The collection locality, written as “Tamanoura (田ノ浦)” on the specimen ledger for ZUMT P-253–259, could refer to several locations in Japan. However, Ichiro Tomiyama is known to have actively collected specimens from the Goto Islands region during the period specified.

Unknown: ZUMT 7320, 69.8 mm SL, ZUMT 7321, 69.5 mm SL, I. Kaneko (金子一狼).

Remarks: Although the collection dates of ZUMT 7320 and ZUMT 7321 were not recorded on the specimen ledger, they are estimated as having been during the period (1890's to 1920's) when Ichiro Kaneko (金子一狼) sent many specimens to Shigeo Tanaka.

### **Okinawa Pref.**

Okinawa Is. (沖縄諸島), Okinawa-jima I. (沖縄島), Motobu (本部): ZUMT 51951–51958 (P-280–287), 23.6–47.5 mm SL, ZUMT 51955 stained, 1960 (summer), T. Abe; Itoman (糸満): ZUMT 17089 (52), 31.7–46.2 mm SL, stained; locality details unknown: ZUMT 41866, 42776–42778, 44280 (5), 36.9–44.2 mm SL, 8 July 1935, S. Inuo (犬尾三郎).

Yaeyama Is. (八重山諸島), Ishigaki-jima I. (石垣島): ZUMT 55805 (18), 45.1–55.4 mm SL, 9 Oct. 1970.

Yaeyama Is., Kohama-jima I. (小浜島): ZUMT P-514–518 (5), 40.0–46.3 mm SL, specimens received on 6 Nov. 1960.

Yaeyama Is., Iriomote-jima I. (西表島), Sonai (祖納): ZUMT 55809 (3), 37.2–38.1 mm SL, 5 July 1971; Amitori Bay (網取湾): ZUMT 55206 (33), 34.4–42.6 mm SL, 21 Aug 1985, H. Kohno and M. Sakamaki.

### **Ryukyu Archipelago**

Locality details unknown: ZUMT 32704, 41.5 mm SL.

**Japan:** ZUMT P-116, 53.4 mm SL, 24 Apr. 1937.

Remarks: The collection locality, written as “Kume (久米) NW 10”, may refer to Kume Island (Okinawa Prefecture), but cannot be substantiated.

**[Philippines]**

**Cebu I.:** ZUMT 62035 (separated from ZUMT 55807), 48.6 mm SL, Apr. 1969, Y. Haneda (羽根田弥太).

**Detail locality unknown**

Probably Japan: ZUMT ABE 55-11, 54.9 mm SL; ZUMT ABE 55-17, 56.4 mm SL; ZUMT ABE 61-1040, 60.7 mm SL; ZUMT ABE 61-1042, 60 mm SL; ZUMT ABE 62-320, 54 mm SL.

*Parapriacanthus dispar* (Herre, 1935)

**[Philippines]**

**Cebu I.:** ZUMT 55807, 62.9 mm SL, Apr. 1969, Y. Haneda.

*Parapriacanthus* sp.

**[Tonga]**

**Tonga:** ZUMT 55806, 53.3 mm SL, Nov. 1971.

Remarks: Distinguishing characters of this specimen do not match those of other known species.

*Pempheris* Cuvier, 1829 ハタンボ属

*Pempheris adusta* Bleeker, 1877 リュウキュウハタンボ

**[Japan]**

**Tokyo Met.**

Izu Is., Hachijo-jima I.: ZUMT 19167, 114.1 mm SL, 6 July (year unknown), coll. by net (details unknown).

Remarks: Local name: “Isottsuri (イソツツリ)”.

**Kagoshima Pref.**

Osumi Is. (大隅諸島), Tanega-shima I. (種子島), Nishinoomote, Kamiurata (上浦田): ZUMT 55742, 127.7 mm SL, 25 Aug. 1973, gill net.

Osumi Is., Yaku-shima I. (屋久島), Kamiyaku (上屋久), Kusugawa (楠川): ZUMT 62034 (from ZUMT 55739), 65.8 mm SL, stained, 27 Sept. 1974.

**Okinawa Pref.**

Okinawa Is., Okinawa I., Onna (恩納): ZUMT 16872, 128.1 mm SL, ZUMT 16873, 112.5 mm SL, S. Tanabe (田辺貞夫); Itoman: ZUMT 17033–17035 (3), 101.4–134.2 mm SL, S. Tanabe; ZUMT 55787, 106.4 mm SL, ZUMT 55788, 64.7 mm SL, 2 May 1964, Y. Haneda.

Yaeyama Is., Ishigaki-jima I.: ZUMT 55803, 122.0 mm SL, 2 Nov. 1967, marketed.  
Yaeyama Is., Iriomote-jima I.: ZUMT 55442 (134), 8.0–38.3 mm SL, 13 July 1986, H. Kishimoto.

**[Taiwan]**

Pengfu: ZUMT 37425, 87.7 mm SL, July 1906.

**[Philippines]**

Detail locality unknown: ZUMT 25487, 125.4 mm SL, A.W. Herre.

**[Malaysia]**

Mersing, Pulau Babi Kechil: ZUMT 55723–55737 (15), 78.0–120.0 mm SL, 26 Nov. 1972.

**[Papua New Guinea]**

Manam I.: ZUMT 55719, 138.2 mm SL, ZUMT 55720, 122.5 mm SL, female, 20 Oct. 1969, Y. Haneda, R/V Tagula.

Remarks: The collection locality appears to have been misspelt (“Manana” instead of “Manam”), but the possibility exists that the locality may have been confused with Bagana volcano (Bouganville I.). R/V Tagula was a research vessel of Department of Agriculture Stock and Fisheries at Port Moresby (Haneda and Tsuji, 1971).

**[Seychelles]**

Mahé: ZUMT 62042 (previously uncataloged), 83.9 mm SL, 9 Sept. 1954.

**[Probably Pacific Ocean]**

Locality unknown: ZUMT 62043 (4; previously uncataloged), 109.5–128.6 mm SL.

Remarks: This species is widely distributed from the Indian to Pacific Oceans, the Indian Ocean population having black pigmentation on the anal-fin outer margin. The present specimens lacked this character.

*Pempheris compressa* (Shaw, 1790)

**[Australia]**

**New South Wales**

Calloroy: ZUMT 55794, 92.2 mm SL, 12 Feb. 1992, rocky shore.

*Pempheris japonica* Döderlein, 1883

**[Japan]**

**Chiba Pref.**

Tateyama, Okinoshima (沖ノ島): ZUMT 55792 (17), 49.5–73.5 mm SL, 29 Sept. 1972.

### **Tokyo Met.**

Izu Is., Miyake-jima Island (三宅島), Abeno-hama Beach (アベノ浜): ZUMT 55749, 131.5 mm SL.

Izu Is., Hachijo-jima Island, Taredo Beach (垂れ戸海岸): ZUMT 55800 (6), 31.7–46.1 mm SL, 20 July 1969; detail locality unknown: ZUMT 19302, 135.5 mm SL, ZUMT 19382, 153.4 mm SL, Y. Oshitsu (押津義雄); ZUMT 55755, 138.1 mm SL, ZUMT 55756, 126.2 mm SL, May 1961.

Tokyo Market (collection details unknown): ZUMT 12748, 132.5 mm SL.

### **Kanagawa Pref.**

Miura, Misaki, Koajiro (小網代): ZUMT 54650 (3), 23.6–29.1 mm SL, 7 Sept. 1966; detail locality unknown: ZUMT 3670, 131.2 mm SL, ZUMT 3671, 130.7 mm SL, ZUMT 12749, 134.1 mm SL, sketch number 171 (写生 171 号), probably S. Tanaka; ZUMT 40293, 107.3 mm SL.

Manazuru: ZUMT P-446–449 (4), 84.9–88.3 mm SL, Sept. or Oct. 1960; ZUMT P-472, 88.1 mm SL, 25 Sept. 1960; ZUMT P-494, 128.6 mm SL, ZUMT P-495, 141.0 mm SL, Aug. or Sept. 1960; ZUMT P-519, 98.6 mm SL, ZUMT P-522, 109.5 mm SL, 25 Dec. 1960.

### **Wakayama Pref.**

Kushimoto: ZUMT 55799, 36.3 mm SL, 4 Sept. 1970.

Remarks: The specific collection locality, written as “Kii-takahama (紀伊高浜)”, could not be determined.

Hirokawa (広川), Hiro (広): ZUMT 8172, 103.8 mm SL, I. Hoshino.

### **Miyazaki Pref.**

Nobeoka, Totoro: ZUMT 51965, 117.7 mm SL, 10 Oct. 1959; ZUMT 52327, dissected, 10 Sept. 1959; ZUMT P-160, 162–164, 166, 168–170, 173–176, 178, 181, 183–186, 204, 214, 216, 218–222, 225, 226–231 (33), 80.5–137.8 mm, some specimens stained and dissected, 10 Sept. 1959, bottom trawl.

Remarks: Photograph of ZUMT 51965 and internal morphology of ZUMT 52327 figured by Tominaga (1968), respectively.

### **Kagoshima Pref.**

Osumi Is., Tanega-shima I., Nishinoomote, Kamiurata: ZUMT 55743, 114.4 mm SL, 25 Aug. 1973.

Osumi Is., Yaku-shima I., Kusugawa: ZUMT 55740, 68.7 mm SL, ZUMT 55741, 69.4 mm SL, 27 Sept. 1974, H. Ida.

### **Yamaguchi Pref.**

Hagi (萩): ZUMT 6156, 127.1 mm SL, I. Tanaka (田中市郎).

Remarks: Although the collection date of ZUMT 6156 was not recorded on the specimen ledger, it was estimated as having been during the period (1900's to 1930's) when Ichiro Tanaka sent many fish specimens to Shigeo Tanaka.

Tsuno-shima I.: ZUMT 55051, 136.0 mm SL, female, dissected, 23 Aug. 1951.

**Nagasaki Pref.**

Locality details unknown: ZUMT 27072, 133.5 mm SL.

**Okinawa Pref.?**

Yaeyama Is., Ishigaki-jima I.?: ZUMT 53349, 87.2 mm SL, Sato.

Remarks: *Pempheris japonica* has previously been recorded in Japanese waters mainly from mainland of Japan south to Kyushu, with only a few individuals reported from Amami-oshima and Okinawa-jima islands (Koeda et al. 2012; Nakae et al. 2018). Although some previous publications, e.g., Hayashi (1984), Hatooka (2000), and Shao et al. (2008), included Taiwan and the Philippines in the distribution of the species, those locations were rejected by Koeda et al. (2012). The last-mentioned cited seasonal differences in juvenile appearance as evidence of possible reproduction of the species at Okinawa Island, but supporting evidence has not been forthcoming. Although, the present specimen (ZUMT 53349) collected from Ishigaki-jima Island based on the ZUMT specimen ledger, the collection locality is seriously doubtful, because that a single specimen (ZUMT 53211) of *Sardinops melanostictus* (Temminck & Schlegel, 1846)(Clupeidae) was also discovered from the same specimen series.

**Detail locality unknown**

Probably Japan: ZUMT P-167, dissected, 10 March? 1989; ZUMT ABE 59-588 (2), 60-1521, 60-1581, 6209, 72.6–120.6 mm SL; ZUMT ABE 62-262–62-268 (7), 68.6–125.8 mm SL; ZUMT ABE 62-314–62-319 (6), 87.5–110.3 mm SL.

*Pempheris mangula* Cuvier, 1829

**[Indian Ocean]**

Detail locality unknown: ZUMT 55961 (10), 20.4–29.0 mm SL.

Remarks: Identified on the basis of pored lateral-line scale counts, but the similarities with *Pempheris nesogallica* Cuvier, 1831 which has similar counts, need further investigation.

*Pempheris molucca* Cuvier, 1829

**[Indonesia]**

Sulawesi, Makassar: ZUMT 55721, 80.9 mm SL, ZUMT 55722, 80.7 mm SL, Nov. 1969, Y. Haneda, marketed.

**[Malaysia]**

Borneo, Sarawak: ZUMT 52328, dissected, ZUMT 52329, 103.1 mm SL, ZUMT 52330, 112.7 mm SL, Sarawak Museum.



*Pempheris nesogallica* Cuvier, 1831

[Kenya]

Shimoni: ZUMT 62041 (previously uncataloged), 54.8 mm SL.

[South Africa]

Durban: ZUMT 62040 (previously uncataloged), 78.9 mm SL.

*Pempheris nyctereutes* Jordan & Evermann, 1902 タカサゴハタンボ

Remarks: The Japanese name “Takasago-hatampo” was proposed by Tominaga (1963), although the species has at no time been recorded from Japanese waters (see remarks for *P. sasakii*).

[Taiwan]

Keelung (基隆): ZUMT 19048, 122.2 mm SL, firstly identified at 22 June 1929, H. Sato (佐藤春吉).

Remarks: Photograph of ZUMT 19048 figured by Tominaga (1968) as a homotype.

Pengfu (澎湖): ZUMT 42902, 160.5 mm SL, **holotype**, female.

Remarks: The collection locality, written as “Hokoto” in the specimen ledger and original description (Jordan and Evermann, 1902), was believed to be Hokuto [Taipei City] by Ho and Shao (2011). However, “Hokoto” is the Japanese name for the Pengfu Islands (澎湖諸島), further evidence of the correct locality being given by Jordan and Evermann (1902), who noted that Hokoto was also referred to as “Pescadores”, another name for Pengfu. Although Ho and Shao (2011) believed the holotype to be lost, citing a pers. comm. from Kazuo Sakamoto (24 Oct. 2007), it is herein confirmed as available.

*Pempheris oualensis* Cuvier, 1831 ヌメハタンボ

[Papua New Guinea]

Rabaul: ZUMT 55793 (79), 20.6–49.2 mm SL.

*Pempheris sasakii* Jordan & Hubbs, 1925 ミエハタンボ

Remarks: Hayashi (1984) synonymized this species under *P. nyctereutes*, being widely followed [e.g., Hatooka and Yagishita (2013), Koeda (2018ab, 2020)]. Because the validity of the species is expected to be confirmed in future (K. Koeda, unpubl.), *P. sasakii* is tentatively used here.

**[Japan]**

**Kanagawa Pref.**

Miura, Aburatsubo, near Marine Biological Station of Faculty of Science (東大理学部附属  
実験所付近): ZUMT 48293, 119.9 mm SL, around 1935?, T. Abe.

Manazuru: ZUMT P-133, 102.8 mm SL, ZUMT P-134, 109.6 mm SL, Aug. 1959, T. Abe.

**Shizuoka Pref.**

Itou (伊東), Usami (宇佐美): ZUMT 33016, 67.7 mm SL, 7 Dec. 1933, donated from Izu  
Usami Elementary School (伊豆宇佐美小学校) to S. Tanaka.

**Mie Pref.**

Toba: ZUMT 51966, 86.7 mm SL, 1963, Y. Tominaga.

**Wakayama Pref.**

Locality details unknown: ZUMT ABE 9595, 117.4 mm SL, 14 Oct. 1953.

**Miyazaki Pref.**

Nobeoka, Totoro: ZUMT 52159, 104.1 mm SL, ZUMT 52160, 107.2 mm SL, 4 Aug. 1960;  
ZUMT 52192, 97.6 mm SL, Aug. 1960, donated from Fisheries Experimental Station of  
South Sea Area (南海区水試令所); ZUMT 52326, dissected.

Remarks: Internal morphology of ZUMT 52326 figured by Tominaga (1968).

Fukushima: ZUMT 22662, 133.9 mm SL, ZUMT 22667, donated from Fukushima-mura  
Fisheries Association (福島村漁業組合).

**Kagoshima Pref.**

Osumi Is., Yaku-shima I., Kamiyaku, Kusugawa (楠川): ZUMT 62033 (from ZUMT 55739),  
70.2 mm SL, 27 Sept. 1974.

**Detail locality unknown**

Probably Japan: ZUMT ABE 61-1104, 104.2 mm SL.

*Pempheris schomburgkii* Müller & Troschel, 1848

**[Western Atlantic Ocean]**

Locality details unknown: ZUMT 55802, 26.0 mm SL, stained.

*Pempheris schwenkii* Bleeker, 1855 ミナミハタンポ

**[Japan]**

**Kagoshima Pref.**

Osumi Is., Tanega-shima I.: ZUMT 28601, 109.0 mm SL, H. Kuroiwa (黒岩 恒).

Osumi Is., Yaku-shima I., Kusugawa: ZUMT 55739 (13), 48.0–65.1 mm SL, 27 Sept. 1974.

### **Okinawa Pref.**

Okinawa Is., Okinawa-jima I., Motobu: ZUMT 51969 (P-288), 105.6 mm SL, Nov. 1960; Chinen: ZUMT 55543, 57.5 mm SL, ZUMT 55544, 52.2 mm SL, 15 Spet. 1986, H. Senou (瀬能 宏); locality details unknown: ZUMT 51970–51973 (4; P289–292), 27.2–64.4 mm SL, 1960.

Yaeyama Is., Ishigaki-jima I.: ZUMT 55795 (5), 63.7–73.2 mm SL, 9 Oct. 1970, obtained from fish market; ZUMT 62036 (from ZUMT 55442), 20.4 mm SL, 13 July 1986, H. Kishimoto.

*Pempheris tominagai* Koeda, Yoshino & Tachihara, 2014

### **[Mozambique]**

Baxio Pinda: ZUMT 62039 (previously uncataloged), 79.2 mm SL, July 1950.

*Pempheris vanicolensis* Cuvier, 1831 キビレハタンボ

### **[Philippines]**

Basilan I.: ZUMT 12717, 96.3 mm SL, U. Yamamura (山村樞次郎); ZUMT 42348, 131.9 mm SL, 1926, K. Yamaoka.

Locality details unknown: ZUMT 11090, 145.3 mm SL, U. Yamamura.

*Pempheris xanthoptera* Tominaga, 1963 ミナミハタンボ

### **[Japan]**

#### **Chiba Pref.**

Tateyama: ZUMT 55804 (4), 23.7–34.0 mm SL, 24 Sept. 1959.

Kamogawa, Kominato: ZUMT P-117 (6), 22.4–30.9 mm SL, **paratypes**, 10 Sept. 1954, Yasuda, tide pool; ZUMT P-118 (4), 14.4–19.4 mm SL, **paratypes**, 31 May 1933, tide pool at Matuga-hama (details unknown).

#### **Tokyo Met.**

Izu Is., Izu-oshima I., Toushiki (トウシキ): ZUMT 55791 (8), 33.5–42.5 mm SL, **paratypes**, ZUMT 55796 (20), 30.1–42.2 mm SL, **paratypes**, 8 Sept. 1960; detail locality unknown: ZUMT P-502–505 (4), 118.8–119.7 mm SL, middle of Aug. 1960.

Izu Is., Miyake-jima I., Abeno-hama Beach: ZUMT 55750–55754 (5), 90.6–122 mm SL, 22 Sept. 1973, 15 m depth; Kamakata (釜方): ZUMT 55738 (73), 24.8–43.1 mm SL, 21 Sept. 1973, tidepool; locality details unknown: ZUMT 54652 (10), 17.6–20.5 mm SL, 30 July 1972, J. Moyer and Y. Tominaga; ZUMT 55763–55772 (10), 83.2–119.4 mm SL, 1963.

Izu Is., Hachijo-jima Island: ZUMT 19138, 115.0 mm SL, **paratype**, 3 July 1929, Y. Otsuki (大槻洋四郎); ZUMT 19166, 126.6 mm SL, **paratype**, 6 July 1929, Y. Otsuki; ZUMT 19168, 131.4 mm SL, **paratype**, 6 July 1929, Y. Otsuki; ZUMT 41871–41873 (3), 47.8–42.7 mm SL, **paratypes**, Y. Uchiyama (内山吉五郎); ZUMT 46616, 130.0 mm SL, I. Tomiyama; ZUMT 62002 (3; separated from ZUMT 42900), 45.1–50.4 mm SL, Sept. 1922, M. Uchiyama; ZUMT P-525, 127.4 mm SL, left side dissected, 1960.

Ogasawara Is. (小笠原諸島), Chichi-jima I. (父島), Futami Port (二見港): ZUMT 55789 (56), 25.2–60.7 mm SL, 16 Aug. 1974; Miyano-hama Beach (宮之浜): ZUMT 55797 (3), 16.6–25.0 mm SL, 20 July 1969, H. Ida (井田 齊); ZUMT 55801 (56), 10.7–23.3 mm SL, 20 July 1969.

### **Kanagawa Pref.**

Miura, Misaki, Koajiuro: ZUMT 49143, 128.1 mm SL, **paratype**, 18 Apr. 1955, I. Tomiyama; ZUMT 49144, 132.5 mm SL, **paratype**, ZUMT 49145, 74.5 mm SL, **paratype**, 19 Aug. 1955, I. Tomiyama; ZUMT 54651 (77), 8.8–20.8 mm SL, 7 Sept. 1966; Misaki Marine Biology Station: ZUMT ABE 571–575 (5), 28.2–42.4 mm SL, Jan. 1936; off Moroiso (諸磯), Ebi-shima I. (エビ島): ZUMT 56866, 26.5 mm SL, ZUMT 56867 (10), 16.9–23.3 mm SL, 1 Aug. 1987, tide pool.

locality details unknown: ZUMT 49438, 88.1 mm SL, **paratype**, I. Tomiyama; ZUMT 62038 (36, previously uncataloged), 14.4–28.6 mm SL, 2 Sept. 1986, Sato.

Hayama (葉山): ZUMT 27230, 31.0 mm SL, Sept. 1933.

Manazuru: ZUMT 51967, 116.8 mm SL, **holotype**, 25 Sept. 1960; ZUMT 55050 (P-520), 115.0 mm SL, **paratype**, dissected, 15–20 Oct. 1960; ZUMT P-127–132 (6), 75.1–125.6 mm SL, Aug. or Sept. 1959; ZUMT P-252, 98.7 mm SL, 23 June 1960, T. Abe; ZUMT P-450–458 (9), 72.2–120.6 mm SL, some specimens stained, Sept. or Oct. 1960; ZUMT P-461–466, 468–471 (10), 47.4–124.2 mm SL, 15–20 Oct. 1960; ZUMT P-475–478, 480–490 (15), 77.3–95.9 mm SL, 25 Sept. 1960; ZUMT P-496–500 (5), 63.5–132.2 mm SL, Aug. or Sept. 1960; ZUMT P-524, 61.1 mm SL, 9 Nov. 1960; ZUMT ABE 62-1230, 90.2 mm SL, ZUMT ABE 62-1233, 89.2 mm SL, 22 Sept. to 5 Oct. 1962.

### **Shizuoka Pref.**

Shimoda (下田): ZUMT 42412 (18), 10.6–16.2 mm SL, 25 Oct., K. Kato (加藤光次郎); ZUMT 55790 (13), 27.6–39.9 mm SL.

Remarks: Although the collection date of ZUMT 42412 was not recorded in the specimen ledger, it is estimated to have been during the period 1932 to 1941, when Kojiro Kato (加藤光次郎) worked at the Mitsui Institute of Marine Biology (三井海洋生物研究所)(Suzuki 1981).

Mera (妻良): ZUMT 55759–55762 (4), 75.0–111.8 mm SL, Oct. 1957, Y. Haneda.

Nirayama? (萑山): ZUMT 37909, 70.7 mm SL, **paratype**, locality details unknown [specimens donated by M. Agata (阿方 勝), Nirayama junior high school (萑山中学校)].

Locality details unknown: ZUMT 44887, 48.4 mm SL, N. Onodera (小野寺直一).

### **Mie Pref.**

Kumano (熊野), Kimoto (木本): ZUMT 23185, 75.8 mm SL, ZUMT 23187, 64.8 mm SL, ZUMT 23186, 88.6 mm SL, 10 May 1930, Y. Tsuchiga (槌賀安平), Kimoto junior high school (木本中学校).

### **Wakayama Pref.**

Kushimoto, Azashi (安指): ZUMT 55774–55786 (13), 78.6–112.7 mm SL, 24 Aug. 1972; Kushimoto Market: ZUMT P-123–126 (4), 66.5–92.1 mm SL, early Aug. 1959, T. Abe; Kii-takahama (details unknown): ZUMT 55798 (5), 21.4–33.2 mm SL, 4 Sept. 1970. Tanabe: ZUMT 8098, 102.4 mm SL, **paratype**, ZUMT 8326, 87.6 mm SL, **paratype**, ZUMT 8327, 101.5 mm SL, **paratype**, N. Ui; ZUMT 20311–20314 (4), 90.9–120.9 mm SL, **paratypes**, Sept. 1921, N. Ui.

### **Kochi Pref.**

Susaki: ZUMT 18643, 74.4 mm SL, **paratype**, 20 July 1925?, T. Kamohara. Okino-shima I. (沖の島), Moshima Port (母島港): ZUMT 55744–55747 (4), 90.3–107.0 mm SL, 26 Aug. 1971, angling.

### **Miyazaki Pref.**

Nobeoka, Totoro: ZUMT 52161–52164 (4), 95.1–111.4 mm SL, **paratypes**, 4 Aug. 1960, set net; ZUMT P-137, 90.4 mm SL, ZUMT P-138, 97.2 mm SL, 2 July 1953; ZUMT P-139–143, 145 (6), 72.7–97.2 mm SL, 10 Sept. 1959; ZUMT P-414, dissected, 4 Aug. 1960. Locality details unknown: ZUMT 20015.

### **Kagoshima Pref.**

Kagoshima, Taniyama (谷山): ZUMT 24054, 44.1 mm SL, **paratype**; ZUMT 48291, 42.0 mm SL, **paratype**, 20 July to 15 Aug. 1930. Remarks: Called “Mebai (メバイ)” in local dialect, but probably incorrect. Kagoshima, Naya (納屋): ZUMT 24142, 76.3 mm SL. Remarks: Label states “Probably Kagoshima”. Osumi Is., Tamega-shima I.: ZUMT 28600, 116.8 mm SL, **paratype**, H. Kuroiwa. Detail locality unknown: ZUMT 26884, 84.5 mm SL, ZUMT 40488, 77.3 mm SL.

### **Nagasaki Pref.**

Saikai (西海), Seto (瀬戸): ZUMT P-507, 509, 510, 511, 513 (5), 56.2–92.4 mm SL, some specimens stained, 9 Nov. 1960, Masu-ami; locality details unknown (外泊). Remarks: Collection locality written as “Nagasaki Pref. (長崎県), Seikai Town (西海町), Sotodomari (外泊)”, but the last-mentioned name/location is not known in Seikai City (previously Town). Nishisonogi-gun (西彼杵郡): ZUMT P-508, 92.1 mm SL, 9 Nov. 1960. Goto Is., Madara-jima I.: ZUMT 50215, 97.2 mm SL, **paratype**, ZUMT 50216, 91.2 mm SL, **paratype**, ZUMT 50217, 87.3 mm SL, **paratype**, 20 Oct. 1953, I. Tomiyama.

Goto Is., Fukue-jima I., Mitsuiraku (三井楽): ZUMT 50060, 102.0 mm SL, **paratype**, 13 Oct. 1953; Fukue: ZUMT 49925, 91.6 mm SL, **paratype**, ZUUMT 49952, 102.4 mm SL, **paratype**, 10 June 1953, I. Tomiyama; Tamanoura, Taiho (大寶): ZUMT 52325, **paratype**, dissected.

Remarks: Internal morphology of ZUMT 52325 figured by Tominaga (1968).

Locality details unknown: ZUMT 2272, 118.8 mm SL, 20 June 1909.

### **Detail locality unknown**

Probably Japan: ZUMT 63257, 121.4 mm SL; ZUMT 63258, 79 mm SL; ZUMT P-119 (17), 13.6–18.4 mm SL; ABE 59-376, 59-587, 59-590 (3), 101.9–126.6 mm SL. ZUMT ABE 61-1105, 89.0 mm SL; ZUMT ABE 61-1106, 94.6 mm SL; ZUMT ABE 61-1107, 91.2 mm SL; ZUMT ABE 61-944, 78.0 mm SL; ZUMT ABE 62-121, 120.4 mm SL; ZUMT ABE 62-122, 119.8 mm SL.

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