

# A list of Clupeiformes (Actinopterygii: Teleostei) specimens deposited in the Department of Zoology, The University Museum, The University of Tokyo

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## Abstract

Clupeiformes specimens deposited in the Department of Zoology, The University Museum, The University of Tokyo, comprising 1,143 lots with 2,267 specimens (including the paratype of *Thrissina katana* Hata, Lavoué & Motomura, 2022) of 75 species representing six families, are listed.

## Introduction

The order Clupeiformes includes more than 400 species, often commonly called sardines or anchovies (Birge et al. 2021). The order includes many species important for fisheries, such as *Engraulis japonica* Temminck & Schlegel, 1846 and *Sardinops melanostictus* (Temminck & Schlegel, 1846), of which more than 150,000 tons are caught every year in Japan (Statistics Department of Ministry of Agriculture, Forestry and Fisheries, Japan 2021). On the other hand, Clupeiformes is considered to be a taxonomically confused group due to numerous new species having been described in recent years (e.g., Stern et al. 2016; Gangan et al. 2020; Hata et al. 2021a, b), and suggested re-classification of higher-level taxa (including family or subfamily taxa) by many studies (e.g., Lavoué et al. 2017; Egan et al. 2018). As an aid to future taxonomic studies, a list of clupeiform specimens deposited in the Department of Zoology, The University Museum, The University of Tokyo, including seventy-five species, is provided.

## Materials and Methods

The classification of Clupeiformes families generally follows Bloom and Egan (2018). However, despite their recognition of the polyphyly of “Clupeidae”, their “Alosinae”, “Dorosomatinae”, and “Clupeinae” are included here as a single family, “Clupeidae”. Genera and species represented in this study are arranged in alphabetical order by species name, the correspondence between scientific name and standard Japanese name of each family following

Aonuma and Yagishita (2013a–c), Hata and Koeda (2022), Hata and Motomura (2020a, b, 2021a), and Hata et al. (2022). Species nomenclature and identifications of ZUMT specimens generally followed Whitehead (1985), Whitehead et al. (1988), Munroe et al. (1999) and Wongratana et al. (1999), exceptions being noted in the Remarks following applicable species. Contents included in parentheses following registration numbers are as follows: [specimen counts, standard length; collection locality; collection date; collector; remarks (if applicable)]. Collection data of specimens are omitted if the same as that for the previous specimen.

The ZUMT specimens listed in this study are stored in rooms 406 and 407 in the museum building, generally in shelved bottles, with 13 larger specimens [ZUMT 18101, 18505, 18506, 45931, 50525, 50602 (*Ilisha elongata*), 19100, 21227 (*Tenualosa reevesii*), 47849, 47850 (*Clupea pallasii*), 51459 (*Chirocentrus dorab*), 62047 (*Chirocentrus nudus*), 62050 (*Alosa alosa*)] in a glass tank (labelled “Clupeidae 43-A”), sealed with a silicon adhesive and glass lid, in room 407 (as of Dec. 2021).

The standard lengths of specimens were generally measured for each specimen, although only of the largest and smallest specimens when a large number were included in a single lot. Some specimens in the ZUMT collection, collected by Dr. Tokiharu Abe, had neither allotted ZUMT catalog numbers, nor collection data recorded. Such specimens are herein listed as ZUMT ABE XXXX (number written on the label), since there remains the possibility Dr. Abe’s personal catalog book with collection data will be discovered in the future. Additionally, specimens with catalogue numbers ZUMT ABE 2700 to 6000 were collected from Palau by Dr. Abe between 1936 and 1937 (per K.K. and M.A.).

## Results

At least 75 Clupeiformes species, in 1143 lots including 2,267 specimens, were found in the ZUMT fish collection. Some specimens were considered as cryptic or undescribed species (see Remarks).

## Species accounts

Clupeiformes ニシン目  
Spratelloididae キビナゴ科

*Spratelloides delicatulus* (Bennet, 1832) ミナミキビナゴ

## JAPAN

ZUMT 17090 (1, 46.2 mm; Itoman City, Okinawa Pref.; coll. by S. Tanabe)  
ZUMT 17266 (7, 26.0–44.5 mm; Unten, Nakijin Village, Okinawa Pref.; coll. by S. Tanabe)  
ZUMT 18305 (2, 46.3–48.9 mm; off Unten Port, Nakijin Village, Okinawa Pref.; 22 May 1927; coll. by Okinawa Prefectural Fisheries Experimental Station)  
ZUMT 20047 (1, 44.7 mm; Onna Village, Okinawa Pref.)  
ZUMT 40735 (1, 56.8 mm), ZUMT 40736 (1, 54.8 mm), ZUMT 40737 (1, 54.3 mm), ZUMT 40738 (1, 48.7 mm; Amami-oshima Island, Ryukyu Archipelago; coll. by K. Enokiya)  
ZUMT 41185 [3, 50.9–53.9 mm; probably Amami-oshima Island, Ryukyu Archipelago; donated by K. Enokiya (Kagoshima Prefectural Oshima Junior High School)]

## PHILIPPINES

ZUMT 47003 (1, 43.7 mm), ZUMT 47004 (1, 48.7 mm), ZUMT 47005 (1, 54.2 mm; Philippines; 1926; coll. by U. Yamamura; originally included in ZUMT 42031)

## PALAU

ZUMT ABE 3779 (1, 48.3 mm), ZUMT ABE 3780 (1, 49.2 mm), ZUMT ABE 3781 (1, 48.2 mm), ZUMT ABE 3782 (1, 43.9 mm), ZUMT ABE 3805 (14, 25.7–56.8 mm), ZUMT ABE 5963 (1, 45.0 mm; Palau)  
ZUMT 62022 (2, 63.4–64.6 mm; Palau; stored in same bottle with ZUMT ABE 5963 and 5964)

## LOCALITY UNKNOWN

ZUMT 55114 (9, 42.7–51.6 mm; no data).

## *Spratelloides gracilis* (Temminck & Schlegel, 1846) キビナゴ

## JAPAN

**IZU ISLANDS** ZUMT 44926 (46, 34.6–75.9 mm), ZUMT 44930 (35, 46.4–76.2 mm; Hachijo-jima Island)

**SHIZUOKA PREF.** ZUMT 33349 (1, 95.6 mm), ZUMT 33350 (1, 92.0 mm), ZUMT 33351 (1, 94.0 mm; Shizuoka Pref.)

**WAKAYAMA PREF.** ZUMT 22003 (1, 78.1 mm; Wakayama Pref.; Jan. 1920)

ZUMT 52386 (93, 21.7–28.8 mm; Yuasa Bay, Yuasa Town; Mar. 1919; coll. by S. Kojima)

**EHIME PREF.** ZUMT 32470 (1, 70.1 mm), ZUMT 32471 (1, 74.1 mm), ZUMT 32472 (1, 67.7 mm), ZUMT 32473 (1, 77.0 mm), ZUMT 32474 (1, 75.0 mm), ZUMT 32475 (1, 79.0 mm), ZUMT 32476 (1, 77.0 mm; Uwajima City)

**KOCHI PREF.** ZUMT 18705 (1, 70.5 mm), ZUMT 18706 (1, 75.1 mm; Kashiwa-jima Island, Otsuki Town; Aug. 1928; coll. by T. Kamohara)

ZUMT 47234 (1, 53.3 mm; Kochi Pref.)

**NAGASAKI PREF.** ZUMT 1585 (105, 28.0–47.0 mm; Fukuda, Nagasaki City; 11 Mar. 1906; coll. by K. Akamatsu)

ZUMT 1625 (11, 42.3–57.2 mm; Izuhara Bay, Tsumi City, Tsumi Island, Nagasaki Pref.; Feb. 1891)

ZUMT 20584 (1, 64.7 mm), ZUMT 20585 (1, 80.0 mm), ZUMT 20586 (1, 70.5 mm), ZUMT 26826 (1, 52.3 mm), ZUMT 29799 (1, 68.1 mm), ZUMT 33773 (1, 72.2 mm), ZUMT 33774 (1, 69.3 mm), ZUMT 33775 (1, 71.2 mm), ZUMT 33776 (1, 64.3 mm), ZUMT 33777 (1, 65.6 mm), ZUMT 33778 (1, 67.2 mm; Nagasaki Pref.; Mar. 1909; coll. by S. Tanaka)

ZUMT 48225 (1, 77.8 mm), ZUMT 48226 (1, 72.5 mm), ZUMT 48227 (1, 83.4 mm), ZUMT 48228 (1, 69.7 mm), ZUMT 48229 (1, 74.7 mm), ZUMT 48230 (1, 72.8 mm), ZUMT 48231 (84.4 mm), ZUMT 48232 [61.4 mm; Tamanoura, Goto City (Fukue-jima Island, Goto Islands); 23 May 1953; coll. by I. Tomiyama]

ZUMT 49886 (1, 82.8 mm), ZUMT 49887 (1, 82.8 mm), ZUMT 49906 [1, 81.5 mm SL; Fukue, Goto City (Fukue-jima Island, Goto Islands); 10 June 1953; coll. by I. Tomiyama] ZUMT 52382 (8, 43.1–54.0 mm; Nagasaki Pref.; Feb. 1912)

**KAGOSHIMA PREF.** ZUMT 29700 (1, 60.3 mm), ZUMT 29701 (1, 60.9 mm; Naze, Amami City, Amami-oshima Island, Ryukyu Archipelago; 2 July 1910)

ZUMT 46969 (82, 44.8–83.9 mm; Koniya Market, Setouchi Town, Amami-oshima Island, Ryukyu Archipelago)

**OKINAWA PREF.** ZUMT 16926 (1, 53.4 mm), ZUMT 20051 (1, 57.5 mm), ZUMT 20052 (1, 50.4 mm), ZUMT 20053 (1, 58.7 mm), ZUMT 20054 (1, 45.2 mm), ZUMT 20055 (1, 57.3 mm; Onna Village, Okinawa-jima Island; coll. by S. Tanabe)

ZUMT 17257 (1, 65.1 mm), ZUMT 17258 (1, 61.9 mm; Unten, Nakijin Village, Okinawa-jima Island; coll. by S. Tanabe)

ZUMT 18312 (22, 38.1–58.9 mm; Naha Port, Naha City, Okinawa-jima Island; 25 Aug. 1913; coll. by Okinawa Prefectural Fisheries Experimental Station)

ZUMT 55709 (19, 48.3–69.4 mm; tidepool at Onna Village; 14 Aug. 1925)

ZUMT 63316 (1, 32.9 mm; off Unten Port, Nakijin Village; 22 May 1927; coll. by Okinawa Prefectural Fisheries Experimental Station)

#### **TAIWAN**

ZUMT 12849 (1, 62.6 mm), ZUMT 12850 (1, 64.0 mm), ZUMT 12851 (1, 63.8 mm), ZUMT 12852 (1, 56.2 mm; Keelung; coll. by T. Aoki)

#### **PALAU**

ZUMT 62020 (2, 62.9–68.8 mm; Palau; stored in same bottle with ZUMT ABE 5963 and 5964)

#### **LOCALITY UNKNOWN**

ZUMT 40652 (1, 78.0 mm), ZUMT 40676 [1, 75.5 mm; although the locality was questionably recorded as “Morioka? (盛岡か?)” in the ledger, this species has been recorded from an area south of Ibaraki Pref. on the Pacific coast of Japan (Aonuma and Yagishita 2013a). The ledger record may therefore be erroneous.]

### **Dussumieriidae ウルメイワシ科** ***Dussumeria acuta* Valenciennes, 1847**

#### **CHINA**

ZUMT 22813 (1, 74.1 mm; Hainan Island)

*Dussumieria albulina* (Fowler, 1934)

**PHILIPPINES**

ZUMT 40934 (1, 78.8 mm; Jolo Island; Feb. 1909; coll. by K. Aoki and I. Iijima)

ZUMT 42040 (1, 115.9 mm), ZUMT 42170 (1, 118.0 mm), ZUMT 42188 (1, 113.8 mm; Philippines; 1926; coll. by U. Yamamura)

**INDONESIA**

ZUMT 62607 (1, 1078.1 mm; Jakarta, Java; 5 Mar. 1909; coll. by I. Iijima and K. Aoki)

**LOCALITY UNKNOWN**

ZUMT 55113 (2, 112.0–122.6 mm; no data)

**Remarks.** See Hata et al. (2020) regarding the nomenclature of this species.

*Dussumieria elopsoides* Bleeker, 1849

**PHILIPPINES**

ZUMT 41001 (1, 100.8 mm; Jolo Island; Feb. 1909; coll. by K. Aoki and I. Iijima)

**INDONESIA**

ZUMT 62628 (1, 102.3 mm; Jakarta, Java; 5 Mar. 1909; coll. by I. Iijima and K. Aoki)

*Dussumieria modakandai*

Singh, Teena Jayakumar, Kumar, Murali, Mishra, Singh & Lal, 2021

**JAPAN**

ZUMT 11155 (1, 103.0 mm), ZUMT 11156 (1, 120.4 mm), ZUMT 11157 [1, 120.9 mm; probably Okinawa-jima Island, Ryukyu Archipelago; coll. by S. Sakaguchi (Okinawa Prefectural Daiichi Junior High School)].

**TAIWAN**

ZUMT 13686 (6, 38.0–46.8 mm; estuary in Tamsui, Xinbei City; coll. by T. Aoki)

ZUMT 14875 (1, 142.5 mm), ZUMT 14876 (1, 143.8 mm), ZUMT 14877 (1, 146.2 mm; Tainan; coll. by T. Aoki)

**CHINA**

ZUMT 22821 (1, 110.1 mm; Hainan Island)

**PHILIPPINES**

ZUMT 39500 (1, 108.2 mm), ZUMT 39501 (1, 101.3 mm), ZUMT 39502 (1, 95.2 mm), ZUMT 39503 (1, 101.4 mm), ZUMT 39504 (1, 102.6 mm; Philippines; coll. by U. Yamamura)

**Remarks.** See Singh et al. (2021) regarding the nomenclature of this species.

*Dussumieria* sp.

(Fig. 1A)

**JAPAN**

ZUMT 14468 (1, 137.2 mm), ZUMT 14469 (1, 137.4 mm), ZUMT 39748 (1, 136.9 mm; Okinawa Prefecture; coll. by S. Sakaguchi)

**Remarks.** These specimens are distinguished from all known congeners by their distinct vomerine teeth.

*Etrumeus micropus* (Temminck & Schlegel, 1846) ウルメイワシ

**JAPAN**

**AOMORI PREF.** ZUMT 13143 (1, 74.6 mm), ZUMT 13144 (1, 76.9 mm SL), ZUMT 13145 (1, 71.3 mm), ZUMT 13146 (1, 72.1 mm), ZUMT 13147 (1, 61.0 mm; Shirogane-maehama, Hachinohe City; 19 Oct. 1923; coll. by S. Tanabe)

ZUMT 41758 (1, 197.6 mm), ZUMT 41769 (1, 181.4 mm; Asamushi, Aomori City; coll. by S. Tanabe)

**CHIBA PREF.** ZUMT 34252 (1, 47.9 mm; Tateyama Bay; July 1917; coll. by R. Takahashi)

**TOKYO MARKET** ZUMT 33901 (1, 48.2 mm; probably obtained at Tokyo Market, Tokyo Met.)

**KANAGAWA PREF.** ZUMT 27237 (1, 86.6 mm), ZUMT 27238 (1, 78.3 mm; Koajiro Bay or Aburatusbo Bay, Miura City; 27 July 1904; coll. by S. Tanaka)

ZUMT 28891 (1, 83.5 mm; Misaki, Miura City; May 1918)

ZUMT 33218 (1, 53.7 mm), ZUMT 33219 (1, 70.5 mm), ZUMT 33220 (1, 67.7 mm), ZUMT 33221 (1, 66.3 mm), ZUMT 33222 (1, 72.4 mm), ZUMT 33223 (1, 60.2 mm; Kozu, Odawara City; 5 Nov. 1933; coll. by K. Minoshima)

ZUMT 21354 (1, 50.9 mm), ZUMT 21355 [1, 48.8 mm; Kanagawa Pref. (Tomioka or Misaki); coll. by S. Fukuda]

ZUMT 55635 (1, 126.1 mm; Misaki Fish Market, Miura City; 29 July 1986)

**SHIZUOKA PREF.** ZUMT 17752 (1, 72.0 mm), ZUMT 17753 (1, 88.5 mm), ZUMT 17754 (1, 69.3 mm), ZUMT 17755 (1, 69.0 mm; Enoura, Numazu City; coll. by N. Kuroda)

ZUMT 29225 [1, 31.4 mm; probably collected from Shizuoka Pref.; donated by Y. Ito (Shizuoka Junior High School)]

**TOYAMA PREF.** ZUMT 46274 (1, 121.4 mm), ZUMT 46275 (1, 126.1 mm; probably collected from Uozu or Namerikawa City)

**MIE PREF.** ZUMT 23203 (1, 69.3 mm), ZUMT 23204 [1, 76.5 mm; probably Mie Pref.; coll. by Y. Tsuchiga (Kimoto Junior High School, Mie Pref.)]

ZUMT 38361 (1, 71.9 mm), ZUMT 38362 (1, 74.2 mm), ZUMT 38363 (1, 75.8 mm), ZUMT 38364 (1, 72.3 mm), ZUMT 38365 (1, 79.2 mm), ZUMT 38366 (1, 75.4 mm), ZUMT 38367 (1, 80.9 mm), ZUMT 38368 (1, 76.9 mm), ZUMT 38369 (1, 78.7 mm), ZUMT 38370 (1, 79.9 mm; Mie Pref. Fisheries Research Institute, Hamajima, Shima City; Sept. 1920)

**KYOTO PREF.** ZUMT 24371 (1, 97.4 mm), ZUMT 24372 (1, 110.0 mm; Miyazu City,; Nov. 1931; coll. by Kyoto Prefectural Fisheries Training Center)

**SHIMANE PREF.** ZUMT 2470 (1, 194.1 mm; Hamada City; 2 May 1909)

ZUMT 31318 (1, 95.3 mm; Matsue City)

**KOCHI PREF.** ZUMT 47209 (1, 47.7 mm), ZUMT 47235 (1, 47.0 mm SL; Kochi Pref.)

**NAGASAKI PREF.** ZUMT 47932 [1, 55.0 mm; Tamanoura, Goto City (Fukue-jima Island, Goto Islands); 22 May 1953; coll. by I. Tomiyama]

ZUMT 49990 [1, 55.6 mm; Arikawa, Shinkamigoto Town (Nakadori-jima Island, Goto Islands); 10 June 1953; coll. by I. Tomiyama]

ZUMT 50016 [1, 131.6 mm; Fukue, Goto City (Fukue-jima Island, Goto Islands); 12 Oct. 1953; coll. by I. Tomiyama]

ZUMT 50328 (1, 112.4 mm; Hirado City; 10 June 1953; coll. by I. Tomiyama)

**MIYAZAKI PREF.** ZUMT 22385 (1, 157.5 mm; Miyazaki Pref.)

**KAGOSHIMA PREF.** ZUMT 5797 (1, 145.1 mm; Shibushi; 25 Oct. 1902)

ZUMT 20042 (1, 118.8 mm), ZUMT 21964 (1, 112.4 mm; Kagoshima Pref.)

#### **TAIWAN**

ZUMT 12829 (1, 114.5 mm), ZUMT 12830 (1, 102.5 mm), ZUMT 12831 (1, 93.9 mm; Keelung; coll. by T. Aoki)

ZUMT 13678 (1, 155.9 mm), ZUMT 13679 (1, 81.0 mm; Taiwan; coll. by T. Aoki)

ZUMT 25132 (1, 98.2 mm), ZUMT 25134 (1, 94.3 mm; Port of Keelung, Keelung; coll. by M. Imai)

ZUMT 63272 (1, 70.2 mm; Tamsui, Xinbei City)

#### **LOCALITY UNKNOWN**

ZUMT 55115 (5, 99.8–107.4 mm), ZUMT 55116 (2, 108.2–185.9 mm), ZUMT 62084 (6, 50.0–60.7 mm), ZUMT ABE 59-263 (1, 153.1 mm), ZUMT ABE 61-984 (1, 116.9 mm; no data)

**Remarks.** See Randall and DiBattista (2012) regarding the nomenclature of this species.

#### ***Etrumeus wongratanai* DiBattista, Randall & Bowen, 2012**

ZUMT 12304 (1, 48.9 mm; probably African coast; donation from British Museum)

**Remarks.** See DiBattista et al. (2012) regarding the nomenclature of this species.

#### **Pristigasteridae ヒラ科**

#### ***Ilisha elongata* (Anonymous, 1830) ヒラ**

#### **JAPAN**

**ARIAKE SEA** ZUMT 18101 (1, 428.0 mm; Ariake Sea; coll. by Fukuoka Prefectural Fisheries Experimental Station)

ZUMT 18505 (1, 378.9 mm), ZUMT 18506 [1, 317.8 mm; probably collected from Ariake Sea; 11 Nov. 1928; donated by T. Fukunaga (Fukuoka Prefectural Fisheries Experimental Station)]

ZUMT 18508 (4, 51.8–58.0 mm), ZUMT 18509 [4, 74.4–100.9 mm; probably collected from Ariake Sea; 20 Aug. 1928; donated by T. Fukunaga (Fukuoka Prefectural Fisheries Experimental Station)]

ZUMT 35732 (1, 57.0 mm), ZUMT 35733 (1, 57.5 mm), ZUMT 35734 (1, 44.3 mm), ZUMT 35735 (1, 29.0 mm; Ariake Sea; Oct. 1931; coll. by I. Tomiyama)

ZUMT 45931 (1, 314.1 mm), ZUMT 45944 (1, 268.2 mm; probably Ariake Sea, Japan)

ZUMT 50525 (1, 352.3 mm; Ariake Sea; 19 Apr. 1959; coll. by Y. Tominaga)

**FUKUOKA PREF.** ZUMT 35100 (1, 148.7 mm), ZUMT 35101 (1, 130.8 mm; Ariake Sea, off Okinohata, Yanagawa City; 28 May 1931; coll. by I. Tomiyama)

ZUMT 50719 (1, 177.3 mm; purchased at Okinohata Fish Market, Yanagawa City; 10 Apr. 1959; coll. by Y. Tominaga)

ZUMT 62107 (16, 21.9–64.7 mm), ZUMT 62108 (5, 58.1–67.3 mm; Yanagawa City; 1931; coll. by I. Tomiyama)

**SAGA PREF.** ZUMT 57348 (2, 54.1–61.0 mm; purchased at Kashima Fish Market, Kashima City; 22 Sept. 1987; coll. by H. Senou and T. Saruwatari)

ZUMT 57358 (1, 79.2 mm; Nanaura, Kashima City; 23 Sept. 1987; coll. by H. Senou and T. Saruwatari)

**NAGASAKI PREF.** ZUMT 47990 (1, 217.4 mm; obtained at Sasebo Fish Market, Sasebo City; 28 May 1953; coll. by I. Tomiyama)

#### **EAST CHINA SEA**

ZUMT 50555 (1, 275.0 mm; East China Sea; 28 July 1959; coll. by Y. Tominaga)

ZUMT 50602 (1, 363.0 mm; East China Sea, coll. by Y. Tominaga)

ZUMT 51288 [1, 148.8 mm; East China Sea (landed at Fukuoka Fish Market); 24 Dec. 1959; coll. by Y. Tominaga]

ZUMT 62086 (2, 165.2–213.1 mm; East China Sea; 22 Mar. 1963)

#### **TAIWAN**

ZUMT 19029 (1, 215.1 mm; Taipei; coll. by H. Sato)

#### **CHINA**

ZUMT 15761 (1, 115.3 mm; Fuzhou City, Fujian District)

ZUMT 21224 (1, 232.9 mm; China)

ZUMT 51665 (1, 256.7 mm; East China Sea, east of Shanghai (31°25'N, 124°25'E–30°25'N, 124°25'E))

ZUMT 54563 (1, 190.8 mm), ZUMT 54564 [1, 193.4 mm; Yellow Sea, east of Yanchong City, Jiangsu Province (34°15'N, 122°15'E), 25 m depth; 12 Oct. 1984; coll. by S. Tanabe]



**LOCALITY UNKNOWN**

ZUMT 37504 (1, 182.0 mm), ZUMT 37505 (1, 186.4 mm), ZUMT 57343 (7, 47.4–59.2 mm; no data)

***Ilisha kampeni* (Weber & de Beaufort, 1913)**

**MALAYSIA**

ZUMT 62101 (1, 112.0 mm; Sarawak State; tagged as “P. 1661”)  
ZUMT 62102 (1, 127.7 mm; Sarawak State; tagged as “P. 1662”)  
ZUMT 62103 (1, 85.1 mm; Sarawak State; tagged as “P. 2157”)

***Ilisha megaloptera* (Swainson, 1838)**

**MALAYSIA**

ZUMT 62098 (1, 137.6 mm; Sarawak State; tagged as “P. 2162”)  
ZUMT 62099 (1, 158.7 mm; Sarawak State; tagged as “P. 1875”)  
ZUMT 62100 (1, 131.0 mm; Sarawak State; tagged as “P. 1802”)

***Ilisha melastoma* (Bloch & Schneider, 1801)**

**TAIWAN**

ZUMT 14914 (1, 79.4 mm), ZUMT 14915 [(1, 75.2 mm; probably collected from Taiwan, donated by T. Aoki (Government-General of Taiwan))]  
ZUMT 14938 (1, 115.0 mm; Tainan; coll. by T. Aoki)

***Opisthopterus valenciennesi* Bleeker, 1872**

**TAIWAN**

ZUMT 14973 (1, 146.5 mm SL; Tainan; coll. by T. Aoki)

**LOCALITY UNKNOWN**

ZUMT 39383 [1, 227.6 mm; locality unknown (labelled as southern Japan, but probably in error)]

***Pellona ditchela* Valenciennes, 1847**

**PHILIPPINES**

ZUMT 42236 (1, 123.9 mm; Philippines; 1926; coll. by U. Yamamura)  
ZUMT 42353 (1, 130.9 mm; Basilan; 1926; coll. by U. Yamamura)

**Chirocentridae オキイワシ科**  
***Chirocentrus dorab* (Fabricius, 1775) オキイワシ**

**JAPAN**

**NAGASAKI PREF.** ZUMT 8346 (1, 380.7 mm; probably collected from Nagasaki Pref.; coll. by I. Kaneko, Nagasaki Pref.)

**KAGOSHIMA PREF.** ZUMT 24005 (1, 170.9 mm), ZUMT 24006 (1, 135.4 mm), ZUMT 24007 (1, 162.5 mm; Shibushi City)

**EAST CHINA SEA**

ZUMT 51459 (1, 495.0 mm; East China Sea; 22 Sept. 1959)

**LOCALITY UNKNOWN**

ZUMT 22310 (1, 191.3 mm; no data)

***Chirocentrus nudus* Swainson, 1839**

**LOCALITY UNKNOWN**

ZUMT 62047 (1, 488.8 mm), ZUMT 62112 (1, 280.2 mm), ZUMT 62113 (1, 275.8 mm; no data)

**Engraulidae カタクチイワシ科**  
***Coilia brachygnathus* Kreyenberg & Pappenheim, 1908**

**CHINA**

ZUMT 22732 (1, 215.8 mm), ZUMT 22733 (1, 169.9 mm; Wuchang District, Wuhan City, Hubei Province)

ZUMT 25428 (1, 233.3 mm SL), ZUMT 25429 (1, 260.3 mm; China)

***Coilia coomansi* Hardenberg, 1934**

**MALAYSIA**

ZUMT 62093 (1, 112.8 mm; Sarawak State; tagged as "P. 2135")

ZUMT 62094 (1, 119.3 mm; Sarawak State; tagged as "P. 2136")

ZUMT 62095 (1, 101.8 mm; Sarawak State; tagged as "P. 2335")

ZUMT 62096 (1, 110.9 mm; Sarawak State; tagged as "P. 1996")

ZUMT 62097 (1, 117.4 mm; Sarawak State; tagged as "P. 1997").

*Coilia macrogathos* Bleeker, 1852

**MALAYSIA**

- ZUMT 62087 (1, 254.9 mm; Sarawak State; tagged as “P. 4357”)  
ZUMT 62088 (1, 234.2 mm; Sarawak State; tagged as “P. 4356”)  
ZUMT 62089 (1, 217.1 mm; Sarawak State; tagged as “P. 4355”)  
ZUMT 62090 (1, 180.0 mm; Sarawak State; tagged as “P. 1964”).

*Coilia mystus* (Linnaeus, 1758)

**CHINA**

- ZUMT 19092 (1, 153.6 mm), ZUMT 19093 (1, 157.1 mm), ZUMT 19094 (1, 161.4 mm),  
ZUMT 19095 (1, 150.4 mm; Shanghai)  
ZUMT33308 (1, 116.8 mm SL; China)  
ZUMT 43428 (1, 189.6 mm; Wenzhou City, Zhejiang Province)  
ZUMT 54559 [1, 285.1 mm; Yellow Sea, east of Yanchong City, Jiangsu Province (34°15'N,  
122°15'E), 25 m depth; 12 Oct. 1984; coll. by S. Tanabe]  
ZUMT 56185 (1, 115.3 mm), ZUMT 56186 (1, 115.3 mm; estuary of Yangtze River,  
Shanghai; 2 Feb. 1904)

**YELLOW SEA**

- ZUMT 54536 [1 (cleared and stained), 295.8 mm; Yellow Sea (34°05'N, 122°33'E), 25 m  
depth; 13 Oct. 1984; coll. by RV *8th Ten-yo-maru*]  
ZUMT 54558 [1 (cleared and stained), 237.3 mm; Yellow Sea (34°15'N, 122°15'E), 25 m  
depth; 12 Oct. 1984; coll. by RV *8th Ten-yo-maru*]

**EAST CHINA SEA**

- ZUMT 50588 (1, 289.0 mm; East China Sea; 1957; coll. by Y. Tominaga)  
ZUMT 51080 (1, 270.9 mm; East China Sea; 15 Feb. 1960)  
ZUMT 51532 (1, 322.6 mm; East China Sea; 30 Mar. 1960)  
ZUMT 51888 (1, 254.5 mm), ZUMT 52003 (1, 318.7 mm), ZUMT 52004 (1, 323.2 mm;  
East China Sea)

*Coilia nasus* Temminck & Schlegel, 1846 エツ

**JAPAN**

- ZUMT 13594 (1, 246.9 mm), ZUMT 13595 (1, 217.0 mm), ZUMT 13596 [1, 234.4 mm; probably  
collected from Ariake Sea; donated by O. Kinoshita (Yanagawa Middle High Schools for Girls)]  
ZUMT 18059 (1, 223.1 mm SL), ZUMT 18060 (1, 317.0 mm; Ariake Sea)  
ZUMT 32612 (1, 170.2 mm SL), ZUMT 32613 (1, 162.3 mm; precise locality unknown,  
probably Japan)

ZUMT 35200 (1, 144.2 mm), ZUMT 35202 (1, 143.9 mm), ZUMT 35203 (1, 140.6 mm),  
ZUMT 35204 (1, 179.2 mm), ZUMT 35205 (1, 184.2 mm), ZUMT 35206 (1, 151.3 mm),  
ZUMT 35207 (1, 156.8 mm), ZUMT 35208 (1, 146.9 mm), ZUMT 35209 (1, 159.8 mm),  
ZUMT 35210 (1, 197.8 mm), ZUMT 35211 (1, 149.8 mm), ZUMT 35212 (149.8 mm),  
ZUMT 35213 (1, 137.1 mm), ZUMT 35214 (1, 145.4 mm), ZUMT 35215 (1, 156.6 mm),  
ZUMT 35216 (1, 137.3 mm), ZUMT 35217 (1, 136.1 mm), ZUMT 35218 (1, 130.4 mm),  
ZUMT 35219 (1, 114.1 mm, mouth of Okinohata River, Ariake Sea, Okinohata,  
Yanagawa City, Fukuoka Pref.; 28 May 1931; coll. by I. Tomiyama)  
ZUMT 35685 (1, 235.6 mm), ZUMT 35686 (1, 131.6 mm), ZUMT 35736–35739 (4, 71.7–  
95.6 mm), ZUMT 36018 (1, 222.8 mm; Ariake Sea; Oct. 1931; coll. by I. Tomiyama)  
ZUMT 45970 (17, 168.9–302.7 mm), ZUMT 45971 (12, 155.6–261.1 mm), ZUMT 46011  
(27, 21.5–51.3 mm, Yanagawa City, Fukuoka Pref.)  
ZUMT 50577 (1, 303.2 mm), ZUMT 50578 (1, 289.3 mm; purchased at Okinohata Fish  
Market, Yanagawa City, Fukuoka Pref.; 10 Aug. 1959; coll. by Y. Tominaga)  
ZUMT 50724 (3, 67.6–71.1 mm; purchased at Okinohata Fish Market, Yanagawa City,  
Fukuoka Pref.; 10 Apr. 1959; coll. by Y. Tominaga)  
ZUMT 57386 (20, 15.6–53.5 mm; Kanegae Bridge, Chikugo River, Kanegae, Okawa City,  
Fukuoka Pref.; 23 Sept. 1998; coll. by H. Senou and T. Saruwatari)

#### **LOCALITY UNKNOWN**

ZUMT 8431 (1, 304.2 mm; no data)

### ***Coilia rebentischii* Bleeker, 1858**

#### **MALAYSIA**

ZUMT 62091 (1, 134.1 mm), ZUMT 62092 (1, 139.1 mm; Sarawak State)

### ***Encrasicholina heteroloba* (Rüppell, 1837) シロガネアイノコイワシ**

#### **TAWIAN**

ZUMT 23580 (1, 48.6 mm; Keeleung; July 1929; coll. by S. Arakawa)

#### **PHILIPPINES**

ZUMT 47000 (1, 60.9 mm), ZUMT 47001 (1, 59.7 mm; Philippines; 1926; coll. by U.  
Yamamura; originally included in ZUMT 42031)

**Remarks.** See Hata and Motomura (2017) regarding the nomenclature of this species.

*Encrasicholina pseudoheteroloba* (Hardenberg, 1933) ミズスルル

**PHILIPPINES**

- ZUMT 42237 (1, 61.6 mm; Philippines; 1926; coll. by U. Yamamura)  
ZUMT 62011 (4, 55.5–70.9 mm; Basilan; 1926; coll. by U. Yamamura)

**PALAU**

- ZUMT ABE 5964 (1, 45.6 mm; Palau)  
ZUMT 62019 (33, 30.0–71.4 mm; Palau; Jan. 1938; coll. by Y. Haneda)  
ZUMT 62021 (1, 43.5 mm; Palau; stored in same bottle with ZUMT ABE 5963 and 5964)  
ZUMT 63058 (1, 34.2 mm; Palau; coll. by Y. Haneda)  
ZUMT 31742 [1, 66.2 mm; probably Palau; labelled as 「南洋」 (“nan-yo”, general term for Micronesian Islands)]

**NEW GUINEA ISLAND**

- ZUMT 63156 (1, 49.6 mm; New Guinea Island; coll. by T. Abe)

**Remarks.** See Hata and Motomura (2017) regarding the nomenclature of this species.

*Encrasicholina punctifer* Fowler, 1938 タイワンアイノコイワシ

**TAIWAN**

- ZUMT 12853 (1, 62.9 mm; Keelung; coll. by T. Aoki)  
ZUMT 14846 (1, 75.6 mm; Taiwan; coll. by T. Aoki)

*Engraulis japonica* Temminck & Schlegel, 1846 カタクチイワシ

**JAPAN**

- HOKKAIDO** ZUMT 8265 (5, 60.0–67.7 mm; Otaru Port, Otaru City; 13 Oct. 1911; coll. by Hokkaido Prefectural Fisheries Experimental Station)  
ZUMT 11320 (1, 132.5 mm), ZUMT 11321 (1, 130.8 mm), ZUMT 11322 (1, 131.4 mm; off Shiraoi Town; July 1917; coll. by M. Tsuda)  
ZUMT 15606 (1, 129.0 mm), ZUMT 15607 (1, 119.1 mm), ZUMT 15608 (140.1 mm), ZUMT 15609 (1, 132.8 mm), ZUMT 15610 (1, 128.4 mm; Muroran; 15 June 1925; coll. by S. Katsuki)  
**AOMORI PREF.** ZUMT 9768 (1, 85.2 mm), ZUMT 9769 (1, 75.9 mm; Jusan-ko Lake, Goshogawara City; 29 Oct. 1919; coll. by S. Kyodo)  
ZUMT 12918 (1, 52.2 mm), ZUMT 12919 (1, 104.1 mm), ZUMT 12920 (1, 104.3 mm), ZUMT 12921 (1, 55.4 mm), ZUMT 12922 (1, 49.8 mm), ZUMT 12923 (1, 50.8 mm), ZUMT 12924 (1, 54.1 mm), ZUMT 12925 (1, 105.5 mm), ZUMT 12926 (1, 93.9 mm; Koen-machama, Aomori City; Apr. 1922; coll. by S. Tanabe)

ZUMT 13167 (1, 80.4 mm), ZUMT 13168 (1, 62.4 mm), ZUMT 13169 (1, 105.4 mm),  
 ZUMT 13170 (1, 115.6 mm), ZUMT 13171 (1, 82.2 mm), ZUMT 13172 (1, 67.8 mm),  
 ZUMT 13173 (1, 85.6 mm; Same, Hachinohe City; coll. by S. Tanabe)  
 ZUMT 41711 (1, broken), ZUMT 41736 (1, 110.7 mm), ZUMT 41790 (1, 111.5 mm;  
 Asamushi, Aomori City; coll. by S. Tanabe)

**IWATE PREF.** ZUMT 13889 (1, 114.0 mm; Kesen Region; 28 Dec. 1924; coll. by G. Toba)  
 ZUMT 18291 (1, 94.9 mm; Kesen, Rikuzentakata City; 6 Sept. 1928; coll. by G. Toba)

**MIYAGI PREF.** ZUMT 45620 (1, 62.9 mm), ZUMT 45621 (1, 61.1 mm; Kinkasan Island,  
 Ishinomaki City; 3 July 1930)

**FUKUSHIMA PREF.** ZUMT 32420 (1, 104.3 mm), ZUMT 32421 (1, 85.6 mm), ZUMT  
 32422 (1, 70.4 mm), ZUMT 32423 (1, 69.8 mm), ZUMT 32424 (1, 73.8 mm), ZUMT  
 32425 (1, 74.0 mm), ZUMT 32426 (1, 68.8 mm), ZUMT 32427 (1, 71.8 mm), ZUMT  
 32428 (1, 81.2 mm), ZUMT 32429 (1, 90.9 mm), ZUMT 32430 (1, 68.7 mm), ZUMT  
 32431 (1, 69.6 mm), ZUMT 32432 (1, 71.7 mm), ZUMT 32433 (1, 70.9 mm), ZUMT  
 32434 (1, 70.6 mm), ZUMT 32435 (1, 72.9 mm), ZUMT 32436 (1, 60.5 mm), ZUMT  
 32437 (1, 55.9 mm), ZUMT 32438 (1, 68.6 mm), ZUMT 32439 (1, 61.8 mm; Onahama,  
 Iwaki City)

**CHIBA PREF.** ZUMT 29887 (1, 29.0 mm), ZUMT 29888 [1, 134.4 mm; Kohama, Kazusa-  
 ohara (Kohama, Ohara, Isumi City); 22 Jan. 1908; coll. by T. Suzuki]  
 ZUMT 33440 (1, 50.0 mm), ZUMT 33441 (1, 45.6 mm; Katsuura City)

**TOKYO MARKET** ZUMT 21095 (1, 98.4 mm), ZUMT 21096 (1, 107.1 mm; obtained at  
 Tokyo Market, Tokyo Met.)

**IZU ISLANDS** ZUMT 41850 (1, 62.1 mm), ZUMT 42819 (1, 71.9 mm; Hachijo-jima Island)  
 ZUMT 63001 (109.3 mm; Motomachi, Izu-oshima Island; 27 July 1991)

**KANAGAWA PREF.** ZUMT 20814 (1, 73.4 mm), ZUMT 20944 (1, 77.6 mm), ZUMT 34841  
 (1, broken), ZUMT 43637 (10, 41.1–79.7 mm; Misaki, Miura City)  
 ZUMT 26711 (1, 74.7 mm), ZUMT 26712 (1, 76.6 mm), ZUMT 26713 (1, 81.3 mm),  
 ZUMT 26714 (1, 56.3 mm; Aburatsubo, Misaki, Miura City; Oct. 1903)  
 ZUMT 34029 (1, broken; Yokohama City or Ninomiya Town)  
 ZUMT 33224 (1, 48.6 mm; Kozu, Odawara City; 5 Nov. 1933; coll. by K. Minoshima)  
 ZUMT 55636 (1, 86.6 mm; Misaki Fish Market, Miura City; 29 July 1986)

**SHIZUOKA PREF.** ZUMT 17748 (1, 92.5 mm), ZUMT 17749 (1, 85.0 mm), ZUMT 17750  
 (1, 106.4 mm), ZUMT 17751 (1, 107.1 mm), ZUMT 17756 (1, 61.9 mm), ZUMT 17797  
 (1, 45.9 mm; Enoura, Numazu City; coll. by N. Kuroda)  
 ZUMT 34216 (1, damaged; estuary of Kano-gawa River, Ganyudo, Numazu City)  
 ZUMT 55453 (4, 38.2–39.9 mm; tidepool at Shitagaura, Shimoda City; 22 Sept. 1986)

**MIE PREF.** ZUMT 38342 (1, 72.0 mm), ZUMT 38343 (1, 66.2 mm), ZUMT 38344 (1, 80.0  
 mm), ZUMT 38345 (1, 67.4 mm), ZUMT 38346 (1, 73.8 mm), ZUMT 38347 (1, 78.7  
 mm), ZUMT 38348 (1, 75.1 mm), ZUMT 38349 (1, 72.7 mm), ZUMT 38350 (1, 70.3  
 mm), ZUMT 38351 (1, 65.0 mm; Hamajima, Shima City; Sept. 1920)

**WAKAYAMA PREF.** ZUMT 9919 (1, 104.1 mm; near Wakayama City; coll. by S. Sakaguchi)  
 ZUMT 21729 (1, 92.3 mm; Wakayama Pref.; Oct. 1904)  
 ZUMT 44842 (1, 47.9 mm; Yuasa Bay Yuasa Town; Mar. 1919)

**YAMAGATA PREF.** ZUMT 62046 (3, 113.6–129.0 mm; Sakata City; 17 July 1933)

**NIIGATA PREF.** ZUMT 33476 (1, damaged; Shibata City)

**TOYAMA PREF.** ZUMT 32686 (1, 41.2 mm; Toyama Bay)

ZUMT 44174 (1, 88.3 mm; probably Toyama Pref.; donation from Toyama Prefectural Fisheries Training Center)

ZUMT 46272 (1, 113.6 mm), ZUMT 46273 (1, 125.1 mm; Uozu or Namerikawa City)

**KYOTO PREF.** ZUMT 24375 (1, 95.0 mm), ZUMT 24376 (1, 98.5 mm; Miyazu City; Nov. 1931; coll. by Kyoto Prefectural Fisheries Training Center)

ZUMT 62016 (7, 50.4–69.5 mm; obtained at Maizuru Fish Market, Maizuru City; 3 Nov. 1986)

**SHIMANE PREF.** ZUMT 31314 (1, 97.1 mm; Matsue City)

**YAMAGUCHI PREF.** ZUMT 33642 (1, 99.4 mm), ZUMT 33643 [1, 94.5 mm; probably collected from Seto Inland Sea (Yamaguchi Pref.); donated by M. Eitomi (San-yo-onoda City)]

**KOCHI PREF.** ZUMT 18660 (41, 19.3–35.5 mm; Susaki City; 26 Dec. 1924; coll. by T. Kamohara)]

**FUKUOKA PREF.** ZUMT 62069 (20, 26.6–33.7 mm; Yanagawa City; 30 Mar. 1931; coll. by I. Tomiyama)

**SAGA PREF.** ZUMT 57346 (4, 61.8–74.7 mm), ZUMT 57347 (1, 85.1 mm; Kashima Fish Market, Kashima City; 22 Sept. 1987; coll. by H. Senou and T. Saruwatari)

ZUMT 57357 (1, 86.9 mm; Nanaura, Kashima City; 23 Sept. 1987; coll. by H. Senou and T. Saruwatari)

**NAGASAKI PREF.** ZUMT 2722 (2, 32.8 mm, other specimen damaged; Nagasaki Pref.; Mar. 1910)

ZUMT 43484 (2, 57.0–59.0 mm; Nagasaki Pref.)

ZUMT 48196 [1, 103.5 mm; Tamanoura, Goto City (Fukue-jima Island, Goto Islands); 23 May 1953; coll. by I. Tomiyama]

ZUMT 50021 [1, 103.8 mm; Tamanoura, Goto City (Fukue-jima Island, Goto Islands); 12 Oct. 1953; coll. by I. Tomiyama]

**ARIAKE SEA** ZUMT 13909 (1, 112.3 mm; Ariake Sea; 14 Dec. 1924; coll. by O. Kinoshita)

ZUMT, 18192 (1, 75.9 mm), ZUMT 18193 (1, 77.5 mm; Ariake Sea; coll. by Fukuoka Prefectural Fisheries Experimental Station)

ZUMT 35687 (1, 38.4 mm), ZUMT 35688 (1, 69.3 mm), ZUMT 35689 (1, 76.5mm),

ZUMT 35690 (1, 72.9 mm), ZUMT 35691 (1, 68.0 mm), ZUMT 35692 (1, 69.3 mm),

ZUMT 35693 (1, 70.0 mm), ZUMT 35695 (1, 69.1 mm; Ariake Sea; Oct. 1931; coll. by

I. Tomiyama)

**OITA PREF.** ZUMT 1589 (2, damaged; Beppu City; 12 Mar. 1899; coll. by T. Terasaki)

**KAGOSHIMA PREF.** ZUMT 24087 (1, 81.9 mm), ZUMT 24138 (1, 131.8 mm), ZUMT 24139 (1, 133.3 mm; Taniyama, Kagoshima City)

## **CHINA**

ZUMT 54437 [5, 101.3–114.3 mm; Yellow Sea, east of Lianyungang City, Jiangsu Province (34°47'N, 122°20'E), 25 m depth; 15 Oct. 1984; coll. by RV *8th Ten-yo-maru*]

## TAIWAN

ZUMT 12844 (1, 80.9 mm), ZUMT 12845 (1, 79.0 mm), ZUMT 12846 (1, 64.2 mm),  
ZUMT 12854 (1, 79.0 mm), ZUMT 12855 (1, 55.7 mm), ZUMT 12856 (1, 61.8 mm),  
ZUMT 12857 (1, 56.2 mm), ZUMT 12858 (1, 52.1 mm; Keelung; coll. by T. Aoki)  
ZUMT 13680 (1, 74.6 mm), ZUMT 13681 [1, 64.3 mm; Taiwan; coll. by T. Aoki  
(Government-General of Taiwan)]  
ZUMT 14836 (1, 82.4 mm), ZUMT 14837 (1, 84.4 mm), ZUMT 14838 (1, 84.0 mm),  
ZUMT 14839 (1, 75.8 mm), ZUMT 14840 (1, 84.4mm), ZUMT 14841 (1, 79.6 mm),  
ZUMT 14842 (1, 77.7 mm), ZUMT 14843 (1, 77.4 mm), ZUMT 14844 (1, 79.8 mm),  
ZUMT 14845 (1, 76.5 mm; Taiwan; coll. by T. Aoki)  
ZUMT 63274 (1, 75.1 mm), ZUMT 63275 (1, 78.8 mm; Tamsui, Xinbei City)

## LOCALITY UNKNOWN

ZUMT ABE 6108 (4, 42.1–64.9 mm), ZUMT ABE 61-877 (1, 121.0 mm), ZUMT ABE 83-  
592 (1, 97.2 mm), ZUMT 45640 (1, 61.2 mm), ZUMT 62110 (4, 91.3–98.9 mm; no data)

### *Engraulis mordax* Girard, 1854

## USA

ZUMT 17658 (1, 105.7 mm; California State)

### *Setipinna tenuifilis* (Valenciennes, 1848) ツマリエツ

## KOREA

ZUMT 1591 (1, 126.7 mm; Incheon)  
ZUMT 12876 (1, 117.2 mm; Kunsan, North Jeolla Province)

## CHINA

ZUMT 54566 [4 (1 specimen cleared and stained), 112.9–143.9 mm; East China Sea,  
northeast of Shanghai (32°15'N, 122°40'E), 25 m depth; 11 Oct. 1984; coll. by RV *8th*  
*Ten-yo-maru*]

## EAST CHINA SEA

ZUMT 51266 [1, 127.7 mm; East China Sea (landed at Fukuoka Fish Market, Japan); 24  
Dec. 1959; coll. by Y. Tominaga]  
ZUMT 51312 (1, 163.3 mm), ZUMT 51313 (1, 159.8 mm; East China Sea; coll. by Y.  
Tominaga)  
ZUMT 51741 (1, 156.3 mm), ZUMT 51742 (1, 180.4 mm), ZUMT 51831 (1, 154.8 mm),  
ZUMT 51832 (1, 156.5 mm; East China Sea; coll. by RV *Ten-yo-maru*)



## LOCALITY UNKNOWN

ZUMT 49828 (1, 140.9 mm; obtained at Fukuoka Fish Market; 28 July 1959)

### *Stolephorus balinensis* (Bleeker, 1849) インドアイノコイワシ

## JAPAN

ZUMT 58411 (1, 29.2 mm; estuary of Yonada River, Iriomote-jima Island, Yaeyama Islands, Ryukyu Archipelago; 13 July 1988; coll. by H. Senou and M. Aizawa)

## TAIWAN

ZUMT 5789 (1, 88.5 mm; Su'ao; Sept. 1896; coll. by K. Tada)

ZUMT 18453 (1, 83.4 mm; Keelung; Sept. 1927; coll. H. Sato)

## PHILIPPINES

ZUMT 40810 (1, 86.6 mm), ZUMT 40848 (1, 86.6 mm), ZUMT 40858 (1, 93.0 mm; Manila, Luzon; 11 Feb. 1909; coll. by I. Iijima and K. Aoki)

ZUMT 47062 (1, 75.7 mm; Philippines; 1926; coll. by U. Yamamura)

ZUMT 62015 (3, 43.6–56.4 mm; Jolo Island; Feb. 1909; coll. by I. Iijima and K. Aoki)

## PALAU

ZUMT ABE 3045 (3, 82.6–95.7 mm; Palau)

ZUMT 62053 (3, 72.1–76.4 mm; Palau; stored in same bottle with ZUMT ABE 5963 and 5964)

**Remarks.** See Hata et al. (2021b) regarding the nomenclature of this species.

### *Stolephorus bataviensis* Hardenberg, 1933

## PHILIPPINES

ZUMT 39510 (1, 58.2 mm), ZUMT 39511 (1, 63.9 mm), ZUMT 39513 (1, 59.1 mm), ZUMT 39514 (1, 60.1 mm), ZUMT 39515 (1, 62.1 mm), ZUMT 39516 (1, 61.1 mm; Philippines; coll. by U. Yamamura)

ZUMT 62012 (1, 58.4 mm; Jolo Island; Feb. 1909; coll. by I. Iijima and K. Aoki)

## PAPUA NEW GUINEA

ZUMT 62114 [1 (cleared and stained), 81.7 mm; Port Moresby; 22 Jan. 1970]

**Remarks.** See Hata et al. (2019) regarding the nomenclature of this species.

*Stolephorus baweanensis* Hardenberg, 1933

**SINGAPORE**

ZUMT 62068 (32, 47.4–63.1 mm; Singapore; 23 Feb. 1922; coll. by D. Stead)

**Remarks.** See Hata et al. (2019) regarding the nomenclature of this species.

*Stolephorus belaeirus* Hata, Lavoué & Motomura, 2021

**TANZANIA**

ZUMT 52870 (1, 123.6 mm; Kunduchi, Dal es Salaam)

**Remarks.** See Hata et al. (2021b) regarding the nomenclature of this species.

*Stolephorus bengalensis* (Dutt & Babu Rao, 1959)

**CHINA**

ZUMT 43430 (1, broken; Wenzhou City, Zhejiang Province)

**SINGAPORE**

ZUMT 62056 (5, 28.5–38.4 mm; Singapore; 23 Feb. 1922; coll. by D. G. Stead; although the lot originally included 9 specimens, two each specimens were spared for the Kagoshima University Museum, Kagoshima (KAUM–I. 163702, 163703) and National Museum of Nature and Science, Tsukuba (NSMT-P 143554, 143555)

ZUMT 62106 (3, 27.4–32.9 mm; Singapore; 23 Feb. 1922; coll. by D. G. Stead, separated from ZUMT 10494)

**Remarks.** See Hata et al. (2019) regarding the nomenclature of this species.

*Stolephorus mercurius* Hata, Lavoué & Motomura, 2021 ヤエヤマアイノコイワシ

**TAIWAN**

ZUMT 12839 (1, 77.3 mm), ZUMT 12840 (1, 75.0 mm; Keelung; coll. by T. Aoki)

ZUMT 13666 (1, 76.9 mm; Taiwan; coll. by T. Aoki)

ZUMT 19049 (1, 83.1 mm), ZUMT 19688 (1, 72.1 mm; Taiwan; coll. by H. Sato)

**PALAU**

ZUMT 62051 (5, 78.0–92.8 mm; Palau; stored in same bottle with ZUMT ABE 5963 and 5964)

**Remarks.** See Hata et al. (2021a) regarding the nomenclature of this species.

*Stolephorus rex* Jordan & Seale, 1926

**PHILIPPINES**

ZUMT 39512 (1, 63.2 mm; Philippines; coll. by U. Yamamura)

ZUMT 41002 (1, 54.7 mm; Jolo Island; Feb. 1909; coll. by I. Iijima and K. Aoki), ZUMT 47002 (1, 60.8 mm; Philippines; 1926; coll. by U. Yamamura)

**INDONESIA**

ZUMT 42126 (1, 92.3 mm), ZUMT 42127 (1, 94.3 mm; Jakarta, Java); 5 Mar. 1909; coll. by I. Iijima and K. Aoki)

**PALAU**

ZUMT 62052 (3, 79.4–82.4 mm; Palau; stored in same bottle with ZUMT ABE 5963 and 5964)

**Remarks.** See Hata et al. (2021a) regarding the nomenclature of this species.

*Stolephorus teguhi* Kimura, Hori & Shibukawa 2009

(Fig. 1B)

**PHILIPPINES**

ZUMT 62055 (1, 67.2 mm; Jolo Island; Feb. 1909; coll. by I. Iijima and K. Aoki; originally included in ZUMT 40900)

**Remarks.** Because only a single specimen of *S. teguhi* (collected in Pagapas Bay, Luzon) has been recorded previously from the Philippines (Hata and Motomura, 2017, 2021b), this specimen represents the second record of the species from that region.

*Thrissina baelama* (Fabricius, 1775) オオイワシ

**JAPAN**

ZUMT 11282 (1, 84.3 mm), ZUMT 11283 [1, 92.8 mm; probably Okinawa-jima Island, Ryukyu Archipelago; coll. by S. Sakaguchi (Okinawa Prefectural Daiichi Junior High School)]

ZUMT 39727 (1, 41.8 mm; Okinawa-jima Island, Ryukyu Archipelago; 8 July 1936; coll. by S. Inuo)

**PHILIPPINES**

ZUMT 40900 (8, 67.3–79.9 mm), ZUMT 41003 (1, 71.7 mm), ZUMT 41004 (1, 59.7 mm; Jolo Island, Philippines; Feb. 1909; coll. by I. Iijima and K. Aoki)

## PALAU

ZUMT ABE 3039 (1, 69.5 mm), ZUMT ABE 3040 (2, 56.5–73.8 mm; Palau)  
ZUMT 62054 (7, 84.1–104.4 mm; Palau; stored in same bottle with ZUMT ABE 5963 and 5964)

**Remarks.** Nomenclature and authorship of the genus *Thrissina*, and authorship of the nominal species follow Kottelat (2013) and Fricke (2008), respectively.

Hata and Koeda (2021) reported ZUMT 39727, a specimen collected from Okinawa-jima Island, as the first specimen-based record of the species from the island.

*Thrissina chefuensis* (Günther, 1874) タイリクカタクチ

## LOCALITY UNKNOWN

ZUMT 62009 (3, 86.8–91.5 mm; no data)

*Thrissina dussumieri* (Valenciennes, 1848) ツルギカタクチ

## TAIWAN

ZUMT 14888 (1, 76.9 mm), ZUMT 14889, (1, 79.2 mm), ZUMT 14890 (1, 79.2 mm),  
ZUMT 14891 (1, 78.3 mm; Taiwan; coll. by T. Aoki)  
ZUMT 63269 (7, 30.2–42.3 mm; obtained at Tamsui Market, Tamsui, Xinbei City; 19 Oct. 1930)

## PHILIPPINES

ZUMT 39508 (1, 82.4 mm), ZUMT 39509 (1, 79.3 mm; Philippines; coll. by U. Yamamura)

## INDONESIA

ZUMT 42124 (1, 94.5 mm), ZUMT 42125 (1, 86.4 mm), ZUMT 62606 (1, 90.5 mm;  
Jakarta, Java; 5 Mar. 1909; coll. by I. Iijima and K. Aoki)

## SINGAPORE

ZUMT 62105 (12, 22.4–25.3 mm; Singapore; 23 Feb. 1922; coll. by D. Stead; separated  
from ZUMT 10494)  
ZUMT 62427 (1, 102.0 mm; Singapore)

## LOCALITY UNKNOWN

ZUMT 62428 (1, 99.9 mm; no data)

*Thrissina katana* Hata, Lavoué & Motomura, 2022 チョウセンタレクチ

## TAIWAN

ZUMT 13682 (1, 77.9 mm), ZUMT 13683 (1, 67.2 mm), ZUMT 13684 (68.6 mm; Dong-  
gang; coll. by T. Aoki)  
ZUMT 14968 (paratype of *Thrissina katana*, 1, 187.6 mm; Tainan; coll. by T. Aoki)  
ZUMT 23560 (1, 55.9 mm; Taiwan; coll. by S. Arakawa)

## SINGAPORE

ZUMT 62104 (13, 23.3–24.9 mm; Singapore; 23 Feb. 1922; coll. by D. Stead; separated from ZUMT 10494)

**Remarks.** See Hata et al. (2022; ZUMT 14968 designated as a paratype of *T. katana*) regarding the nomenclature of this species.

### *Thrissina setirostris* (Broussonet, 1782)

## TAIWAN

ZUMT 63317 (2, 30.2–42.3 mm; obtained Tamsui Market, Tamsui, Xinbei City; 19 Oct. 1930)

## PHILIPPINES

ZUMT 42058 (1, 52.2 mm), ZUMT 42059 (1, 50.1 mm), ZUMT 42060 (1, 53.9 mm), ZUMT 42190 (1, 53.7 mm; Philippines; 1926; coll. by U. Yamamura)  
ZUMT 62017 (3, 48.2–61.9 mm; Basilan; 1926; coll. by U. Yamamura)

### *Thrissina vitirostris* (Gilchrist & Thompson, 1908)

ZUMT 53042 (1, 103.5 mm), ZUMT 53043 (1, 76.9 mm; probably collected from African coast)

**Remarks.** Identification of these specimens followed Hata and Motomura (2019c).

### *Thrissina* sp.

(Fig. 1C)

## KOREA

ZUMT 44497 [1, 114.9 mm; precise locality unknown, probably collected from Korea; coll. by G. Umaniwa (South Gyeongsang Province, Korea)]

**Remarks.** Although the specimen resembles *Thrissina mystax* (Bloch & Schneider, 1801) (distributed off coastal India to Indonesia) in having a long maxilla, posteriorly reaching to the pectoral-fin base, and 37 branched anal-fin rays, it has higher count of lower gill rakers on the first gill arch than *T. mystax* (18 vs. 14–16 in *T. mystax*; Whitehead et al., 1988; Wongratana et al., 1999).

**Clupeidae ニシン科**  
***Alosa alosa* (Linnaeus, 1758)**

**LOCALITY UNKNOWN**

ZUMT 62050 [1, 422.0 mm; no data (tagged as “EC037”)]

***Amblygaster clupeioides* Bleeker, 1849**

**PALAU**

ZUMT ABE 3799 (1, 78.1 mm; Palau)

***Amblygaster leiogaster* (Valenciennes, 1847) ヤマトミズン**

**JAPAN**

ZUMT 13729 [1, 140.0 mm; probably Okinawa Pref.; donated by C. Gusukuma (Okinawa Women's Higher Normal School)]

ZUMT 17079 (1, 75.9 mm; Itoman City, Okinawa Pref.; coll. by S. Tanabe)

**TAIWAN**

ZUMT 13668 [1, 80.9 mm; probably Taiwan; donated by T. Aoki (Fisheries Section, Government-General of Taiwan)]

**PHILIPPINES**

ZUMT 42139 (1, 189.2 mm; Philippines; 1926; coll. by U. Yamamura)

**PALAU**

ZUMT ABE 3027 (1, 170.7 mm), ZUMT ABE 3028 (1, 175.0 mm), ZUMT ABE 3806 (5, 42.0–51.1 mm; Palau)

***Amblygaster sirm* (Walbaum, 1792) ホシヤマトミズン**

**JAPAN**

ZUMT 14482 (1, 183.5 mm), ZUMT 14483 (1, 183.2 mm; Okinawa Pref.; coll. by S. Sakaguchi)

ZUMT 15268 (1, 191.2 mm), ZUMT 15291 (1, 193.6 mm), ZUMT 15292 [1, 195.2 mm; probably Okinawa-jima Island, Ryukyu Archipelago; coll. by S. Sakaguchi (Okinawa Prefectural Daiichi Junior High School)]

ZUMT 18221 (1, 193.0 mm), ZUMT 18222 (1, 205.3 mm), ZUMT 18224 (1, 199.5 mm; Okinawa Pref.; coll. by Okinawa Prefectural Fisheries Experimental Station)

**PHILIPPINES**

ZUMT 12688 (1, 141.6 mm; Philippines; coll. by U. Yamamura)  
ZUMT 62010 (1, 196.3 mm; Philippines; 1926; coll. by U. Yamamura)

**PALAU**

ZUMT ABE 3801, (1, 168.4 mm), ZUMT ABE 3802 (1, 171.2 mm), ZUMT ABE 3803 (1, 174.1 mm), ZUMT ABE 6012–6015 (4, 171.9–197.8 mm; Palau)

**LOCALITY UNKNOWN**

ZUMT ABE 58-172 (1, 128.4 mm; no data)

*Anodontostoma chacunda* (Hamilton, 1822)

**PHILIPPINES**

ZUMT 40859 (1, 102.0 mm; Manila, Luzon; 11 Feb. 1909; coll. by I. Iijima and K. Aoki)  
ZUMT 42140 (1, 130.0 mm), ZUMT 42141 (1, 115.6 mm), ZUMT 42165 (1, 117.0 mm),  
ZUMT 42238 (1, 117.4 mm), ZUMT 42255 (1, 120.9 mm; Philippines; 1926; coll. by U. Yamamura)

*Clupanodon thrissa* (Linnaeus, 1758)

**TAIWAN**

ZUMT 45280 (1, 54.9 mm), ZUMT 45437 (1, 105.5 mm; Taiwan)  
ZUMT 62074 (3, 143.3–187.8 mm; purchased at Chitosecho Market, Taipei City; 4 Feb. 1931)

*Clupea harengus* Linnaeus, 1758

**UK**

ZUMT 12277 (1, 214.4 mm; probably from British waters; donation from British Museum)

*Clupea pallasii* Valenciennes, 1847 ニシン

**BERING SEA**

ZUMT 47849 (1, 293.8 mm), ZUMT 47850 (1, 299.2 mm), ZUMT 47851 (1, 206.4 mm),  
ZUMT 47852 (1, 179.5 mm; Bering Sea; 31 July 1938)

**USA**

ZUMT 17656 (1, 173.4 mm), ZUMT 17657 (1, 134.8 mm; California State)

## **RUSSIA**

ZUMT 10313 (15, 132.5–175.1 mm), ZUMT 10316 (14, 100.9–125.5 mm; probably collected from Sakhalin, donation from Sakhalin Chamber of Commerce)  
ZUMT 19736 (1, 103.3 mm), ZUMT 19737 (1, 103.5 mm), ZUMT 19738 (1, 150.4 mm), ZUMT 19739 (1, 107.1 mm; Ozero Nevskoye, Sakhalin; Oct. 1927; coll. by K. Sakamoto)  
ZUMT 21044 (1, 93.1 mm), ZUMT 21045 (1, 84.1 mm), ZUMT 21046 (1, 94.2 mm), ZUMT 21047 (1, 90.3 mm), ZUMT 21048 (1, 91.7 mm), ZUMT 21049 (1, 86.8 mm), ZUMT 21050 (1, 82.4 mm; probably collected from Sakhalin, donation from Sakhalin Chamber of Commerce; Sept. 1921)  
ZUMT 36748 (1, 68.7 mm), ZUMT 36749 [1, 66.5 mm; Rakuma, Randomari Village, Karafuto (currently Yablochnoye Village, Kholms District, Sakhalin)]  
ZUMT 38322 (1, 145.2 mm), ZUMT 38323 (1, 142.2 mm), ZUMT 38324 (1, 153.0 mm), ZUMT 38325 (1, 144.9 mm), ZUMT 38326 (1, 122.0 mm), ZUMT 38327 (1, 145.3 mm; no data), ZUMT 38328 (6, 58.2–144.2 mm), ZUMT 41565 (1, 83.4 mm), ZUMT 41566 (1, 85.9 mm), ZUMT 41594 (1, 91.8 mm), ZUMT 41597 (1, 104.0 mm; Sakhalin), ZUMT 44148 (1, 255.1 mm; Primorskaya Oblast)

## **JAPAN**

**HOKKAIDO** ZUMT 10754 (1, 142.6 mm), ZUMT 10755 (1, 96.9 mm), ZUMT 10756 (1, 132.1 mm), ZUMT 10757 (1, 122.2 mm), ZUMT 10758 (1, 130.1 mm), ZUMT 10759 (1, 143.4 mm), ZUMT 10760 (1, 117.4 mm), ZUMT 10761 (1, 130.7 mm), ZUMT 10762 (1, 91.4 mm), ZUMT 10763 (1, 114.2 mm), ZUMT 10766 (1, 74.0 mm), ZUMT 10767 (1, 130.6 mm), ZUMT 10774 (1, 221.1 mm), ZUMT 10775 (1, 136.1 mm), ZUMT 10784 (1, 105.0 mm), ZUMT 10791 (1, 99.4 mm; Kushiro City; Nov. 1922; coll. by M. Akiya)  
ZUMT 11552 (1, 83.0 mm; probably collected from Nemuro City; donation from Nemuro Branch Station, Hokkaido Fisheries Research Institute)  
ZUMT 25453 (31, 85.8–106.2 mm; Mori Town; 8 Feb. 1910)  
ZUMT 40581 (1, 134.0 mm), ZUMT 40582 (1, 127.7 mm), ZUMT 40583 (1, 140.4 mm), ZUMT 40584 (1, 146.2 mm), ZUMT 40585 (1, 142.0 mm), ZUMT 40606 (1, 197.6 mm), ZUMT 40607 [1, 210.8 mm; Hokkaido (Abashiri, Sapporo, or Hakodate)]  
**AOMORI PREF.** ZUMT 13225 (1, 189.8 mm; Hamasuka, Minato, Hachinohe City; 26 Oct. 1923; coll. by S. Tanabe)  
ZUMT 44383 (1, 150.2 mm), ZUMT 44384 (1, 136.9 mm), ZUMT 44385 (1, 141.9 mm), ZUMT 44386 (1, 163.8 mm), ZUMT 44387 (1, 144.5 mm), ZUMT 44388 (1, 143.8 mm), ZUMT 44389 (1, 120.0 mm), ZUMT 44390 (1, 132.4 mm), ZUMT 44391 (1, 144.4 mm), ZUMT 44392 (1, 132.0 mm), ZUMT 44393 (1, 132.6 mm), ZUMT 44394 (1, 129.6 mm), ZUMT 44395 [1, 119.9 mm; probably collected from Aomori Pref.; donated by H. Murai (Aomori Prefectural Fisheries Experimental Station)]  
**IWATE PREF.** ZUMT 13070 (1, 184.4 mm; Miyako Bay; coll. by S. Tanabe)  
**MIYAGI PREF.** ZUMT 13587 (1, 110.9 mm; Matsushima; 18 May, 1897; coll. G. Toba)  
**FUKUSHIMA PREF.** ZUMT 37673 (1, 141.4 mm; Onahama, Iwaki City)  
**IBARAKI PREF.** ZUMT 17868 (1, 194.3 mm), ZUMT 17869 (1, 207.1 mm; Hinuma Lake)



**TOYAMA PREF.** ZUMT 17813 (1, 56.1 mm), ZUMT 17814 [1, 54.1 mm; probably Toyama Bay; donated by U. Ichijima (Toyama Prefectural Fisheries Training Center)]  
ZUMT 17817 (1, 53.8 mm; Namerikawa City; 12 Sept. 1927; coll. by U. Ichijima)  
ZUMT 44149 (1, 231.0 mm; probably Toyama Pref.; donation from Toyama Prefectural Fisheries Training Center)

#### **KOREA**

ZUMT 54230 (1, 193.2 mm), ZUMT 54231 (1, 183.0 mm), ZUMT 54232 (1, 203.2 mm),  
ZUMT 54233 (1, 178.3 mm), ZUMT 54234 (1, 188.0 mm), ZUMT 54235 (1, 191.8 mm),  
ZUMT 54236 [1, 192.2 mm; Yellow Sea, west of Gunsan (35°45'N, 124°45'E)]

#### **LOCALITY UNKNOWN**

ZUMT 8657 (1, 226.8 mm), ZUMT 57260 (2, 147.2–188.3 mm), ZUMT 62076 (1, 137.3 mm),  
ZUMT ABE 6218 (1, 87.0 mm), ZUMT ABE 6219 (1, 86.3 mm), ZUMT ABE 6220 (1, 54.7 mm),  
ZUMT ABE 9895 (6, 62.0–79.0 mm), ZUMT ABE 9898 (1, 128.5 mm), ZUMT ABE 9899 (1, 133.0 mm; no data)  
ZUMT 34081 (1, 126.3 mm), ZUMT 34083 [1, 132.9 mm; locality unknown; donated by H. Kakuda (Onahama, Iwaki City, Fukushima Pref., Japan)]

### ***Herklotsichthys quadrimaculatus* (Rüppell, 1837) ミズン**

#### **JAPAN**

ZUMT 16761 (1, 82.8 mm; Onna Village, Okinawa Pref.; S. Tanabe)

#### **TAIWAN**

ZUMT 12842 (1, 79.3 mm; Keelung; coll. by T. Aoki)  
ZUMT 62029 (1, 93.6 mm), ZUMT 62030 (1, 109.0 mm), ZUMT 62032 (1, 96.8 mm SL;  
purchased at fish market in Ximending, Taipei City; 14 Feb. 1931)  
ZUMT 62031 (1, 97.5 mm SL; purchased at fish market in Ximending, Taipei City; 10 May 1929)

#### **PHILIPPINES**

ZUMT 40921 (1, 61.5 mm), ZUMT 40949 (1, 58.2 mm), ZUMT 40957 (1, 63.9 mm; Jolo Island; Feb. 1909; coll. by I. Ichijima and K. Aoki)  
ZUMT 42106 (1, 56.3 mm; Philippines; 1926; coll. by U. Yamamura)

#### **PALAU**

ZUMT ABE 2721 (1, 78.7 mm), ZUMT ABE 2722 (1, 82.9 mm), ZUMT ABE 2723 (1, 74.1 mm),  
ZUMT ABE 2724 (1, 83.3 mm), ZUMT ABE 2725 (1, 77.5 mm), ZUMT ABE 2726 (1, 81.1 mm),  
ZUMT ABE 2727 (1, 87.9 mm), ZUMT ABE 2728 (1, 81.7 mm), ZUMT ABE 2800 (1, 81.9 mm),  
ZUMT ABE 2801 (1, 81.8 mm), ZUMT ABE 2899 (1, 85.3 mm), ZUMT ABE 2900 (1, 80.5 mm),  
ZUMT ABE 2901 (1, 80.5 mm), ZUMT ABE

2902 (1, 90.8 mm), ZUMT ABE 3030 (1, 101.0 mm), ZUMT ABE 3031 (1, 95.4 mm), ZUMT ABE 3032 (1, 78.4 mm), ZUMT ABE 3033 (1, 95.2 mm), ZUMT ABE 3034 (1, 100.2 mm), ZUMT ABE 3800 (1, 102.2 mm; Palau)  
ZUMT 55295 (1, 74.0 mm; Palau; Aug. 1935; coll. by Y. Haneda)  
ZUMT 62045 (2, 67.9–72.9 mm; Palau; coll. by Y. Haneda)  
ZUMT 62063 (38, 55.8–91.0 mm; Palau; stored in same bottle with ZUMT ABE 5963 and 5964)  
ZUMT 38298 [28, 75.8–97.8 mm; probably Palau; labelled as 「南洋」 (“nan-yo”, general term for Micronesian Islands)

## INDONESIA

ZUMT 62008 (2, 90.6–93.3 mm; Manado, Sulawesi; Mar. 1918; coll. by K. Aoki)

### *Herklotsichthys koningsbergeri* (Weber & de Beaufort, 1912)

## LOCALITY UNKNOWN

ZUMT ABE 11054 (1, 113.9 mm; no data)

### *Herklotsichthys* sp.

(Fig. 1D)

## LOCALITY UNKNOWN

ZUMT ABE 11051 (1, 120.1 mm), ZUMT ABE 11052 (1, 114.3 mm), ZUMT AB 11053 (1, 118.4 mm), ZUMT ABE 11056 (1, 110.7 mm), ZUMT ABE 11058 (1, 115.8 mm), ZUMT ABE 11059 (1, 112.7 mm), ZUMT ABE 11060 (1, 125.6 mm), ZUMT ABE 11061 (1, 110.4 mm; no data)

**Remarks.** Although these specimens resembled *H. quadrimaculatus* in having elongated wing-like scales on the dorsum anterior to the dorsal fin, a similar number of gill rakers, and lack distinct black spots on the body surface, the former differed in having a distinctively deeper body (greater than 31.8% of standard length vs. less than 30% in *H. quadrimaculatus*; Whitehead 1985; Munroe et al. 1999).

### *Hilsa kelee* (Cuvier, 1829)

## INDONESIA

ZUMT 42130 (1, 142.4 mm), ZUMT 62605 (1, 148.2 mm; Jakarta, Java; 5 Mar. 1909; coll. by I. Iijima and K. Aoki)

## LOCALITY UNKNOWN

ZUMT 53040 (1, 120.3 mm; probably African coast)  
ZUMT 55118–55119 (2, 73.7–80.8 mm; no data)

*Konosirus punctatus* (Temminck & Schlegel, 1846) コノシロ

**JAPAN**

**AOMORI PREF.** ZUMT 12935 (1, 74.3 mm), ZUMT 12936 (1, 85.9 mm), ZUMT 12937 (1, 89.7 mm), ZUMT 12938 (1, 89.5 mm), ZUMT 12939 (1, 79.2 mm), ZUMT 12940 (1, 85.5 mm), ZUMT 12941 (1, 84.6 mm), ZUMT 12942 (1, 81.8 mm; Koen-machama, Aomori City; 4 Nov. 1923; coll. by S. Tanabe)

**IWATE PREF.** ZUMT 13050 (1, 249.1 mm; Miyako Bay; coll. by S. Tanabe)

ZUMT 15400 (1, 151.3 mm; obtained at Morioka Market, Morioka City; 1 May 1925; coll. by G. Toba)

ZUMT 30592 (1, 90.6 mm; Rikuzentakata City; 8 Jan. 1934)

**AKITA PREF.** ZUMT 49562 (1, 123.0 mm; Hachirogata Lake; 1943; coll. by S. Tanaka)

**YAMAGATA PREF.** ZUMT 35926 (1, 55.0 mm), ZUMT 35927 (1, 46.1 mm; Sakata City; 16 Aug. 1936)

ZUMT 62080 (1, 142.3 mm; Sakata City; 17 July 1933)

**NIIGATA PREF.** ZUMT 33483 (1, 95.6 mm; Shibata City)

**TOYAMA PREF.** ZUMT 8390 (1, 69.1 mm), ZUMT 8391 [1, 85.0 mm; probably collected from Toyama Pref.; donated by Y. Ochi (Toyama Normal School)]

ZUMT 46207 (1, 185.6 mm), ZUMT 46219 (1, 186.1 mm; Uozu or Namerikawa City)

ZUMT 41498 (1, 193.2 mm; Uozu City; June 1932; coll. by I. Tomiyama)

**ISHIKAWA PREF.** ZUMT 34199 (1, 52.9 mm; Shoin, Suzu City)

**CHIBA PREF.** ZUMT 33411 (1, 135.9 mm), ZUMT 33412 (1, 150.3 mm; Katsuura City)

**KANAGAWA PREF.** ZUMT 50512 (1, 201.9 mm; Aburatsubo, Misaki, Miura City; 7 July 1959; coll. by Y. Tominaga)

**KYOTO PREF.** ZUMT 24323 (1, 208.5 mm; Miyazu City; Nov. 1931; coll. by Kyoto Prefectural Fisheries Training Center)

**HYOGO PREF.** ZUMT 44664 (1, 44.1 mm; Sumoto City, Awaji-shima Island)

**OKAYAMA PREF.** ZUMT 16429 (1, 117.0 mm; Kanaura, Kasaoka City; coll. by K. Matsushima)

**SHIMANE PREF.** ZUMT 31206 (1, 176.4 mm), ZUMT 31248 (1, 114.0 mm; Matsue City)

**EHIME PREF.** ZUMT 7134 (1, 194.6 mm; pearl farm at Uchiumi, Ainan Town; 28 Oct. 1915; coll. by K. Otsuki)

ZUMT 24962 (1, 174.8 mm; Horie, Matsuyama City; Oct. 1931; coll. by S. Ishikawa)

**FUKUOKA PREF.** ZUMT 35097 (1, 147.3 mm), ZUMT 35098 (1, 138.0 mm), ZUMT 35099 (1, 150.4 mm; Ariake Sea, off Okinohata, Yanagawa City; 28 May 1931; coll. by I. Tomiyama)

ZUMT 50579 (1, 173.9 mm), ZUMT 50580 (1, 160.4 mm; purchased at Okinohata Fish Market, Yanagawa City; 10 Aug. 1959; coll. by Y. Tominaga)

**SAGA PREF.** ZUMT 57331 (150.8 mm; Nanaura, Kashima City; 23 Sept. 1987; coll. by H. Senou and T. Saruwatari)

**ARIAKE SEA** ZUMT 18056 (1, 213.8 mm), ZUMT 18074 (1, 115.0 mm), ZUMT 18075 (1, 124.8 mm), ZUMT 18076 (1, 142.2 mm; Ariake Sea; coll. by Fukuoka Prefectural Fisheries Experimental Station)

**OITA PREF.** ZUMT 16545 (1, 32.8 mm; Oita City; coll. by Y. Yamamoto)

**KAGOSHIMA PREF.** ZUMT 23832 (1, 123.4 mm), ZUMT 23957 (1, 104.5 mm; Kagoshima City), ZUMT 23981 (1, 126.8 mm), ZUMT 23982 (1, 123.8 mm; Shibushi City)  
ZUMT 26866 (1, 141.6 mm; Kagoshima Pref.)

**PRECISE LOCALITY UNKNOWN** ZUMT 33251 (1, 123.9 mm), ZUMT 33252 (1, 112.5 mm; Japan)

#### **YELLOW SEA**

ZUMT 54538 (1, 181.1 mm), ZUMT 54560 [1, 176.5 mm; Yellow Sea (34°05'N, 122°33'E), 25 m depth; 13 Oct. 1984; coll. by RV *8th Ten-yo-maru*]

ZUMT 62075 (1, 50.3 mm; probably Bohai or Yellow seas; trawl; donation from Fisheries Experimental Station of Kwantung Agency)

#### **EAST CHINA SEA**

ZUMT 51165 (1, 136.1 mm; East China Sea; Jan. 1960)

ZUMT 51264 [1, 136.2 mm; East China Sea (obtained at Fukuoka Fish Market), 24 Dec. 1959, Y. Tominaga]

#### **LOCALITY UNKNOWN**

ZUMT 17613 (1, 110.9 mm), ZUMT 37562 (1, 118.9 mm), ZUMT 37563 (1, 109.5 mm),  
ZUMT 37564 (1, 117.8 mm), ZUMT 37565 (1, 71.2 mm), ZUMT 37566 (1, 72.9 mm),  
ZUMT 46476 (1, 90.5 mm), ZUMT 46524 (1, 125.1 mm), ZUMT 46525 (1, 124.2 mm),  
ZUMT 46526 (1, 119.6 mm), ZUMT 62081 (1, 65.0 mm; no data)

ZUMT 62272 (1, 53.5 mm; no data, tagged as "13")

ZUMT 62273 (1, 38.6 mm; no data, tagged as "14")

ZUMT 62274 (1, 23.0 mm; no data, tagged as "15")

ZUMT 62275 (1, 23.2 mm; no data, tagged as "16")

### ***Nematalosa come* (Richardson, 1846) リュウキュウドロクイ**

#### **JAPAN**

ZUMT 14287 (1, 84.4 mm), ZUMT 14288 (1, 75.3 mm), ZUMT 14289 (1, 72.7 mm),  
ZUMT 14290 (1, 112.2 mm), ZUMT 14291 (1, 77.7 mm), ZUMT 14292 [1, 78.7 mm;  
probably from Ryukyu Archipelago; 23 Jan. 1925; coll. by H. Yashiro (Naha Fish  
Market) ]

ZUMT 14463 (1, 127.8 mm; Okinawa Pref.; coll. by S. Sakaguchi)

ZUMT 15170 (1, 137.0 mm), ZUMT 15204 [1, 119.1 mm; probably Okinawa-jima Island,  
Ryukyu Archipelago; coll. by S. Sakaguchi (Okinawa Prefectural Daiichi Junior High  
School)]

ZUMT 19958 (1, 122.0 mm; Ryukyu Archipelago)  
ZUMT 23550 (1, 115.3 mm; probably from Okinawa Pref.; donation from Okinawa Prefectural Fisheries Experiment Station)  
ZUMT 39753 (9, 63.8–147.4 mm), ZUMT 39754 (1, 133.1 mm), ZUMT 39755 (1, 130.5 mm; Ryukyu Archipelago; coll. by S. Sakaguchi)  
ZUMT 40442 (1, 63.8 mm), ZUMT 40443 (1, 71.1 mm), ZUMT 40444 (2, 52.0–58.2 mm; Ryukyu Archipelago; coll. by S. Sakaguchi)  
ZUMT 47701 (1, 108.9 mm; Okinawa-jima Island, Ryukyu Archipelago; July 1936; coll. by S. Inuo)  
ZUMT 52591 (1, 130.0 mm; landed at Naha Fish Market, Naha City, Okinawa Pref.; 3 June 1966)  
ZUMT 58099 (3, 32.2–34.2 mm; estuary of Nakama-gawa River, Iriomote-jima Island, Yaeyama Islands, Ryukyu Archipelago; 9 July 1988; coll. by H. Senou and M. Aizawa)

#### **TAIWAN**

ZUMT 22604 (1, 176.8 mm; Kaohsiung; coll. by S. Yamada)

#### **CHINA**

ZUMT 22793 (1, 100.8 mm; Hainan Island)

#### **PHILIPPINES**

ZUMT 12650 (1, 161.5 mm), ZUMT 12681 (1, 163.2 mm), ZUMT 12682 (1, 162.0 mm; Philippines; coll. by U. Yamamura)  
ZUMT 40811 (1, 150.3 mm; Manila, Luzon; 11 Feb. 1909; coll. by I. Iijima and K. Aoki)  
ZUMT 42122 (5, 85.8–99.3 mm; Philippines; Jan. 1938; coll. by U. Yamamura)  
ZUMT 42138 (1, 87.1 mm), ZUMT 42147 (1, 165.1 mm), ZUMT 42148 (1, 97.7 mm), ZUMT 42166 (1, 78.0 mm), ZUMT 42200 (1, 87.3 mm), ZUMT 42202 (1, 87.4 mm), ZUMT 42246 (1, 164.0 mm), ZUMT 42252 (1, 115.2 mm), ZUMT 42253 (1, 83.6 mm;), ZUMT 42254 (1, 112.9 mm; Philippines; 1926; coll. by U. Yamamura)  
ZUMT 42323 (1, 154.9 mm), ZUMT 42354 (1, 182.2 mm), ZUMT 62073 (6, 64.9–96.0 mm; Basilan; 1926; coll. by U. Yamamura)

#### **AUSTRALIA**

ZUMT 62111 (1, 59.1 mm; probably from Australia; donation from Queensland Museum, Australia; tagged as “2789”)

#### **LOCALITY UNKNOWN**

ZUMT ABE 58-165 (1, 128.3 mm; no data)

*Nematalosa japonica* Regan, 1917 ドロクイ

**JAPAN**

- ZUMT 7883 (1, 201.2 mm; Hirajo Bay, Ainan Town, Ehime Pref.; 3 Feb. 1917; coll. by K. Otsuki)  
ZUMT 17179 (1, 73.6 mm), ZUMT 17180 (1, 83.7 mm), ZUMT 17181 (1, 86.0 mm),  
ZUMT 17182 (1, 76.8 mm), ZUMT 17183 (1, 83.1 mm), ZUMT 17184 (1, 70.6 mm);  
Baten, Nanjo City, Okinawa-jima Island, Okinawa Pref.; coll. by S. Tanabe)  
ZUMT 19570 (1, 104.0 mm; Urado Bay, Kochi City, Kochi Pref.; Oct. 1928; T. Kamohara)

**TAIWAN**

- ZUMT 5792 (1, 121.7 mm; Orchid Island)  
ZUMT 13646 (1, 135.1 mm), ZUMT 13647 (1, 143.3 mm; Tamsui Port, Tamsui, Xinbei  
City; coll. by T. Aoki)  
ZUMT 14988 (1, 159.5 mm), ZUMT 14989 (1, 123.4 mm; Tainan; coll. by T. Aoki)  
ZUMT 25098 (1, 110.2 mm), ZUMT 25110 (1, 103.8 mm; Taipei City; coll. by M. Imai)  
ZUMT 62082 (1, 149.0 mm), ZUMT 62083 (1, 150.9 mm; purchased at Chitosecho Market,  
Taipei City; 19 Nov. 1930)

**CHINA**

- ZUMT 22794 (1, 111.9 mm; Hainan Island)

**PHILIPPINES**

- ZUMT ABE 7794 (1, 77.3 mm; Basilan; 1926; coll. by U. Yamamura)

**Remarks.** Jordan and Evermann (1902) reported ZUMT 5792 as *Clupanodon nasus* (Bloch, 1795).

*Sardina pilchardus* (Walbaum, 1792)

**LOCALITY UNKNOWN**

- ZUMT 5787 (6, 69.9–111.5 mm; no data)

*Sardinella albella* (Valenciennes, 1847)

**JAPAN**

- ZUMT 17185 (1, 71.8 mm), ZUMT 17186 (1, 76.2 mm), ZUMT 17187 (1, 67.2 mm; Baten,  
Nanjo City, Okinawa-jima Island, Okinawa Pref.; coll. by S. Tanabe)  
ZUMT 40418 (1, 130.5 mm; Ryukyu Archipelago; coll. by S. Sakaguchi)

## TAIWAN

- ZUMT 14832 (1, 106.6 mm), ZUMT 14833 (1, 105.0 mm), ZUMT 14835 (1, 109.4 mm; Taiwan; coll. by T. Aoki)  
ZUMT 18465 (1, 114.3 mm; Keelung; Sept. 1927; coll. by H. Sato)  
ZUMT 23598 [1, 68.5 mm; probably from Taiwan; donated by S. Arakawa (Taipei High School)]  
ZUMT 25078 (1, 73.6 mm), ZUMT 25079 (1, 100.9 mm; estuary of Tamsui River, Xinbei City; Aug. 1930; coll. by M. Imai)  
ZUMT 25096 (1, 100.9 mm), ZUMT 25097 (1, 97.5 mm; Keelung Port, Keelung; 1929; coll. by M. Imai)  
ZUMT 62024 (1, 75.0 mm; purchased at Chitosecho Market, Taipei City; 19 Nov. 1930)  
ZUMT 62025 (1, 85.5 mm; purchased at Chitosecho Market, Taipei City; 17 Nov. 1930)  
ZUMT 62026 (1, 86.3 mm), ZUMT 62027 (1, 78.4 mm SL; purchased at Ximending Market, Taipei City; 14 Feb. 1931)  
ZUMT 63275 (1, 76.9 mm; Tamsui, Xinbei City)

## CHINA

- ZUMT 22795 (1, 89.2 mm), ZUMT 22796 (1, 100.6 mm; Hainan Island)

## PHILIPPINES

- ZUMT 39505 (1, 92.9 mm; Philippines; coll. by U. Yamamura)  
ZUMT 42031 (1, 43.9 mm; Philippines; 1926; coll. by U. Yamamura)  
ZUMT 62066 (1, 52.5 mm; Philippines)

## PALAU

- ZUMT 62022 (2, 90.7–95.4 mm; Palau; stored in same bottle with ZUMT ABE 5963 and 5964)

**Remarks.** Hata and Koeda (2022) reported ZUMT 17185, 17186, 17187, all collected from Okinawa-jima Island, as the first specimen-based records of *S. albella* from Japan.

## *Sardinella aurita* Valenciennes, 1847   カタボシイワシ

## CHINA

- ZUMT 54539 [1, dissected; Yellow Sea, east of Yancheng City, Jiangsu Province (34°05'N, 122°33'E), 25 m depth; 12 Oct. 1984; coll. by RV *8th Ten-yo-maru*]  
ZUMT 54561 (1, 162.0 mm), ZUMT 54562 [1, 166.8 mm; Yellow Sea, east of Yancheng City, Jiangsu Province (34°15'N, 122°15'E), 25 m depth; 12 Oct. 1984; coll. by RV *8th Ten-yo-maru*]

## EAST CHINA SEA

- ZUMT 51755 (1, 125.8 mm), ZUMT 51756 (1, 129.8 mm; East China Sea)

## TAIWAN

ZUMT 12841 (1, 85.7 mm), ZUMT 12843 (1, 68.3 mm; Keelung; coll. by T. Aoki)  
ZUMT 62014 (1, 154.2 mm; Penghu Islands, purchased at Magong Fish Market; 1 June 1970; coll. by Y. Tominaga)

## PHILIPPINES

ZUMT 42142 (1, 123.7 mm), ZUMT 42167 (1, 122.7 mm), ZUMT 42168 (1, 131.1 mm),  
ZUMT 42169 (1, 124.9 mm), ZUMT 42189 (1, 130.7 mm), ZUMT 42193 (1, 58.0 mm),  
ZUMT 42233 (1, 121.5 mm), ZUMT 42234 (1, 80.3 mm), ZUMT 47006–47009 (4,  
47.6–57.5 mm; Philippines; 1926; coll. by U. Yamamura)  
ZUMT 62003 (1, 77.2 mm), ZUMT 62007 (4, 119.2–129.8 mm), ZUMT 62065 (43, 50.0–  
75.6 mm; Basilan; 1926; coll. by U. Yamamura)

## SURINAME

ZUMT 62495 (1, 145.2 mm; Suriname)

**Remarks.** See Stern et al. (2017) regarding the nomenclature of this species.

### *Sardinella gibbosa* (Bleeker, 1849) ナンカイサツパ

## JAPAN

ZUMT 11236 (1, 93.1 mm), ZUMT 11237 [1, 91.6 mm; probably Okinawa-jima Island,  
Ryukyu Archipelago; coll. by S. Sakaguchi (Okinawa Prefectural Daiichi Junior High  
School)]

## TAIWAN

ZUMT 14834 (1, 117.0 mm; Taiwan)  
ZUMT 22616 (1, 86.2 mm; Kaohsiung; coll. by S. Yamada)

## PHILIPPINES

ZUMT 12693 (1, 137.6 mm), ZUMT 12694 (1, 138.8 mm), ZUMT 39506 (1, 81.4 mm),  
ZUMT 39507 (1, 72.3 mm; Philippines; coll. By U. Yamamura)

### *Sardinella goni* Stern, Rinkevich & Goren, 2016

## TAIWAN

ZUMT 62028 (1, 80.4 mm; probably obtained in fish market in Taipei City)

**Remarks.** This species, characterized by  $19 + 13 = 32$  ventral scutes and  $23-28 + 50-53$  gill rakers on the first gill arch, is known only from seven type specimens (129.8–144.1 mm standard length) collected from Boracay Island, Philippines (Stern et al. 2016). Although the ventral scute count of the present specimen matched that shown by Stern et al. (2016), the lower gill raker number on the first gill arch was less ( $18 + 43$ ). However, the gill



raker counts of some clupeoid fishes, including some species of *Sardinella*, are known to increase with increasing body length (Whitehead 1985), and the difference in gill-raker count of the above specimens is considered here as representing intraspecific variation, due to their different body sizes.

***Sardinella hualiensis* (Chu & Tsai, 1958)**

**TAIWAN**

ZUMT 62005 (2, 79.5–89.5 mm; probably collected from Taiwan; 19 Oct. 1930)

***Sardinella melanura* (Cuvier, 1829) オグロイワシ**

**PHILIPPINES**

ZUMT 62013 (1, 82.5 mm; Basilan; 1926, coll. by U. Yamamura)

***Sardinella pacifica* Hata & Motomura, 2019**

**PHILIPPINES**

ZUMT 42041 (1, 101.4 mm), ZUMT 42149 (1, 105.7 mm), ZUMT 42171 (1, 106.3 mm),  
ZUMT 42235 (1, 104.0 mm; Philippines; 1926; coll. by U. Yamamura)  
ZUMT 62018 (1, 98.4 mm; Basilan; 1926; coll. by U. Yamamura)

**Remarks.** Identification of these specimens followed Hata and Motomura (2019b).

***Sardinella zunasi* (Bleeker, 1854) サツバ**

**JAPAN**

**YAMAGATA PREF.** ZUMT 62064 (7, 93.7–130.7 mm; Sakata City; 17 July 1933)

**IBARAKI PREF.** ZUMT 17895 (1, 86.6 mm; Hinuma Lake)

ZUMT 34533 (1, 104.2 mm; Hinuma Lake, Kamiishizaki, Ibaraki Town; 22 May 1935; coll. by S. Tanaka)

**TOKYO MET.** ZUMT 5790 (3, 95.1–97.4 mm; Tsukuda)

**KANAGAWA PREF.** ZUMT ABE 62-252 (1, 95.7 mm; Manazuru Town; coll. in Mar. to Apr. 1962)

ZUMT ABE 62-307, (1, 99.5 mm), ZUMT ABE 62-308 (1, 94.7 mm), ZUMT ABE 62-309 (1, 94.1 mm; Manazuru City; coll. in 17 Mar. to 21 Apr. 1962)

ZUMT 33719 (1, 91.5 mm; probably Misaki, Miura City)

ZUMT 62218 (1, 83.3 mm; probably Sagami Bay)

**SHIZUOKA PREF.** ZUMT 18538 (1, 115.0 mm), ZUMT 18539 (1, 105.8 mm), ZUMT 27163 (1, 77.0 mm), ZUMT 27164 (1, 87.3 mm; Hamana-ko Lake; coll. by S. Oe)

ZUMT 33369 (1, 92.9 mm; Shizuoka Pref.)  
 ZUMT 33693 (1, 72.0 mm; Maisaka, Hamamatsu City; coll. by S. Oe)  
**TOYAMA PREF.** ZUMT 41509 (1, 101.9 mm; Uozu City; June 1932; coll. by I. Tomiyama)  
**WAKAYAMA PREF.** ZUMT 7517 (1, 84.5 mm), ZUMT 7518 [1, 82.1 mm; probably  
 Wakayama Pref.; donated by I. Hoshino (Hiro, Arida, Wakayama City)]  
 ZUMT 20293 (1, 108.0 mm; Wakayama Pref.)  
 ZUMT 21727 (1, 108.7 mm; Wakayama Pref.; Oct. 1904)  
 ZUMT 22037 (1, 128.4 mm; Wakayama Pref.; Jan. 1920)  
**OKAYAMA PREF.** ZUMT 16525 (1, 97.2 mm; Kasaoka City; coll. by K. Matsushima)  
**SHIMANE PREF.** ZUMT 31247 (1, 98.9 mm; Matsue City)  
**KOCHI PREF.** ZUMT 47022 (1, 140.0 mm), ZUMT 47052 (1, 147.9 mm; Kochi Pref.)  
**FUKUOKA PREF.** ZUMT 35102 (1, 93.5 mm), ZUMT 35103 (1, 90.6 mm), ZUMT 35104  
 (1, 89.5 mm), ZUMT 35105 (1, 105.2 mm), ZUMT 35106 (1, 91.4 mm), ZUMT 35107  
 (1, 75.2 mm), ZUMT 35108 (1, 101.1 mm), ZUMT 35109 (1, 76.6 mm), ZUMT 35110  
 (1, 72.7 mm; Ariake Sea, off Okinohata, Yanagawa City; 28 May 1931; coll. by I.  
 Tomiyama)  
 ZUMT 35751 (1, 77.8 mm), ZUMT 35752 (1, 83.4 mm), ZUMT 35753 (1, 73.8 mm),  
 ZUMT 35754 (1, 83.9 mm), ZUMT 35755 (1, 82.0 mm), ZUMT 35756 (1, 79.7 mm),  
 ZUMT 35757 (1, 57.6 mm), ZUMT 35758 (1, 55.8 mm), ZUMT 35759 (1, 41.2 mm),  
 ZUMT 35760 (1, 39.1 mm), ZUMT 35761 (1, 33.5 mm), ZUMT 35762 (1, 35.0 mm;  
 Ariake Sea, off Okinohata, Yanagawa City; Oct. 1931; coll. by I. Tomiyama)  
 ZUMT 50710 (1, 88.7 mm), ZUMT 50711 (1, 101.0 mm), ZUMT 50712 (1, 100.5 mm;  
 purchased at Okinohata Fish Market, Yanagawa City; 10 Apr. 1959, Y. Tominaga)  
 ZUMT 62070 (20, 16.0–31.8 mm SL; Ariake Sea, Yanagawa City; 10 June 1931; coll. by I.  
 Tomiyama)  
 ZUMT 62071 (9, 23.5–37.2 mm; Ariake Sea, Yanagawa City; 13 Aug. 1928; coll. by I.  
 Tomiyama)  
 ZUMT 62072 (12, 33.2–53.9 mm; Ariake Sea, Yanagawa City; June 1931; coll. by I.  
 Tomiyama)  
**SAGA PREF.** ZUMT 57349 (1, 100.6 mm; purchased at Kashima Fish Market, Kashima City;  
 22 Sept. 1987; coll. by H. Senou and T. Saruwatari)  
**NAGASAKI PREF.** ZUMT 2694 (1, 122.5 mm; Nagasaki Pref.; Mar. 1910)  
 ZUMT 62044 (1, 131.2 mm; Omura Bay)  
**ARIAKE SEA** ZUMT 18066 (1, 82.6 mm), ZUMT 18067 (1, 79.1 mm), ZUMT 18068 (1,  
 92.7 mm; Ariake Sea; coll. by Fukuoka Prefectural Fisheries Experimental Station)  
 ZUMT 50755 (1, 77.0 mm), ZUMT 50756 (1, 89.3 mm), ZUMT 50757 (1, 90.5 mm),  
 ZUMT 50758 (1, 92.3 mm; Ariake Sea; 19 Apr. 1959; Y. Tominaga)  
**MIYAZAKI PREF.** ZUMT 18827 (1, 64.3 mm), ZUMT 18829 (1, 70.7 mm), ZUMT 18830  
 (1, 71.1 mm), ZUMT 18831 (1, 114.4 mm), ZUMT 18832 (1, 78.7 mm), ZUMT 20016  
 (1, 69.3 mm), ZUMT 20017 (1, 69.0 mm), ZUMT 20018 (1, 67.0 mm), ZUMT 22669 (1,  
 129.2 mm; Miyazaki Pref.)  
 ZUMT 21150 (1, 132.9 mm; Miyazaki Pref.; coll. by Fukushima Fisheries Cooperative  
 Association)

**KAGOSHIMA PREF.** ZUMT 5794 (1, 135.8 mm; Shibushi City; 7 Dec. 1902)

ZUMT 24028 (1, 75.4 mm; Shibushi City)

**PRECISE LOCALITY UNKNOWN** ZUMT 38296 (1, 76.2 mm), ZUMT 38297 (1, 70.2 mm; Japan)

### **BOHAI or YELLOW SEA**

ZUMT 62067 (2, 48.1–64.4 mm; probably Bohai or Yellow seas; trawl; donation from Fisheries Experimental Station of Kwantung Agency)

### **LOCALITY UNKNOWN**

ZUMT 37567 (1, 104.0 mm), ZUMT 37568 (1, 93.2 mm), ZUMT 37569 (1, 63.2 mm), ZUMT 46886 (1, 122.5 mm), ZUMT 46899 (1, 120.5 mm), ZUMT 57345 (2, 34.4–47.4 mm), ZUMT 62004 (1, 120.8 mm; no data)

ZUMT 62276 (1, 56.4 mm; no data, tagged as “17”)

### ***Sardinella* sp. 1**

(Fig. 1E–F)

### **PHILIPPINES**

ZUMT 25470 (1, 73.9 mm; Philippines; 12 May 1933; coll. by A. W. C. T. Herre)

**Remarks.** The combination of characters of this specimen (dark spot on dorsal-fin origin; 61 lower gill rakers on 1st gill arch; grooves on body scales continuous centrally; 29 total scutes on abdomen; 8 pelvic-fin rays; and caudal fin without black markings) closely matched those of *Sardinella brachysoma* Bleeker, 1852, shown by Whitehead (1985) and Munroe et al. (1999). However, the former differed in having a distinctively slender body (28.9% of standard length vs. 30–39% in *S. brachysoma*) and lacking perforations or small pores posteriorly on the body scales (vs. numerous perforations posteriorly; Whitehead 1985; Munroe et al. 1999). The ZUMT specimen was also similar to *Sardinella hualiensis* (Chu & Tsai, 1958), both having similar in sharing the almost same numbers of lower gill rakers on the first gill arch (51–67 in *S. hualiensis*; Whitehead 1985; Hata and Motomura 2019a) and abdominal scutes (29–32), a black spot on the dorsal-fin origin, and a similar pattern of grooves on the body scales. However, the ZUMT specimen differed from *S. hualiensis* in having the caudal fin without black markings (vs. a black blotch on the tips of both lobes in *S. hualiensis*) and lacking perforations or small pores posteriorly on the body scales (vs. numerous perforations posteriorly; Whitehead 1985; Hata and Motomura 2019a).

*Sardinella* sp. 2

(Fig. 1G–H)

**PHILIPPINES**

ZUMT 25467 (1, 87.9 mm), ZUMT 25468 (1, 92.0 mm), ZUMT 25469 (1, 80.2 mm); Philippines; 12 May 1933; coll. by A. W. C. T. Herre)

**Remarks.** The specimens were identified as *Sardinella richardsoni* Wongratana, 1983, following the key given by Munroe et al. (1999): no dark markings on dorsal and caudal fins; 67–70 lower gill rakers on 1st gill arch (*S. richardsoni* has 63–74 gill rakers); grooves on body scales continuous centrally; 8 pelvic-fin rays; and caudal fin without black markings. However, they differed from the latter in having a distinctively slender body (29.5–31.0% of standard length vs. 32–36% in *S. richardsoni*) and no perforations or small pores posteriorly on the body scales (numerous perforations posteriorly; Whitehead 1985; Munroe et al. 1999). Although the ZUMT specimens were also similar to *Sardinella zunasi* (Bleeker, 1854), having similar body depth (body depth of *S. zunasi* 24–33% of standard length), fin coloration, and groove patterns on the body scales, *S. zunasi* has fewer lower gill rakers on the first gill arch (42–58) and small perforations posteriorly on the body scales (Whitehead 1985).

*Sardinops caeruleus* (Girard, 1854)

**USA**

ZUMT 17644 (1, 233.0 mm), ZUMT 17645 (1, 226.1 mm), ZUMT 17666 (1, 215.0 mm), ZUMT 17671 (1, 221.8 mm; California State; 1926–1927; coll. by S. Tanaka)

*Sardinops melanostictus* (Temminck & Schlegel, 1846) マイワシ

**JAPAN**

**HOKKAIDO** ZUMT 10764 (1, 67.5 mm; Kushiro City; Nov. 1962; coll. by M. Akiya)

ZUMT 10783 [1, 169.5 mm; probably collected from Kushiro City; donated by M. Akiya (Kushiro Fisheries Research Institute)]

ZUMT 10831 (1, 140.4 mm), ZUMT 10832 (1, 134.8 mm; probably collected from Hokkaido; 4 Nov. 1922, donation from Takashima Fisheries Research Institute)

**AOMORI PREF.** ZUMT 12985 (1, 133.0 mm), ZUMT 12986 (1, 116.1 mm), ZUMT 12992 (1, 73.2 mm; Koen-maehama, Aomori City; 4 Nov. 1923; coll. by S. Tanabe)

ZUMT 13210 (1, 109.3 mm), ZUMT 13211 (1, 110.3 mm), ZUMT 13212 (1, 106.0 mm), ZUMT 13213 (1, 136.6 mm; Shirogane-maehama, Hachinohe City; 28 Oct. 1923; coll. by S. Tanabe)

ZUMT 13310 (1, 197.5 mm; Fukaura; coll. by S. Tanabe)

ZUMT 41705 (1, 182.0 mm), ZUMT 41710 (1, 176.6 mm), ZUMT 41747 (1, 175.0 mm), ZUMT 41748 (1, 212.0 mm), ZUMT 41759 (1, 184.4 mm; Asamushi, Aomori City; coll. by S. Tanabe)

**IWATE PREF.** ZUMT 13052 (1, 144.6 mm), ZUMT 13053 (1, 122.9 mm; Sokei, Miyako City; coll. by S. Tanabe)  
 ZUMT 13876 (1, 119.9 mm), ZUMT 13877 (1, 117.6 mm), ZUMT 13878 (1, 127.9 mm; Kesen Region; 20 Dec. 1924; coll. by G. Toba)

**FUKUSHIMA PREF.** ZUMT 26299 (1, 185.7 mm), ZUMT 33795 (1, 120.6 mm; Onahama, Iwaki City)

**IBARAKI PREF.** ZUMT 31645 (1, 144.3 mm), ZUMT 31646 [1, 112.9 mm; probably collected from Ibaraki Pref.; donated by K. Tashiro (Ibaraki Prefectural Fisheries Experimental Station)]

**CHIBA PREF.** ZUMT 56662 (1, 168.6 mm), ZUMT 56663 (1, 170.4 mm), ZUMT 56664 (1, 170.9 mm), ZUMT 56665 (1, 179.8 mm), ZUMT 56666 (1, 175.6 mm), ZUMT 56667 (1, 179.7 mm), ZUMT 56668 (1, 179.9 mm), ZUMT 56669 (1, 163.7 mm), ZUMT 62730 (1, 180.9 mm; Koyatsu, Tateyama City; 15 Apr. 1987; coll. by M. Aizawa, H. Senou, and Y. Sato)

**TOKYO MARKET** ZUMT 26385 (1, 156.3 mm), ZUMT 26386 (1, 155.9 mm; obtained at Tokyo Market, Tokyo Met.; June 1926; coll. by I. Tomiyama)

**KANAGAWA PREF.** ZUMT 5100 (1, 98.5 mm; Misaki, Miura City)  
 ZUMT 27236 (1, 101.5 mm; Koajiro Bay, Aburatsubo, Miura City)  
 ZUMT 27491 (1, 118.1 mm), ZUMT 27492 (1, 98.0 mm), ZUMT 27493 (1, 104.5 mm), ZUMT 27494 (1, 118.2 mm), ZUMT 27495 (1, 117.3 mm; Hayama Town)  
 ZUMT 38310 (1, 51.5 mm), ZUMT 38311 (1, 41.0 mm; probably Misaki, Miura City)  
 ZUMT 55632 (1, 191.2 mm), ZUMT 55633 (1, 103.1 mm), ZUMT 55634 (1, 98.4 mm; landed at Misaki Fish Market, Miura City; 29 July 1986)  
 ZUMT 62006 (1, 143.4 mm; Zaimokuza, Kamakura City)

**MIE PREF.** ZUMT 23197 (1, 97.0 mm), ZUMT 23198 (1, 65.6 mm), ZUMT 23199 (1, 67.2 mm; Kimoto, Kumano City; 18 May 1930; coll. by Y. Tsuchiga)  
 ZUMT 23419 (1, 171.8 mm; Owase City; coll. by K. Nakahara)  
 ZUMT 38352 (1, 92.2 mm), ZUMT 38353 (1, 87.0 mm), ZUMT 38354 (1, 90.7 mm), ZUMT 38355 (1, 88.7 mm), ZUMT 38356 (1, 90.7 mm), ZUMT 38357 (1, 93.9 mm), ZUMT 38358 (1, 96.2 mm), ZUMT 38359 (1, 84.9 mm), ZUMT 38360 (1, 94.3 mm; Mie Prefectural Fisheries Research Institute, Hamajima, Shima City; Sept. 1920)

**ISHIKAWA PREF.** ZUMT 34190 (1, 50.8 mm), ZUMT 34191 (1, 48.8 mm), ZUMT 34192 (1, 57.1 mm; Shoinmachi, Suzu City)

**KYOTO PREF.** ZUMT 24373 (1, 95.1 mm), ZUMT 24374 (1, 91.4 mm; Miyazu City; Nov. 1931; coll. by Kyoto Prefectural Fisheries Training Center)

**OKAYAMA PREF.** ZUMT 16454 [1, 115.0 mm; probably collected from Okayama Pref.; donated by K. Matsushima (Kojokan Junior High School)]

**SHIMANE PREF.** ZUMT 31298 (1, 128.2 mm; Matsue City)

**KOCHI PREF.** ZUMT 18684 (1, 116.0 mm; Okino-shima Island, Sukumo City; Nov. 1926; coll. by T. Kamohara)

**FUKUOKA PREF.** ZUMT 49849 (1, 91.5 mm), ZUMT 49850 (1, 106.7 mm; Fukuoka Pref.)

**NAGASAKI PREF.** ZUMT 26491 (1, 137.1 mm; Takematsu, Omura City)  
 ZUMT 27132 (1, 60.3 mm), ZUMT 27133 (1, 52.0 mm), ZUMT 27134 (1, 51.0 mm; Nagasaki Pref.)

ZUMT 48179 (1, 79.6 mm), ZUMT 48180 (1, 83.1 mm), ZUMT 49973 [1, 44.3 mm; Arikawa, Shinkamigoto Town (Nakadori-jima Island, Goto Islands); 25 May 1953; coll. by I. Tomiyama]

ZUMT 50017 (1, 123.2 mm), ZUMT 50018 [1, 137.7 mm; Fukue, Goto City (Fukue-jima Island, Goto Islands); 12 Oct. 1953; coll. by I. Tomiyama]

ZUMT 50333 (1, 134.6 mm; Hirado City; 10 June 1953; coll. by I. Tomiyama)

**MIYAZAKI PREF.** ZUMT 21175 (1, 37.2 mm; probably collected from Miyazaki Pref.; coll. by Fukushima Fisheries Cooperative Association)

**KAGOSHIMA PREF.** ZUMT 5795 (1, 140.8 mm; Shibushi City; 25 Oct. 1902)

ZUMT 5796 (1, 153.0 mm), ZUMT 5800 (1, 154.3 mm; Akune City)

ZUMT 5798 (1, 154.4 mm), ZUMT 5799 (1, 157.1 mm; Nomaike, Minamisatsuma City)

ZUMT 21962 (1, 127.6 mm; Kagoshima Pref.)

**PRECISE LOCALITY UNKNOWN** ZUMT 38291 (1, 59.8 mm; Japan)

ZUMT 53211 [1, 195.5 mm; although the ledger records the specimen as from “Kabira, Ishigaki-jima Island (Yaeyama Islands, Ryukyu Archipelago), Japan”, this species has never been recorded from the Ryukyu Archipelago (Aonuma and Yagishita, 2013a). The ledger entry is therefore likely to be erroneous.]

#### **LOCALITY UNKNOWN**

ZUMT ABE 9900 (5, 132.8–156.3 mm), ZUMT ABE 61-985 (1, 116.9 mm), ZUMT 62077 (1, 145.1 mm; no data)

ZUMT 62078 (1, 110.2 mm), ZUMT 62079 (1, 100.9 mm; locality unknown, tagged as “207”)

#### ***Sardinops ocellatus* (Pappe, 1853)**

ZUMT 12278 (1, 189.9 mm), ZUMT 12280 (1, 119.3 mm; probably collected from the African coast; donation from British Museum)

#### ***Sprattus sprattus* (Linnaeus, 1758)**

#### **LOCALITY UNKNOWN**

ZUMT 12279 (1, 99.5 mm; locality unknown; donation from British Museum)

#### ***Tenualosa reevesii* (Richardson, 1846)**

#### **CHINA**

ZUMT 19100 (1, 343.7 mm; Shanghai)

ZUMT 21227 (1, 399.8 mm; China)

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Figure 1. Specimens of Clupeiformes deposited in the Department of Zoology, The University Museum, The University of Tokyo (ZUMT). (A) *Dussumieria* sp. [ZUMT 39748, 136.9 mm standard length (SL); Okinawa Prefecture, Japan]; (B) *Stolephorus teguhi* (ZUMT 62055, 67.2 mm SL; Jolo Island, Philippines); (C) *Thrissina* sp. (ZUMT 44497, 114.9 mm SL; probably collected from Korea); (D) *Herklotsichthys* sp. (ZUMT ABE 11061, 110.4 mm SL; collection locality unknown); (E) lateral view of body and (F) stained scale removed from right side of midbody (just above anal fin; left-right inverted) of *Sardinella* sp. 1 (ZUMT 25470, 73.9 mm SL; Philippines); (G) stained scale removed from right side of midbody (just below dorsal fin; left-right inverted) and (H) lateral view of body of *Sardinella* sp. 2 (ZUMT 25468, 92.0 mm SL; Philippines)