

# Report on the specimens of sharks deposited in the Department of Zoology, The University Museum, The University of Tokyo

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## Abstract

The collection of sharks held in the Department of Zoology, The University Museum, The University of Tokyo (ZUMT) comprise 474 specimens representing 9 orders, 27 families, and 73 species. Presence of the holotype and/or paratypes of four species were confirmed.

## Introduction

In Japanese waters, 9 orders, 35 families, 190 species of sharks have been identified (Nakaya 2016; Bandai 2018 for Pentanchidae). The fish collection of sharks preserved in the Department of Zoology, The University Museum, The University of Tokyo (ZUMT) were re-identified in the present study. During the management of ZUMT, 474 specimens of sharks were discovered from the collection. The specimens were re-identified by the first author, and listed below. To be a reference on the minimum mature size of various species of sharks, smallest matured male specimen of each species was listed.

## Materials and Methods

Identities of the specimens of sharks in ZUMT were confirmed by the first author, generally following Nakabo (2013). Total lengths (TL) were measured for all specimens. Sex of specimens were estimated from presence or absence of claspers. Matured males were determined when the claspers longer than the pelvic fin. Species are arranged in alphabetical order. Local name, and collector's name and affiliation are given where known (from the specimen ledger or tag), with Japanese language equivalents in parentheses. The following list includes ZUMT number, TL, sex with mature or immature for male, number of specimens in parentheses when two or more, type (abbreviated when non-type), collection locality, collection date, collector or donator and affiliation, collection method, local name, and remarks when available. The collection year and collector for some specimens was estimated by following Koeda et al. (2022). Specimens stored in large tank were marked with an asterisk (\*). 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. Catalog numbers after ZUMT 62000 are newly given during this study.

## Collection of sharks in ZUMT

Examination of the specimens of sharks deposited in ZUMT comprised 474 specimens representing 9 orders, 27 families, and 73 species were held in the collection including holotypes of *Apristurus macrorhynchus* (Tanaka, 1909) of Pentanchidae, and *Lepidorhinus kinbei* Tanaka, 1918 which is currently recognized as a junior synonym of *Centrophorus squamosus* (Bonnaterre, 1788) of Centrophoridae, paratypes of *Squalus brevirostris* Tanaka, 1917, *Squalus wakiyae* Tanaka, 1918 which is currently recognized as a junior synonym of *Squalus suckleyi* (Girard, 1854) of Squaridae. Some of the type specimens could not find from the collection during the present study (See Aizawa et al. 2022). Smallest sizes of matured male of each species were listed in Table 1. Two embryo

specimens with deformities were illustrated: one with a single eye in *Prionace glauca* (Linnaeus, 1758) (ZUMT 64198), and another with twin heads and dorsal fins in *Squalus* sp. (ZUMT 1526).

**Heterodontiformes** ネコザメ目

**Heterodontidae** ネコザメ科

**Galeus** Rafinesque, 1810 ネコザメ属

**Galeus nipponensis** Nakaya, 1975 ネコザメ

**ZUMT 938**: 58.9 mm TL, immature male embryo with egg capsule, Niihama (新井浜), Misaki (三崎), Kanagawa Pref., 29 Aug. 1899, H. Kuwano (桑野久任), stranded after storm.

**ZUMT 939**: 5 specimens, 78.9 mm TL, female; 76.4 mm TL, immature male; 91.4 mm TL, female; 61.6 mm TL, female; 71.6 mm TL, immature male, Misaki, Sept. 1900, K. Aoki (青木熊吉).

**ZUMT 1485**: egg capsule, Misaki, 1901, donated by B. Dean.

**ZUMT 6141**: 345 mm TL, female, locality unknown.

**ZUMT 7209\***: 254 mm TL, immature male, Aichi Pref., before 1916, Aichi Prefectural Fisheries Station (愛知県水産試験場).

**ZUMT 15223**: 435 mm TL, immature male, probably Okinawa-jima Island, 1920's, S. Sakaguchi (坂口総一郎) at Okinawa Prefectural No. 1 Junior High School (沖縄県立第一中学校).

**ZUMT 18704\***: 242 mm TL, immature male, Susaki (須崎), Kochi Pref., Oct. 1928, T. Kamohara (蒲原稔治) at Kochi High School (高知高校), local name "Nakobuka (ネコブカ)".

**ZUMT 20989\***: 285 mm TL, immature male, Tokyo Market (東京市場).

**ZUMT 22161\*** (cloth tag of 96): 403 mm TL, female, Nagasaki, 1 Aug. (before 1929), I. Kaneko (金子一狼), local name "Sazahiwari (サザヒワリ)".

**ZUMT 22668\***: 206 mm TL, female, Miyazaki Pref.

**ZUMT 26383\***: 247 mm TL, immature male, Hayama (葉山), Kanagawa Pref., Oct. 1929, I. Tomiyama (富山一郎).

**ZUMT 31246\*** (cloth tag of 197): 264 mm TL, immature male, Matsue (松江), Shimane Pref., R. Yanai (柳井隆一) at Matsue High School (松江高校).

**ZUMT 32112\***: 257 mm TL, female, locality unknown, donated by Gakkaishishinsha (学海指針社).

**ZUMT 47839**: yolk with egg capsule, near Manazuru (真鶴), Kanagawa Pref., 1953, T. Abe (阿部宗明).

**ZUMT 49905\***: 395 mm TL, Fukue (福江), Fukue Island (福江島), Goto Islands (五島列島), 10 June 1953, I. Tomiyama.

**ZUMT 50563\***: 518 mm TL, immature male, Nagasaki Fish Market (長崎魚市場), 27 Aug. 1959, Y. Tominaga (富永義昭).

**ZUMT 52100\***: 281 mm TL, female, Norin-kaiku 253 and 254 (農林 253, 254 区), East China Sea, landed at Fukuoka Fish Market (福岡魚市場), 2 May 1960.

**ZUMT 52292\***: 191 mm TL, immature male, near Jeju Island, Korea, Norin-kaiku 253 and 254 (農林 253, 254 区), East China Sea, No. 1 and 2 Shotokumaru (第 1, 2 昭徳丸), landed at Fukuoka Fish Market (福岡魚市場), 5 May 1960, bottom trawl.

**ZUMT 55451**: 241 mm TL, female, Mera (妻良), Izu Peninsular (伊豆半島), Shizuoka Pref., 20 Sept. 1986, M. Aizawa (藍澤正宏) and K. Aizawa (藍澤純住), set net.

**ZUMT 63845\*** [sketch no. 187 (写生第 187 号)]: 351 mm TL, immature male; **ZUMT 63846\***: 222 mm TL, immature male; **ZUMT 63890\***: 350 mm TL, immature male; **ZUMT 63899**: egg capsules (2); **ZUMT ABE 62-285**: 301 mm TL, female, locality unknown.

**Heterodontus** Blainville, 1816 シマネコザメ属

**Heterodontus zebra** (Gray, 1831) シマネコザメ

**ZUMT 3410\***: 546 mm TL, immature male, Nagasaki Pref., probably 1920's, I. Kaneko.

**ZUMT 50989**: 370 mm TL, female; **ZUMT 50992\***: 417 mm TL, female, East China Sea, Sept. 1959.

**ZUMT 63844\***: 835 mm TL, immature male, Shimonoseki (下関), Yamaguchi Pref., June 1937, donated by Tokyo Fisheries Station at Chiba.

**Orectolobidae** オオセ科

*Orectolobus* Bonaparte, 1834 オオセ属

*Orectolobus japonicus* Regan, 1906 オオセ

**ZUMT 20143\***: 217 mm TL, Kagoshima Pref.

**ZUMT 31970\***: 195 mm TL, off Nagasaki, Nagasaki Pref., T. Kuraba (倉場富三郎), trawl.

**ZUMT 63851\***: 285 mm HL; **ZUMT 63852\*** (cloth tag of 74): 396 mm TL, female; **ZUMT 63853\***: 211 mm TL, female, locality unknown.

**Orectolobiformes** テンジクザメ目

**Hemiscylliidae** テンジクザメ科

*Chiloscyllium* Müller & Henle, 1837 テンジクザメ属

*Chiloscyllium plagiosum* (Anonymous, 1830) テンジクザメ

**ZUMT 26898**: 155.6 mm TL, Kagoshima Pref.

**ZUMT 33733**: 189.8 mm TL, probably Sendai (川内), Kagoshima Pref., T. Arie (有井徳之丞) at Sendai Kagoshima Prefectural Junior High School (鹿児島県川内中学校).

**ZUMT 43431**: 119.6 mm TL, Unshu (温州), Sekko Sho (浙江省), Shin (清国: presently China), Meiji Period, donated by K.K. Ho (何鴻熙).

Remarks: ZUMT 26898, 33733, and 43431 has cloth tag of “Shiroboshitenjiku (シロボシテンジク)”

**ZUMT 50991\***: 423 mm TL, East China Sea, Sept. 1959.

**ZUMT 63854\***: 634 mm TL, Shimonoseki, Yamaguchi Pref., June 1937, donated by Tokyo Fisheries Station at Chiba.

**Rhincodontidae** ジンベエザメ科

*Rhincodon* Smith, 1829

*Rhincodon typus* Smith, 1828

**ZUMT 29792**: vertebrae of posterior body only; **ZUMT 29793**: teeth, Numazu (沼津), Shizuoka Pref., 22 Dec. 1934.

**ZUMT 36126**: teeth only, locality unknown.

**Lamniformes** ネズミザメ目

**Mitsukurinidae** ミツクリザメ科

*Mitsukurina* Jordan, 1898 ミツクリザメ属

*Mitsukurina owstoni* Jordan, 1898 ミツクリザメ

**ZUMT 23672\***: 1102 mm TL, female, Tokyo Met., May 1931.

**ZUMT 63859\***: 280 mm HL, head only; **ZUMT 63860\***: 276 mm HL, head only, locality unknown.

**Odontaspidae** オオワニザメ

*Mustelus* Linck, 1790

*Mustelus griseus* Pietschmann, 1908 シロワニ

**ZUMT 63861\***: 1080 mm TL, female, Shimonoseki, Yamaguchi Pref., June 1937, donated by Tokyo Fisheries Station at Chiba.

**Pseudocarchariidae** ミズワニ

*Pseudocarcharias* Cadenat, 1963 ミズワニ属

*Pseudocarcharias kamoharai* (Matsubara, 1936) ミズワニ

**ZUMT 63855\***: 975 mm TL, female, locality unknown.

Remarks: body slender.

**ZUMT 63877\***: 924 mm TL, mature male, off Hawaii (13°41' N 161°24' W), 20 Feb. 1997, donated by Mr. Kamogawa (鴨川氏).

**Lamnidae** ネズミザメ科

*Isurus* Rafinesque, 1810 アオザメ属

*Isurus oxyrinchus* Rafinesque, 1810 アオザメ

**ZUMT 64180**: eyeball only, locality unknown.

*Isurus paucus* Guitart Manday, 1966 バケアオザメ

**ZUMT 63879\***: 295 mm HL, head only.

*Lamna* Cuvier, 1816 ネズミザメ属

*Lamna ditropis* Hubbs & Follett, 1947 ネズミザメ

**ZUMT 4775**: 407.7 mm HL, female embryo; 372.3 mm HL, immature male embryo, Igaineura (飯貝根浦), Choshi (銚子), Chiba Pref., 30 Jan. 1904, purchased from Mr. Nakajima (中島氏) at Tokyo Fish Market.

**ZUMT 63856\***: 480 mm HL, locality unknown.

*Lamna nasus* (Bonnaterre, 1788) ニシネズミザメ

**ZUMT ABE 59-5 and 10951** (two tags attached): jaws only, locality unknown.

**Alopiidae** オナガザメ科

*Alopias* Rafinesque, 1810 オナガザメ属

*Alopias pelagicus* Nakamura, 1935 ニタリ

**ZUMT 32827**: 290 mm TL, female, probably Tokyo Fish Market.

**ZUMT 48908**: 713 mm TL, female, locality unknown (probably from Southeast Asia), Apr. 1956, Z. Maekawa (前川善四郎) and T. Suzuki (鈴木貞次郎).

**ZUMT 63863\***: **ZUMT 63864\***: **ZUMT 64100**: 800 mm TL, immature male; **ZUMT ABE 55-127\***: 270 mm TL; **ZUMT ABE 55-128\***: 210 mm TL; **ZUMT ABE 55-129\***: 180 mm TL; **ZUMT ABE 55-91\***: 450 mm TL, locality unknown.

*Alopias* sp. オナガザメ属種不明

**ZUMT 9832**: vertebra only, locality unknown.

**Carcharhiniformes** メジロザメ目

**Scyliorhinidae** トラザメ科

*Cephaloscyllium* Gill, 1862 ナヌカザメ属

*Cephaloscyllium umbratile* Jordan & Fowler, 1903 ナヌカザメ

**ZUMT 3483**: 4 specimens, ca. 160 mm TL, Tokyo, local name Nanuka “ナヌカ”.

**ZUMT 13324\***: 444 mm TL, female, Akita Pref., S. Tanabe (田辺貞夫).

**ZUMT 31520\*** (cloth tag of 247): 554 mm TL, female, Matsue, Shimane Pref., Feb. 1936, R. Yanai.

*Scyliorhinus* Blainville, 1816 トラザメ属

*Scyliorhinus torazame* (Tanaka, 1908)トラザメ

**ZUMT 3444**: 60 mm TL, 4 egg capsules, Tokyo Market.

**ZUMT 4770**: 60 mm TL, 4 egg capsules, Sagami Bay (相模湾), Jan. 1901, K. Aoki.

**ZUMT 8591**: 106 mm TL, 2 egg capsules, Tokyo Market, 20 Mar. 1919.

**ZUMT ABE 10427**: 382 mm TL, female, Kasumi (香住), Hyogo Pref.

**ZUMT 25373**: 253 mm TL, female, 200 Hiro (=ca. 360 m) south of Shima (志摩), 31 Mar. 1933, S. Yoshikane (吉兼宗一) at Aichi Prefectural Girl's Normal School (愛知県女子師範学校).

**ZUMT 26677**: 105 mm TL, egg capsule, Nagasaki, I. Kaneko.

**ZUMT 44634**: 60 mm TL, 2 egg capsules, locality unknown, I. Tomiyama.

**ZUMT 51035**: 409 mm TL, mature male, East China Sea, 16 Mar. 1960.

**ZUMT 56907**: 355 mm TL, female, East China Sea (34° 21.7' N, 129° 56.7' E), 121 m depth, off southeast of Tushima (対馬), No. 36 Tenyomaru, 10 July 1987, Y. Tominaga and M. Aizawa.

**ZUMT 56936**: 411 mm TL, mature male, East China Sea (34° 21.7' N, 129° 56.7' E), 119–122 m depth, off southeast of Tushima (対馬), 10 July 1987, No. 36 Tenyomaru, Y. Tominaga and M. Aizawa.

**ZUMT 57671**: 304 mm TL, immature male; **ZUMT 57672**: 459 mm TL, mature male; **ZUMT 57673**: 447 mm TL, mature male; **ZUMT 57674**: 252 mm TL, female; **ZUMT 57675**: 269 mm TL, female; **ZUMT 57676**: 368 mm TL, female, East China Sea (31° 30' N, 128° 03' E), 147 m depth, 14 May 1988, No. 36 Tenyomaru.

**ZUMT 64099**: locality unknown, 7 June 1919.

*Scyliorhinus* sp. トラザメ属の一種

**ZUMT 45952**: egg capsule, probably Ariake Sea, probably I. Tomiyama.

**Pentanchidae** ヘラザメ科  
**Apristurus** Garman, 1913 ヘラザメ属  
**Apristurus macrorhynchus** (Tanaka, 1909) ナガヘラザメ

**ZUMT 2153**: 436 mm TL, mature male, holotype, off Misaki (Sagami Bay), Kanagawa Pref., Japan, Apr. 1909, K. Aoki.

Remarks: ZUMT 2154, paratype, could not found.

**ZUMT 3466**: 60 mm TL, two egg capsules of ZUMT 3467.

**ZUMT 3467**: 660 mm TL, female, Tokyo Market, before 1913.

**ZUMT 5913**: 92 mm TL, female, Sea of Sagami (相模灘), K. Aoki, before 1915.

**Apristurus platyrhynchus** (Tanaka, 1909) ヘラザメ

**ZUMT 3424**: 650 mm TL, female, Tokyo Market, before 1913.

**ZUMT 64460**: 50 mm TL, two egg capsules, Tokyo Market.

**ZUMT 3464**: 70 mm TL, egg capsule, Tokyo Market.

**ZUMT 43406**: 80 mm TL, egg capsule; **ZUMT 43408**: 90 mm TL, egg capsule; **ZUMT 64105**: 60 mm TL, egg capsule, locality unknown.

**Bythaelurus** Compagno, 1988  
**Bythaelurus dawsoni** (Springer, 1971) ミナミナガサキトラザメ

**ZUMT 64101\*** (MAC 1226): 325 mm TL, immature male; **ZUMT 64102\*** (MAC 1227): 240 mm TL, female, off East of Auckland Island, New Zealand (50°22'S, 167°46'E), 340–350 m, 16 Apr. 1983, M. Aizawa.

**Galeus** Rafinesque, 1810 ヤモリザメ属  
**Galeus eastmani** (Jordan & Snyder, 1904) ヤモリザメ

**ZUMT 21103**: 357 mm TL, mature male, locality unknown, collection of A. Owston.

**ZUMT 22628**: 390 mm TL, female, Tokyo Market.

**ZUMT 64107**: 340 mm TL, mature male, locality unknown.

**Galeus longirostris** Tachikawa & Taniuchi, 1987 ハシナガヤモリザメ

**ZUMT 6395** (cloth tag of 701): 450 mm TL, female, Nagasaki Pref., Feb. 1915, I. Kaneko.

Remarks: Cloth tag of “Newly proposed Japanese name Togari-shirozame by Mr. Kaneko (トガリシロザメ 金子氏新称)”.

**Galeus nipponensis** Nakaya, 1975 ニホンヤモリザメ

**ZUMT 3465**: 586 mm TL, female, Tokyo Market.

**ZUMT 57780\***: 587 mm TL, female, Joga-shima Island (城ヶ島), Miura Peninsular (三浦半島), Kanagawa Pref., 7 July 1988, A. Itoh.

*Halaelurus* Gill, 1862 ナガサキトラザメ属  
*Halaelurus buergeri* (Müller & Henle, 1838) ナガサキトラザメ

- ZUMT 2340**: 368 mm TL, mature male, Nagasaki, 9 July 1909, probably I. Kaneko.  
**ZUMT 6391**: 439 mm TL, female; **ZUMT 6649**: 397 mm TL, female; **ZUMT 7311**: 450 mm TL, female;  
**ZUMT 7312**: 451 mm TL, female, Nagasaki, I. Kaneko.  
**ZUMT 6545**: 426 mm TL, female; **ZUMT 6546**: 417 mm TL, female; **ZUMT 6547**: 440 mm TL, female;  
Nagasaki, before 1915, probably I. Kaneko.  
**ZUMT 6647**: 425 mm TL, mature male, Nagasaki, I. Kaneko, dissected by Dr. White.  
**ZUMT 15114**: 474 mm TL, female; **ZUMT 15229\***: 485 mm TL, female, Okinawa, 1920's, S. Sakaguchi at  
Okinawa Prefectural No. 1 Junior High School.  
**ZUMT 50454**: 410 mm TL, immature male, Miuracho (三浦), Sasebo (佐世保), Nagasaki Pref., purchased at  
Sasebo Fish Market (佐世保魚市場), 30 Oct. 1953, I. Tomiyama.  
**ZUMT 50990**: 402 mm TL, female, East China Sea, Sept 1959 to Feb. 1960.  
**ZUMT 51050**: 390 mm TL, female, East China Sea, late 1959 to early 1960.  
**ZUMT 52377**: 388 mm TL, mature male, East China Sea (KH 68-2, T 11), *M. S. Hakuho*, 6 May 1968.  
**ZUMT 64106**: 446 mm TL, female, Nagasaki.

**Proscylliidae** タイワンザメ科  
*Proscyllium* Hilgendorf, 1904 タイワンザメ属  
*Proscyllium habereri* Hilgendorf, 1904 タイワンザメ

- ZUMT 24102**: 350 mm TL, female; **ZUMT 24103**: 365 mm TL, immature male; **ZUMT 24104**: 385 mm TL,  
immature male, Naya (納屋) [currently Nakamachi and Kinsei-cho (中町・金生町)], Kagoshima Pref.  
Remarks: Local name “Toranokuri (トラノクリ)”.  
**ZUMT 24242**: 322 mm TL, female, Mimase (御豊瀬), Kochi, Kochi Pref., 15 Jan. 1930, T. Kamohara.  
**ZUMT 63869\***: 584 mm TL, female; **ZUMT 63870\***: 549 mm TL, female, Kansai (関西), purchased at Tokyo  
Market (東京市場).  
Remarks: Probably collected at East China Sea.

*Proscyllium venustum* (Tanaka, 1912) ヒョウザメ

- ZUMT 14499\***: 3 specimens, 569–580 mm TL, females, Ryukyu Archipelago, 24 Mar. 1925, S. Sakaguchi at  
Okinawa Prefectural No. 1 Junior High School.  
**ZUMT 31594\*** (tag no. 26): 479 mm TL, female, Kagoshima?, received Mar. 1936, Y. Miyoshi (三好保徳) at  
Yawatahama Women's High School, Ehime Pref. (愛媛県八幡浜高等女学校).  
Remarks: The locality is doubtful.  
**ZUMT 63868\***: 544 mm TL, female, locality unknown.

**Triakididae** ドチザメ科  
*Hemitriakis* Herre, 1923 エイラクブカ属  
*Hemitriakis complicofasciata* Takahashi & Nakaya, 2004 イレズミエイラクブカ

- ZUMT 40440**: 2 specimens, 192 mm TL, female, 183 mm TL, immature male, Ryukyu Archipelago, 21 May  
1921, S. Sakaguchi.  
**ZUMT 48913**: 112 mm TL, immature male; **ZUMT 48914**: 112 mm TL, immature male, locality unknown  
(probably from Southeast Asia), Apr. 1956, Z. Maekawa (前川善四郎) and T. Suzuki (鈴木貞次郎).

**ZUMT 64114**: 212 mm TL, female (umbilical cord present); **ZUMT 64103**: 207 mm TL, female; **ZUMT 64104**: 195 mm TL, immature male, locality unknown.

*Hemitriakis japonica* (Müller & Henle, 1839) エイラブカ

- ZUMT 16045**: immature male, probably Fukui Pref., 29 Jan. 1921, Fukui Prefectural Fisheries Research Station (福井県水産試験場), coll. by Teguri Net (手繰り).  
**ZUMT 44165**: 384 mm TL, immature male, probably Uozu, Toyama Pref., Toyama Prefectural Fisheries Research Station Uozu (富山県魚津水産講習所).  
**ZUMT 47977\***: 528 mm TL, immature male, Miuracho, Sasebo, Nagasaki Pref., Sasebo Fish Market, 30 Oct. 1953, I. Tomiyama.  
**ZUMT 55834\***: 494 mm TL, female, Maizuru (舞鶴), Kyoto Pref., purchased at Maizuru Fish Market (舞鶴魚市場), 3 Nov. 1986.  
**ZUMT 64133\*** (cloth tag 64): 368 mm TL, immature male, Ise Bay (伊勢湾), Mie Pref.  
**ZUMT ABE 10764\***: 1133 mm TL, immature male, Izu-oshima Island (伊豆大島), 29 June 1953.

*Mustelus* Linck, 1790 ホシザメ属

*Mustelus griseus* Pietschmann, 1908 シロザメ

- ZUMT 2344**: 292 mm TL, female, Nagasaki, 3 July 1909, I. Kaneko.  
Remarks: Local name “Noso (ノソー)”.  
**ZUMT 6732**: 416 mm TL, female, Tokyo.  
**ZUMT 23892**: 318 mm TL, immature male, Taniyama (谷山), Kagoshima Pref.  
Remarks: Local name “Nokuri (ノクリ)”.  
**ZUMT 26344\***: 648 mm TL, mature male, probably Tokyo Market.  
**ZUMT 45927**: 334 mm TL, immature male; **ZUMT 45928**: 327 mm TL, immature male; **ZUMT 45937**: 325 mm TL, immature male; **ZUMT 45938**: 322 mm TL, immature male; **ZUMT 45939**: 333 mm TL, immature male, probably Ariake Sea, probably I. Tomiyama.  
**ZUMT 46647\*** (cloth tag 89): 601 mm TL, female, probably Namerikawa (滑川), Uozu, Toyama Pref., probably I. Tomiyama.  
**ZUMT 48136**: 292 mm TL, immature male, Fukue (福江), Fukue-jima Island (福江島), Goto Islands (五島列島), 20, 21 or 25 May 1953, I. Tomiyama (富山一郎).  
**ZUMT 50072**: 358 mm TL, female, Tamanoura (玉之浦), Fukue-jima Island, Goto Islands, 14 Oct. 1953, I. Tomiyama.  
**ZUMT 50559\***: 590 mm TL, mature male, East China Sea, 28 July 1959, Y. Tominaga.  
**ZUMT 63865\*** (cloth tag 88): 629 mm TL, female, probably Namerikawa, Uozu, Toyama Pref., probably I. Tomiyama.  
**ZUMT 64108**: 325 mm TL, immature male, locality unknown.

*Mustelus manazo* Bleeker, 1855 ホシザメ

- ZUMT 4789**: 7 specimens, 166 mm TL, female; 279 mm TL, immature male; 181 mm TL, immature male; 182 mm TL, immature male; 172 mm TL, immature male; 229 mm TL, immature male; 279 mm TL, female, Misaki, Soshu (相州: presently Kanagawa Pref.).  
**ZUMT 6730**: 332 mm TL, female; **ZUMT 6731**: 340, immature male, Tokyo Market.  
**ZUMT 11534\***: 604 mm TL, immature male, 20 hiro off Toyoma (豊間), Fukushima Pref., 16 Nov. 1922, T. Nakahira (中平貞次郎)(Fukushima Prefectural Fisheries Station at Onahama).  
**ZUMT 13095**: 302 mm TL, female, Shirahamazaki (白浜崎), Miyako Bay (宮古湾), Iwate Pref., K. Tanabe.



Remarks: Local name “Kozame (コザメ)”.

**ZUMT 23416** (cloth tag 75): 388 mm TL, immature male, Owase (尾鷲), Mie Pref., K. Nakahara (中原鋼作) at Owase Women's High School, Mie Pref. (三重県尾鷲高等女学校).

**ZUMT 23891**: 400 mm TL, female, Taniyama, Kagoshima Pref.

Remarks: Local name “Nokuri (ノクリ)”.

**ZUMT 23913**: 381 mm TL, female, Naya, Kagoshima Pref.

Remarks: Local name “Manokuri (マノクリ)”.

**ZUMT 26937**: 155 mm TL, female, Kagoshima Pref., 31 Aug. 1934.

**ZUMT 31300** (cloth tag 45): 372 mm TL, immature male; **ZUMT 31328\*** (cloth tag 116): 641 mm TL, female, separated to head and trunk, Matsue, R. Yanai at Matsue High School.

**ZUMT 32824**: 280 mm TL, female; **ZUMT 32826**: 27 specimens, ca. 95 mm TL, probably Tokyo Market.

**ZUMT 36423**: 312 mm TL, immature male, Hayama, Kanagawa Pref., Aug. 1936, S. Inuo.

**ZUMT 40419**: 176 mm TL, female; **ZUMT 40420**: 168 mm TL, female, Ryukyu Archipelago, 20 May 1921, S. Sakaguchi.

**ZUMT 45926**: 321 mm TL, female, probably Ariake Sea, probably I. Tomiyama.

**ZUMT 47976\***: 522 mm TL, immature male, Miuracho, Sasebo, Nagasaki Pref., Sasebo Fish Market, 30 Oct. 1953, I. Tomiyama.

**ZUMT 49904**: 330 mm TL, immature male; **ZUMT 49923**: 231 mm TL, female (placental scar); **ZUMT 49959**: 276 mm TL, immature male, Fukue, Fukue-jima Island, Goto Islands, 10 June 1953, I. Tomiyama.

**ZUMT 51290\***: 511 mm TL, female, East China Sea, 24 Dec. 1959, Y. Tominaga, collected by No. 51 and 52 Tenyomaru.

**ZUMT 63864\*** (cloth tag 181): 489 mm TL, immature male; **ZUMT 63866\*** (cloth tag 181): 503 mm TL, female, Tsugaru Straits (津軽海峡), Feb. 1928.

**ZUMT 64113**: 350 mm TL, immature male; **ZUMT 64125**: 180 mm TL, immature male embryo, locality unknown.

**ZUMT 64122**: 364 mm TL, Fukuoka, 27 Aug. 1931.

Remarks: Local name “Modama (モダマ)”.

**ZUMT 13226\*** (cloth tag 14): 460 mm TL, immature male, Samemura Beach (鮫村海岸), Aomori Pref., 23 Oct. 1923, K. Tanabe.

Remarks: Local name “Kanokozame (カノコザメ)”.

**ZUMT 19448–19950\*** (separated to head, trunk, and tail): 830 mm TL, female; **ZUMT 19451–19453\*** (separated to head, trunk, and tail): 840 mm TL, female, locality unknown.

**ZUMT ABE 10428\*** (cloth tag 19): 560 mm TL, female, Kasumi, Hyogo Pref.

*Triakis* Müller & Henle, 1838 ドチザメ属  
*Triakis scyllium* Müller & Henle, 1839 ドチザメ

**ZUMT 3091**: 2 specimens, 170 mm TL, female, Nagasaki Pref., I. Kaneko.

Remarks: Local name “Tessenbuka (テッセンブカ)”.

**ZUMT 5077**: 186 mm TL, immature male, Omura Bay (大村湾), Nagasaki Pref., T. Chiba (千葉継三郎).

**ZUMT 18098\***: 497 mm TL, immature male, Ariake Sea, Fukuoka, Fukuoka Prefectural Fisheries Research Station.

Remarks: Local name “Torabuka (トラブカ)”.

**ZUMT 20442**: 243 mm TL, female; **ZUMT 20443**: 235 mm TL, female; **ZUMT 20444**: 234 mm TL, immature male; **ZUMT 20445**: 225 mm TL, immature male; **ZUMT 20994**: 319 mm TL, female, Tokyo Market.

**ZUMT 23671**: 421 mm TL, female, Misaki, Kanagawa Pref., May 1931.

**ZUMT 25577\***: 551 mm TL, immature male; **ZUMT 25579\***: 426 mm TL, female; **ZUMT 25581**: 450 mm TL, female, Onahama, Fukuoka Pref., 20 Apr. 1933, H. Tsunoda, Fukushima Prefectural Onahama Elementary School (福島県立小名濱小学校).

Remarks: Local name “Doji or Dojibo (ドヂ、ドヂボ)”.

**ZUMT 27068**: 205 mm TL, immature male, Yamaguchi Pref., 7 June 1934, S. Nagatomi (永富三治) at Yamaguchi Prefectural Sue Elementary School (山口県須恵小学校).  
**ZUMT 31508\*** (cloth tag 161): 345 mm TL, Matsue, Shimane Pref., Nov. 1935, T. Yanai, Matsue High School.  
**ZUMT 45923**: 250 mm TL, immature male; **ZUMT 45924**: 222 mm TL, immature male; **ZUMT 45925**: 236 mm TL, immature male; **ZUMT 45940**: 235 mm TL, female, probably Ariake Sea, probably I. Tomiyama.  
**ZUMT 47825\*** 608 mm TL, immature male, Manazuru (真鶴), Kanagawa Pref., 1952, coll. by set net.  
**ZUMT 49157**: 221 mm TL, female, Misaki, Kanagawa Pref., 1956, I. Tomiyama.  
**ZUMT 51248\*** 497mm TL, female, East China Sea, 24 Dec. 1959, Y. Tominaga, collected by No. 51 and 52 Tenyomaru.  
**ZUMT 63108**: 281 mm TL, female; **ZUMT 63867\*** 590 mm TL, immature male; **ZUMT 64123**: 6 embryo specimens (4 females and 2 immature males), ca. 190 mm TL; **ZUMT 64142**: 5 embryo specimens, ca. 175 mm TL, locality unknown.

**Carcharhinidae** メジロザメ科

*Carcharhinus* Blainville, 1816 メジロザメ属

*Carcharhinus brevipinna* (Valenciennes, 1839) ハナザメ

**ZUMT 26871**: 247 mm TL, immature male embryo, Kagoshima.  
**ZUMT 63871\***: 653 mm TL, female, locality unknown, 4 Oct. 1930.  
**ZUMT 63873\***: 635 mm TL, immature male; **ZUMT 63874\***: 544 mm TL, female; **ZUMT 63875\***: 595 mm TL, female; **ZUMT 63876\***: 642 mm TL, immature male, locality unknown.

*Carcharhinus falciformis* (Bibron, 1839) クロトガリザメ

**ZUMT 63878\***: 981 mm TL, female, off Hawaiian Islands (13° 41' N, 161° 24' W), 20 Feb. 1987, donated by Mr. Kamogawa to K. Sakamoto.

*Carcharhinus galapagensis* (Snodgrass & Heller, 1905) ガラパゴスザメ

**ZUMT 64458\***: 727 mm TL, immature male embryo, Ogasawara Islands, Mar. 1913, S. Fujimori (藤森三郎).

*Carcharhinus leucas* (Valenciennes, 1839) オオメジロザメ

**ZUMT 47030**: 331 mm TL, female embryo, probably Kochi Pref.  
**ZUMT 48385**: 161 mm TL, immature male embryo; **ZUMT 48386**: 168 mm TL, female embryo; **ZUMT 48387**: 160 mm TL, female embryo; **ZUMT 48388**: 151 mm TL, immature male embryo; **ZUMT 48389**: 152 mm TL, immature male embryo; **ZUMT 48390**: 75 mm TL, female embryo; **ZUMT 48391**: 75 mm TL, immature male embryo; **ZUMT 48392**: 71 mm TL, female embryo; **ZUMT 48393**: 66 mm TL, immature male embryo; **ZUMT 48394**: 62 mm TL, female embryo; **ZUMT 48395**: 64 mm TL, female embryo; **ZUMT 48396**: 60 mm TL, female embryo; **ZUMT 48397**: 61 mm TL, female embryo, off south Hawaiian Islands, 30 Aug. 1955, M. Shinohara (篠原 勝) boarded on training vessel of Toyama Prefectural Fisheries Highschool (富山県立水産高等学校練習船).  
**ZUMT 49064**: 395 mm TL, immature male embryo; **ZUMT 49065**: 405 mm TL, female embryo, locality unknown, 25 Feb. 1955, M. Shinohara boarded on No. 11 Fukuyoshi-maru (第11福吉丸).  
**ZUMT 63872\***: 545 mm TL, female embryo, locality unknown.

*Carcharhinus longimanus* (Poey, 1861) ヨゴレ

- ZUMT 48382\***: 614 mm TL, female; **ZUMT 48383\***: 816 mm TL, female, off south of Hawaiian Islands, 30 Aug. 1955, M. Shinohara boarded on training vessel of Toyama Prefectural Fisheries Highschool.  
**ZUMT 48597\***: 590 mm TL, immature male, Indian Ocean, 25 Mar. 1956, Z. Maekawa (前川善四郎) and T. Suzuki (鈴木貞次郎).  
**ZUMT 49063\***: 432 mm TL, immature male, locality unknown, 25 Feb. 1955, M. Shinohara boarded on No. 11 Fukuyoshi-maru.

*Carcharhinus melanopterus* (Quoy & Gaimard, 1824) ツマグロ

- ZUMT 42365\***: 705 mm TL, female, Basilan Island, Philippines, 1926, U. Yamamura (山村樸次郎).  
**ZUMT ABE 2810\***: 610 mm TL, immature male; **ZUMT ABE 2811\***: 494 mm TL, immature male; **ZUMT ABE 2860\***: 541 mm TL, immature male; **ZUMT ABE 3850\***: 507 mm TL, female, Palau, 1936–1937, T. Abe.

*Carcharhinus plumbeus* (Nardo, 1827) メジロザメ

- ZUMT 7217**: 449 mm TL, female embryo, Nagasaki, before 1929, I. Kaneko (金子一狼), local name “Yaheji (ヤヘジ)”.  
**ZUMT 64128**: 362 mm TL, female embryo, locality unknown.

*Carcharhinus tjutjot* (Bleeker, 1852) スミツキザメ

- ZUMT 14982\***: 466 mm TL, female, near Tainan (台南), Taiwan.

*Carcharhinus* sp. メジロザメ属の一種

- ZUMT 20334**: 142 mm TL, male embryo, Kishu-Tanabe (紀州田辺), Sept. 1921, N. Ui (宇井縫蔵).  
**ZUMT 31509** (cloth tag 254): 286 mm HL, head only, Matsue, Shimane Pref., Nov., R. Yanai at Matsue High School.  
**ZUMT 42366**: 501 mm TL, female embryo, Basilan Island, Philippines, 1926, U. Yamamura.

*Galeocerdo* Müller & Henle, 1837 イタチザメ属  
*Galeocerdo cuvier* (Péron & Lesueur, 1822) イタチザメ

- ZUMT 63880\***: 278 mm HL, locality unknown.

*Loxodon* Müller & Henle, 1838  
*Loxodon macrorhinus* Müller & Henle, 1839

- ZUMT 64127**: 363 mm TL, immature male, locality unknown.

*Prionace* Cantor, 1849 ヨシキリザメ属  
*Prionace glauca* (Linnaeus, 1758) ヨシキリザメ

- ZUMT 9831**: vertebra, locality unknown.  
**ZUMT 9867**: 252 mm TL, male embryo, Japan, purchased from Kono (河野), Yamaguchi Pref., collected by Y. Yamatori (山鳥吉五郎) at 兵庫県御影師範学校 (Hyogo Prefectural Mikage High School).  
**ZUMT 20985**: 412 mm TL, female embryo; **ZUMT 20986**: 419 mm TL, male embryo; **ZUMT 20993**: 414 mm TL, female embryo, Tokyo Market.  
**ZUMT 23411**: 326 mm TL, female embryo, Owase (尾鷲), Mie Pref., K. Nakahara (中原鋼作) at Owase Women's High School, Mie Pref. (三重県尾鷲高等女学校).  
**ZUMT 48911**: 340 mm TL, female embryo; **ZUMT 48912**: 322 mm TL, male embryo, locality unknown, Apr. 1956, Z. Maekawa and T. Suzuki.  
**ZUMT 49090**: 223 mm TL, male embryo; **ZUMT 49091**: 217 mm TL, female embryo; **ZUMT 49092**: 215 mm TL, male embryo, Fordata Island (written as Vordate Island), Tanimbar Islands, 31 Nov. 1955, Z. Maekawa and T. Suzuki.  
**ZUMT 64198**: 365 mm TL, female, deformity of single eye at middle of body (Fig. 1), locality unknown.

*Rhizoprionodon* Whitley, 1929 ヒラガシラ属  
*Rhizoprionodon acutus* (Rüppell, 1837) ヒラガシラ

- ZUMT 41635**: 133 mm TL, immature male, Nagasaki, May 1918, I. Kaneko.  
**ZUMT 50557**: 371 mm TL, immature male; **ZUMT 50560\***: 591 mm TL, immature male, East China Sea, 28 July 1959, Y. Tominaga (富永義昭).  
**ZUMT 13988\***: 540 mm TL, female, Okinawa Island, 1920's, S. Sakaguchi at Okinawa Prefectural No. 1 Junior High School.

*Scoliodon* Müller & Henle, 1837 トガリアンコウザメ属  
*Scoliodon laticaudus* Müller & Henle, 1838 トガリアンコウザメ

- ZUMT 15159**: 372 mm TL, immature male; **ZUMT 15166**: 386 mm TL, immature male, probably Okinawa-jima Island, 1920's, S. Sakaguchi at Okinawa Prefectural No. 1 Junior High School.  
**ZUMT 54556**: 322 mm TL, female; **ZUMT 54557**: 323 mm TL, female, Norin-kaiku 352 (農林 352 区), East China Sea (34° 15'N, 122° 15'E), 25 m depth, 12 Oct. 1984, F/V No. 8 Ten-yo-maru (第 8 天洋丸), M. Aizawa.

*Sphyrnidae* シュモクザメ科  
*Sphyrna* Rafinesque, 1810 シュモクザメ属  
*Sphyrna lewini* (Griffith & Smith, 1834) アカシュモクザメ

- ZUMT 19392\***: 487 mm TL, immature male, Hachijo-jima Island (八丈島), probably 1929, Y. Oshizu (押津義雄).  
**ZUMT 40374**: 405 mm TL, immature male, probably Kagoshima, received in June 1938, K. Ogawa (小川一男) at 鹿児島女子師範学校 (Women's School, Kagoshima Prefecture).  
**ZUMT 45929\***: 504 mm TL, female, probably Ariake Sea, probably I. Tomiyama.  
**ZUMT 50558\***: 477 mm TL, female, East China Sea, 28 July 1959, Y. Tominaga.

*Sphyrna zygaena* (Linnaeus, 1758) シロシユモクザメ

ZUMT 57784\*: 616 mm TL, female, off Inamuragasaki (稲村ヶ崎沖), Kanagawa Pref., 3 Aug. 1988, A. Itoh.

**Chlamydoselachiformes** ラブカ目

**Chlamydoselachidae** ラブカ科

*Chlamydoselachus* Garman, 1884 ラブカ属

*Chlamydoselachus anguineus* Garman, 1884 ラブカ

ZUMT 32829: 144 mm TL, immature male; ZUMT 32830: 137 mm TL, female, probably Tokyo market.

ZUMT 43396: 188 mm TL, female, ZUMT 43397: 132 mm TL, female, Tokyo Market, provided by donated from Yamakoshi Kosakusyo (山越工作所).

ZUMT 62770: 4 specimens (york-sac cut off), 77.6 mm TL, female embryo, 95.3 mm TL, immature male embryo, 128.9 mm TL, female embryo, 115.1 mm TL, immature male embryo, probably Misaki, Kanagawa Pref., 1912, donated by K. Aoki (青木熊吉) to I. Iijima (飯島 魁).

ZUMT 63847\*: 850 mm TL, immature male; ZUMT 63848\*: tail only (463 mm); ZUMT 63857\*: 204 mm HL, head only; ZUMT 63858\*: 185 mm HL, head only, locality unknown.

**Hexanchiformes** カグラザメ目

**Hexanchidae** カグラザメ科

*Heptranchias* Rafinesque, 1810 エドアブラザメ属

*Heptranchias perlo* (Bonnaterre, 1788) エドアブラザメ

ZUMT 50439\*: 647 mm TL, female; ZUMT 50440\*: 603 mm TL, female, Sasebo Fish Market (佐世保魚市場), Miuracho (三浦町), Sasebo (佐世保), Nagasaki Pref., 30 Oct. 1953, I. Tomiyama.

ZUMT 63849\*: 1080 mm TL, female; ZUMT 63850\*: 952 mm TL, female, locality unknown.

*Hexanchus* Rafinesque 1810 カグラザメ属

*Hexanchus griseus* (Bonnaterre, 1788) カグラザメ

ZUMT 4711: 264 mm TL, female, Tokyo Market,

**Notorynchidae** エビスザメ科

*Notorynchus* Ayres, 1855

*Notorynchus cepedianus* (Péron, 1807) エビスザメ

ZUMT 46082: 412 mm TL, female, probably Tosa (Kochi Pref.), preserved with ZUMT 24590.

ZUMT 63900: 541 mm TL, female, locality unknown.

**Squaliformes** ツノザメ目

**Echinorhinidae** キクザメ科

*Echinorhinus* Blainville, 1816 キクザメ属

*Echinorhinus cookei* Pietschmann, 1928 コギクザメ

ZUMT 48355: jaws and skin only, Tokyo Market, 4 Nov. 1954, T. Abe.

**Etmopteridae** カラスザメ  
*Centroscyllium* Müller & Henle, 1841 カスミザメ属  
*Centroscyllium ritteri* Jordan & Fowler, 1903 カスミザメ

**ZUMT 21101** (O.C. 6215, Owston Collection): 440 mm TL, female, Misaki, Kanagawa Pref., 28 Dec. 1900.  
**ZUMT 31669**: 406 mm TL, female, Kuji (久慈), Ibaraki Pref., June 1935, K. Tashiro (田代清友), local name “Fujikujira (フジクジラ)”

*Etmopterus* Rafinesque, 1810 カラスザメ属  
*Etmopterus brachyurus* Smith & Radcliffe, 1912 ホソフジクジラ

**ZUMT 57775**: 401 mm TL, female; **ZUMT 57776**: 371 mm TL, female, near Okinoayama (沖ノ山周辺), off Joga-shima Island (城ヶ島沖), 200–400 m depth, 8 Sept. 1988, A. Itoh, bottom long line (底延縄).  
**ZUMT 64145**: 361 mm TL, mature male; **ZUMT 64146**: 318 mm TL, female; **ZUMT 64147**: 340 mm TL, mature male; **ZUMT 64148**: 368 mm TL, mature male, Izu.

*Etmopterus lucifer* Jordan & Snyder, 1902 フジクジラ

**ZUMT 39265**: 272 mm TL, immature male, Hirota (広田村), Kesen-gun (気仙郡), Iwate Pref., donated by R. Chiba (千葉蘭児).

*Etmopterus molleri* (Whitley, 1939) ヒレタカフジクジラ

**ZUMT 2718**: 4 specimens, 97–110 mm TL (1 male and 3 females), Nagasaki, Apr. 1910, Nagasaki Prefecture Normal School (長崎師範学校).

Remarks: ZUMT 2717 which the same species was dismissed for corruption.

**ZUMT 4487**: 254 mm TL, immature male, Tokyo Market.

**ZUMT 13858**: 267 mm TL, female, Kesen (気仙), Iwate Pref., 7 Jan. 1926, G. Toba (鳥羽源蔵) at Iwate Prefecture Normal School (岩手師範学校).

**ZUMT 34645**: 246 mm TL, female; **ZUMT 34646**: 178 mm TL, female; **ZUMT 34647**: 175 mm TL, female, Kochi Pref., T. Kamohara at Kochi High School.

**ZUMT 55165**: 201 mm TL, immature male; **ZUMT 55166**: 181 mm TL, female; **ZUMT 55167**: 186 mm TL, immature male; **ZUMT 55168**: 167 mm TL, female; **ZUMT 55169**: 192 mm TL, female; **ZUMT 55170**: 169 mm TL, female; **ZUMT 55171**: 159 mm TL, female; **ZUMT 55172**: 162 mm TL, female; **ZUMT 55173**: 190 mm TL, mature male; **ZUMT 55174**: 132 mm TL, female; **ZUMT 55175**: 187 mm TL, mature male; **ZUMT 55176**: 180 mm TL, female; **ZUMT 55177**: 171 mm TL, female, off Kunozan (久能山沖), Suruga Bay (駿河湾), 9 Nov. 1983, M. Aizawa.

**ZUMT 64118**: 286 mm TL, mature male, Misaki, Kanagawa Pref., H. Oshima (大島 広).

Remarks: Separated from ZUMT 4766 *Etmopterus pusillus* (Lowe, 1839).

*Etmopterus pusillus* (Lowe, 1839) カラスザメ

**ZUMT 3162** [sketch no. 56 (写生第五十六号)]: 158 mm TL, female, Misaki, Kanagawa Pref., H. Oshima.

Remarks: Present specimen illustrated and described by Tanaka (1911).

**ZUMT 4766**: 231 mm TL, mature male; 186 mm TL; 182 mm TL, female; 219 mm TL, immature male; 184 mm TL, immature male; 188 mm TL, immature male; 242 mm TL, female; 175 mm TL, female; 182 mm TL, immature male; 179 mm TL, female, Misaki, Kanagawa Pref., H. Oshima.

**ZUMT 6877:** 271 mm TL, female, Tokyo.

**ZUMT 11347:** 398 mm TL, female, 100 hiro (ca. 180 m) off Horobetsu (幌別沖), 13 Nov. 1922, M. Tsuda (津田美津彦) at Hokkaido Fishery Station Muroran Branch (北海道水産試験場室蘭支場), cod longline (鱈延縄), local name “Budo-zame (ブドウザメ)” or “Neko-zame (ネコザメ)”.

**ZUMT 13860:** 365 mm TL, mature male, Kesen, Iwate Pref., 7 Jan. 1926, G. Toba at Iwate Prefecture Normal School.

**ZUMT 53480:** 162 mm TL, female; **ZUMT 53482:** 166 mm TL, mature male, locality unknown, T. Sato (佐藤寅夫).

Remarks: The specimen supposedly collected from Ishigaki-jima Island (based on the ZUMT specimen ledger) was included in a series with specimens of *Sardinops melanostictus* (Temminck & Schlegel, 1846) (Dorosomatidae) (ZUMT 53211) and *Pempheris japonica* Döderlein, 1883 (Pempheridae) (ZUMT 53349). Therefore the locality is doubtful.

**ZUMT 57774:** 195 mm TL, female, off Joga-shima Island, 7 July 1988, A. Itoh.

**ZUMT 57777:** 310 mm TL, immature male; **ZUMT 57778:** 242 mm TL, immature male, near Okinoayama, off Joga-shima Island, 200–400 m depth, 8 Sept. 1988, A. Itoh, bottom long line.

**ZUMT 64150:** 151 mm TL, female; **ZUMT 64151:** 140 mm TL, immature male, locality unknown, 20 July 1908.

*Etmopterus unicolor* (Engelhardt, 1912) ニセカラスザメ

**ZUMT 14384:** 142 mm TL, female, Kuji, Ibaraki Pref.

**ZUMT 40270:** 163 mm TL, female, Choshi Fish Market (銚子魚市場), Choshi, Chiba Pref., 20 Nov. 1934, Y. Haneda (羽根田彌太).

**ZUMT 64143:** 142 mm TL, female; **ZUMT 64144:** 231 mm TL, female; **ZUMT 64184:** 477 mm TL, mature male, locality unknown.

**Somniosidae** オンデンザメ科

*Centroscymnus* Barbosa du Bocage & de Brito Capello, 1864 ユメザメ属

*Centroscymnus owstonii* Garman, 1906 ユメザメ

**ZUMT 4749:** 276 mm TL, immature male, Tokyo.

**ZUMT 64185:** 540 mm TL, female; **ZUMT 64186:** 452 mm TL, male; **ZUMT 64187:** 499 mm TL, female, locality unknown.

*Scymnodon* Barbosa du Bocage & de Brito Capello, 1864 ビロウドザメ属

*Scymnodon ichiharai* Yano & Tanaka, 1984 イチハラビロウドザメ

**ZUMT ABE 57-3\*:** 735 mm TL, male; **ZUMT ABE 57-4\*:** 676 mm TL, male, locality unknown.

*Somniosus* Lesueur, 1818 オンデンザメ属

*Somniosus (Rhinoscymnus) longus* (Tanaka, 1912) カエルザメ

**ZUMT 63881\*:** 1330 mm TL, head, fins, and vertebrae only, locality unknown,

**Oxynotidae** オロシザメ科  
*Oxynotus* Rafinesque, 1810 オロシザメ属  
*Oxynotus bruniensis* (Ogilby, 1893) ミナミオロシザメ

ZUMT 64193: 382 mm TL, New Zealand, M. Aizawa.

**Dalatiidae** ヨロイザメ科  
*Dalatias* Rafinesque, 1810 ヨロイザメ属  
*Dalatias licha* (Bonnaterre, 1788) ヨロイザメ

ZUMT 21102: 379 mm TL, immature male, off 400 hiro (ca. 731 m) of Atami (熱海沖), Shizuoka Pref., 24 June 1906, K. Aoki.

ZUMT 63892: 443 mm TL, female, locality unknown.

**Centrophoridae** アイザメ科  
*Centrophorus* Müller & Henle, 1837 アイザメ属  
*Centrophorus atromarginatus* Garman, 1913 アイザメ

ZUMT 2764\*: 662 mm TL, female, Nagasaki, 1910's, Nagasaki Prefecture Normal School.

ZUMT 26346: 436 mm TL, immature male, probably Tokyo Market.

*Centrophorus squamosus* (Bonnaterre, 1788) モミジザメ

ZUMT 12349\*: 1420 mm TL, female, body skin and head only, holotype of *Lepidorhinus kinbei* Tanaka, 1918 “Kinbezame (キンベエザメ)”, Tokyo Market (Sagami Bay?).

Remarks: *Lepidorhinus kinbei* Tanaka, 1918 is currently recognized as a junior synonym of *Centrophorus squamosus* (Bonnaterre, 1788).

ZUMT 46645: 445 mm TL, female, Tokyo Market, S. Tanaka.

ZUMT 64182: 416 mm TL, immature male; ZUMT 64183: 432 mm TL, immature male, locality unknown.

*Centrophorus tessellatus* Garman, 1906 ゲンロクザメ

ZUMT 46634 [sketch no. 217 (写生第 217 号)]: 500 mm TL, immature male, Tokyo Market, 7 Mar. 1911, S. Tanaka.

Remarks: A cloth tag of “A species of shark, Shiro-aizame” (サメ一種 シロアイザメ).

ZUMT 46635: 549 mm TL, immature male, Tokyo Market, 7 Mar. 1911, S. Tanaka.

Remarks: A cloth tag of “Aizame, 44” (アイザメ、44).

ZUMT 46644: 438 mm TL, female, S. Tanaka, donated by Yamagoe Works (山越工作所).

Remarks: A cloth tag of “one of ten, Asagi (Aizame)” [十個のうち、アサギ (アイザメ)].

**Squalidae** ツノザメ科  
*Cirrhigaleus* Tanaka, 1912 ヒゲツノザメ属  
*Cirrhigaleus barbifer* Tanaka, 1912 ヒゲツノザメ

ZUMT ABE 10172: 230 mm TL, Misaki, Kanagawa Pref., 16 Feb. 1955.



*Squalus* Linnaeus, 1758 ツノザメ属  
*Squalus brevirostris* Tanaka, 1917 ツマリツノザメ

**ZUMT 3715**: 415 mm TL, immature male, Shimonoseki, Yamaguchi Pref. (purchased at Tokyo Market), 17 Dec. 1913.

Remarks: Labelled as “Tokyo Market Bakan (東京市場馬関)”. Bakan is an old name of Shimonoseki (下関).

**ZUMT 6047\***: 495 mm TL, mature male, paratype of *Squalus brevirostris* Tanaka, 1917 “Tsumari-aizame (ツマリアイザメ)”; **ZUMT 6048\***: 568 mm TL, mature male, paratype of *S. brevirostris*, Atsuta (熱田), Nagoya (名古屋), Aichi Pref., 1 May 1915.

**ZUMT 7630\***: 422 mm TL, mature male, paratype of *S. brevirostris*, Shimonoseki, Yamaguchi Pref. (purchased at Tokyo Market).

Remarks: Labelled as “Tokyo Market Bakan”.

**ZUMT 64154**: 217 mm TL, female (umbilical cord present), locality unknown.

*Squalus japonicus* Ishikawa, 1908 トガリツノザメ

**ZUMT 7308**: 375 mm TL, female, Nagasaki, April, probably 1920's, I. Kaneko.

**ZUMT 13996**: 329 mm TL, female, probably Okinawa, S. Sakaguchi at Okinawa Prefectural No. 1 Junior High School.

*Squalus mitsukurii* Jordan & Snyder, 1903 フトツノザメ

**ZUMT 6181**: 461 mm TL, female, Hachinohe (八戸), Aomori Pref., Aomori Prefectural Hachinohe Junior High School.

**ZUMT 10790**: 475 mm TL, immature male, Kushiro (釧路), Hokkaido, M. Akiyoshi (秋谷六三) at Kushiro Fishery Station (釧路水産試験場).

**ZUMT 14394**: 405 mm TL, immature male, Kuji, Ibaraki Pref.

**ZUMT 15107**: 277 mm TL, female, probably Okinawa, S. Sakaguchi at Okinawa Prefectural No. 1 Junior High School.

**ZUMT 15970**: 491 mm TL, immature male, Fukui Pref., Fukui Prefectural Fisheries Research Station.

**ZUMT 31217**: 368 mm TL, immature male, Matsue, R. Yanai at Matsue High School.

**ZUMT 31586**: 440 mm TL, mature male, Kagoshima?, received Mar. 1936, Y. Miyoshi at Yawatahama Women's High School, Ehime Pref.

**ZUMT 32825**: 281 mm TL, immature male (umbilical cord mark present), Tokyo Market?.

**ZUMT 46636**: 470 mm TL, female, Tokyo Market, 7 Mar. 1911, S. Tanaka.

**ZUMT 46646**: 506 mm TL, female, Tokyo Market, S. Tanaka.

**ZUMT 63888** (cloth tag G8): 650 mm TL, female; **ZUMT 63889** (cloth tag No. 7): 309 mm TL, female;

**ZUMT 64155**: 321 mm TL, immature male (umbilical cord present); **ZUMT 64188**: 309 mm TL, immature male (umbilical cord mark present), locality unknown.

*Squalus suckleyi* (Girard, 1854) アブラツノザメ

**ZUMT 3231**: 245 mm TL, immature male, Nagasaki, 3 Dec. 1912, I. Kaneko.

**ZUMT 4684**: 259 mm TL, immature male, paratype of *Squalus wakiyae* Tanaka, 1918; **ZUMT 4685**: 260 mm TL, immature male, paratype of *S. wakiyae*, Tokyo Market, Tokyo, Japan.

**ZUMT 6182**: 450 mm TL, female, Hachinohe, Aomori Pref., Aomori Prefectural Hachinohe Junior High School.

**ZUMT 8502**: 676 mm TL, female, Otaru City (Takashima-Cho written as “後志高島村”), Hokkaido.

- ZUMT 10536:** 108 mm TL, female, probably Fukui Pref., K. Toida (戸井田 蔵) at Fukui Prefectural Onahama Fisheries School (福井県立小浜水産学校).
- ZUMT 10789:** 217 mm TL, female (umbilical cord present), Kushiro (釧路), Hokkaido, M. Akiyoshi (秋谷六三) at Kushiro Fishery Station (釧路水産試験場).
- ZUMT 11299:** 283 mm TL, immature male, Hokkaido, M. Tsuda (津田美津彦) at Hokkaido Fishery Station Muroran Branch (北海道水産試験場室蘭支場).
- ZUMT 13743:** 501 mm TL, female, Muroran, Hokkaido, J. Katsuki (勝木重太郎) at Hokkaido Fishery Station Muroran Branch.
- ZUMT 13859:** 288 mm TL, female, Kesen, Iwate Pref., 7 Jan. 1926, G. Toba at Iwate Prefecture Normal School.
- ZUMT 26345:** 407 mm TL, immature male, probably Tokyo Market.
- ZUMT 31578:** 275 mm TL, mature male, Matsue, Shimane Pref., R. Yanai at Matsue High School.
- ZUMT 36806:** 181 mm TL, female (umbilical cord present); **ZUMT 36807:** 178 mm TL, female (umbilical cord present); **ZUMT 36825:** 180 mm TL, female (umbilical cord present); **ZUMT 36836:** 177 mm TL, female (umbilical cord present), Rakuma (楽磨), Karafuto (樺太) currently Sakhalin, 9 Aug. 1936, J. Ishida (石田寿老).
- ZUMT 41539:** 250 mm TL, immature male, Uozu, Toyama Pref., June 1932, I. Tomiyama.
- ZUMT 45801:** 242 mm TL, immature male, Uozu, Toyama Pref., 1921.
- ZUMT 46116:** 250 mm TL, immature male; **ZUMT 46117:** 223 mm TL, immature male; **ZUMT 46123:** 225 mm TL, immature male; **ZUMT 46124:** 261 mm TL, immature male; **ZUMT 46150:** 249 mm TL, immature male; **ZUMT 46151:** 243 mm TL, immature male; **ZUMT 46670:** 231 mm TL, immature male; **ZUMT 46671:** 223 mm TL, female (umbilical cord present); **ZUMT 46672:** 206 mm TL, immature male; **ZUMT 46673:** 235 mm TL, female; **ZUMT 46674:** 244 mm TL, immature male; **ZUMT 46675:** 214 mm TL, immature male, probably Namerikawa, Uozu, Toyama Pref., probably I. Tomiyama.
- ZUMT 51174:** 511 mm TL, immature male, East China Sea.
- ZUMT 51256:** 144 mm TL, female (umbilical cord present), East China Sea, landed at Fukuoka Fish Market, 24 Dec. 1959, Y. Tominaga, collected by No. 51 and 52 Tenyomaru.
- ZUMT 64149:** 155 mm TL, immature male, locality unknown.

*Squalus* sp. ツノザメ属の一種

- ZUMT 1360:** 175 mm TL, female (umbilical cord present), off 80 hiro (ca.150 m) of Atami, Shizuoka Pref., 22 June 1906, K. Aoki.
- ZUMT 1526:** 145 mm TL, immature male, twin heads and dorsal fins deformity (Fig. 2), Sambomdake (3本ダケ), Kouzu-jima Island (神津島), Izu Islands, 15 June 1900, K. Aoki.
- ZUMT 21114:** 185 mm TL, female (umbilical cord present), off Nagasaki, Nagasaki Pref., T. Kuraba, trawl.
- ZUMT 64124:** ca. 205 mm, two females and three immature males, probably Nagasaki.
- ZUMT 64141:** 140–211 mm, four embryos, Nagasaki, I. Kaneko, 1910's.
- ZUMT 43407:** 87 mm TL, female, half body; **ZUMT 64153:** 161 mm TL, immature male; **ZUMT 64156:** 129 mm TL, female (umbilical cord present), locality unknown.

**Squatiniiformes** カスザメ目

Squatiniidae カスザメ科

*Squatina* Duméril, 1805 カスザメ属

*Squatina formosa* Shen & Ting, 1972 タイワンコロザメ

- ZUMT 63895:** 351 mm TL, female, locality unknown.

*Squatina japonica* Bleeker, 1858 カスザメ

- ZUMT 22168** (cloth tag of 97): 295 mm TL, female, Nagasaki Pref., 1 Aug. 1909, I. Kaneko, local name unknown.  
**ZUMT 31327**: 524 mm TL, immature male, Matsue, Shimane Pref.  
**ZUMT 50561**: 411 mm TL, female, East China Sea, 28 July 1959, Y. Tominaga.  
**ZUMT 51456**: 406 mm TL, immature male, Norin-kaiku 325 (農林 325 区), East China Sea, 13 Sept. 1959.  
**ZUMT 51481**: 167 mm TL, female (umbilical cord present), East China Sea, Dec. 1959.  
**ZUMT 51678**: 272 mm TL, female; **ZUMT 51679**: 268 mm TL, female; **ZUMT 51680**: 270 mm TL, immature male; **ZUMT 51681**: 270 mm TL, immature male; **ZUMT 51682**: 267 mm TL, immature male, Norin-kaiku 319 and 320 (農林 319, 320 区), East China Sea, 1 Apr. 1960.  
**ZUMT 63891**: 391 mm TL, female, locality unknown.  
**ZUMT ABE 2585**: 241 mm TL, female, Palau, 1936–1937, T. Abe.

*Squatina nebulosa* Regan, 1906 コロザメ

- ZUMT 937**: 197 mm TL, female, off 100 km Jyogashima, 13 Jan. 1900, K. Aoki, local name “Dekaizame, Kasuzame, Korozame, Ozei (テガイザメ、カスザメ、コロザメ、オオゼイ)”.  
**ZUMT 13326**: 335 mm TL, immature male; **ZUMT 13327**: 425 mm TL, immature male, off 12 mi Nyudozaki (入道崎), Oga Peninsular (男鹿半島), Akita Pref., 24 Nov. 1923, S. Tanabe, local name “Ubazame (ウバザメ)”.  
**ZUMT 20437**: 165 mm TL, female, off Nagasaki, Nagasaki Pref., T. Kuraba, trawl.  
**ZUMT 24278**: 223 mm TL, female (umbilical cord present), off Mimase, Kochi Pref., 12 Nov. 1931, T. Kamohara.  
**ZUMT 32000**: 168 mm TL, female (umbilical cord present), Nagasaki Pref.  
**ZUMT 63896**: 350 mm TL, immature male, locality unknown.

**Pristiophoriformes** ノコギリザメ目

**Pristiophoridae** ノコギリザメ科

*Pristiophorus* Müller & Henle, 1837 ノコギリザメ属

*Pristiophorus japonicus* Günther, 1870 ノコギリザメ

- ZUMT 23423**: 480 mm TL, immature male, Owase, Mie Pref., K. Nakahara at Owase Women's High School, Mie Pref.  
**ZUMT 27074**: 290 mm TL, immature male (umbilical cord present), Nagasaki Pref., 8 Aug. 1911, I. Kaneko.  
**ZUMT 52290**: 316 mm TL, immature male (umbilical cord present), near Jeju Island, Korea, Norin-kaiku 253 and 254, East China Sea, No. 1 and 2 Shotokumaru, landed at Fukuoka Fish Market, 5 May 1960, bottom trawl.  
**ZUMT 63897**: 503 mm TL, immature male; **ZUMT 63898**: 505 mm TL, female, locality unknown.

Unknown shark

- ZUMT 1481**: 11 egg cuspules, locality unknown.

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Table 1. List of total length (TL) of smallest matured male specimen deposited in ZUMT.

Family	Species	Standard Jpn name	TL (mm)	ZUMT number
Pseudocarchariidae	<i>Pseudocarcharias kamoharai</i>	Mizuwani	924	63877
Scyliorhinidae	<i>Galeus eastmani</i>	Yamorizame	340	64107
	<i>Halaelurus buergeri</i>	Nagasakitorazame	368	2340
	<i>Scyliorhinus torazame</i>	Torazame	409	51035
Proscylliidae	<i>Proscyllium habereri</i>	Taiwanzame	549	63870
Triakididae	<i>Hemitriakis japonica</i>	Eirakubuka	1133	ABE 10764
	<i>Mustelus griseus</i>	Shirozame	590	50559
	<i>Mustelus manazo</i>	Hoshizame	522	47976
Etmopteridae	<i>Etmopterus brachyurus</i>	Hosofujikujira	340	64147
	<i>Etmopterus molleri</i>	Hiretakafujikujira	187	55175
	<i>Etmopterus pusillus</i>	Karasuzame	166	53482
	<i>Etmopterus unicolor</i>	Nisekarasuzame	477	64184
Somniosidae	<i>Centroscymnus owstonii</i>	Yumezame	452	64186
	<i>Scymnodon ichiharai</i>	Ichiharabiroudozame	676	ABE 57-4
Squalidae	<i>Squalus brevirostris</i>	Tsumaritsunozame	422	7630
	<i>Squalus mitsukurii</i>	Futotsunozame	440	31586
	<i>Squalus suckleyi</i>	Aburatsunozame	275	31578



Figure 1. Preserved specimen of *Prionace glauca*, ZUMT 64198, 365 mm TL, female, deformity of single eye at middle of body.



Figure 2. Preserved specimen of *Squalus* sp., ZUMT 1526, 145 mm TL, immature male, deformity of twin heads and dorsal fins.