

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

Keita Koeda^{1,2*)}, Masahiro Aizawa¹⁾, Kazuo Sakamoto^{1,3)}, Rei Ueshima^{1,4)}

¹⁾The University Museum, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan

²⁾Faculty of Science, University of the Ryukyus, 1 Senbaru, Nishihara, Okinawa 901-0213, Japan

³⁾Fish Information Center and Museum, 6-6 Toyosu, Koto-ku, Tokyo 135-0061, Japan

⁴⁾Department of Biological Sciences, Graduate School of Science, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan

*Corresponding author: E-mail: hatampo@gmail.com

Abstract

The collection of Pomacanthidae (Teleostei: Perciformes) held in the Department of Zoology, The University Museum, The University of Tokyo (ZUMT) comprise 301 lots, including 306 specimens representing seven genera and 38 species, most of which were collected in 1960's and 1970's. Although in total seven holotypes and three paratypes have known from ZUMT collection, holotype of *Acanthochaetodon nigrolunatus* Tanaka, 1918 could not find during our investigation.

Introduction

The angelfishes family Pomacanthidae (Teleostei: Perciformes) have bright colors, and highly demanded in the tropical fish aquarium trade. Most of them inhabit in rocky or coral reefs, and form a harem consisting of one male and several females (Senou 2018). Seven genera of 32 species had known from Japanese waters, and Wada et al. (2022) recently reported an additional species, *Centropyge abei* Allen, Young & Colin, 2006, as a new Japanese record.

Although the fish collection in the Department of Zoology, The University Museum, The University of Tokyo (ZUMT) was mainly acquired from Japan and overseas during the late 18th and early 19th centuries, the specimens of family Pomacanthidae is mostly collected in 1960's and 1970's. This is because the taxon was studied by the late Dr. Yoshiaki Tominaga. During his research, he collected a large number of angelfishes not only from Japan but also from overseas by specimen exchanging with other museum collections and purchasing from tropical fish stores. The specimens of the family held in ZUMT are listed below.

Materials and Methods

Identities of the specimens of Pomacanthidae in ZUMT were confirmed by the first author, generally following Allen et al. (1998) and Shimada (2013), with confirmation of at least one diagnostic character. When the diagnostic coloration of the specimen was disappeared due to the long-term preservation, we followed the identification of Dr. Tominaga, which usually recorded on the ZUMT specimen ledger, bottles, or tags. Standard lengths (SL) were measured for all specimens, which are arranged in alphabetical order by species. 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, SL, with 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, and remarks when available. The collection year and collector for some specimens was estimated by following Koeda et al. (2022). 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.

Collection of Pomacanthidae in ZUMT

Examination of the specimens of Pomacanthidae deposited in ZUMT comprised 301 specimens [38 species in seven genera] in 306 lots, including the six holotypes of *Centropyge interrupta* (Tanaka, 1918), *Chaetodontoplus caeruleopunctatus* Yasuda & Tominaga, 1976, *Genicanthus watanabei* (Yasuda & Tominaga, 1970), *Holacanthus albofasciatus* Tanaka, 1909, *Holacanthus fucosus* Yasuda & Tominaga, 1970, and *Holacanthus venustus* Yasuda & Tominaga, 1969, and three paratypes of *Genicanthus personatus* Randall, 1975, *Genicanthus spinus* Randall, 1975 and *G. watanabei*. However, the holotype of *Acanthochaetodon nigrolunatus* Tanaka, 1918 "Getten-yakko" (ZUMT 8344; Tokyo fish market, probably from Izu, Shizuoka Pref.) could not find during our investigation. Although the taxonomical position of the species has never discussed, we judged this species is a junior synonym of *Pomacanthus semicirculatus* (Cuvier, 1831) on the basis of the description of Tanaka (1918).

Pomacanthidae キンチャクダイ科

Apolemichthys Burton, 1934 シテンヤッコ属

Apolemichthys trimaculatus (Cuvier, 1831) シテンヤッコ

ZUMT 52510: 129.8 mm SL; **ZUMT 52513:** 166.7 mm SL; **ZUMT 52514:** 152.8 mm SL; **ZUMT 52517:** 164.9 mm SL, Seragaki (瀬良垣), Onna (恩納), Okinawa-jima Island, 14 July 1967.

ZUMT 52530: 113.1 mm SL; **ZUMT 52531:** 156.5 mm SL; **ZUMT 52533:** 128.5 mm SL, Nagannu Atoll (ナガンヌ環礁), Keise-jima Island (慶伊瀬島), off west of Okinawa-jima Island, 14 Apr. 1970.

ZUMT 52542: 136.9 mm SL; **ZUMT 52543:** 151.7 mm SL; **ZUMT 52544:** 122.9 mm SL; **ZUMT 52545:** 144.1 mm SL, Okinawa Islands, purchased from Okinawa Kaigyoen (沖縄海魚園), received on 14 Apr. 1970.

ZUMT 52568: 118.8 mm SL (stained and dissected); **ZUMT 52569:** 141.6 mm SL; **ZUMT 52570:** 144.9 mm SL; **ZUMT 52571:** 150.8 mm SL; **ZUMT 52572:** 152.9 mm SL; **ZUMT 52573:** 106.8 mm SL; **ZUMT 52574:** 110.2 mm SL; **ZUMT 52575:** 95.0 mm SL; **ZUMT 52712:** 99.9 mm SL; locality unknown.

Remarks: Although the preserved coloration of the species is pale without black pigmentation on body side, ZUMT 52572 had dusky black pigmentation on its body sides. This specimen is estimated as piebald from its coloration.

ZUMT 52721: 126.0 mm SL, Okinawa-jima Island, purchased from tropical fish fisherman, 1968.

ZUMT 52732: 149.4 mm SL; **ZUMT 52733:** 139.6 mm SL; **ZUMT 52734:** 126.9 mm SL, locality unknown, purchased from tropical fish store, 1967.

ZUMT 52755: 160.7 mm SL, Izu Ocean Park (伊豆海洋公園), Ito (伊東), Shizuoka Pref., 1960's.

ZUMT 63347; ZUMT 63348; ZUMT 63349; ZUMT 63350, locality unknown, preserved in large tank.

ZUMT ABE 6056: 136.9 mm SL, Palau, 1936–1937, T. Abe.

Centropyge Kaup, 1860 アブラヤッコ属
Centropyge bicolor (Bloch, 1787) ソメワケヤッコ

ZUMT 16708: 52.0 mm SL, Yokosuka (横須賀), Kanagawa Pref., H. Tsubota (坪田久福) at Yokosuka Junior Highschool (横須賀中学校).

ZUMT 52519: 94.0 mm SL; **ZUMT 52521:** 68.7 mm SL; **ZUMT 52524:** 61.3 mm SL, Seragaki, Onna, Okinawa-jima Island, 14 Nov. 1967.

ZUMT 52526: 83.8 mm SL, Nagannu Atoll, Keise-jima Island, off west of Okinawa-jima Island, 11 Nov. 1967.

ZUMT 52547: 85.0 mm SL; **ZUMT 52548:** 66.8 mm SL; **ZUMT 52549:** 57.3 mm SL; **ZUMT 52550:** 63.3 mm SL; **ZUMT 52551:** 74.3 mm SL; **ZUMT 52552:** 72.0 mm SL; **ZUMT 52553:** 62.4 mm SL; **ZUMT 52554:** 64.6 mm SL; **ZUMT 52555:** 68.3 mm SL; **ZUMT 52556:** 63.7 mm SL, Okinawa Islands, purchased from Okinawa Kaigyoen, received on 14 Apr. 1970.

ZUMT 52716: 67.2 mm SL; **ZUMT 52717:** 55.4 mm SL, locality unknown.

ZUMT 52729: 61.0 mm SL; **ZUMT 52832:** 80.0 mm SL (stained and dissected), Okinawa-jima Island, purchased from tropical fish fisherman, 1968.

ZUMT 52764: 82.0 mm SL, Izu Ocean Park, Ito, Shizuoka Pref., 1960's.

ZUMT 55393: 35.0 mm SL; **ZUMT 55394:** 40.4 mm SL; **ZUMT 55395:** 73.9 mm SL, Pila Pila Beach, Rabaul, Independent State of Papua New Guinea, 4 June 1970.

ZUMT 63339 (plastic tag MA-069): 74.7 mm SL, Kii Peninsula (紀伊半島), 1970's, donation from Shirahama Aquarium, Kyoto University (京都大学白浜水族館) to M. Aizawa.

Centropyge bispinosa (Günther, 1860) ルリヤッコ

ZUMT 52563: 66.3 mm SL, donation from Keikyū Aburatsubo Marine Park (京急油壺水族館), received on April 1973.

ZUMT 63318: 58.6 mm SL, Onna, Okinawa-jima Island, 11 Apr. 1973.

Centropyge eibli Klausewitz, 1963 (流通名:エイブルズエンゼル)

ZUMT 55373: 68.6 mm SL, Phuket, Thailand, Jan. 1975.

ZUMT 52840: 66.2 mm SL, locality unknown.

Centropyge ferrugata Randall & Burgess, 1972 アカハラヤッコ

ZUMT 52718: 68.7 mm SL; ZUMT 52719: 69.1 mm SL; ZUMT 52720: 61.9 mm SL; ZUMT 52842: 49.9 mm SL (stained and dissected), locality unknown.

ZUMT 52766: 66.8 mm SL, Izu Ocean Park, Ito, Shizuoka Pref., 1960's.

ZUMT 52792: 57.4 mm SL, Nagannu Atoll, Keise-jima Island, off west of Okinawa-jima Island, 11 Nov. 1967.

ZUMT 52798: 62.5 mm SL, Seragaki, Onna, Okinawa-jima Island, 11 Nov. 1967.

ZUMT 55391: 60.2 mm SL; ZUMT 55392: 50.4 mm SL, Seragaki, Onna, Okinawa-jima Island, 14 Nov. 1967.

ZUMT 64157: 73.0 mm SL, Hachijo-jima Island.

Centropyge fisheri (Snyder, 1904) チャイロヤッコ

ZUMT 55370: 29.4 mm SL; ZUMT 55371: 37.7 mm SL; ZUMT 55372: 51.1 mm SL, previously BPBM 7307, Oahu Island, Hawaiian Islands, 10 Aug. 1968, J. E. Randall and University of Hawaii.

ZUMT 52789: 42.9 mm SL, Osezaki (大瀬崎), Numazu (沼津), Shizuoka Pref., 21 Oct. 1972, Mr. Hosokawa.

ZUMT 52791 (one specimen stained and dissected): 4 specimens, 38.7–53.4 mm SL, Osezaki, Numazu, Shizuoka Pref., May 1972.

ZUMT 53967: 54.6 mm SL, Taiwan, purchased from tropical fish store at Taipei, Taiwan.

Centropyge flavissima (Cuvier, 1831) コガネヤッコ

ZUMT 52520: 78.0 mm SL; ZUMT 52522: 68.3 mm SL; ZUMT 52523: 67.1 mm SL, Seragaki, Onna, Okinawa-jima Island, 14 Nov. 1967.

ZUMT 52527: 64.6 mm SL, Nagannu Atoll, Keise-jima Island, off west of Okinawa-jima Island, 11 Nov. 1967.

ZUMT 52878: 55.6 mm SL, Taiwan, transported from Taipei to Yamamoto Marine Aquarium Shop (山本海水魚店).

ZUMT 53037: 83.5 mm SL; ZUMT 53038: 75.7 mm SL, Fanning Islands, Line Islands, coral reef near center of lagoon, 20–25 feet depth, J.E. Randall, J. McVey, and W. Hashimoto.

Centropyge heraldi Woods & Schultz, 1953 ヘラルドコガネヤッコ

- ZUMT 52535:** 89.4 mm SL, Nagannu Atoll, Keise-jima Island, off west of Okinawa-jima Island, 11 Nov. 1967.
ZUMT 52564: 86.3 mm SL, between Kuro-shima (黒島), Kohama-jima (小浜島), and Taketomi-jima islands (竹富島), 24 Nov. 1967.
ZUMT 52735: 81.8 mm SL, locality unknown, purchased from Marine Aquarium Shop, 1967.
ZUMT 52839: 92.9 mm SL; **ZUMT 52713:** 90.3 mm SL, locality unknown.

Centropyge interrupta (Tanaka, 1918) レンテンヤッコ

- ZUMT 8343:** 116.8 mm SL, holotype, Tanabe (田辺), Wakayama Pref., N. Ui (宇井縫蔵).
ZUMT 52760: 116.1 mm SL; **ZUMT 52761:** 90.9 mm SL; **ZUMT 52763:** 75.5 mm SL, Izu Ocean Park, Ito, Shizuoka Pref., 1960's.
ZUMT 52793: 52.5 mm SL, Jogasaki (城ヶ崎), Izu Peninsula (伊豆半島), Shizuoka Pref., 17 Sept. 1967.
ZUMT 55748: 125.8 mm SL, Abeno Beach (アベノ浜), Miyake-jima Island (三宅島), 22 Sept. 1973.
ZUMT 41075: 96.3 mm SL; **ZUMT 63355:** 118.7 mm SL, locality unknown.

Centropyge loriculus (Günther, 1874) (流通名: フレームエンゼル)

- ZUMT 53032:** 48.0 mm SL; **ZUMT 53033:** 52.2 mm SL; **ZUMT 53034:** 32.4 mm SL; **ZUMT 53035:** 36.2 mm SL; **ZUMT 53036:** 50.9 mm SL, outside barrier reef about 1/4 mile east of Teavarae Pass, Papara, Tahiti, 60–100 feet depth, 26 Feb. 1969, Randall, J.E., Allen, G.R., and Baker, B.A.
ZUMT 57504: 68.0 mm SL, northeast side of isolated reef, off north London Resettlement Area, Line Islands, Kiritimati (Christmas Island), 55 feet depth, July 1987, Pyle, R.L.
ZUMT 57565: 58.8 mm SL, Oahu Island, Hawaiian Islands, Apr. 1987, Pleffer, R.

Centropyge multifasciata (Smith & Radcliffe, 1911) シマヤッコ

- ZUMT 53028** (previously BPBM 9435): 156.6 mm SL, 110-170 feet SW side of Augulpelu Reef, Palau Islands, 22 Apr. 1970, Randall, J. E., Emery, A. R. and Helfman, E. S., Rotenone.
ZUMT 57564: 51.6 mm SL, probably Philippines, Feb. 1988, purchased from Coral Fish Hawaii.

Centropyge nox (Bleeker, 1853) オハグロヤッコ

ZUMT 52794: 64.2 mm SL, Philippines, 11 Jan. 1971, Mr. Kennedy to Mr. Yamamoto.

Centropyge potteri (Jordan & Metz, 1912)

(流通名:ポッターズエンゼル・ポッターズピグミーエンゼル)

ZUMT 53029: 83.8 mm SL; **ZUMT 53030:** 82.7 mm SL; **ZUMT 53031:** 84.8 mm SL (previously BPBM 7948), Waikiki, Oahu Island, Hawaiian Islands, 25 feet depth, 30 May 1969, Randall, J.E., Neilm E. and Class, V.C.

Centropyge tibicen (Cuvier, 1831) アブラヤッコ

ZUMT 11041: 86.9 mm SL; **ZUMT 14614:** 79.0 mm SL, Philippines, between May 1925 and April 1926, U. Yamamura (山村樸次郎).

ZUMT 52515: 73.0 mm SL, Seragaki, Onna, Okinawa-jima Island, 14 Nov. 1967.

ZUMT 52538: 67.6 mm SL; **ZUMT 52539:** 74.4 mm SL, Nagannu Atoll, Keise-jima Island, off west of Okinawa-jima Island, 11 Nov. 1967.

ZUMT 52557: 68.4 mm SL, Okinawa Islands, purchased from Okinawa Kaigyoen, received on 14 Apr. 1970.

ZUMT 52567: 54.8 mm SL, between Kuro-shima, Kohama-jima, and Taketomi-jima islands, 24 Nov. 1967.

ZUMT 52724: 69.8 mm SL; **ZUMT 52725:** 67.7 mm SL; **ZUMT 52726:** 79.2 mm SL; **ZUMT 52730:** 59.2 mm SL, Okinawa-jima Island, purchased from tropical fish fisherman, 1968.

ZUMT 63353: 63.0 mm SL; **ZUMT 63354:** 61.4 mm SL, locality unknown.

Centropyge venusta (Yasuda & Tominaga, 1969) スミレヤッコ

ZUMT 52392: 78.4 mm SL, holotype, Izu-oshima Island (伊豆大島), Sagami Bay, Japan, 34°41'N, 139°27'E, about 10 m depth.

ZUMT 52423: 63.0 mm SL, Onna Beach, Okinawa-jima Island, 1 Jan. 1970, A. Taneisi.

Centropyge vrolikii (Bleeker, 1853) ナメラヤッコ

ZUMT 52528: 72.0 mm SL; **ZUMT 52536:** 89.7 mm SL, Nagannu Atoll, Keise-jima Island, off west of Okinawa-jima Island, 11 Nov. 1967.

ZUMT 52566: 81.9 mm SL; **ZUMT 52566:** 80.7 mm SL, between Kuro-shima, Kohama-jima, and Taketomi-jima islands, 24 Nov. 1967.

ZUMT 52727: 72.4 mm SL; **ZUMT 52727**: 70.3 mm SL; **ZUMT 52728**: 70.7 mm SL; **ZUMT 52728**: 65.2 mm SL; **ZUMT 52731**: 42.0 mm SL, Okinawa-jima Island, purchased from tropical fish fisherman, 1968.
ZUMT 52841: 66.7 mm SL, locality unknown.

Chaetodontoplus Bleeker, 1876 キンチャクダイ属
Chaetodontoplus caeruleopunctatus Yasuda & Tominaga, 1976 ホシゾラヤッコ

ZUMT 52825: 78.6 mm SL, holotype, Philippines, transported from Philippines to an aquarium fish dealer in Tokyo.

Chaetodontoplus chrysocephalus (Bleeker, 1855) アカネキンチャクダイ

ZUMT 52804: 118.1 mm SL, Izu Ocean Park, Ito, Shizuoka Pref., Sept. 1969, H. Masuda (益田 一).

ZUMT 53057: 80.2 mm SL, SEAFDEC RVC 62, Oct. 1972.

ZUMT 53965: 145.4 mm SL, Cape Shionomisaki (潮岬), Kushimoto (串本), Wakayama Pref., gill net, Jan. 1976.

ZUMT 55387: 166.8 mm SL, Kushimoto, Wakayama Pref., K. Mochizuki.

ZUMT 55388: 141.6 mm SL, Futo (富戸), Izu Ocean Park, Ito, Shizuoka Pref.

Chaetodontoplus melanosoma (Bleeker, 1853) キヘリキンチャクダイ

ZUMT 55389: 114.7 mm SL; **ZUMT 55390**: 121.3 mm SL, Philippines, transported from Philippines to Yamamoto Marine Aquarium Shop.

ZUMT 63324: 41.5 mm SL, locality unknown.

Chaetodontoplus mesoleucus (Bloch, 1787) チリメンヤッコ

ZUMT 11109: 100.8 mm SL; **ZUMT 42227**: 104.8 mm SL; **ZUMT 42228**: 112.7 mm SL; **ZUMT 42290**: 124.0 mm SL, Philippines, U. Yamamura.

ZUMT 52512: 87.2 mm SL, Seragaki, Onna, Okinawa-jima Island, 14 Nov. 1967.

ZUMT 52537: 74.0 mm SL, Nagannu Atoll, Keise-jima Island, off west of Okinawa-jima Island, 11 Nov. 1967.

ZUMT 52765: 42.5 mm SL, Izu Ocean Park, Ito, Shizuoka Pref., 1960's.

ZUMT 63416 (plastic tag MA-073): 102.8 mm SL, Kii Peninsula, 1970's, donation from Shirahama Aquarium, Kyoto University to M. Aizawa.

ZUMT 52782: 75.5 mm SL, locality unknown.

Chaetodontoplus septentrionalis (Temminck & Schlegel, 1844) キンチャクダイ

ZUMT 2146: 50.9 mm SL, holotype of *Holacanthus albofasciatus* Tanaka, 1909, Nagasaki Pref., T. Chiba.

Remarks: *Holacanthus albofasciatus* (Japanese name: Hakusen-kinchakudai ハクセンキンチャクダイ) is regarded as a junior synonym of *C. septentrionalis*.

ZUMT 2469: 2 specimens, 115.5 mm SL, 155.1 mm SL, Hamada (浜田), Shimane Pref., Sept. 1909, M. Tokuhisa (徳久三種), preserved in large tank.

ZUMT 10446: 132.0 mm SL, Goto Islands, Nagasaki Pref., 25 Mar. 1912, Y. Yamashita (山下幸平) at Saga Junior Highschool (佐賀中学校), preserved in large tank.

ZUMT 12308: 168.5 mm SL, Saiki (佐伯), Oita Pref., 20 Dec. 1914, K. Suito (出納国満), local name unknown, preserved in large tank.

ZUMT 19689: 58.4 mm SL, Keelung (基隆), Taiwan, H. Sato (佐藤春吉) (Taipei Keelung Junior High School) (台北基隆中学校), preserved in large tank.

ZUMT 22162: 145.3 mm SL, Nagasaki Pref., 1 Aug. 1909, I. Kaneko (金子一狼).

ZUMT 23231: 36.2 mm SL, Toyama Bay, identified on 16 Dec. 1930, K. Kikuchi (菊池勘左衛門) at Toyama High School (富山高等学校).

ZUMT 23736: 37.4 mm SL, Himi (氷見), Toyama Pref., 16 Oct. 1931, beach seining, M. Ota (太田外正) at Himi Toyama Prefectural Junior Highschool.

ZUMT 26051: 36.5 mm SL, Toyama Bay, recorded on 22 July 1933, K. Kikuchi at Toyama High School.

ZUMT 33646: 100.3 mm SL, Onoda, Yamaguchi Pref., 4 Oct. 1933, M. Nagatomi (永富三治).

Remarks: Mitsuharu Nagatomi was a botanist at Yamaguchi Pref.

ZUMT 38073: 34.0 mm SL, Takasu (鷹巣), Fukui Pref., 24 Sept. 1937, Fukui Prefecture Normal School (福井師範学校).

ZUMT 52736: 166.6 mm SL (preserved in large tank); **ZUMT 52751:** 174.4 mm SL (preserved in large tank); **ZUMT 52752:** 143.1 mm SL; **ZUMT 52753:** 165.9 mm SL (preserved in large tank); **ZUMT 52754:** 145.1 mm SL; **ZUMT 52757:** 134.7 mm SL; **ZUMT 52767:** 121.6 mm SL; **ZUMT 52768:** 36.8 mm SL, Izu Ocean Park, Ito, Shizuoka Pref., 1960's.

ZUMT 52786: 2 specimens, 25.3 mm SL, 29.6 mm SL, Jogasaki, Izu Peninsula, Shizuoka Pref., Nov. 1967.

ZUMT 52787: 20.6 mm SL, Jogasaki, Izu Peninsula, Shizuoka Pref., 27 Sept. 1967.

ZUMT 52788 (cloth tag 85): 40.7 mm SL, Jogasaki, Izu Peninsula, Shizuoka Pref., 2 Jan. 1968, H. Masuda.

ZUMT 52801: 28.0 mm SL, Jogasaki, Izu Peninsula, Shizuoka Pref., 5 Jan. 1968, T. Kawase.

ZUMT 53966: 24.6 mm SL, Cape Shionomisaki, Kushimoto, Wakayama Pref., Jan. 1976.

ZUMT 52799: 49.2 mm SL; **ZUMT 52837:** stained and dissected; **ZUMT 63356:** 154.1 mm SL; **ZUMT ABE 83-279:** 110.1 mm SL, locality unknown.

Genicanthus Swainson, 1839 タテジマヤッコ属
Genicanthus lamarck (Lacepède, 1802) タテジマヤッコ

ZUMT 14464: 132.7 mm SL; **ZUMT 14490:** 147.9 mm SL; **ZUMT 14491:** 139.9 mm SL, Ryukyu (琉球), probably Okinawa-jima Island (沖縄島), arrived on 24 Mar. 1925, S. Sakaguchi (坂口総一郎).

ZUMT 15368: 85.7 mm SL, Okinawa-jima Island, S. Sakaguchi at Okinawa Prefectural Daiichi Junior High School.

ZUMT 40390: 138.0 mm SL, Naha Market? (那覇市場?)

ZUMT 52561: 154.6 mm SL, donation from Keikyu Aburatsubo Marine Park, received on April 1973.

ZUMT 52759: 123.3 mm SL, Izu Ocean Park, Ito, Shizuoka Pref., 1960's.

ZUMT 52769: 100.3 mm SL; **ZUMT 52770:** 122.6 mm SL; **ZUMT 52771:** 105.4 mm SL; **ZUMT 52772:** 102.2 mm SL; **ZUMT 52773:** 116.4 mm SL; **ZUMT 52774:** 84.7 mm SL; **ZUMT 52775:** 93.9 mm SL, Toguchi (渡久地), Motobu (本部), Okinawa-jima Island, drive fishing, 22 Oct. 1970, Dr. Ida.

ZUMT 55378: 165.0 mm SL, male; **ZUMT 55379:** 123.3 mm SL, female, Onna, Okinawa-jima Island, 7–10 m depth, 28 June 1976, spear.

ZUMT 55380: 90.8 mm SL; **ZUMT 55381:** 99.4 mm SL; **ZUMT 55382:** 114.3 mm SL; **ZUMT 55383:** 122.0 mm SL, Hamasaki (浜崎)[near Sesoko-jima Island (瀬底島)], Motobu, Okinawa-jima Island, drive fishing, 26 Nov. 1975.

ZUMT 63352: 127.6 mm SL, locality unknown.

Genicanthus melanospilos (Bleeker, 1857) ヤイトヤッコ

ZUMT 15127: 94.0 mm SL, female, Okinawa-jima Island, from 1920 to 1930, S. Sakaguchi.

ZUMT 26736: 155.5 mm SL, male, Naze Port, Amami-oshima Island, received on 3 Feb. 1922, K. Enoya (榎屋兼武) (Oshima Junior High School, Kagoshima Prefecture) (鹿児島県立大島中学校).

ZUMT 52783: 148.3 mm SL, male, Kikai-jima Island (喜界島), 5 Nov. 1972.

ZUMT 52823: 134.4 mm SL, female; **ZUMT 52824:** 104.8 mm SL, male, Ishigaki-jima Island (石垣島),

ZUMT 55374: 125.8 mm SL, male; **ZUMT 55375:** 139.2 mm SL, male; **ZUMT 55376:** 134.4 mm SL, female; **ZUMT 55377:** 138.7 mm SL, female, Onna Beach, 7–10 m depth, 28 June 1976, spear.

ZUMT 55386: 116.4 mm SL, male, Kii Peninsula, Aug. 1965.

Genicanthus personatus Randall, 1975

ZUMT 53027: 91.3 mm SL, paratype, off Magic Island, Honolulu, Oahu Island, Hawaiian Islands, 80 feet depth.

Genicanthus semifasciatus (Kamohara, 1934) トサヤッコ

- ZUMT 19380**: 142.3 mm SL, male; **ZUMT 19381**: 131.2 mm SL, female, Hachijo-jima Island, Y. Oshitsu (押津義雄).
- ZUMT 52964**: 98.5 mm SL, female; **ZUMT 52965**: 111.2 mm SL, female; **ZUMT 52966**: 109.4 mm SL, female; **ZUMT 52967**: 91.8 mm SL, female, Koniya (古仁屋), Amami-oshima Island, Oct. 1970, F. Yasuda (安田富士郎) and Y. Tominaga.
- ZUMT 52422**: 128.5 mm SL, holotype of *Holacanthus fucosus* Yasuda and Tominaga, 1970, Sanbon-ne (about 34°05'N, 139°30'E), Miyake-jima, Japan, about 15 m depth.
- Remarks: *Holacanthus fucosus* (Japanese name: Kumadori-yakko クマドリヤッコ) is regarded as a junior synonym of *Genicanthus semifasciatus*.
- ZUMT 55384**: 134.0 mm SL, female, Hamasaki (near Sesoko-jima Island), Motobu, Okinawa-jima Island, drive fishing, 26 Nov. 1975.
- ZUMT 55385**: 113.6 mm SL, male, Kii Peninsula.

Genicanthus spinus Randall, 1975

- ZUMT 52987**: 193.8 mm SL, paratype, reef off Bounty Bay, Pitcairn Island, 33.5 m depth.

Genicanthus watanabei (Yasuda & Tominaga, 1970) ヒレナガヤッコ

- ZUMT 52420**: 105.6 mm SL, male, paratype; **ZUMT 52421**: 89.1 mm SL, female, holotype, Onna Beach, Okinawa-jima Island, Ryukyu Archipelago (26°30'N, 127°50'E), Dec. 1969.
- ZUMT 52796**: 92.7 mm SL, Motobu, Okinawa-jima Island, drive fishing, 21 May 1968.
- ZUMT 52797**: 84.4 mm SL, Motobu, Okinawa-jima Island, drive fishing, 4 July 1969.
- ZUMT 52969**: 102 mm SL; **ZUMT 52970**: 149.4 mm SL, Koniya, Amami-oshima Island, Oct. 1970, F. Yasuda and Y. Tominaga.

Holacanthus Lacepède, 1802

Holacanthus ciliaris (Linnaeus, 1758) (流通名:クイーンエンゼル)

- ZUMT 52776**: 184.6 mm SL; **ZUMT 52780**: 70.3 mm SL, Philippines, Oct. 1970, probably aquaculture, Mr. Yamamoto.

Holacanthus tricolor (Bloch, 1795) スリワケヤッコ

- ZUMT 52778**: 55.2 mm SL, Philippines, Oct. 1970, Mr. Yamamoto.
- ZUMT 52781**: 49.4 mm SL; **ZUMT 59675**: 72.1 mm SL, locality unknown.

Pomacanthus Lacepède 1802 サザナミヤッコ属
Pomacanthus annularis (Bloch, 1787) ワヌケヤッコ

ZUMT 52562: 118.8 mm SL, donated by Aburatsubo Marine Park (油壺水族館), received on Apr. 1970.

ZUMT 52835: 1326.2 mm SL, stained and dissected, locality unknown.

Pomacanthus arcuatus (Linnaeus 1758) (流通名:グレイエンゼルフィッシュ)

ZUMT 52806: 37.6 mm SL; **ZUMT 52822:** 61.2 mm SL, station190, S.W. Cove, Saint Andrews Islands, 10 Oct. 1965, Richards Ramsay, R/V *Geronimo*, Cruise 6.

ZUMT 52807: 78.6 mm SL, locality unknown.

ZUMT 52836: 105 mm SL, stained and dissected, Silver Bay (30°25'N, 80°25'W), Atlanta, U.S.A.

Pomacanthus imperator (Bloch, 1787) タテジマキンチャクダイ

ZUMT 19117: 168.3 mm SL, preserved in large tank, Mitsune Beach (三根沿岸), Hachijojima Island, 2 July 1929, . Otsuki (大槻洋四郎), collected by spear.

ZUMT 52508: 158.4 mm SL; **ZUMT 52509:** 202.1 mm SL; **ZUMT 52516:** 180.2 mm SL, preserved in large tank, Seragaki, Onna, Okinawa-jima Island, 14 Nov. 1967.

ZUMT 52534: 117.1 mm SL, Nagannu Atoll, Keise-jima Island, off west of Okinawa-jima Island, 11 Nov. 1967.

ZUMT 52785: 24.6 mm SL, Jogasaki, Izu Peninsula, Shizuoka Pref., 30 m depth, 20 Nov. 1967, Nakamura, K.

ZUMT 52826: 181.1 mm SL, stained and dissected, Okinawa-jima Island, purchased from tropical fish fisherman, 1968.

ZUMT 57506: 85.3 mm SL, isolated reef, off north London Resettlement Area, northeast side of Kiritimati (Christmas Island), Line Islands, 85 feet depth, 23 July 1987, Earle, J. L.

ZUMT 52715: 139.0 mm SL; **ZUMT 52790:** 30.0 mm SL; **ZUMT 63340:** 106.8 mm SL; **ZUMT 63341:** 136.0 mm SL; **ZUMT 63342:** 70.7 mm SL; **ZUMT 63343:** 55.3 mm SL, locality unknown.

Pomacanthus navarchus (Cuvier, 1831) イナズマヤッコ

ZUMT 52560: 179.1 mm SL, preserved in large tank, donated by Keikyū Aburatsubo Marine Park, received on Apr. 1970.

ZUMT 52779: 57.5 mm SL, Philippines, Oct. 1970, Mr. Yamamoto.

Pomacanthus paru (Bloch, 1787)

ZUMT 52560: 179.1 mm SL, Silver Bay (24°59'N, 80°??'W), Florida?, U.S.A., 23 May 1961.

Pomacanthus semicirculatus (Cuvier, 1831) サザナミヤッコ

Remarks: S. Tanaka described *Acanthochaetodon nigrolunatus* Tanaka, 1918 on the basis of the specimen purchased at Tokyo Market which collected from Izu area (ZUMT 8344). Although this species is estimated as a junior synonym of *Pomacanthus semicirculatus* from the original description (Tanaka 1918), specimen of this species collected from Tokyo Market, were not found from the collection.

ZUMT 11099: 134.7 mm SL, Philippines, between May 1925 and April 1926, U. Yamamura.

ZUMT 13925: 251.0 mm SL, preserved in large tank, Okinawa-jima Island, S. Sakaguchi.

ZUMT 18925: 56.0 mm SL, Kiragawa (吉良川), Aki (安芸), Kochi Pref., 27 Mar. 1929, T. Kamohara (蒲原稔治).

ZUMT 27651: 51.0 mm SL, Yaku-shima Island (屋久島), end of 1925.

ZUMT 52511: 167.1 mm SL, preserved in large tank, Seragaki, Onna, Okinawa-jima Island, 14 Nov. 1967.

ZUMT 52525: 29.1 mm SL; **ZUMT 52529:** 49.5 mm SL; **ZUMT 52540:** 77.0 mm SL; **ZUMT 52541:** 85.4 mm SL, Nagannu Atoll, Keise-jima Island, off west of Okinawa-jima Island, 11 Nov. 1967.

ZUMT 52723: 112.6 mm SL; **ZUMT 52831:** 88.6 mm SL, stained and dissected, Okinawa-jima Island, purchased from tropical fish fisherman, 1968.

ZUMT 52737: 162.2 mm SL; **ZUMT 52756:** 179.1 mm SL, preserved in large tank, Izu Ocean Park, Ito, Shizuoka Pref., 1960's.

ZUMT 52795: 16.4 mm SL, 24.4 mm SL, Jogasaki, Izu Peninsula, Shizuoka Pref., 8 Oct. 1967, Nakamura, K.

ZUMT ABE 3105: 40.5 mm SL, Palau, 1936–1937, T. Abe.

ZUMT 40416 (cloth tag 103): 72.0 mm SL; **ZUMT 46584:** 182.0 mm SL, preserved in large tank, locality unknown.

ZUMT 52805: 75.0 mm SL; **ZUMT 63322:** 32.5 mm SL; **ZUMT 63344:** 128.0 mm SL; **ZUMT 63345:** 103.1 mm SL; **ZUMT 63346:** 44.6 mm SL, locality unknown.

Pomacanthus sexstriatus (Cuvier, 1831) ロクセンヤッコ

ZUMT 11100: 103.6 mm SL, Philippines, between May 1925 and April 1926, U. Yamamura.

ZUMT 52565: 90.5 mm SL, middle of Kuro-shima, Kohama-jima, and Taketomi-jima islands, 24 Nov. 1967.

ZUMT 52758: 149.5 mm SL, Izu Ocean Park, Ito, Shizuoka Pref.
ZUMT ABE 3852: 239.4 mm SL; **ZUMT ABE 3853:** 205.8 mm SL; **ZUMT ABE 3854:** 297.7 mm SL, Palau, 1936–1937, T. Abe.
ZUMT 56546: 129.0 mm SL, locality unknown.

Pomacanthus xanthometopon (Bleeker, 1853) アデヤッコ

ZUMT 14621: 137.8 mm SL, Philippines.
ZUMT 52558: 124.8 mm SL, preserved in large tank, Okinawa Islands, purchased from Okinawa Kaigyoen, received on 14 Apr. 1970.
ZUMT 52559: 182.8 mm SL, preserved in large tank, donated by Aburatsubo Marine Park, received on Apr. 1970.
ZUMT 52777: 91.8 mm SL, Philippines, Oct. 1970, Mr. Yamamoto.

Pygoplites Fraser-Brunner, 1933 ニシキヤッコ属
Pygoplites diacanthus (Boddaert, 1772) ニシキヤッコ

ZUMT 14622: 129.1 mm SL, Philippines.
ZUMT 52518: 155.3 mm SL, Seragaki, Onna, Okinawa-jima Island, 14 Nov. 1967.
ZUMT 52532: 140.3 mm SL, Nagannu Atoll, Keise-jima Island, off west of Okinawa-jima Island, 11 Nov. 1967.
ZUMT 52722: 129.4 mm SL, Okinawa-jima Island, purchased from tropical fish fisherman, 1968.
ZUMT 52800: 35.5 mm SL, Jogasaki, Izu Peninsula, Shizuoka Pref., 4 Jan. 1968, Kawase, T.
ZUMT 63338 (MA-070): 89.4 mm SL, Kii Peninsula, 1970's, donation from Shirahama Aquarium, Kyoto University to M. Aizawa.
ZUMT 52714: 164.0 mm SL; **ZUMT 63351:** 156.4 mm SL, locality unknown.

Pomacanthidae gen sp.

ZUMT 53051, dissected, near Lubang Island, Philippines, Dec. 1973, donated or purchased by Yamamoto Marine Aquarium Shop.
ZUMT 52838, dissected, locality unknown.
ZUMT 63417: 71.6 mm SL; **ZUMT 63418:** 109 mm SL; **ZUMT 63419:** 126.5 mm SL, stained and dissected.

Acknowledgements

We are deeply grateful to the late Y. Tominaga for his dedication and efforts to the ZUMT collection. We are also grateful to H. Hata (National Museum of Nature and Science), I. Abe,

S. Fujiwara, A. Inuma, M. Saito, A. Takahashi (Tokyo University of Marine Science and Technology), M. Fukatani, S. Ito (University of Tokyo), and H. Ogata (ZUMT) for curatorial assistance. The present study was supported in part by JSPS KAKENHI 21K06313 JP and the Sasakawa Scientific Research Grant from The Japan Science Society (2021-4064) to the first author.

References

- Allen, G. R., Steene, R. and Allen, M. 1998. A guide to angelfishes & butterflyfishes. Odyssey Publishing, U.S.A. and Tropical Reef Research, Perth.
- Koeda, K., Hata, H., Aizawa, M., Sakamoto, K. and Ueshima, R. 2022. History of the fish collection of the Department of Zoology, The University Museum, The University of Tokyo. The University Museum, The University of Tokyo Material Reports, 129: 1–24. (In Japanese)
- Senou, H. 2018. Pomacanthidae. Pp. 306–307. In: Nakabo, T. (ed) The Natural History of the Fishes of Japan. Shogakukan, Tokyo. (In Japanese)
- Shimada, K. 2013. Pomacanthidae. Pp. 1005–1015, 2025–2029. In: Nakabo, T. (ed) Fishes of Japan with pictorial keys to the species, third edition. Tokai University Press, Hadano. (In Japanese)
- Tanaka, S. 1918. Twelve new species of Japanese fishes. *Dobutsugaku Zasshi*, 30 (356): 223–227. (In Japanese)
- Wada, H., Takase, A. and Senou, H. 2022. First Japanese specimen-based record of *Centropyge abei* (Perciformes: Pomacanthidae) from the east coast of Izu Peninsula, central Japan. *Ichthy, Natural History of Fishes of Japan*, 17: 67–74.