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Preliminary List of the Deep-sea Fishes of the Sea of Japan

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Abstract Voucher specimens of fishes collected from the Sea of Japan were examined in the Hokkaido University Museum, Kochi University, Kyoto University, Osaka Museum of Natural History, National Museum of Nature and Science, U.S. National Museum of Natural History, and the Zoological Institute, Russian Academy of Sciences in order to clarify the biodiversity of the deep-sea ichthyofauna. Historical specimens collected in the early 20th century were found in the latter two institutions. Our survey revealed 160 species belonging to 68 families and 21 orders.
Key words : Ichthyofauna, Biodiversity, Japanese fish collections, Smithsonian Institution, Zoological Institute.

Introduction

The Sea of Japan is one of the major marginal seas of the North Pacific Ocean (Fig. 1). It is characterized by having a deep-sea floor of a maximum depth of about 3,800 m and is connected to the adjacent seas via the following shallow straits: the Tatar (of only about 10 m maximum depth) and Soya straits (60 m maximum depth), connecting with the Sea of Okhotsk; the Tsugaru Strait (140 m), connecting with the Pacific Ocean; and the Korea (140 m) and Tsushima straits (120 m) with the East China Sea. To a large extent, these straits prevent deep-sea species from dispersing out of or entering from adjacent seas. Tyler (2002) reviewed the deep-sea fauna of the marginal seas around the Japanese archipelago from ecological and geological viewpoints and commented on the impoverished diversity in the Sea of Japan.

The Sea of Japan has unique hydrographic features. In depths below 200–300 m, the temperature year-around remains at 1°C or less. In the past, this sea was thought to be unique for its general lack of oceanic deep-sea fishes, except for one sternoptychid, *Mauloicus japonicus* Ishikawa, 1915 (see Katayama, 1940; Honma, 1952), and two myctophids (Mori, 1956). Thus, the history of ichthyological exploration of this region is relatively recent. Katayama (1940) reported 411 species from Toyama Bay, Japan. Honma (1952) focused on the fishes occurring in Niigata Prefecture, Japan, followed by additional reports by him and his colleague (*e.g.*, Honma and Kitami, 1995). Mori (1956) made a list of fishes of the Oki Islands and adjacent waters, Japan, indicating 542 species, including both marine and fresh water fishes. Takegawa and Morino (1970) reported marine fishes from Wakasa

Bay surrounded by Fukui, Kyoto and Hyogo prefectures and Sakai *et al*. (1991) those from Ishikawa Prefecture, Japan. Fish fauna of Toyama Bay was investigated by a local aquarium (Uozu Aquarium, 1997). Suzuki *et al.* (2000) recorded the fishes of Hyogo Prefecture, including deep-sea species captured by a set net and trawls by local fishermen. Recently, Matsuura *et al.* (2009) compiled a list of fishes collected by the Saito Ho-on Kai Museum of Natural History from the Tohoku District of northern Honshu, Japan, and documented some deep-sea species along the coast of the Sea of Japan. Outside Japan, Sokolovskaya *et al*. (1998) summarized fishes of Peter the Great Bay, Russia, followed by Antonenko *et al.* (2003) and Balanov *et al.* (2006) with new records of rare species.

Lindberg and Legeza (1959) published a revision of the ichthyofauna of the Sea of Japan, compiling literature information and specimens, which was later followed by Lindberg and Legeza (1965), Lindberg and Krasyukova (1969, 1975, 1987), Lindberg and Fedorov (1993) and Lindberg *et al.* (1997). Nishimura (1965a, 1965b, 1966, 1968, 1969) made pioneer studies of the zoogeography of fishes and invertebrates of the Sea of Japan and discussed the origins and peculiarities of their distributions. Okiyama (2004) reviewed the deepest demersal fish community (=the taraba community III *sensu* Nishimura, 1966). Because no studies specifically targeted the deep-sea fishes, the deep-sea ichthyofauna and its characteristic have remained unclear.

Here we provide a preliminary list of deep-sea fish species found in the Sea of Japan based on voucher specimens deposited in collections of Japanese museums and universities, the Russian Federation, and the United States of America. The Zoological Institute of the Russian Academy of Sciences holds a large number of historical specimens collected from the Sea of Japan between the 1900s and 1930s. The National Museum of Natural History, Smithsonian Institution, also houses historical specimens collected by the U.S. Fisheries Commission Steamer *Albatross* including fishes from the Sea of Japan obtained in 1906. Altogether, the material represents 160 species belonging to 68 families and 21 orders. Most of the families are represented by 1–5 species from this sea, except the Zoarcidae (15 species), Pleuronectidae (14) and Liparidae (12).

Materials and Methods

The systematic arrangement of taxa follows Nelson (1994). Scientific names generally follow the Catalog of Fishes on the website of the California Academy of Sciences, USA (http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp). Standard Japanese names follow Nakabo (2002) including discriminatory names (see Amendments of discriminatory Japanese fish names by the Ichthyological Society of Japan on February 1, 2007: http://www.fish-isj.jp/info/j070201_a.html). The number of specimens is indicates in parentheses just after each catalog number, and more detailed collection locality data in parentheses after depth information. All species known to occur at depths greater than 200 m outside the Sea of Japan were listed, following Shinohara and Matsuura (1997) and Shinohara *et al*. (1996, 2001, 2005, 2009). The endemic species to the Sea of Japan were indicated by an asterisk. All specimens are deposited in Kochi University (BSKU), Kyoto University (FAKU), Hokkaido University Museum (HUMZ), National Museum of Nature and Science, Tokyo (NSMT), Osaka Museum of Natural History (OMNH), National Museum of Natural History, Smithsonian Institution (USNM), and the Zoological Institute, Russian Academy of Sciences (ZIN). More detailed collection data of ZIN specimens are provided by Voronina and Volkova (2003, 2007) for the Pleuronectiformes, Sideleva *et al.* (2006) for the Scorpaeniformes (except for the Agonidae), Balushkin and Prirodina (2008) for the Gadiformes and Sheiko and Fedorov (2010) for the Agonidae and those of USNM specimens by the Online Catalog of the Division of Fishes (http://collections.mnh.si.edu/search/fishes/). Longitude and latitude data were applied to specimens collected from relatively

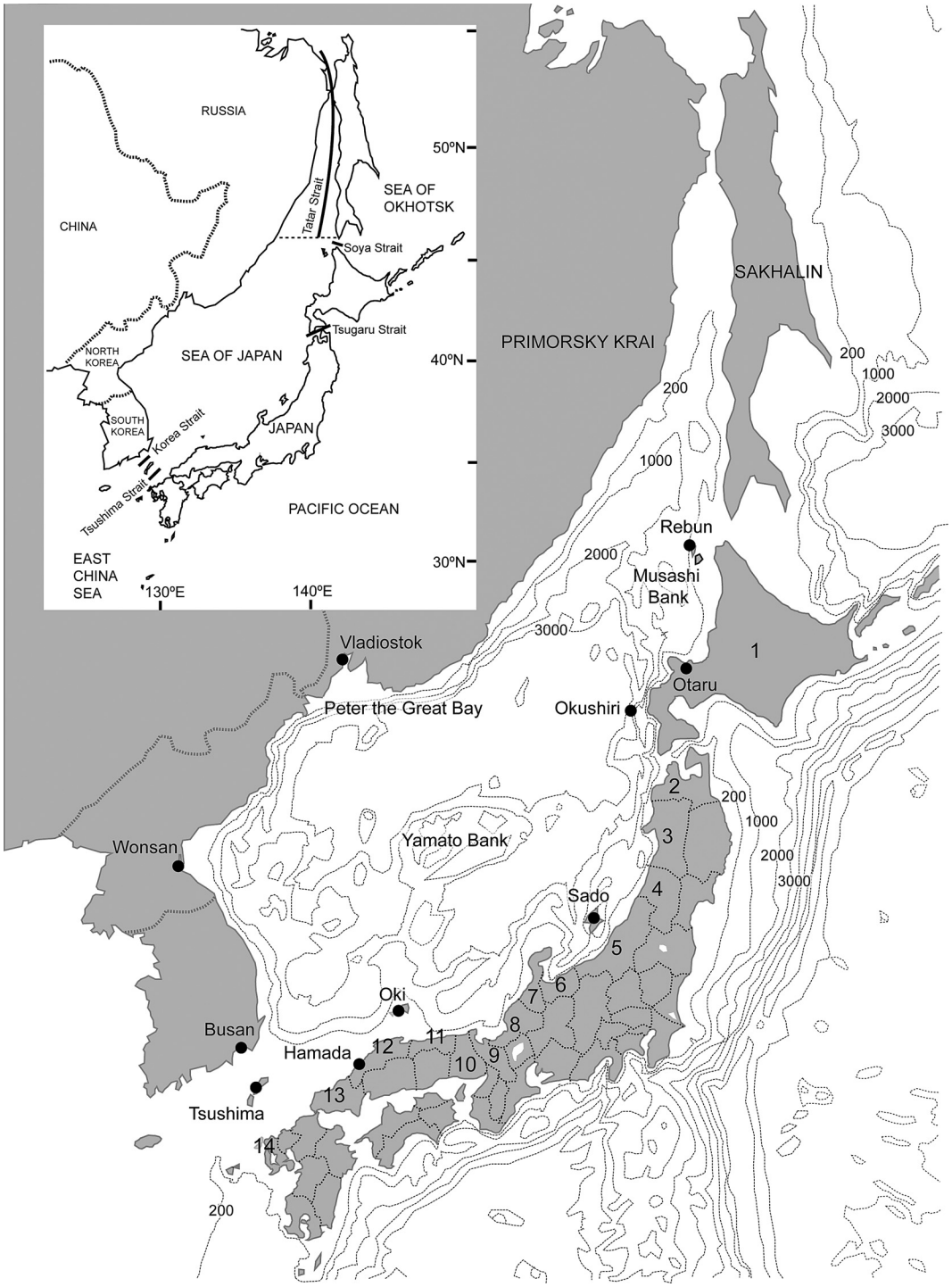

Fig. 1. Collection localities and fish landing sites in the Sea of Japan. Numerals (1–14) indicate prefectures of Japan.—1, Hokkaido; 2, Aomori; 3, Akita; 4, Yamagata; 5, Niigata; 6, Toyama; 7, Ishikawa; 8, Fukui; 9, Kyoto; 10, Hyogo; 11, Tottori; 12, Shimane; 13, Yamaguchi; 14, Nagasaki.

wide areas (Tatar Strait, Primorsky Krai, North Korea and South Korea).

Species list

Order Myxiniformes

Family Myxinidae

Eptatretus okinoseanus (Dean, 1904) [Japanese name: Murasakinutaunagi]

South Korea: ZIN 22355 (3), depth unknown (Busan).

Order Chimaeriformes

Family Chimaeridae

Chimaera phantasma Jordan and Snyder, 1900 [Japanese name: Ginzame]

Nagasaki: FAKU 101754 (1), depth unknown (Tsushima).

Order Carcharhiniformes

Family Scyliorhinidae

Cephaloscyllium umbratile Jordan and Fowler, 1903 [Japanese name: Nanukazame]

Ishikawa: HUMZ 65593 (1), 115–202 m; HUMZ 65992–65993 (2), 135–141 m; HUMZ 66180–66181 (2), 85–90 m; HUMZ 66227 (1), depth unknown.

Hyogo: OMNH-P 2539 (1), depth unknown.

Scyliorhinus torazame (Tanaka, 1908) [Japanese name: Torazame]

South Korea: ZIN 22346 (1), depth unknown (Busan).

Niigata: HUMZ 51628 (1), 51888 (1), 51918 (1), depth unknown (Sado).

Ishikawa: HUMZ 66229 (1), depth unknown.

Hyogo: OMNH-P 7873 (1), depth unknown.

Shimane: BSKU 40697–40700 (4), depth unknown.

Nagasaki: NSMT-P 5952 (1), depth unknown (Tsushima).

Order Hexanchiformes

Family Hexanchinidae

Heptranchias perlo (Bonnaterre, 1788) [Japanese name: Edoaburazame]

Niitaga: HUMZ 204522 (1), depth unknown.

Order Squaliformes

Family Squalidae

Squalus mitsukurii Jordan and Snyder, 1903 [Japanese name: Futotsunozame]

South Korea: ZIN 22379 (2), depth unknown (Busan).

Ishikawa: HUMZ 65594 (1), 115–202 m.

Hyogo: OMNH-P 8148 (1), depth unknown.

Order Rajiformes

Family Torpedinidae

Narke japonica (Temminck and Schlegel, 1850) [Japanese name: Shibireei]

Hyogo: OMNH-P 2233 (1), 2504 (1), 5782 (1), 6454 (1), 7832 (1), depth unknown.

Family Rajidae

Bathyraja bergi Dolganov, 1985 [Japanese name: Sokogangiei]

Tatar Strait: ZIN 12602 (1: holotype), depth unknown (47°00′N, 142°05′E); ZIN 46198 (1: paratype), depth unknown.

Hokkaido: HUMZ 107849 (1), depth unknown.

Bathyraja smirnovi (Soldatov and Pavlenko, 1915) [Japanese name: Dobukasube] (Fig. 2A)

Tatar Strait: HUMZ 53243 (1), 370 m (46°48′N, 141°33′E).

Peter the Great Bay: ZIN 19051 (1: paratype), depth unknown.

Yamato Bank: NSMT-P 61680 (1), 61686-61687 (2), 61660 (1), 61664–61665 (2), 76122 (1), depth unknown; HUMZ 53787–53790 (4), 53801-53802 (2), depth unknown.

Hokkaido: HUMZ 68589 (1), 68590 (1), 444 m; HUMZ 42461 (1), 42465 (1), 42469 (1), 655 m; HUMZ 42648–42649 (2), 290 m; HUMZ 42689–42690 (2), 42693 (1), 42729 (1), 42775

(1), 603–700 m; HUMZ 42798 (1), 42839-42841 (3), 42843–42844 (2), 42846–42847 (2), 685 m; HUMZ 46616 (1), 46619 (1), 705–720 m; HUMZ 46647 (1), 720 m; HUMZ 46648–46649 (2), 705–720 m; HUMZ 46650 (1), 720 m.

Ishikawa: HUMZ 66122–66123 (2), depth unknown.

Family Urolophidae

Urolophus aurantiacus Müller and Henle, 1941 [Japanese name: Hirataei]

Hyogo: OMNH-P 2452–2453 (2), 2454 (1), 2467 (1), 2302 (1), depth unknown.

Order Albuliformes

Family Albulidae

Pterothrissus gissu Hilgendorf, 1877 [Japanese name: Gisu]

Hokkaido: HUMZ 97146 (1), depth unknown.

Hyogo: OMNH-P 5865 (1), 8158 (1), depth unknown.

Order Anguilliformes

Family Ophichthidae

Echelus uropterus (Temminck and Schlegel, 1846) [Japanese name: Hireanago]

Hyogo: OMNH-P 4567 (1), 100 m.

Shimane: FAKU 38731 (1), depth unknown (Oki).

Ophisurus macrorhynchus Bleeker, 1852 [Japanese name: Dainan-umihebi]

Ishikawa: HUMZ 66182–66183 (2), 85–90 m.

Family Congridae

Gnathophis nystromi nystromi (Jordan and Snyder, 1901) [Japanese name: Gin-anago]

Aomori: HUMZ 65331 (1), depth unknown.

Yamagata: NSMT-P 73817 (2), depth unknown.

Hyogo: OMNH-P 3041 (1), 3044–3045 (2), 100 m.

Order Osmeriformes

Family Argentinidae

Glossanodon semifasciatus (Kishinouye, 1904) [Japanese name: Nigisu]

Akita: NSMT-P 74414 (9), depth unknown.

Ishikawa: HUMZ 65930 (1), 106–108 m; HUMZ 65585 (1), 65591 (1), 115–202 m; HUMZ 66072 (1), 75–82 m.

Hyogo: OMNH-P 6406 (1), 7698 (1), 7712 (1), depth unknown.

Order Stomiiformes

Family Sternoptychidae

Maurolicus japonicus Ishikawa, 1915 [Japanese name: Kyūrieso] (Fig. 2B)

Hokkaido: HUMZ 3217 (1), depth unknown (Okushiri).

Yamagata: HUMZ 79182–79185 (4), 97308–97331 (24), 147740 (1), 147844 (1), 150751–150780 (30), depth unknown; HUMZ 82226–82227 (2), 214–256 m.

Hyogo: NSMT-P 64826 (2), 250 m.

Shimane: NSMT-P 30693 (18), 100 m.

Nagasaki: NSMT-P 66147 (4), 202–205 m (Tsushima).

Order Ateleopodiformes

Family Ateleopodidae

Ateleopus japonicus Bleeker, 1854 [Japanese name: Shachiburi]

Hyogo: OMNH-P 15471 (1), depth unknown.

Order Aulopiformes

Family Aulopodidae

Aulopus japonicus Günther, 1877 [Japanese name: Hime]

Akita: NSMT-P 74130 (1), depth unknown.

Niigata: HUMZ 63699 (1), 105–106 m; HUMZ 64278 (1), depth unknown.

Ishikawa: HUMZ 65609 (1), 88–91 m; HUMZ 65950–65951 (2), 118–121 m; HUMZ 66138 (1), 190–235 m; HUMZ 66128 (1), 65567 (1), 66147 (1), 66149 (1), 115–202 m; HUMZ 66006–66014

(9), 75–82 m.

Hyogo: OMNH-P 4627 (1), 6447 (1), depth unknown; OMNH-P 7827 (1), 100 m.

Family Chlorophthalmidae

Chlorophthalmus albatrossis Jordan and Starks, 1904 [Japanese name: Aomeeso]

Kyoto: FAKU W628 (1), depth unknown.

Family Paralepididae

Lestidium prolixum Harry, 1953 [Japanese name: Namehadaka]

Hyogo: OMNH-P 3054 (1), 12731–12732 (2), depth unknown.

Order Lampridiformes

Family Veliferidae

Velifer hypselopterus Bleeker, 1879 [Japanese name: Kusaaji]

Hyogo: NSMT-P 65568 (1), 20–40 m; NSMT-P 65838 (1), depth unknown.

Family Lophotidae

Lophotus capellei Temminck and Schlegel, 1845 [Japanese name: Akanamada]

Hyogo: NSMT-P 61143 (1), 30–40 m.

Family Trachipteridae

Desmodema polystictum (Ogilby, 1898) [Japanese name: Furisodeuo]

Hyogo: OMNH-P 2380–2381 (2), 2384–2385 (2), 2438 (1), depth unknown.

Trachipterus ishikawae Jordan and Snyder, 1901 [Japanese name: Sakegashira]

Hyogo: NSMT-P 64048 (1), 30–40 m.

Trachipterus trachypterus (Gmelin, 1789) [Japanese name: Tengaihata]

Hyogo: OMNH-P 2051 (1), 2531 (1), 2546 (1), 2547 (1), 7092 (1), depth unknown; NSMT-P 63879 (1), 64246 (1), 64048 (1), 30–40 m.

Family Regalecidae

Regalecus russellii (Shaw, 1803) [Japanese name: Ryūgūnotsukai]

Hyogo: NSMT-P 61085 (1), depth unknown; OMNH-P 2510 (1), depth unknown; NSMT-P 64490 (1), 63945 (1), 30–40 m.

Order Ophidiiformes

Family Ophidiidae

Hoplobrotula armata (Temminck and Schlegel, 1846) [Japanese name: Yoroiitachiuo]

Yamagata: NSMT-P 74205 (1), 74660 (2), depth unknown.

Ishikawa: HUMZ 65603 (1), 65954 (1), 118–121 m; HUMZ 66221–66222 (2), depth unknown.

Hyogo: OMNH-P 8146 (1), depth unknown.

Neobythites sivicola (Jordan and Snyder, 1901) [Japanese name: Shioitachiuo]

South Korea: ZIN 22831 (1), depth unknown (Busan).

Akita: NSMT-P 73595 (2), 73795 (1), 74680 (1), depth unknown.

Niigata: HUMZ 63634 (1), 63643–63648 (6), 99–103 m.

Ishikawa: HUMZ 65927 (1), 106–108 m; HUMZ 65606 (1), 118–121 m; HUMZ 65579 (1), 115–202 m; HUMZ 66024–66026 (3), 75–82 m.

Hyogo: OMNH-P 5840 (1), depth unknown.

Order Gadiformes

Family Moridae

Physiculus japonicus Hilgendorf, 1881 [Japanese name: Chigodara]

Hokkaido: HUMZ 107529 (1), depth unknown.

Akita: ZIN 39560 (1), depth unknown.

Hyogo: OMNH-P 5923 (1), 6444 (1), 12760 (1), 200–240 m.

Lotella phycis (Temminck and Schlegel, 1846) [Japanese name: Isoainame]

Hyogo: OMNH-P 5921 (1), 7721 (1), depth unknown.

Family Macruroridae

Coelorhynchus multispinulosus Katayama, 1942 [Japanese name: Yarihige]

Hyogo: NSMT-P 18224 (1: holotype), depth unknown.

Family Bregmacerotidae

Bregmaceros nectabanus Whitley, 1941 [Japanese name: Toyamasaiuo]

Niigata: HUMZ 78971–78972 (2), 4–7 m; HUMZ 78973–78979 (7), 3 m.

Family Gadidae

Gadus macrocephalus Tilesius, 1810 [Japanese name: Madara]

Tatar Strait: ZIN 12629 (1), depth unknown (47°00′N, 142°05′E); ZIN 12631 (1), depth unknown (47°00′N, 142°05′E); ZIN 23644 (1), depth unknown (51°30′N, 140°45′E).

Peter the Great Bay: ZIN 23677 (1), 26491 (2), 31391 (2), depth unknown.

Vladivostok: ZIN 12628 (2), 33271 (6), depth unknown.

Hokkaido: HUMZ 107860 (1), 107879 (1), 120–130 m.

Aomori: NSMT-P 74877 (2), depth unknown.

Akita: NSMT-P 74762 (2), 74866 (2), depth unknown.

Ishikawa: HUMZ 66105 (1), 228–252 m.

Hyogo: NSMT-P 64130 (1), 200–250 m; OMNH-P 6442 (1), 8700 (1), depth unknown.

Theragra chelcogramma (Pallas, 1811) [Japanese name: Sukesoudara]

Tatar Strait: ZIN 24214 (6), depth unknown (48°08′N, 140°08′E); ZIN 24215 (1), depth unknown (46°26′N, 138°35′E); ZIN 35335 (4), depth unknown.

Vladivostok: ZIN 23630 (1), depth unknown.

Peter the Great Bay: ZIN 24192 (2), 24194 (6), 24195 (6), 24197 (1), 24199 (2), 24203 (4), 24207 (4), depth unknown.

Akita: NSMT-P 73697 (3), 74386 (1), depth unknown.

Yamagata: NSMT-P 74747 (2), depth unknown.

Yamato Bank: NSMT-P 65746 (1), 416–420 m.

Order Lophiiformes

Family Lophiidae

Lophiomus setigerus (Vahl, 1797) [Japanese name: Ankou]

Hokkaido: HUMZ 16320 (1), depth unknown.

Aomori: NSMT-P 74280 (1), depth unknown.

Fukui: ZIN 22995 (1), depth unknown.

Hyogo: OMNH-P 7787 (1), 7799 (1), 100 m.

Lophius litulon (Jordan, 1902) [Japanese name: Kiankou]

Peter the Great Bay: ZIN 43027 (1), depth unknown.

Hokkaido: HUMZ 132809 (1), 40 m; HUMZ 109422 (1), 124725 (1), depth unknown.

Akita: NSMT-P 73707 (4), depth unknown.

Niigata: HUMZ 63692 (1), 105–106 m; HUMZ 50255 (1), 51916 (1), depth unknown.

Ishikawa: HUMZ 65628 (1), 103–106 m; HUMZ 66071 (1), 75–82 m; OMNH-P 2348 (1), 2362–2364 (3), 6415 (1), 7602–7603 (2), depth unknown; OMNH-P 7763 (1), 7779 (1), 7788 (1), 100 m.

Family Ogcocephalidae

Halieutaea stellata (Vahl, 1797) [Japanese name: Akagutsu]

Akita: NSMT-P 73366 (1), depth unknown.

Kyoto: FAKU 39492 (1), depth unknown.

Hyogo: OMNH-P 7718 (1), 7808–7809 (2), 100 m.

Order Zeiformes

Family Zeidae

Zenopsis nebulosa (Temminck and Schlegel, 1845) [Japanese name: Kagamidai]

Hyogo: OMNH-P 2310 (1), depth unknown.

Zeus faber Linné, 1758 [Japanese name: Matoudai]

Aomori: NSMT-P 73906 (1), depth unknown.

Akita: NSMT-P 73623 (1), 74918 (2), depth

unknown.

Yamagata: 73700 (2), depth unknown.

Niigata: HUMZ 63649–63650 (2), 99–103 m; HUMZ 51901–51902 (2), depth unknown.

Ishikawa: HUMZ 65584 (1), 115–120 m; HUMZ 66001–66005 (5), 75–820 m.

Fukui: ZIN 22948 (2), 23064 (1), 34790 (1), depth unknown.

Hyogo: OMNH-P 2210 (1), 2341 (1), 7657 (1), depth unknown; OMNH-P 7780 (1), 100 m.

Order Scorpaeniformes

Family Scorpaenidae

Helicolenus avius Abe and Eschmeyer, 1972 [Japanese name: Okikasago]

Hyogo: OMNH-P 8155 (1), depth unknown.

Helicolenus hilgendorfi (Steindachner and Döderlein, 1884) [Japanese name: Yumekasago]

Hyogo: OMNH-P 2721 (1), 5651 (1), 7604 (1), depth unknown.

Hozukius embremarius (Jordan and Starks, 1904) [Japanese name: Houzuki]

Hyogo: NSMT-P 65839 (1), 250–270 m.

Setarches longimanus (Alcock, 1894) [Japanese name: Akakasago]

Hyogo: ONMH-P 7897 (1), depth unknown.

Sebastes baramenuke (Wakiya, 1917) [Japanese name: Baramenuke]

Hokkaido: HUMZ 107086 (1), 320 m (Rebun).

Sebastes matsubarae Hilgendorf, 1880 [Japanese name: Akoudai]

Hokkaido: HUMZ 97161–97162 (2), depth unknown.

Sebastes owstoni (Jordan and Thompson, 1914) [Japanese name: Hatsume]

Tatar Strait: HUMZ 53174 (1), 145 m; ZIN 18363 (3), 150 m.

Primorsky Krai: ZIN 41393 (40), 210 m (45°35′N, 137°44′E); ZIN 41392 (1), 100–325 m; ZIN 41394 (17), 260 m (44°56′N, 137°07′E); ZIN 41701 (4), 250 m (45°15′N, 137°26′E); ZIN 42589 (1), 210 m (45°35′N, 137°44′E); ZIN 42802 (1), 260 m (44°56′N, 137°07′E); ZIN 42807 (2), 250 m (45°15′N, 137°26′E); ZIN 42808 (7), 210 m (45°35′N, 137°44′E); ZIN 42809 (5), 250 m (45°00′N, 137°00′E).

Peter the Great Bay: ZIN 42582 (1), depth unknown.

South Korea: ZIN 42806 (3), 190 m (35°37′N, 132°03′E).

Hokkaido: HUMZ 48855 (1), 95–115 m; HUMZ 142834–142939 (6), 118–135 m; HUMZ 53236–53242 (7), 260–335 m; HUMZ 56505 (1), 330–355 m; HUMZ 68021 (1), 230–235 m; HUMZ 67986 (1), 295–303 m; HUMZ 42596–42597 (2), 42606–42607 (2), 42615 (1), 42681–42782 (2), 290 m; USNM 148865 (1), depth unknown (Otaru).

Akita: NSMT-P 74681 (1), depth unknown.

Niigata: USNM 135589 (2), 365 m (Sado).

Ishikawa: HUMZ 53768 (1), 315 m; HUMZ 55575 (1), 55579 (1), 506 m; HUMZ 66108–66112 (5), 228–252 m; HUMZ 65653 (1), 292–304 m; HUMZ 55604 (1), depth unknown; HUMZ 66145 (1), 190–235 m; HUMZ 65569 (1), 66176 (1), 115–202 m.

Hyogo: OMNH-P 6410–6412 (3), 7605–7606 (2), depth unknown.

Sebastes itinus (Jordan and Starks, 1904) [Japanese name: Yanagimebaru]

Hokkaido: HUMZ 45023 (1), 141–162 m.

Hyogo: OMNH-P 5650 (1), depth unknown.

Sebastes glaucus Hilgendorf, 1880 [Japanese name: Kuromenuke]

Hokkaido: HUMZ 67828–67832 (5), 67834 (1) 129–135 m; HUMZ 94222 (1), 150 m.

Sebastes steindachneri Hilgendorf, 1880 [Japanese name: Yanaginomai]

Tatar Strait: HUMZ 57947 (1), 155 m (55°32′N, 138°08′E); ZIN 43379 (1), 70–105 m (47°01′N, 141°57′E); ZIN 43382 (1), 92 m (47°04′N, 141°56′E); ZIN 43383 (1), 80 m (46°17′N, 141°05′E); ZIN 43384 (1), 62–71 m (46°19′N, 141°47′E); ZIN 43385 (2), 100 m (46°15′N, 141°12′E).

Peter the Great Bay: ZIN 43387 (1), depth unknown.

Hokkaido: HUMZ 42789 (1) 160–260 m; HUMZ 67835–67838 (4), 67840–67841(2), 120–135 m; HUMZ 55518 (1), 330–355 m; HUMZ

107852–107853 (2), 107866–107867 (2), 120–130 m; ZIN 43386 (2), 96 m (Musashi Bank).

Akita: NSMT-P 74791 (1), depth unknown.

Family Triglidae

Chelidonichthys spinosus (McClelland, 1844) [Japanese name: Houbou]

Akita: NSMT-P 74676 (1), depth unknown.

Niigata: HUMZ 78945 (1), 40 m.

Hyogo: OMNH-P 2250 (1), 2289 (1), 7524 (1), 7655 (1), depth unknown.

Nagasaki: NSMT-P 5951 (1), 5956 (1), depth unknown (Tsushima).

Lepidotrigla abyssalis Jordan and Starks, 1902 [Japanese name: Sokokanagashira]

Aomori: NSMT-P 74116 (3), depth unknown.

Hyogo: OMNH-P 7777–7778 (2), 7789 (1), 100 m.

Lepidotrigla guentheri Hilgendorf, 1879 [Japanese name: Kanado]

Ishikawa: HUMZ 65555 (1), 66043 (1), 75–82 m.

Fukui: ZIN 22972 (1), depth unknown.

Hyogo: OMNH-P 3093 (1), depth unknown; OMNH-P 7745–7746 (2), 7775–7776 (2), 7790 (1), 100 m.

Lepidotrigla microptera (Günther, 1873) [Japanese name: Kanagashira]

Akita: NSMT-P 74297 (1), depth unknown.

Yamagata: NSMT-P 74237 (2), 74570 (2), depth unknown.

Hyogo: OMNH-P 3073 (1), 3076 (1), 3080 (1), 3084 (1), 150 m; OMNH-P 2686 (1), 3070–3071 (2), 3074–3075 (2), 3078–3079 (2), 3083 (1), 3085–3087 (3), 3091–3092 (2), 3094 (1), depth unknown.

Peristedion orientale Temminck and Schlegel, 1843 [Japanese name: Kihoubou]

Akita: NSMT-P 73465 (2), depth unknown.

Family Bembridae

Bembras japonicus Cuvier, 1829 [Japanese name: Akagochi]

Nagasaki: FAKU 57565 (1), depth unknown (Tsushima).

Parabembras curtus Temminck and Schlegel, 1843 [Japanese name: Ubagochi]

Nagasaki: FAKU 101901 (1), depth unknown (Tsushima)

South Korea: ZIN 22742 (1), 22743 (2), depth unknown (Busan).

Family Ereuniidae

Marukawichthys ambulator Sakamoto, 1931 [Japanese name: Marukawakajika]

Akita: NSMT-P 74006 (1), depth unknown.

Kyoto: FAKU 124480 (1), depth unknown.

Family Cottidae

Artediellus fuscimentus Nelson, 1986 [Japanese name: Nodogurookikajika]

South Korea: USNM 74495 (1: paratype), 128–163 m; USNM 74498 (1: paratype), 123 m.

Toyama: USNM 74494 (1: paratype), 298 m.

Fukui: USNM 74491 (1: paratype), 238 m; USNM 74493 (1: paratype), 245 m; USNM 148786 (1), 263 m.

Shimane: USNM 74464 (1: holotype), 212 m (Oki); USNM 74495 (1: paratype), 183 m (Oki).

Icelus cataphractus (Pavlenko, 1910) [Japanese name: Koorikajika]

Tatar Strait: HUMZ 53154 (1), 53158 (1), 370 m (46°48’N, 141°33′E); ZIN 33377 (1), 204 m (48°00′N, 139°30′E); ZIN 44428 (1), 148 m (48°00′N, 142°15′E); ZIN 44762 (3), 162 m (46°15′N, 141°15′E); ZIN 44763 (1), 100 m (47°25′N, 142°00′E).

Primorsky Krai: ZIN 25189 (2), depth unknown (42°51′N, 133°48′E); ZIN 46397 (1), 210–220 m

(44°18′N, 136°20′E); ZIN 46398 (1), 80–140 m (44°44′N, 136°31′E).

Hokkaido: HUMZ 56087 (1), 56089 (1), 56094 (1), 56096–56100 (5), 330–355 m; HUMZ 133158 (1), 40 m (Okushiri); HUMZ 42785 (1), 290 m; USNM 120110 (1), 144245 (2), depth unknown.

Akita: NSMT-P 74039 (1), 74477 (5), depth unknown.

Hyogo: HUMZ 75454 (1), depth unknown;

OMNH-P 12733 (1), depth unknown.

Icelus toyamensis (Matsubara and Iwai, 1951) [Japanese name: Tomikajika]

Primorsky Krai: ZIN 53356 (8), 210 m (44°22′N, 136°22′E).

Ishikawa: HUMZ 53907–53908 (2), 53915 (1), 506 m; HUMZ 65657–65661 (5), 292–304 m.

Triglops jordani (Jordan and Starks, 1904) [Japanese name: Karafutokajika]

Tatar Strait: ZIN 12925 (4), 112 m (46°15′N, 141°15′E); ZIN 17610 (1), 100 m; ZIN 21457 (2), 76 m (46°57′N, 138°41′E); ZIN 24275 (2), 28 m; ZIN 25144 (1), depth unknown (46°10′N, 138°75′E); ZIN 31698 (1), depth unknown (47°10′N, 142°05′E); ZIN 44224 (1), 19–40 m (47°10′N, 142°05′E); ZIN 44229 (2), 61 m (48°25′N, 142°05′E); ZIN 44370 (1), 21 m (50°10′N, 140°30′E); ZIN 44371 (1), 35 m (48°25′N, 142°05′E); ZIN 44372 (1), 49 m (48°12′N, 141°55′E); ZIN 44374 (2), 46 m (49°40′N, 142°06′E); ZIN 44646 (2), 40–51 m (48°25′N, 142°05′E).

Primorsky Krai: ZIN 26091 (6), 49–62 m (42°51′N, 133°55′E); ZIN 46409 (1), 80–140 m (44°44′N, 136°31′E); ZIN 17615 (1), 56 m (43°51′N, 135°30′E); ZIN 32905 (1), depth unknown (43°40′N, 135°15′E).

Peter the Great Bay: ZIN 17609 (1), 17612 (1), 45 m; ZIN 17613 (2), 17614 (1), 80 m; ZIN 17618 (6), 17619 (2), 106 m; ZIN 17620 (1), 66 m; ZIN 17621 (1), 194 m; ZIN 23824 (1), 24202 (1), 66 m; ZIN 17616 (1), 108 m; ZIN 12240 (2), 12241 (6), 85–90 m.

South Korea: ZIN 12243 (4), depth unknown (34°50′N, 129°00′E).

Hokkaido: HUMZ 97547 (1), 22 m; HUMZ 94208 (1), 86 m.

Triglops pingelii Reinhardt, 1837 [Japanese name: Hokkyokukajika]

Hokkaido: HUMZ 157759 (1), depth unknown.

Tatar Strait: ZIN 44359 (9), depth unknown.

Primorskiy: ZIN 46411 (1), 80–140 m (44°44′N, 136°31′E).

Triglops scepticus Gilbert, 1896 [Japanese name: Niramikajika]

Tatar Strait: ZIN 17600 (1), 122 m (48°08′N, 140°08′E); ZIN 44386 (3), 162 m (46°15′N, 141°15′E).

Primorsky Krai: ZIN 25258 (1), depth unknown (43°26′N, 135°03′E); ZIN 34290 (2), depth unknown (44°46′N, 136°23′E).

Peter the Great Bay: ZIN 17599 (1), 86 m.

Hokkaido: NUMZ 48860 (1), 95–115 m; HUMZ 54462 (1), 54466 (1), 54470 (1), 56107 (1), 56109 (1), 330–355 m; HUMZ 68025 (1), 230 m; HUMZ 46413 (1), 46415–46416 (2), 46419 (1), 198–237 m; HUMZ 42581 (1), 42657 (1), 42685 (1), 42779 (1), 42783 (1), 290 m; HUMZ 42863–42864 (2), 42868 (1), 42874 (1), 42879 (1), 240–400 m.

Ishikawa: HUMZ 55580–55581 (2), 55584 (1), 506 m.

Family Hemitripteridae

Hemitripterus villosus (Pallas, 1814) [Japanese name: Kemushikajika]

Tatar Strait: HUMZ 53186 (1), 375 m.

Peter the Great Bay: ZIN 19441 (1), 34198 (1), depth unknown; HUMZ 157062 (1), 157151 (1), depth unknown.

Vladivostok: ZIN 13663 (3), 37449 (1), depth unknown.

South Korea: ZIN 12207 (1), depth unknown (34°40′N, 128°05′E).

Hokkaido HUMZ 97079 (1), 97090 (1), 69–72 m; HUMZ 97542 (1), 97570 (1), 22 m; HUMZ 107509 (1), depth unknown.

Akita: NSMT-P 76499 (1), 74796 (2), depth unknown.

Niigata: HUMZ 63680–63681(2), 105–106 m; HUMZ 64272 (1), depth unknown.

Ishikawa: HUMZ 66132–66133 (21), 217–226 m; HUMZ 66115 (1), 228–252 m; HUMZ 65597 (1), 115–202 m, HUMZ 65802–65803 (2), 75–82 m.

Hyogo: OMNH-P 6435 (1), depth unknown.

Family Agonidae

Freemanichthys thompsoni (Jordan and Gilbert, 1898) [Japanese name: Yasetokubire]

Tatar Strait: ZIN 24231 (1), 112 m (48°08′N, 140°08′E); ZIN 24233 (2), 29 m (50°13′N, 141°55′E); ZIN 43496 (1), 80 m (49°05′N, 142°05′E).

Peter the Great Bay: ZIN 12315 (1), 24159 (6+), 24221 (1), 60 m; ZIN 24219 (1), depth unknown (42°18′N, 130°40′E); ZIN 24222 (1), 122 m; ZIN 24224–24225 (2), 24226 (2), 24227 (2), 112 m; ZIN 24230 (2), 60 m; ZIN 24234 (3), 97 m; ZIN 24235 (4), 33 m; ZIN 24279 (2), 24378 (3), 42 m; ZIN 24400 (1), 25748 (1), 137 m.

South Korea: ZIN 12292 (2), 12293–12294 (2), 12296 (1), depth unknown (34°40′N, 128°05′E).

Hokkaido: HUMZ 45059–45060 (2), 46422–46423 (2), 198–237 m (Musashi Bank); HUMZ 68371–68385 (15), 185–194 m; HUMZ 133090 (1), 55 m; HUMZ 132421 (1), 60 m; HUMZ 157757–157758 (2), depth unknown.

Akita: NSMT-P 73744 (1), depth unknown.

Fukui: HUMZ 5620 (1), depth unknown.

Hypsagonus quadricornis (Valenciennes, 1829)

[Japanese name: Tsunoshachiuo]

Tatar Strait: ZIN 12824 (1), depth unknown (46º15′N, 141º15′E); ZIN 31810 (1), depth unknown; ZIN 31811 (2), 68 m (46º15′N, 141º15′E); ZIN 31812 (1), 43472 (3), 72 m (46º15′N, 141º15′E); ZIN 46149 (1), 28 m; ZIN 46150 (1), 63 m; ZIN 46201 (1), 92 m; ZIN 46202 (2), 105 m; ZIN 46203 (2), 49 m (48º15′N, 142º15′E).

Primorsky Krai: ZIN 25998 (1), depth unknown (42º49′N, 133º37′E); ZIN 25999 (2), depth unknown (42º50′N, 133º51′E); ZIN 26488 (1: lectotype of *Hypsagonus quadricornis corniger*), 65 m (43º40′N, 135º15′E); ZIN 46204 (1), 45 m; ZIN 49536 (4), 65 m (43º40′N, 135º15′E).

Hokkaido: USNM 149572 (1), 223 m (Rebun).

Leptagonus leptorhynchus (Gilbert, 1896)

[Japanese name: Tengutokubire]

Tatar Strait: ZIN 12874 (2: paralectotype), 102 m? (46°15′N, 141°15′E); ZIN 19035 (2: paralectotype), 112 m (48°08′N, 140°08′E); ZIN 19038 (1: paralectotype), 29 m (50°31′N, 141°55′E); ZIN 25191 (1: paralectotype), 184 m (47°53′N, 140°55′E); ZIN 28971 (1), depth unknown (46°57′N, 138°41′E); ZIN 43510 (1), 33–84 m; ZIN 43511 (2), 92 m; ZIN 43513 (1), 145 m; ZIN 43514 (1), 30 m; ZIN 43515 (1), 63 m; ZIN 43516 (1), 105 m; ZIN 43517 (1), 33–34 m; ZIN 43659 (1), 140–160 m; ZIN 44796 (2), 84 m (46°52′N, 141°15′E); ZIN 44797 (3), 38–80 m (47°10′N, 142°05′E); ZIN 46133 (4), 115 m (47°18′N, 141°54′E); ZIN 46136 (1), 31 m (46°15′N, 141°15′E); ZIN 43662 (1), 102 m (46º40′N, 141º49′E); ZIN 43663 (8), 102 m (46º40′N, 141º49′E).

Primorsky Krai: ZIN 19041 (5: paralectotype), 62 m (42º18′N, 130º40′E); ZIN 25964 (1), depth unknown (42º51′N, 133º48′E); ZIN 18904 (1), 91 m (42º51′N, 133º56′E).

Peter the Great Bay: ZIN 12325 (1: paralectotype); ZIN 19036 (1: paralectotype), 177 m (42°25.5′N, 131°31′E); ZIN 19037 (1: paralectotype), 137 m (42°34′N, 131°01′E); ZIN 19039 (3: paralectotype), 86 m (42°38′N, 132°31.5′E); ZIN 19040 (6: paralectotype), 60 m; ZIN 19042 (2: paralectotype), 69 m (42°27′N, 131°10′E); ZIN 19043 (6: paralectotype), 60 m (42′34°N, 131°20′E); ZIN 19044 (1: paralectotype), 68 m (42°20′N, 132°56′E); ZIN 19045 (1: paralectotype), 55 m (42°31′N, 131°55′E); ZIN 19046 (1: paralectotype), 64 m; ZIN 19047 (1: paralectotype), 41 m (42°46′N, 131°28′E); ZIN 19050 (1: paralectotype), depth unknown; ZIN 25192 (1: paralectotype), 123 m (42°28′N, 132°20′E); ZIN 26084 (1), 28970 (3), depth unknown; ZIN 29486 (2: paralectotype), 77 m (42°37′N, 132°07′E); ZIN 43512 (3), 24 m (42°50′N, 132°20′E).

North Korea: ZIN 12312–12314 (3: paralectotype), 49538 (1: paralectotype), depth unknown (39°30′N, 128°30′E).

Hokkaido: ZIN 44795 (5), 62–72 m (Musashi Bank).

Yamagata: HUMZ 64772 (1), 100–300 m.

Niigata: HUMZ 51930 (1), 51937–51942 (6), depth unknown.

Ishikawa: HUMZ 65787 (1), 292–394 m; HUMZ 66118 (1), 228–252 m; HUMZ 66124–66131 (8), 217–226 m.

Fukui: HUMZ 52011 (1), depth unknown.

Percis japonicus (Pallas, 1769) [Japanese name: Inugochi]

Tatar Strait: ZIN 17451 (1), 70 m (51º00′N, 140º51′E); ZIN 17452 (1), 29 m (50º31′N, 141º55′E).

Peter the Great Bay: ZIN 12862 (1), 133–143 m; ZIN 17450 (1), 68 m; ZIN 17453 (1), 25140 (1), 28956 (1), 43248 (3), depth unknown.

Family Psychrolutidae

Dasycottus setiger Bean, 1890 [Japanese name: Ganko]

Tatar Strait: ZIN 44198 (2), 500 m (47º10′N, 142º05′E).

North Korea: ZIN 24469 (4), depth unknown (39º30′N, 128º30′E).

Hokkaido: HUMZ 157760–157761 (2), depth unknown.

Aomori: HUMZ 17543 (1), depth unknown.

Akita: NSMT-P 74814 (3), 74845 (2), depth unknown.

Yamagata: NSMT-P 22294 (1), depth unknown.

Niigata: HUMZ 52394 (1), 310 m.

Ishikawa: HUMZ 66116 (1), 228–252 m; HUMZ 66134 (1), 217–226 m; HUMZ 65851–65854 (4), 202–230 m.

Hyogo: HUMZ 75455 (1), depth unknown; OMNH-P 6438 (1), 16983 (1), depth unknown.

Yamaguchi: NSMT-P 96536 (5), 271–277 m.

****Malacocottus gibber*** Sakamoto, 1932 [Japanese name: Yamatokobushikajika] (Fig. 2C)

Primorsky Krai: ZIN 34454 (1), 308 m (43º 55′N, 135º30′E).

Yamato Bank: NSMT-P 64783 (1), 1522–1580 m; NSMT-P 61545 (2), 1291–1298 m; NSMT-P 64602 (1), 1391–1421 m; NSMT-P 61546 (1), 1180–1195 m; NSMT-P 65550, 604–610 m; 175725–175730 (6), 639 m; NSMT-P 61646 (3), 1025 m; NSMT-P 61654 (6), 61655 (1), 1029–1039 m; NSMT-P 64568 (1), 1026 m; 61544 (2), 61545 (1), 61651 (3), 61658 (4), 1029–1039 m; NSMT-P 64612 (1), 701–709 m; NSMT-P 64567 (1), 64779 (1), 1500–1509 m; HUMZ 175720–175726 (7), 350 m; HUMZ 175714–175719 (6), 443 m; HUMZ 175820–175724 (5), 175735–175736 (2), 350 m; HUMZ 175714–175719 (6), 443 m; HUMZ 175761–175765 (5), 175820 (1), 369 m.

North Korea: USNM 144272 (1), 890 m; ZIN 24467 (1), 25235 (1), depth unknown (39º30′N, 128º30′E).

Hokkaido: HUMZ 100443–100444 (2), 460–470 m; HUMZ 100452–100454 (3), 500–520 m; HUMZ 100439 (1), 550–560 m; HUMZ 100447–100448 (2), 100451 (1), 610–637 m; HUMZ 109400–109407 (8), 109961–109962 (2), 109967–109975 (9), 800 m; HUMZ 114085–114099 (15), depth unknown; USNM 74593 (1: cotype of *Malacocottus fasciatus*), 594 m (Rebun); USNM 74594 (1: cotype of *M. fasciatus*), 782 m.

Yamagata: NSMT-P 17433–17434 (2), 865 m.

Hyogo: HUMZ 175711–175713 (3), 411 m; HUMZ 175757–175760 (4), 343 m; HUMZ 175681–175684 (4), 429–432 m; NSMT-P 79301 (1), 250 m; ONMH-P 4873 (1), depth unknown.

Tottori: HUMZ 175693–175696 (4), 357–381 m; HUMZ 175685–175688 (4), 410–424 m; HUMZ 175689–175692 (4), 308–318 m; HUMZ 175697–175698 (2), 292 m.

Shimane: HUMZ 175699 (1), 175701–175704 (4), 223 m; NSMT-P 61213 (1), 210–220 m; NSMT-P 61194 (1), 300–324 m; HUMZ 175731–175734 (4), 175756 (1), 292 m; HUMZ 175705–175707 (3), 319 m; HUMZ 175708–175710 (3), 378 m.

Psychrolutes paradoxus Günther, 1861 [Japanese name: Uranaikajika]

Hokkaido: ZIN 44205 (1), 93 m (Musashi Bank).

Kyoto: FAKU 54454 (1), 230 m.

Family Cyclopteridae

Aptocyclus ventricosus (Pallas, 1769) [Japanese name: Hoteiuo]

Tatar Strait: ZIN 33624 (1), 1.5–2 m; ZIN 18041 (1), depth unknown; ZIN 42782 (1), 5 m.

Peter the Great Bay: ZIN 8870–8871 (2), 45972 (1), 48152 (1), depth unknown.

Yamato Bank: NSMT-P 64596 (1), 1299–1316 m; NSMT-P 64571 (1), 701–709 m; NSMT-P 64574 (1), 611–618 m.

Hokkaido: HUMZ 16471 (1), 16623–16624 (2), 114071–114080 (10), 114102–114110 (9), depth unknown.

Akita: NSMT-P 74835 (2), depth unknown.

Niigata: HUMZ 52393 (1), 310 m.

Hyogo: OMNH-P 2359 (1), 7584 (1), depth unknown.

Nagasaki: NSMT-P 10890 (1), depth unknown (Tsushima).

Eumicrotremus birulai Popov, 1925 [Japanese name: Konpeito]

Hyogo: NSMT-P 78993–78994 (2), 250 m; OMNH-P 6389 (1), 6490 (1), 225 m; OMNH-P 7594 (1), depth unknown.

Family Liparidae

Crystallichthys matsushimae (Jordan and Snyder, 1902) [Japanese name: Abachan]

Tatar Strait: HUMZ 41282 (1), 230–280 m (49º11′N, 141º15′E); HUMZ 53059 (1), 375 m (46º43’N, 141º33′E); ZIN 16233 (1), 115.2 m (46º57′N, 138º41′E); ZIN 41957 (1), 240 m (46º40′N,141º50′E); ZIN 47782 (3), 350 m (47º51.9′N, 140º15.2′E).

Peter the Great Bay: ZIN 19868 (1), 26484 (2), 41958 (1), 41959 (2), depth unknown.

Primorsky Krai: ZIN 12933 (1), 214–250 m (42º40′N, 133º00′E); ZIN 43976 (1), 174 m (44º50′N, 136º29′E); ZIN 47783 (1), 400 m (44º25.2′N, 136º32.8′E); ZIN 47784 (2), 270–300 m (44º40′N, 136º40′E).

Hokkaido: HUMZ 68147 (1), 315–330 m; HUMZ 41472, 42474, 42476–42478 (5), 655 m (Okushiri); HUMZ 86835 (1), depth unknown.

Akita: NSMT-P 73724 (3), depth unknown.

Hyogo: OMNH-P 5653 (1), depth unknown.

****Careproctus acanthodes*** Gilbert and Burke, 1912

Tatar Strait: USNM 73332 (1: holotype), 581 m (47°38′N, 141°24′E).

Careproctus colletti Gilbert, 1896 [Japanese name: Arasukabikunin]

Tatar Strait: HUMZ 52974 (1), 145 m; HUMZ 53058 (1), 375 m.

Hokkaido: HUMZ 42770 (1), 655 m. (Okushiri); HUMZ 81257 (1), 403 m; HUMZ 68148 (1), 315–330 m.

Ishikawa: HUMZ 80788 (1), ca. 500 m.

****Careproctus entargyreus*** Gilbert and Burke, 1912

Hokkaido: USNM 73344, 73443 (2: syntype), 120 m.

****Careproctus entomelas*** Gilbert and Burke, 1912

Hokkaido: USNM 73345 (1: holotype), 782 m.

****Careproctus sinensis*** Gilbert and Burke, 1912 [Japanese name: Sekichikubikunin]

Niigata: USNM 73339 (1: holotype), 365 m (Sado).

Careproctus trachysoma Gilbert and Burke, 1912 [Japanese name: Zarabikunin]

Tatar Strait: HUMZ 53021 (1), 375 m (46°43′N, 141°33′E); HUMZ 53056 (1), 370 m (46°48′N, 141°33′E).

Hokkaido: HUMZ 42462 (1), 42464 (1), 42473 (1), 42475 (1), 655 m; HUMZ 42486 (1), 560 m;

HUMZ 42509–42510 (2), 540–610 m (Okushiri); HUMZ 42743 (1), 42745 (1), 42749 (1), 42760 (1), 42762 (1), 42767 (1), 42773–42774 (2), 42803 (1), 42808 (1), 603–700 m (Okushiri); HUMZ 46602–46644 (43), 700–705 m (Okushiri); HUMZ 46680–46708 (28), 720 m; HUMZ 42878 (1), 42880 (1), 240–400 m; HUMZ 68573–68574 (2), 655 m; HUMZ 81253–81255 (3), 455 m; HUMZ 81258 (1), 403.8 m; HUMZ 81262–81264 (3), 473 m; HUMZ 100438 (1), 100442 (1), 100446 (1), 100459 (1), 550–560 m; HUMZ 109393–109399 (7), 800 m; USNM 73333 (1: holotype), 712 m (43°00′N, 140°10.5′ E); USNM 74528 (1: paratype), 74529 (1: paratype), 74530 (2: paratype), 74531 (3: paratype), 74432 (2: paratype), 74533 (1: paratype), depth unknown.

Niigata: HUMZ 78571–78572 (2), 1020–1040 m.

Ishikawa: HUMZ 53701 (1), 53914 (1), depth unknown.

Shimane: HUMZ 92609 (1), 92618–92620 (3),

505–530 m.

Yamato Bank: HUMZ 53614 (1), 375 m; HUMZ 53873–53874 (2), 519 m; HUMZ 109455–109456 (2), depth unknown; NSMT-P 64597 (1), 1299–1316 m; NSMT-P 61653 (2), 1029–1039 m; NSMT-P 61677 (5), depth unknown; NSMT-P 61549 (2), 604–610 m.

Liparis frenatus (Gilbert and Burke, 1912) [Japanese name: Kantenbikunin]

Hokkaido: HUMZ 132400 (1), 50 m.

Aomori: USNM 73329 (1: holotype), 379–530 m.

Niigata: HUMZ 79037 (1), 79051 (1), 79061 (1), 79063 (1), 3–20 m (Sado).

****Liparis ingens*** (Gilbert and Burke, 1912)

South Korea: USNM 73330 (1: holotype), 457 m (36°21′N, 129°53′E).

Liparis latifrons Schmidt, 1950 [Japanese name: Bouzukusauo]

Tatar Strait: ZIN 29111 (1), 58–59 m (50º 36′N, 142º03′E).

Peter the Great Bay: ZIN 12433 (1: lectotype of *Liparis latifrons meridionalis*), 32–43 m; ZIN 20847 (4), 81 m.

Liparis ochotensis Schmidt, 1904 [Japanese name: Isagobikunin]

Primorsky Krai: ZIN 20846 (1), depth unknown.

Hokkaido: HUMZ 44886–44887 (2), 375–390 m (Musashi Bank); HUMZ 42485 (1), 560 m; HUMZ 42771 (1), 42799 (1), 655 m; HUMZ 42772 (1), 705–720 m; HUMZ 68970 (1), 68149–68150 (2), 315–330 m; HUMZ 81260 (1), 432 m; HUMZ 94102 (1), 300–350 m.

Ishikawa: HUMZ 53713–53716 (4), 53887 (1), 53889 (1), 263–560 m.

Liparis tessellatus (Gilbert and Burke, 1912) [Japanese name: Bikunin]

Hokkaido: HUMZ 62257–62258 (2), 80584–80586 (3), 80588–80589 (2), 80591 (1), 81286–81288 (3), depth unknown; HUMZ 80590 (1), 78 m.

Niigata: HUMZ 52404 (1), depth unknown; HUMZ 63672 (1), 99–103 m; HUMZ 63685 (3), 105–106 m.

Ishikawa: HUMZ 55574 (1), 506 m; HUMZ 65984 (1), 135–141 m; HUMZ 65924 (1), 106–108 m; HUMZ 65883 (1), 235 m; HUMZ 66090 (1), 147–158 m; HUMZ 66142–66144 (3), 190–235 m; HUMZ 66177 (1), 115–202 m; OMNH-P 5663 (1), 6363–6365 (3), 8094 (1), depth unknown.

Shimane: NSMT-P 58961 (1), 40 m.

Order Perciformes

Family Acropomatidae

Doderleinia berycoides (Hilgendorf, 1878) [Japanese name: Akamutsu]

Aomori: NSMT-P 73990 (2), depth unknown.

Akita: NSMT-P 73871 (3), depth unknown.

Yamagata: NSMT-P 73658 (2), 73970 (2), depth unknown.

Hyogo: OMNH-P 7900 (1), depth unknown.

Synagrops japonicus (Döderlein, 1883) [Japanese name: Suimikuiuo]

Hyogo: OMNH-P 7794 (1), depth unknown.

Family Polyprionidae

Stereolepis doederleini Lindberg and Krasyukova, 1969 [Japanese name: Ookuchiishinagi]

Hokkaido: HUMZ 99302 (1), 99304 (1), 109408 (1), depth unknown.

Aomori: NSMT-P 74108 (2), depth unknown.

Akita: NSMT-P 73569 (2), 74744 (3), depth unknown.

Hyogo: OMNH-P 6443 (1), 7585 (1), 7838 (1), depth unknown.

Family Serranidae

Caprodon schlegelii (Günther, 1859) [Japanese name: Akaisaki]

Hyogo: ONMH-P 7898 (1), depth unknown.

Epinephelus septemfasciatus Thunberg, 1793 [Japanese name: Mahata]

Akita: NSMT-P 74842 (1), depth unknown.

Yamagata: HUMZ 136683 (1), 11 m.

Nagasaki: NSMT-P 5957–5958 (2), depth unknown (Tsushima).

Niphon spinous Cuvier, 1828 [Japanese name: Ara]

Aomori: NSMT-P 74053 (1), depth unknown.

Akita: NSMT-P 74768 (3), depth unknown.

Yamagata: NSMT-P 74099 (2), 74748 (2), depth unknown.

Hyogo: OMNH-P 8139, depth unknown.

Sacura margaritacea (Hilgendorf, 1879) [Japanese name: Sakuradai]

Hyogo: OMNH-P 7805 (1), 7901 (1), depth unknown.

Family Callanthidae

Callanthias japonicus Franz, 1910 [Japanese name: Shikishimahanadai]

Hyogo: OMNH-P 8285 (1), 12728 (1), depth unknown.

Family Priacanthidae

Cookeolus japonicus (Cuvier, 1829) [Japanese name: Chikamekintoki]

Aomori: NSMT-P 74187 (1), depth unknown.

Yamagata: NSMT-P 75204 (1), depth unknown.

Hyogo: OMNH-P 2370 (1), 4593 (1), depth unknown.

Priacanthus macracanthus Cuvier, 1829 [Japanese name: Kintokidai]

Hyogo: OMNH-P 2230 (1), 2256 (1), 2463 (1), 4575 (1), 5654 (1), depth unknown.

Family Malacanthidae

Branchiostegus japonicus (Houttuyn, 1782) [Japanese name: Aka-amadai]

Akita: NSMT-P 74837 (1), depth unknown.

Yamagata: NSMT-P 73523 (2), depth unknown.

Hyogo: OMNH-P 7587 (1), depth unknown.

Family Scombropidae

Scombrops boops (Houttuyn, 1782) [Japanese name: Mutsu]

Hyogo: OMNH-P 12759 (1), 200–240 m; OMNH-P 2238 (1), 2416–2417 (2), 2440 (1), 2559 (1), 2687 (1), 6413 (1), depth unknown.

Yamaguchi: NSMT-P 35008 (1), 20–30 m.

Nagasaki: NSMT-P 5936 (1), depth unknown (Tsushima).

Family Bramidae

Brama dussumieri Cuvier, 1831 [Japanese name: Himeshimagatsuo]

Hyogo: ONMH-P 2402 (1), 2407 (1), 2732–2733 (2), 3059 (1), 6249 (1), depth unknown.

Brama japonica Hilgendorf, 1878 [Japanese name: Shimagatsuo]

Hyogo: OMNH-P 8141 (1), depth unknown.

Pteraclis aesticola (Jordan and Snyder, 1901) [Japanese name: Bentenuo]

Hyogo: NSMT-P 65832 (1), depth unknown.

Pterycombus petersi (Hilgendorf, 1878) [Japanese name: Ryūgūnohime]

Hyogo: NSMT-P 93916 (1), depth unknown.

Family Emmelichthyidae

Erythrocles microceps Miyahara and Okamura, 1998 [Japanese name: Hichibiki]

Hyogo: OMNH-P 2005 (1), 7506 (1), depth unknown.

Erythrocles schlegelii (Richardson, 1846) [Japanese name: Hachibiki]

Hyogo: OMNH-P 2712 (1), 7626–7627 (2), 8287 (1), depth unknown.

Fukui: ZIN 23050 (1), depth unknown.

Emmelichthys strusakeri Heemstra and Randall, 1977 [Japanese name: Rousokuchibiki]

Hyogo: NSMT-P 65834 (1), 200 m.

Family Caristeiidae

Platyberyx macropus (Bellotti, 1903) [Japanese name: Yaegisu]

Hyogo: NSMT-P 64322 (1), 20–40 m.

Family Sparidae

Dentex tumifrons (Temminck and Schlegel, 1843) [Japanese name: Kidai]

South Korea: ZIN 22558 (1), 22597 (1), depth unknown (Busan).

Ishikawa: HUMZ 65565 (1), 65570 (1), 115–202 m.

Fukui: ZIN 22935 (1), depth unknown.

Hyogo: OMNH-P 7791 (1), 100 m.

Family Zoarcidae

Bothrocara hollandi (Jordan and Hubbs, 1925) [Japanese name: Norogenge]

Tatar Strait: HUMZ 53093 (1), 470 m; HUMZ 53198 (1), 375 m; USNM 149638 (3), 582 m (47º38.7′N, 141º24.5′E); USNM 105184 (1), depth unknown (47º30′N, 139º20′E); ZIN 43451 (1), 263 m.

Primorsky Krai: ZIN 46319 (1), 300–400 m (44º47′N, 136º49′E); ZIN 46320 (1), 300–270 m (44º40′N, 136º40′E); ZIN 46321 (2), 400 m (44º25′N, 136º32′E); ZIN 46322 (3), 300 m (44º54′N, 136º03′E); ZIN 46323 (7), 400–380 m (44º21′N, 136º32′E); ZIN 46372 (2), 1300 m (46º15′N, 138º55′E); ZIN 52695 (1), 230 m.

Peter the Great Bay: ZIN 24499 (3: syntype of *Lycogramma crystallonota*), depth unknown; ZIN 37967 (1), depth unknown.

South Korea: USNM 148760 (6), 732 m (36º08′N, 129º49′E); USNM 150070 (6), 891 m (36º32′N, 129º58.5′E).

Yamato Bank: HUMZ 53854–53855 (2), 450 m; HUMZ 53879 (1), 519 m; HUMZ 177371–177376 (6), 177378 (1), 619 m; NSMT-P 61543 (2), 906–909 m; NSMT-P 61573 (2), 61648 (1), 61649 (1), 61662 (2), 61663 (4), 687–732 m; NSMT-P 61652 (5), 1089–1103 m; NSMT-P 61657 (3), 814–817 m; NSMT-P 64578 (2), 611–618 m; NSMT-P 64623 (1), 1500–1509 m; NSMT-P 64606 (1), 1194–1217 m; NSMT-P 65847 (42), 66152 (18), 1194–1217 m; NSMT-P 66150 (8), 905–907 m; NSMT-P 66151 (6), 66153 (33), 1088–1103 m; NSMT-P 66154 (1), 66155 (3), 1026 m; NSMT-P 66156 (7), 1500–1509 m; NSMT-P 66157 (3), 1203–1210 m; NSMT-P 67291 (1), 348–355 m; NSMT-P 72756 (10), 780–836 m; ZIN 46315 (12), 520 m; ZIN 46316 (4), 490–500 m; ZIN 46317 (15), 570–590 m; ZIN 46318 (20), 570–580 m; ZIN 46368 (14), 500–520 m.

Hokkaido: HUMZ 44974–44976 (3), 44978 (1), 44989 (1), 375–390 m; HUMZ 46317 (1), 46331 (1), 45254–45256 (3), 141–162 m; HUMZ 56551 (1), 56588 (1), 56602–56603 (2), 56615 (1), 56627 (1), 330–355 m; HUMZ 68144 (1), 315–330 m; HUMZ 42450–42451 (2), 42463 (1), 42467–42468 (2), 42471 (1), 655 m; HUMZ 42481 (1), 42483 (1), 560 m; HUMZ 42688 (1), 42695 (1), 42697 (1), 42701–42703 (3), 42708–42709 (2), 42712–42713 (2), 42718 (1), 42730–42731 (2), 42733 (1), 42736 (1), 42786–42787 (2), 603–700 m; HUMZ 42504 (1), 42507 (1), 42513 (1), 42517–42518 (2), 540–610 m; HUMZ 46598 (1), 46600–46601 (2), 46618 (1), 46620 (1), 46624–46625 (2), 705–720 m; HUMZ 46638–46639 (2), 46642 (1), 46646 (1), 46653–46658 (6), 46660–46665 (6), 46667–46671 (5), 46673–46679 (7), 720 m; HUMZ 42877 (1), 240–400 m; USNM 113403 (2), 117950 (2), 594 m (Rebun); USNM 117962 (6), 712–742 m; USNM 117932 (1), 148537 (2), 454–410 m;

Akita: NSMT-P 74282 (2), depth unknown.

Niigata: HUMZ 52379–52392 (14), 310 m; HUMZ 53722 (1), 488 m; HUMZ 123939–123940 (2), depth unknown; NSMT-P 72548 (11), depth unknown; USNM 117951 (4), 980 m (Sado); USNM 117966 (11), 148758 (6), 784 m (Sado); USNM 151164 (2), depth unknown (Sado); USNM 117961 (2), 151164 (2), 784 m (Sado).

Ishikawa: HUMZ 53885 (1), 263 m; HUMZ 53720–53721 (2), 560 m; HUMZ 53710 (1), 495 m; HUMZ 55573 (1), 506 m.

Hyogo: HUMZ 64828 (1), 41117–41118 (2), depth unknown; NSMT-P 63446 (3), depth unknown;

Shimane: HUMZ 41129–41130 (2), 482–650 m; NSMT-P 61193 (4), 300–324 m; NSMT-P 61211 (6), 210–220 m; ZIN 46369 (1), 270–288 m; ZIN 46370 (1), 560–530 m; ZIN 46371 (1), 740–790 m.

Bothrocara tanakae (Jordan and Hubbs, 1925) [Japanese name: Kantengenge]

Akita: NSMT-P 74282, depth unknown.

Niigata: HUMZ 123939–123940 (2), depth unknown.

Davidijordani poecilimon (Jordan and Fowler, 1902) [Japanese name: Sarasagaji]

Hokkaido: HUMZ 133150 (1), 60 m.

Niigata: HUMZ 63633 (1), 99–103 m; USNM 122362 (1: holotype of *Lycenchelys spilotus*), 111 m (Sado); USNM 122362 (1: paratype of *L. spilotus*), 112 m.

Shimane: NSMT-P 65842 (3), 161–162 m; NSMT-P 65843 (1), 151 m.

Derjuginia japonica (Katayama, 1943) [Japanese name: Niramigenge]

Peter the Great Bay: ZIN 34747 (1), depth unknown.

Hokkaido: USNM 117956 (1), 712–782 m.

Niigata: 117958 (2), 411–447 m (Sado).

Hyogo: NSMT-P 55275 (1), 61685 (1), 282 m.

****Krusensterniella maculata*** Andriashev, 1938 [Japanese name: Aiharegaji]

Tatar Strait: ZIN 29989 (2: syntype), 53–150 m (51º04′N,140º49′E).

Primorsky Krai: ZIN 40166 (1), 192 m (43º 45′N, 135º35′E).

****Lycodes japonicus*** Matsubara and Iwai, 1951 [Japanese name: Ashinagagenge]

Hokkaido: HUMZ 97157 (1), 545 m; ZIN 47831 (2), depth unknown (45º15.6′N, 141º00′E)

Yamato Bank: NSMT-P 66227 (2), 905–907 m; NSMT-P 65773 (10), 65791 (37), 65826 (1), 65827 (75); NSMT-P 64572 (1), 64585 (1), 830–835 m; NSMT-P 64619 (1), 901–912 m; NSMT-P 64575 (1), 611–618 m; NSMT-P 64590 (32), 611–618 m; NSMT-P 64610 (2), 416–420 m.

Niigata: USNM 150068 (3), 365 m (Sado).

Toyama: FAKU 14751 (1), 15411 (1), 15414 (1), depth unknown.

Shimane: FAKU 131920 (1); FAKU 132629 (10), 361 m (Oki).

Lycodes nakamurai (Tanaka, 1914) [Japanese name: Kurogenge]

Tatar Strait: ZIN 41611 (2), 160 m (50º02′N, 142º10′E); ZIN 41612 (2), 148 m (50º02′N, 142º10′E); ZIN 44506 (2), 263 m.

Primorsky Krai: ZIN 30966 (1), depth unknown (47º41′N, 140º06′E); ZIN 46282 (2), 400 m (44º25′N, 136º32′E), ZIN 46283 (2), 380–400 m (44º21′N, 136º32′E); ZIN 47828 (1), 480–482 m (44º00′N, 136º11.7′E).

Yamato Bank: HUMZ 53795–53797 (3), 53799 (1), 460 m; HUMZ 53810–53811 (2), 53814 (1), 360 m; HUMZ 53857–53858 (2), 53862–53863 (2), 53865 (1), 53868 (1), 450 m.

Hokkaido: HUMZ 81256 (1), 404 m; HUMZ 45257–45258 (2), 141–162 m; USNM 113405 (1), 149619 (1), 594 m (Rebun).

Ishikawa: HUMZ 53886 (1), 53890 (1), 263 m; HUMZ 53723 (1), 560 m; HUMZ 53732–53733 (2), 53736 (1), 53739 (1), 53743 (1), 315 m; HUMZ 53897 (1), 53900 (1), 53910 (1), 53916 (1), 53919–53920 (2), 53924 (1), 53926 (1), 506 m; HUMZ 65636 (1), 65642 (1), 292–304 m

Hyogo: HUMZ 64820 (1), HUMZ 64822 (1).

Shimane: ZIN 46350 (3), 420 m.

****Lycodes nishimurai*** Shinohara and Shirai, 2005 [Japanese name: Orochigenge]

Yamato Bank: NSMT-P 63795 (1: holotype), 63797–63799 (3: paratype), 642–669 m; NSMT-P 73495 (3), 611–618 m; NSMT-P 73496 (3), 701–709 m.

Hokkaido: USNM 149618 (1), 594 m (Rebun).

Akita: NSMT-P 74489 (2), depth unknown.

Niigata: USNM 151162 (2), 411–448 m (Sado); USNM 151164 (2), 785 m (Sado)

Lycodes palearis fasciatus (Schmidt, 1904)

Primorsky Krai: ZIN 25272 (2), 220 m (44º41′N, 136º39′E).

****Lycodes sadoensis*** Toyoshima and Honma, 1980 [Japanese name: Sadohinagenge]

Ishikawa: HUMZ 65828–65831 (4: paratype), 65832 (1: holotype), 65833 (1: paratype), 235 m.

Lycodes sigmatoides Lindberg and Krasyukova, 1975 [Japanese name: Esujigaji]

Tatar Strait: ZIN 19165 (3), depth unknown (50º34′N, 142º00′E); ZIN 19166 (1), depth unknown (50º10′N, 140º30′E); 29098 (1), 72 m (50º54′N, 141º28′E); ZIN 29104 (1), depth unknown (50º59′N, 141º23′E); ZIN 30017 (2), depth unknown (50º45′N, 141º55′E); ZIN 30019 (1), 47–50 m (50º54′N, 142º00′E); ZIN 30985 (1), 200 m (49º01′N, 141º14′E).

Peter the Great Bay: ZIN 45456 (1), depth unknown.

Hokkaido: HUMZ 41286 (1), 540–592 m.

Lycodes tanakae Jordan and Thompson, 1914 [Japanese name: Tanakagenge]

Tatar Strait: ZIN 41587 (1), 270–310 m (46º51′N, 139º10′E).

Primorsky Krai: ZIN 46338 (1), 400 m (44º25′N, 136º32′E).

Hokkaido: HUMZ 97156 (1), 650 m.

Akita: NSMT-P 74007 (1), 74380 (1), depth unknown.

Niigata: HUMZ 52398–52399 (2), 310 m.

Ishikawa: HUMZ 53896 (1), 55572 (1), 506 m.

Hyogo: HUMZ 41119–41120 (2), 64823 (1), 64825 (1), depth unknown; OMNH-P 8701–8702 (2), 16984–16985 (2), depth unknown.

Yamaguchi: NSMT-P 96573 (1), 271–277 m.

Shimane: ZIN 46333 (3), 290–296 m (35º46′N, 132º13′E); ZIN 46334 (1), 480 m (35º53′N, 132º 08′E); ZIN 46337 (1), 300 m; ZIN 46335 (1), 350 m; ZIN 46336 (1), 350 m (Oki).

North Korea: ZIN 30016 (1), depth unknown (38º45′N, 128º15′E)

****Lycodes teraoi*** Katayama, 1943 [Japanese name: Hinagenge]

Ishikawa: FAKU 132572–132574 (3), 250 m.

Kyoto: FAKU 130811–130814 (4), 280 m; FAKU 130844 (1), 231 m; FAKU 130847 (4), 260 m; FAKU 131141 (8), depth unknown; FAKU 131630–131631 (7), 210 m.

Hyogo: FAKU 25729 (1), depth unknown; HUMZ 64826–64827 (2), depth unknown; HUMZ 81282–81285 (4: syntype), ca. 150 m; NSMT-P 18223 (1: syntype), ca. 150 m; NSMT-P 98032 (2), 225 m.

Shimane: NSMT-P 64991 (3), 290–292 m; NSMT-P 64995 (3), 250 m; NSMT-P 65821 (2), 229–235 m; NSMT-P 78785 (6), 190–196 m; NSMT-P 98127 (6), 234–236 m; NSMT-P 98128 (1), 208–209 m; FAKU 131656–131658 (3), depth unknown; FAKU 131931 (1), 251 m; FAKU 131943 (1), 190 m.

Tottori: NSMT-P 98031 (1), 225 m.

South Korea: USNM 117957 (2), 223 m (36º18′N, 129º44′E).

Lycodes yamatoi Toyoshima, 1985 [Japanese name: Yamatomayugaji]

Yamato Bank: HUMZ 53597–53598 (2: paratype), 53610–53611 (2: paratype), 375 m; HUMZ 53618 (1: paratype), 53620 (1: paratype), 53630 (1: paratype), 53634 (1: paratype), 53658 (1: paratype), 53668 (1: paratype), 53672 (1: paratype), 53682 (1: paratype), 53684 (1: paratype), 435 m; HUMZ 53726 (1: paratype), 450 m; HUMZ 53734–53735 (2: paratype), 53737–53738 (2: paratype), 53740–53742 (3: paratype), 315 m; HUMZ 53798 (1: paratype), 460 m; HUMZ 53805 (1: paratype), 53817 (1: paratype), 360 m; HUMZ 53856 (1: paratype), 53866 (1: paratype), 450 m; HUMZ 53923 (1: paratype), 53925 (1: paratype), 560 m.

Hokkaido: HUMZ 42480 (1: paratype), 560 m (Okushiri)

Hyogo: HUMZ 41094 (1: holotype), depth unknown.

Shimane: HUMZ 41125–41126 (2), 482–650 m.

Petroschmidtia toyamensis Katayama, 1941 [Japanese name: Agogenge]

Tatar Strait: HUMZ 41287 (1), 631–760 m.

Primorsky Krai: ZIN 46330 (1), 400–380 m (44º21′N, 136º32′E); ZIN 46332 (11), 1200 m (46º24′N, 138º55′E); ZIN 46761 (2), 1225 m (43º45′N, 136º06′E).

Hokkaido: HUMZ 41285 (1), 540–592 m; HUMZ 45259–45261 (3), 141–162 m; HUMZ 42717 (1), 603–700 m; HUMZ 42728 (1), 600–703 m; USNM 160719 (1), 782 m; ZIN 47829 (2), 510–525 m (Rebun).

Niigata: HUMZ 52371–52378 (8), 310 m; HUMZ 52396–52397 (2), 260 m; NSMT-P 63234 (2), 480 m; USNM 151163 (2), 784 m (Sado).

Ishikawa: HUMZ 53888 (1), 53891 (1), 263 m; HUMZ 53719 (1), 560 m; HUMZ 53893–53894 (2), 53899 (1), 53904–53905 (2), 53907–53908 (2), 53915 (1), 53922 (1), 506 m.

Shimane: NSMT-P 61191 (1), 300–324 m; HUMZ 41123–41124 (2), 482–650 m; USNM 117937 (1), 210 m; ZIN 46327 (3), 420 m; ZIN 46331 (10), 560–530 m.

Yamato Bank: NSMT-P 64599(1), 1299–1316 m; NSMT-P 66222 (8), 1203–1210 m; NSMT-P

64580 (1), 1328–1337 m; NSMT-P 64615 (1), 1426–1431 m; NSMT-P 61647 (1), 1025 m; NSMT-P 61656 (1), 1029–1039 m, NSMT-P 61661 (1), 906–909 m; NSMT-P 61547 (1), 1089–1103 m; NSMT-P 64613 (1) 701–709 m; NSMT-P 61548 (2), 687–732 m; NSMT-P 64576 (4), 618–611 m; HUMZ 53778–53786 (9), 442 m; HUMZ 53806–53809 (4), 53812–53813 (2), 53815–53816 (2), 53818 (1), 360 m; HUMZ 53864 (1), 450 m; ZIN 46328 (1), 520 m; ZIN 46329 (1), 570–580 m.

Family Stichaenidae

Anisarchus macrops (Matsubara and Ochiai, 1952) [Japanese name: Medamagimpo]

Tatar Strait: ZIN 40623 (1), 263 m (47º20′N, 141º58′E); ZIN 40624 (1), 255 m (47º25′N, 142º00′E); ZIN 54021 (1), 152–153 m (46º49′N, 138º55′E).

Primorsky Krai: ZIN 40311 (1), 192 m (43º45′N, 135º35′E).

Ishikawa: HUMZ 65825–65827 (3), 235 m; HUMZ 65786 (1), 292–304 m.

Lumpenella longirostris (Evermann and Goldsborough, 1907) [Japanese name: Nezumigimpo]

Tatar Strait: HUMZ 53071 (1), 53078 (1), 53081 (1), 470 m.

Hokkaido: HUMZ 100449 (1), 550–560 m.

Lumpenus sagitta Wilimovsky, 1956 [Japanese name: Unagigaji]

Tatar Strait: ZIN 40345 (1), depth unknown (48º15′N, 142º15′E).

Peter the Great Bay: ZIN 40317 (1), 41811 (2), 70–80 m; ZIN 47925 (1), depth unknown.

Hokkaido: HUMZ 134034–134035 (2), 50.2 m; HUMZ 134076–134083 (8), 49.6 m; HUMZ 132807 (1) 50 m; HUMZ 99303 (1), depth unknown.

Niigata: HUMZ 63678–63679 (2), 63682 (1), 105–106 m; HUMZ 64279 (1), 109781 (1), depth unknown.

Stichaeus grigorjewi Herzenstein, 1890 [Japanese name: Nagazuka]

Tatar Strait: HUMZ 53048–53049 (2), 145 m; HUMZ 52951 (1), 155 m; ZIN 13025 (2), depth unknown (51º30′N, 140º45′E); ZIN 13095 (11), 18845 (2), 18446 (2), depth unknown (51º30′N, 140º45′E); ZIN 20710 (1), depth unknown (51º30′N, 140º45′E); ZIN 39870 (1), 65 m.

Peter the Great Bay: ZIN 12380–12381 (2), 17574 (2), 18228 (1), 18847 (2), 22187 (1), 41862 (3), depth unknown.

Hokkaido: HUMZ 97551 (1), 22 m; HUMZ 134004 (1), 50.6 m; HUMZ 4057 (1), depth unknown.

Akita: NSMT-P 74541 (3), depth unknown.

Yamagata: NSMT-P 74590 (2), depth unknown.

Niigata: HUMZ 109850 (1), 115–129 m; HUMZ 52395 (1), 310 m.

Hyogo: OMNH-P 6404 (1), 6407–6408 (2), 6496 (1), depth unknown.

****Xenolumpenus longipterus*** Shinohara and Yabe, 2009 [Japanese name: Furisodegaji]

Hokkaido: NSMT-P 69644 (1: holotype), 167–208 m (Okushiri); HUMZ 162792 (1: paratype), 250–300 m.

Family Pentacerotidae

Histiopterus typus Temminck and Schlegel, 1844 [Japanese name: Kawabisha]

Hyogo: OMNH-P 7834 (1), depth unknown.

Evistias acutirostris (Temminck and Schlegel, 1844) [Japanese name: Tengudai]

Hyogo: OMNH-P 2714 (1), 8056 (1), depth unknown.

Family Cryptacanthodidae

Cryptacanthocephoides bergi Lindberg, 1930 [Japanese name: Hadakaookamiuo]

Peter the Great Bay: ZIN 25131 (1), depth unknown.

Family Champsodontidae

Champsodon snyderi Franz, 1910 [Japanese name: Wanigisu]

Hyogo: OMNH-P 7711 (1), 7770 (1), 7771 (2), depth unknown.

Family Trichodontidae

Arctoscopus japonicus (Steindachner, 1881) [Japanese name: Hatahata]

Tatar Strait: ZIN 17801 (1), depth unknown (51º26′N, 144º29.5′E); ZIN 19886 (1), depth unknown (50º55′N, 142º10′E); ZIN 19867 (1), depth unknown (51º30′N, 140º45′E); ZIN 19871 (1), depth unknown (51º23′N, 142º00′E); ZIN 20360 (6), depth unknown (49º00′N, 140º20′E); ZIN 33769 (1), 94 m; ZIN 38880 (5), depth unknown (47º25′N, 142º00′E); ZIN 38892 (2), 19–40 m (48º15′N, 142º15′E); ZIN 38893 (3), 38–44 m (48º00′N, 142º15′E); ZIN 38898 (1), 14.5–33 m (48º25′N, 142º05′E).

Primorsky Krai: ZIN 12995 (1), depth unknown (43º25′N, 135º05′E); ZIN 24256 (1), depth unknown (44º41′N, 136º39′E).

Peter the Great Bay: ZIN 20246 (3), 24259 (1), 24273 (1), 42237 (3), 70–80 m; ZIN 34228 (1), depth unknown.

Vladivostok: ZIN 12441 (1), 34129 (5), 34227 (1), depth unknown.

Akita: NSMT-P 73901 (1), 74339 (15), 74868 (21), depth unknown.

Yamagata: NSMT-P 73886 (1), depth unknown.

Ishikawa: HUMZ 66119 (1), 228–252 m.

Hyogo: OMNH-P 5657–5658 (2), depth unknown.

Family Uranoscopidae

Uranoscopus japonicus Houttuyn, 1782 [Japanese name: Mishimaokoze]

Aomori: NSMT-P 74144 (1), depth unknown.

Akita: NSMT-P 74173 (1), depth unknown.

Yamagata: NSMT-P 74478 (2), depth unknown.

Ishikawa: HUMZ 65617 (1), 65632 (1), 103–106 m.

Fukui: ZIN 22990 (3), 23117 (2), depth unknown.

Hyogo: OMNH-P 7828 (1), 100 m; OMNH-P 4577 (1), 6468 (1), 6480 (1), 7607 (1), depth unknown.

Xenocephalus elongatus (Temminck and Schlegel, 1843) [Japanese name: Aomishima]

Akita: NSMT-P 73981 (1), depth unknown.

Yamagata: NSMT-P 74142 (1), depth unknown.

Niigata: HUMZ 64274 (1), depth unknown; HUMZ 63651–63654 (4), 99–103 m; HUMZ 63675 (1), 93–106 m; HUMZ 63693 (1), 63701 (1), 105–106 m; HUMZ 51955 (1), 51965 (1), 52817 (1), depth unknown.

Ishikawa: HUMZ 65957–65958 (2), 118–121 m; HUMZ 66200 (1), depth unknown.

Family Gempylidae

Nealotus tripus Johnson, 1865 [Japanese name: Fuuraikamasu]

Hyogo: OMNH-P 2584 (1), depth unknown.

Rexea prometheoides (Bleeker, 1856) [Japanese name: Kagokamasu]

Hyogo: OMNH-P 6391 (1), 6405 (1), 6434 (1), 6440 (1), 6441 (5), depth unknown.

Ruvettus pretiosus Cocco, 1833 [Japanese name: Baramutsu]

Hyogo: OMNH-P 5873 (1), depth unknown.

Family Trichiuridae

Trichiurus japonicus Temminck and Schlegel, 1844 [Japanese name: Tachiuo]

Ishikawa: HUMZ 66223 (1), depth unknown.

South Korea: ZIN 22457 (3), depth unknown (Busan).

Family Centrolophidae

Hyperoglyphe japonica (Döderlein, 1884) [Japanese name: Medai]

Hyogo: OMNH-P 2382 (1), 2394 (1), 7503–7505 (3), 8151 (1), depth unknown.

Psenopsis anomala (Temminck and Schlegel, 1844) [Japanese name: Ibodai]

Hyogo: OMNH-P 2318 (1), 2322 (1), 2415 (1), 2420 (1), 7590 (1), depth unknown.

Family Nomeidae

Psenes pellucidus Lütken, 1880 [Japanese name: Hanabirauo]

Hyogo: OMNH-P 8142 (1), 300 m; OMNH-P 2311–2312 (2), 2393 (1), 8143 (1), depth unknown.

Order Pleuronectiformes

Family Citharidae

Citharoides macrolepidotus Hubbs, 1915 [Japanese name: Kokebirame]

Fukui: ZIN 45093 (1), depth unknown.

Family Pleuronectidae

Acanthopsetta nadeshnyi Schmidt, 1904 [Japanese name: Urokomegarei]

Tatar Strait: HUMZ 53111–53118 (8), 470 m (47°55.5′N, 141°12′E); HUMZ 53022 (1), 53024 (1), 53028 (1), 53031 (1), 53041 (1), 145 m (47°38′N, 141°31′E); HUMZ 52956–52959 (4), 52963–52966 (4), 52968–52969 (2), 52971–52972 (2), 52976 (1), 52978 (1), 52980 (1), 52985 (1), 52988 (1), 52990–52991 (2), 52995–52997 (3), 52999–53000 (2), 53003 (1), 53005–53008 (4), 53010–53012 (3), 53014 (1), 53016 (1), 53019–53020 (2), 155 m; HUMZ 53138–53139 (2), 53141–53145 (5), 53147 (1), 370 m; HUMZ 53187 (1), 53208–53214 (7), 375 m; ZIN 17701 (1), 28 m (51º24′N, 141º36′E); ZIN 17712 (3), 61 m (48º08′N, 140º08′E); ZIN 17713 (6), 28 m (50º58′N, 140º38′E); ZIN 17714 (1), 82 m (50º38′N, 141º05′E); ZIN 17717 (1), 66 m (47º55′N, 139º39′E); ZIN 20695 (2), 135 m (48º27′N, 140º42′E); ZIN 32172 (1) (54º35′N, 142º16′E); ZIN 45181 (1), 36 m (51º26′N, 141º29′E); ZIN 43002 (1), 43 m (51º22′N, 141º31′E); ZIN 45184 (1), 7–14 m (53º29′N, 141º09′E); ZIN 45185 (1), 7–14 m (50º59′N, 140º58′E); ZIN 45186 (3), depth unknown (54º35′N, 142º16′E); ZIN 45189 (2), 36 m (51º26′N, 141º29′E); ZIN 45190 (3), 27 m (51º30′N, 140º45′E).

Primorsky Krai: ZIN 32173 (2), 96 m (42º18′N, 130º46′E); ZIN 17719 (6), 99 m (42º51′N, 133º 56′E); ZIN 45191 (2), 43 m (42º50′N, 132º20′E).

Peter the Great Bay: ZIN 12345 (6+: syntype) 70–71 m; ZIN 12344 (2: syntype), 55 m; ZIN 17698 (1), 70 m; ZIN 17699 (1), 66 m; ZIN 17700 (1), 68 m; ZIN 17704 (2), 38 m; ZIN 17709 (1), 80 m; ZIN 17710 (2) 66 m; ZIN 17711 (4), 94 m; ZIN 17715 (6), 106 m.

Vladivostok: ZIN 12343 (1: syntype), depth unknown.

North Korea: ZIN 12764 (1: syntype), 50–60 m (39º30′N, 128º30′E).

Yamato Bank: HUMZ 53880–53882 (3), 519 m; HUMZ 53770–53772 (3), 442 m; HUMZ 53792 (1), 460 m; HUMZ 53804 (1), 360 m; HUMZ 53850 (1), 53852–53853 (2), 450 m; ZIN 47040 (2), 500–520 m; ZIN 47064 (7), 520–530 m.

Hokkaido: HUMZ 48854 (1), 48857 (1), 95–115 m; HUMZ 53231 (1), 53235 (1), 260–335 m; HUMZ 134676–134685 (10), 348 m; HUMZ 157753 (1), depth unknown; HUMZ 67981–67983 (3), 295–303 m; HUMZ 68359–68360 (2), 185–194 m; HUMZ 42778 (1), 655 m; HUMZ 42876 (1), 42881 (1), 240–400 m.

Ishikawa: HUMZ 53913 (1), 506 m.

Clidoderma asperrimum (Temminck and Schlegel, 1846) [Japanese name: Samegarei]

Tatar Strait: ZIN 45582 (1), 62–71 m (46º 19′N, 141º44′E).

South Korea: ZIN 22777 (1), 23740 (1), depth unknown (Busan).

Hyogo: OMNH-P 6439 (1), depth unknown.

Dexistes rikuzenius Jordan and Starks, 1904 [Japanese name: Migigarei]

South Korea: ZIN 23736 (1), depth unknown (Busan).

Niigata: HUMZ 63714 (1), 105–106 m.

Ishikawa: HUMZ 65968–65970 (3), 135–141 m; HUMZ 65611–65613 (3), 88–91 m; HUMZ 65994–65998 (5), 85–90 m; HUMZ 65624 (1), 103–106 m; HUMZ 65938 (1), 106–108 m; HUMZ 65947 (1) 118–121 m; HUMZ 66158 (1), 115–202 m.

Eopsetta grigorjewi (Herzenstein, 1890) [Japanese name: Mushigarei]

South Korea: ZIN 23732 (2), depth unknown (Busan).

Hokkaido: HUMZ 16648 (1), 107510 (1), 109426 (1), 109930 (1), depth unknown.

Aomori: NSMT-P 73286 (1), depth unknown.

Niigata: NSMT-P 64977 (2), 125–131 m; HUMZ 51905 (1), 51960 (1), depth unknown; USNM 77085 (5), 111 m (Sado); USNM 77086 (2), 116 m (Sado).

Ishikawa: HUMZ 66000 (1), 85–90 m; HUMZ 65944 (1), 118–121 m; HUMZ 66141 (1), 190–235 m; HUMZ 66199 (1), depth unknown; HUMZ 65820 (1), 65822 (1), 66061–66064 (4), 75–82 m; HUMZ 66157 (1), 115–202 m.

Hyogo: OMNH-P 7741–7742 (2), 7792 (1), 100 m.

Nagasaki: NSMT-P 5581–5582 (2), 100 m (Tsushima).

Hippoglossoides dubius Schmidt, 1904 [Japanese name: Akagarei]

Tatar Strait: HUMZ 53021 (1), 53027 (1), 53029–53030 (2), 53032–53033 (2), 53035–53036 (2), 53039 (1), 145 m (47º38′N, 141º31′E); HUMZ 52953–52955 (3), 52960 (1), 52962 (1), 52967 (1), 52977 (1), 52979 (1), 52983–52984 (2), 52987 (1), 52989 (1), 52992–52994 (3), 53002 (1), 53013 (1), 53015 (1), 53017–53018 (2), 53188 (1), 155 m; HUMZ 53146 (1), 53161 (1), 370 m; ZIN 12336 (1: syntype), 83–84 m (47º00′N, 142º05′E); ZIN 17900 (1), depth unknown (50º38′N, 141º05′E); ZIN 17906 (2), depth unknown (51º00′N, 140º51′E); ZIN 17907 (1), 61 m; ZIN 17908 (1), depth unknown (49º30′N, 140º30′E); ZIN 17909 (1), depth unknown (50º10′N, 140º30′E); ZIN 17911 (1), depth unknown (51º00′N, 140º40′E); ZIN 18599 (1), 135 m (48º27′N, 140º42′E); ZIN 43705 (1), depth unknown (51º30′N, 140º45′E).

Primorsky Krai: ZIN 17902 (1), depth unknown (42º40′N, 133º00′E); ZIN 17903 (1), depth unknown (42º18′N, 130º04′E).

Peter the Grate Bay: ZIN 17904 (1), depth unknown.

South Korea: ZIN 23739 (2), depth unknown (Busan).

Yamato Bank: HUMZ 53662 (1), 435 m.

Hokkaido: HUMZ 53232–53234 (3), 260–335 m; HUMZ 67697 (1), 216–220 m; HUMZ 45062 (1), 46406 (1), 198–237 m; HUMZ 67984 (1), 295–303 m; HUMZ 68356–68357 (2), 185–194 m; HUMZ 16575–26576 (2), 16578 (1), depth unknown; USNM 68244 (1: holotype of *Hippoglossoides katakurae*), depth unknown.

Ishikawa: HUMZ 65823 (1), 75–82 m; HUMZ 66100–66101 (2), 228–252 m.

Hyogo: OMNH-P 5662 (1), depth unknown.

Hippoglossus stenolepis Schmidt, 1904 [Japanese name: Ohyou]

Hokkaido: HUMZ 55902 (1), 330–355 m.

Hippoglossoides elassodon Jordan and Gilbert, 1881 [Japanese name: Umagarei]

Tatar Strait: ZIN 17905 (2), depth unknown; ZIN 18533 (1), depth unknown (50º58′N, 141º04′E); ZIN 18538 (3), depth unknown (50º45′N, 141º55′E); ZIN 18540 (3), 86 m (50º22′N, 141º05′E); ZIN 48099 (2), 139 m.

Hippoglossoides pinetorum (Jordan and Starks, 1904) [Japanese name: Souhachi]

Tatar Strait: ZIN 45084 (3), depth unknown (51º16′N, 142º10′E); ZIN 45085 (5), depth unknown (51º16′N, 142º10′E); ZIN 12362 (1: syntype), depth unknown (47º00′N, 142º05′E).

Primorsky Krai: ZIN 25953 (5), depth unknown (42º49′N, 133º39′E); ZIN 19950 (1), depth unknown.

Peter the Great Bay: ZIN 18000 (1), depth unknown; ZIN 18634 (1), depth unknown (42º36′N, 139º07′E); ZIN 19065 (4), 19952 (2), depth unknown.

Vladivostok: ZIN 12361 (2: syntype), depth unknown; ZIN 19063 (1), depth unknown.

North Korea: ZIN 12363 (3: syntype), depth unknown (Wonsan); ZIN 12364–12365 (2: syntype), depth unknown.

South Korea: ZIN 23826 (2), depth unknown (Busan).

Hokkaido: HUMZ 96894 (1), 34–36 m; HUMZ 16568–16571 (4), 16687–16688 (2), 16702–16703 (2), 16745–16746 (2), depth unknown; HUMZ 107858 (1), 120–130 m.

Niigata: HUMZ 63657 (1), 99–103 m.

Ishikawa: HUMZ 66094–66095 (2), 228–252 m; HUMZ 65945 (1), 118–121 m; HUMZ 66139 (1), 190–235 m; HUMZ 66194–66196 (3), depth unknown; HUMZ 65580 (1), 66156 (1), 115–202 m.

Hyogo: OMNH-P 5660–5661 (2), 5856 (1), 11211 (1), 16978–16979 (2), depth unknown.

Shimane: HUMZ 164307 (1), 10 m; HUMZ 164304–164306 (3), 70 m.

Yamaguchi: NSMT-P 95798 (3), 271–277 m.

Nagasaki: NSMT-P 66141 (1), 202–205 m (Tsushima).

Glyptocephalus stelleri (Schmidt, 1904) [Japanese name: Hireguro]

Tatar Strait: HUMZ 53025–53026 (2), 53037–53038 (2), 53040 (1), 145 m (47º38′N, 141º31′E); HUMZ 52952 (1), 52961 (1), 52970 (1), 52973 (1), 52982 (1), 53001 (1), 53178 (1), 155 m; HUMZ 53215 (1), 375 m; ZIN 12437 (1: syntype of *Microstomus stelleri*), depth unknown (47º00′N, 142º05′E); ZIN 47007 (1), 121 m; ZIN 47013 (1), 263 m.

Peter the Great Bay: ZIN 12352 (2: syntype of *M. stelleri*), 55 m; ZIN 20329 (2), 75 m.

North Korea: ZIN 12347 (6: syntype of *M. stelleri*), depth unknown (39º10′N, 127º25′E); ZIN 12349 (3: syntype of *M. stelleri*), depth unknown (39º30′N, 128º30′E).

Yamato Bank: HUMZ 53775–53777 (3), 442 m; HUMZ 53791 (1), 460 m; HUMZ 53851 (1), 450 m.

Hokkaido: HUMZ 48859 (1), 95–115 m; HUMZ 67698–67699 (2), 216–220 m; HUMZ 45058 (1), 46417 (1), 198–237 m; HUMZ 68985 (1), 68358 (1), 185–194 m; HUMZ 97002 (1), 96261 (1), 84–86 m; HUMZ 97445 (1), 97447 (1), 97539 (1), 97584–97585 (2), 22 m; HUMZ 96451 (1) 37–62 m; HUMZ 16647 (1), depth unknown; USNM 77019 (1), depth unknown; USNM 77022 (1), 259 m (Rebun).

Ishikawa: HUMZ 53884 (1), 263 m; HUMZ 53912 (1), 506 m; HUMZ 65971 (1), 135–141 m; HUMZ 66098–66099 (2), 228–252 m; HUMZ 66075–66080 (6), 147–158 m; HUMZ 66140 (1), 190–235 m; HUMZ 65817–65819 (3), 75–82 m; HUMZ 66159 (1), 115–202 m; HUMZ 117543 (1), 30 m.

Hyogo: OMNH-P 5664–5665 (2), depth unknown.

Shimane: NSMT-P 61192 (1), 300 m.

Yamaguchi: NSMT-P 95797 (1), 271–277 m.

Nagasaki: NSMT-P 66148 (1), 202–205 m (Tsushima).

Microstomus achne (Jordan and Starks, 1904) [Japanese name: Babagarei]

South Korea: ZIN 23786 (1), depth unknown (Busan).

Ishikawa: HUMZ 65999 (1), 85–90 m; HUMZ 65937 (1), 106–108 m; HUMZ 65946 (1), 118–121 m; HUMZ 66204 (1), depth unknown; HUMZ 65578 (1), 66155 (1), 115–202 m.

Hyogo: OMNH-P 5868 (1), 7869–7870 (2), 7915 (1), 100 m.

Pleuronectes asper Pallas, 1814 [Japanese name: Koganegarei]

Tatar Strait: ZIN 12356 (1), depth unknown (47º00′N, 142º05′E); ZIN 13060 (2), depth unknown; ZIN 17818 (6), 12 m (51º41′N, 141º16′E); ZIN 17838 (1), depth unknown (49º05′N, 140º20′E); ZIN 17840 (1), depth unknown (49º05′N, 140º20′E); ZIN 17841 (3), depth unknown (49º00′N, 140º20′E); ZIN 25124 (2), depth unknown (51º28′N, 140º58′E); ZIN 43699 (2), 64 m; ZIN 45167 (1), depth unknown (51º16′N, 142º10′E).

Primorsky Krai: ZIN 26219 (1), depth unknown (42º49′N, 133º39′E).

Peter the Great Bay: ZIN 17817 (1), 17820 (4), 47615 (1), depth unknown.

South Korea: ZIN 23847 (4), depth unknown (Busan).

Pleuronectes bilineatus (Ayres, 1855) [Japanese name: Shumushugarei]

Hokkaido: HUMZ 53225 (1), 260–335 m; HUMZ 107859 (1), 120–130 m.

Pleuronectes quadrituberculatus Pallas, 1814 [Japanese name: Tsunogarei]

Tatar Strait: ZIN 17984 (1), depth unknown (51º55′N, 141º23′E); ZIN 17986 (1), depth unknown (52º12′N, 141º33′E); ZIN 17992 (3), 14 m (51º57′N, 141º25′E); ZIN 17996 (1), depth unknown (51º30′N, 140º45′E); ZIN 41420 (2), depth unknown (48º00′N, 139º30′E).

Tanakius kitaharai (Jordan and Starks, 1904) [Japanese name: Yanagimushigarei]

South Korea: ZIN 23789 (6), depth unknown (Busan).

Niigata: HUMZ 63655–63656 (2), 99–103 m; HUMZ 51958 (1), depth unknown; USNM 77167 (1), 111 m; USNM 77168 (1), 116 m.

Ishikawa: HUMZ 65622 (1), 103–106 m; HUMZ 65933–65934 (2), 106–108 m; HUMZ 65943 (1), 118–121 m; HUMZ 66081 (1), 147–158 m; HUMZ 66186–66193 (8), depth uknown; HUMZ 65576 (1), 115–202 m; HUMZ 66046–66060 (15), 75–82 m; OMNH-P 7871 (1), depth unknown.

Family Poecilopsettidae

Poecilopsetta plinthus (Jordan and Starks, 1904) [Japanese name: Kawaragarei]

Ishikawa: HUMZ 65618 (1), 103–106 m; HUMZ 65939 (1), 106–108 m.

Fukui: ZIN 45094 (1), depth unknown.

Hyogo: OMNH-P 7724–7725 (2), 100 m.

Family Samaridae

Plagiopsetta glossa Franz, 1910 [Japanese name: Berogarei]

Hyogo: OMNH-P 7820 (1), 100 m.

Nagasaki: NSMT-P 6276 (1), 125 m (Tsushima).

Order Tetraodontiformes

Family Triacanthodidae

Triacanthodes anomalus (Temminck and Schlegel, 1850) [Japanese name: Benikawamuki]

Hyogo: OMNH-P 12068 (1), depth unknown.

Family Ostraciidae

Kentrocapros aculeatus (Houttuyn, 1782) [Japanese name: Itomakifugu]

Ishikawa: HUMZ 65601 (1), 118–121 m.

Hyogo: ONMH-P 7736 (1), 7769 (1), 7905 (1), 100 m.

Family Tetraodontidae

Sphoeroides pachygaster (Müller and Troschel, 1848) [Japanese name: Yoritofugu]

Hyogo: OMNH-P 6416 (1), 6433 (1), depth unknown.

Remarks

Nakaya and Shirai (1992) noted that the deep-benthic chondrichthyan fauna of the Sea of Japan is poor, compared to the Okinawa Trough (38 species), Kyushu-Palau (10), Tohoku Slope (18) and Okhotsk Slope (9), by listing only one dominant rajid, *Bathyraja smirnovi* (Fig. 2A) in their list, based on Ogata et al. (1973) who surveyed the Yamato Bank and Oki Islands regions by trawls at 245–1220 m depths. Based on specimens, we can add only eight additional species to the entire deep-sea portion of this sea: one chimaerid (*Chimaera phantasma*), two scyliorhinids (*Cephaloscyllium umbratile* and *Scyliorhinus torazame*), one hexanchinid (*Heptranchias perlo*), one squalid (*Squalus mitsukurii*), one torpedinid (*Narke japonica*), one rajid (*Bathyraja bergi*) and one urolophid (*Urolophus aurantiacus*). This total of only nine deep-sea species is the same as the number found on the entire Okhotsk Slope. Among them, one voucher specimen of *C. phantasma* was collected near the Tsushima Islands, which marks the western border of the sea, but according to Honma (1952), this species has also been taken from off the Niigata Prefecture of Japan.

Among the oceanic deep-sea fishes from the Sea of Japan, the sterynoptychid, *Maurolicus japonicus* (Fig. 2B), is widely distributed in the Sea of Japan (*e.g.*, Okiyama, 1971). Two myctophid species were recorded from Hamada, Shimane Prefecture of Japan, near the western border of the Sea of Japan (Mori, 1956), but no voucher specimens were discovered in our survey. We can suppose that the myctophids are very rare and that, following Nishimura (1964), the warm oceanic current from the south (=Tsushima Current, a branch of the Kuroshio Current) occasionally carries them into the Sea of Japan.

Among the twelve endemic deep-sea species in the Sea of Japan, five liparid species, *Careproctus acanthodes*, *C. entargyreus*, *C. entome-*

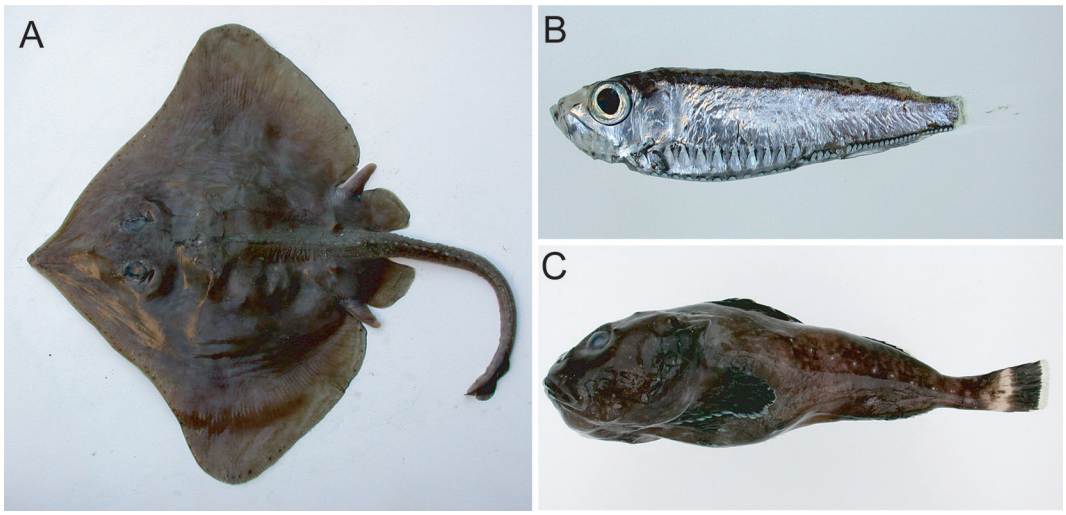

Fig. 2. Deep-sea fishes of the Sea of Japan (fresh conditions).—A, *Bathyraja smirnovi* (Rajidae, NSMT-P 76122, 46.5 cm in total length); B, *Maurolicus japonicus* (Sternoptychidae, NSMT-P 64826, 4.4 cm in standard length: SL); C, *Malacocottus gibber* (Psychrolutidae, NSMT-P 79301, 17.2 cm SL).

las, *C. sinensis* and *Liparis ingens*, were originally described by Gilbert and Burke (1912) based on the *Albatross* collections made in 1906. From that time, no additional specimens have been collected. Except for *C. sinensis*, Kido (1988) synonymized them as follows: *C. acanthodes* with *Careproctus rastrinus* Gilbert and Burke, 1912; *C. entargyreus* and *C. entomelas* with *Careproctus colletti*; and *L. ingens* with *Liparis ochotensis*. More recent studies, however, have recognized all the species as valid (*e.g.*, Chernova *et al.*, 2004; Chernova, 2008). Additional material of these five species are needed to analyze morphological variation and clarify their taxonomic status.

The psychrolutid, *Malacocottus gibber* (Fig. 2C), is an another endemic species in the Sea of Japan (Shinohara *et al.*, 1992; Okiyama, 2004). Adachi *et al.* (2009) suggested that this species is a subspecies or a junior synonym of *Malacocottus zonurus* Bean, 1890, distributed on the Pacific side of northern Japan and extending to the Bering Sea. This hypothesis is based on both population genetics and morphological analysis of a key diagnostic character (presence or absence of accessory spines on preopercular bone; see Shinohara *et al.*, 1992: figs. 3–4). Further taxonomic studies are needed to establish the proper scientific name for the species.

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