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Freshwater and brackish water fishes of Sakhalin Island (Russia) in inland and coastal waters: an annotated checklist with taxonomic comments

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Abstract

Based on a critical analysis of scientific publications for the last 200 years and on the collected specimens, a complete annotated list of both typical freshwater ichthyofauna of Sakhalin Island, with the inclusion of marine species that can be found in brackish coastal waters, is reported for the first time. The annotated list includes 226 species classified in three classes, 26 orders, 68 families, 29 subfamilies, and 148 genera. For 160 species, information is provided on collection samples deposited in various museums around the world, 36 of which are type specimens. For each species, conservation status (according to IUCN Red List of Threatened Species and the Red Book of the Sakhalin region), zoogeographic characteristics (distribution within Sakhalin Island and globally), abundance and commercial value are given. For a number of species, more detailed information on synonymy and nomenclature is provided. The study area is located in the western North Pacific and includes the entire coast of Sakhalin Island in the Sea of Okhotsk and the northern Sea of Japan, as well as the adjacent Sea of Okhotsk coast of northern Hokkaido, Japan.

Key words: Sakhalin Island, ichthyofauna, taxonomic overview, annotated list, conservation status, commercial importance, fresh and brackish waters

Introduction

Sakhalin is the largest island in the Russian Federation and ranks 23rd in the world. Sakhalin has an area of 76,400 km², and is 948 km long with a maximum width of 160 km and a minimum of 26 km. Its total coastline reaches to ~ 3200 km. The island is located at 45°54′–54°25′ N and 141°37′–144°55′ E. The Sea of Japan washes the shores of its western coast from the Kril'on Peninsula in the south-west of the island, including Moneron Island, to the Nevelskoy Strait in the north. The Sea of Okhotsk washes the northern, eastern, and southeastern coasts from Sakhalinsky Bay to the La Perouse Strait, including Terpeniya and Aniva bays.

The island is separated from the eastern part of the Asian mainland by the Tatar Strait and in the northern part by Nevelskoy Strait, Amurskiy estuary (or Amur Liman), and Sakhalinsky Bay. At Nevelskoy Strait (approximately 56 km long), that at its narrowest extension connects Tatar Strait with Amur Liman (situated between Cape Lazarev on the mainland coast and Cape Pogibi on Sakhalin Island), the distance between the island and the mainland is only 7.3 km; however, in the southern tip, the island is more than 300 km apart from the mainland. The island is separated from Japan by La Perouse Strait, the borders of which are the northern tip of Hokkaido Island and Cape Cril'on in the southern tip of Sakhalin Island (Figures 1, 2).

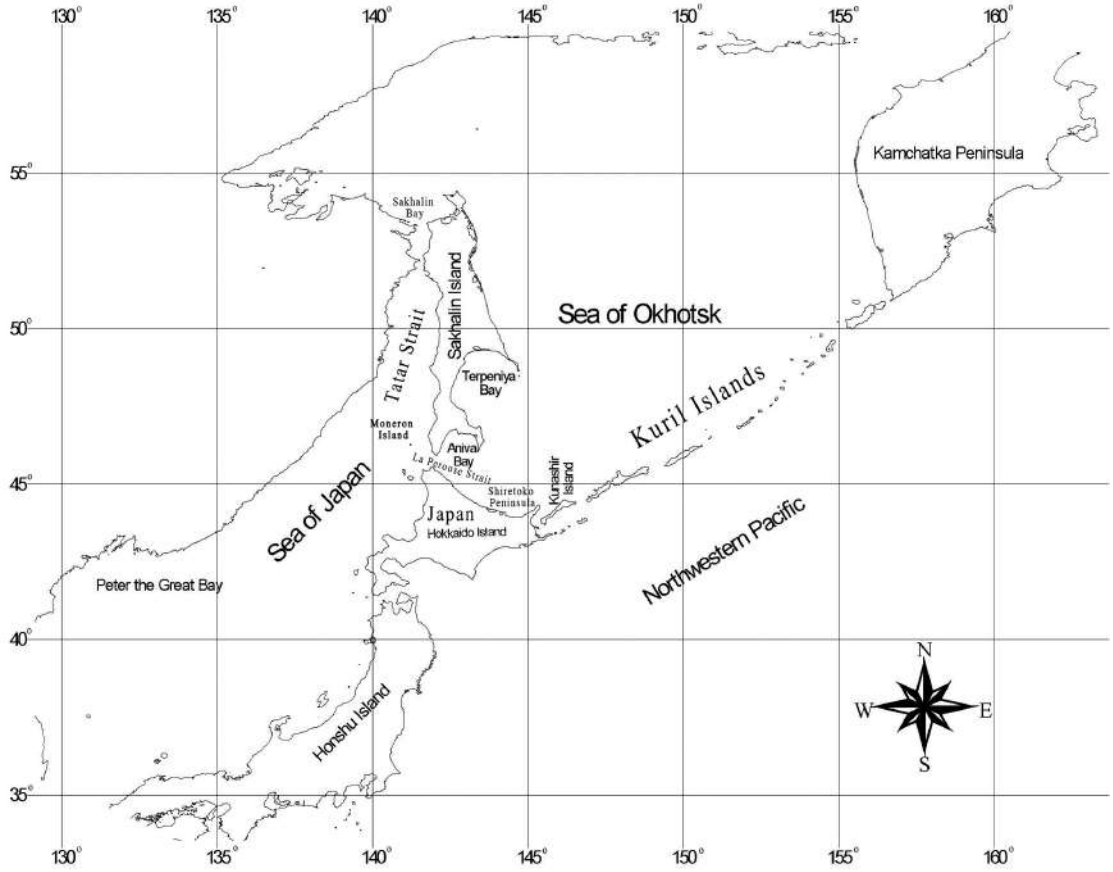

FIGURE 1. Map of Sakhalin Island and the adjacent areas

FIGURE 2. Amur estuary, Sakhalin coast (photo by V.N. Koshelev)

The island has a very dense river system (on average 1.2 km per 1 km^2). There are 61,177 rivers and streams on Sakhalin, and their total length is more than 98,000 km. Furthermore, only two rivers have a length of more than 300 km (Tym' River—330 km with an area of 7850 km^2 and Poronai River—350 km with an area of 7990 km^2) (Figures 3, 4). The length of 61 rivers is between 50 and 200 km and the rest (more than 60,000) have a length of less than 10 km. All rivers of Sakhalin belong to a mixed type of nourishment, with a predominance of snow. The rivers of the Northern-Sakhalin plain are different from other rivers, as ground nourishment amounting to more than 50% prevails in the annual volume of run-off, which is largely due to the presence of extensive bogs (Anonymous 1967; Gurova 1975; Onishchenko 1987; Kozynyuk 1994; Nikiforov 2001; Brovko 2002; Gritsenko 2002; Labay *et al*. 2014, 2015).

FIGURE 3. Tym' River, Sakhalin Island (photo by S.S. Makeev)

On Sakhalin, there are a large number of lakes of different types (more than 16,000) covering a total area of over 1,000 km^2. These lakes can be subdivided into lagoon, floodplain, and mountain lakes (Figure 5). Most lakes are of the lagoon type, which may retain a connection to the ocean and have brackish-water zones; these lakes occupy one-fifth of the coast of Sakhalin. Freshwater lakes mainly belong to the basins of the rivers Tym' and Poronai and to Susunai Lowland. The majority of lakes (approximately 16,000) are smaller than 0.4 km^2, the largest are Lakes Tunaicha (174 km^2) and Nevskoye (178 km^2), both of them are of lagoon type (Vlastova 1960; Nikanorov 1960; Kozynyuk 1994; Gritsenko 2002).

The freshwater and brackish-water ichthyofauna of the island, in comparison with other regions of Russia and the world as a whole, is unique and remains poorly studied and in a number of places practically not affected by research. It is important to note that the island is characterized by a rich diversity and a gene pool of anadromous fishes that are unique in the North Pacific. Thus, 22 anadromous species are known from the island. For future management and conservation of the fish fauna of the island, it is essential to provide information on the native fishes of the island.

In the present study, we summarize the scientific data collected during the past 200 years, and present the first comprehensive systematic list of freshwater and brackish-water fishes of Sakhalin, taking into account the requirements of the modern nomenclature and a number of recent taxonomic revisions.

FIGURE 4. Poronai River, Sakhalin Island (photo by S.S. Makeev)

FIGURE 5. Typical freshwater lake in the south of Sakhalin Island (photo by Yu. V. Dyldin)

History of fish study in Sakhalin

The first documented information regarding the ichthyofauna of Sakhalin Island appeared as a result of the first round-the-world trip in 1803–1806 of Adam Johann von Krusenstern (1770–1846); the expedition on the ship *Neva* visited Terpeniya Bay in 1805, while the prominent scientist and naturalist V.G. Tilesius was on board. After the expedition, he published a number of scientific articles providing the first information about coastal fishes of Sakhalin, and describing several new species, including *Agonus segaliensis* Tilesius, 1809 (Tilesius 1809, 1811, 1813).

The next stage in the research of the ichthyofauna of the island only happened at the end of the 19th century, when the scientific expedition on board of the U.S. Fish Commission steamer *Albatross* visited Sakhalin, collecting ichthyological material in the Sea of Okhotsk, particularly at Terpeniya Bay and near Tyuleniy [Robben] Island, on which the descriptions of several new species were based. In 1906, the same expedition also visited both the eastern and western parts of Sakhalin, including Aniva Bay and the Tatar Strait, collecting ichthyological material that was used to describe several new species including *Limanda sakhalinensis* Hubbs, 1915 (Gilbert & Burke 1912; Hubbs 1915; Burke 1930).

In the late 19th and early 20th centuries, the island was visited by two prominent Russian researchers, A.M. Nikolskii in 1881 and P.Yu. Schmidt in 1901, who later published several important articles based on the collected fish material. A.M. Nikolskii visited Sakhalin in 1881 to study the natural history of the island. Unfortunately, most of the collected material was lost during the long journey through the tropical countries, so only a few partially preserved samples could later be processed by A.M. Nikolskii. These data were presented in his monograph "Sakhalin Island and Its Vertebrate Fauna" (Nikolskii 1889), which, for the first time, also included information on the freshwater ichthyofauna of the island. The freshwater ichthyofauna was represented by 13 species, two of which (*Gasterosteus tymensis* and *Leuciscus sachalinensis*) were described as new. A little later, in 1899, again by order of the Imperial Russian Geographical Society, the Korean Sakhalin Expedition was equipped (1900–1901) under the leadership of P.Yu. Schmidt, during which he visited the island in 1901. Subsequently, based on the collected and processed data, he published the monograph "Fishes of the Far Eastern Seas" (Schmidt 1904) in which he described several new species from Sakhalin Island (*Acanthopsetta nadeshnyi*, *Chloea aino*, *Cottus amblystomopsis*, etc.). In his publications, Schmidt (1904, 1905) described in detail not only the marine and brackish-water fishes of the island but also, for the first time, in the domestic literature provided both his own data and the generalized data of Japanese authors on the fisheries of Sakhalin Island.

In the late 19th and early 20th centuries, V.K. Brazhnikov was also studying the ichthyofauna of the island, and on board of the schooner *Storoz* he gathered in 1899–1902 an extensive collection of fishes from the Sea of Okhotsk and the Sea of Japan, including coastal waters of Sakhalin Island and Amur Liman, which now is kept in the Zoological Institute, Russian Academy of Sciences (ZIN).

Somewhat later, in 1907–1913, V.K. Soldatov organized the Far East expedition to study the fishery resources of the region, carried out in the Sea of Okhotsk off the Shantar Islands, and he made a number of cruises to Amur Liman and the northern tip of Sakhalin Island. Later, he published a review of the fishes of the Far Eastern seas (Soldatov & Lindberg 1930).

We should also mention the works of Berg (1907, 1911, 1912, 1932), in which he presented an overview of freshwater fishes in Russia and neighboring countries, including Sakhalin Island, and, in particular, based on samples from the collections of the Zoological Museum of the Imperial Academy of Sciences, he described the new island subspecies *Phoxinus percnurus sachalinensis* Berg, 1907.

In 1934, A.Ya. Taranetz, researcher of the Branch of the Pacific Institute of Fisheries, visited the island; together with his assistants, he studied the freshwater and marine ichthyofauna and assembled a collection of fishes that was partially kept at ZIN. He later published several important works (Taranetz 1937a, b), describing several new species: *Bryostemma snyderi* Taranetz, 1938, *Hypomesus olidus bergi* Taranetz, 1935, *Icelus gilberti* Taranetz, 1936 (Taranetz 1935, 1936a, b, 1938).

In the beginning of 20th century and up to the mid-1940s, the ichthyofauna of the island, especially its southern part, was also studied by Japanese researchers. Shigeho Tanaka of the Imperial University of Tokyo published in the period from 1911 to 1930 a series of monographs titled "Figures and descriptions of the fishes of Japan including Riukiu Islands, Bonin Islands, Formosa, Kurile Islands, Korea and Southern Sakhalin" (Tomiyama & Abe 1953). He described several new species from southern Sakhalin, including *Porocottus ijimai* and *P. nigrescens* (Tanaka 1908); in collaboration with American scientists, he also published a comprehensive catalogue of Japanese fishes,

which also included information about fishes of Sakhalin (Jordan *et al*. 1913). Among the works of Japanese researchers of that period, we should mention publications of Sato (1940, 1942) on the family Bathymasteridae, which included data on Sakhalin Island, with a list of the freshwater ichthyofauna of southern Sakhalin. Information on some fishes of the southern part of the island is also presented in the publications of Okada & Matsubara (1938) and Okada & Ikeda (1938), as well as of Isii (1940) who provided valuable information about the coastal and freshwater ichthyofauna of the south of the island. Some information on certain species of Sakhalin Island, for example, *Coregonus ussuriensis* and *Lota lota*, is presented in the works of Miyadi & Ishii (1939a, b), and that on fishes of Nevskoye Lake in the publication of Ueno (1936). In the period under review, a number of other extensive works of Japanese researchers were published, most of which were written in Japanese and, therefore, not readily accessible for the majority of experts.

K.M. Deryugin and P. Yu Schmidt launched a broad scientific and commercial review of the three Far Eastern seas on board of six expedition vessels. In the scientific literature, this expedition was called "Pacific Complex Expedition of 1932–1933". It should be noted that, based on the results of these investigations in the early 1930s, the postmortem fundamental monograph of Schmidt (1950) on fishes of the Sea of Okhotsk was published, with the description of several new species (*Bathylagus area*, *Careproctus nigricans*, etc.).

Additional studies of Sakhalin Island are associated with the post-war period. L.S. Berg began to carry out his important monographs on all the freshwater ichthyofauna of the Soviet Union and adjacent waters (Berg 1948, 1949a, 1949b). In these monumental works, he also provided information about all freshwater fishes and cyclostomes known at that time, including migratory fishes of the internal waters of Sakhalin Island.

In the same period, the Zoological Institute of the USSR Academy of Sciences and TINRO organized a joint expedition under the leadership of G.U. Lindberg, the "Kurile-Sakhalin Marine Complex Expedition of ZIN-TINRO," which lasted for three years (1947–1949). During this time, most of the data, along with the earlier collections of P.Yu. Schmidt, V.K. Brazhnikov, V.K. Soldatov, A.Ya. Taranetz etc., formed the basis of a multivolume fundamental work "Fishes of the Sea of Japan and adjacent parts of the Sea of Okhotsk and the Yellow Sea," started by G.U. Lindberg and continued by his colleagues (Lindberg & Legeza 1959, 1965; Lindberg & Krasyukova 1969, 1975, 1987; Lindberg & Fedorov 1993; Lindberg *et al*. 1997). However, it is important to note that, in this series of determinants, the information on the marine and brackish-water ichthyofauna of Sakhalin Island was given only for the southern part of the island. In addition to these works, a separate list of fishes of waters of southern Sakhalin and the South Kuril Islands was also issued (Lindberg 1959).

In the mid-1950s–early 1960s, ichthyological research in the internal and lagoon waters of the island started. For example, we should note the work on fishes of the upper reaches of the Tym' River (Berezantsev 1955) and Sladkoye Lake in the northwestern part of the island (Kazarnovskii 1961). In 1959–1961, a limnological expedition of the Moscow State University (MSU) conducted a comprehensive survey of lakes of southern Sakhalin (Klyuchareva 1964). After a long break, a complex expedition of the Far Eastern Federal University was conducted in 1989–1991, in which, for the first time for Tunaicha, the largest lake in the south of Sakhalin, a list of the ichthyofauna was presented, including 29 species of fishes in 13 families (Labay *et al*. 2003). Among subsequent publications on the ichthyofauna of lagoons, coastal freshwater, and brackish-water lakes of Sakhalin, a number of important works should be noted (Nikiforov *et al*. 1987; Nikiforov & Grishin 1989; Ivanov & Ivanova, 2001, 2002; Zemnukhov *et al*. 2001; Gritsenko 2002; Safronov *et al*. 2005, 2008; Gudkov *et al*. 2004; Safronov & Nikiforov 2004; Gudkov & Zavarzina 2006; Dolganov & Zemnukhov 2007; Mukhametova 2008, 2011, 2014; Nikitin 2012; Mukhametova & Balanov 2013; Zhivoglyadov 2014; Labay *et al*. 2014, 2015, Nikitin *et al*. 2013, 2014; Safronov & Nikitin 2017a, b).

Fragmentary data on marine, brackish-water, and freshwater fishes of Sakhalin Island, including commercial fishery species, can also be found in a number of monographs (Parin 2001, 2003; Parin *et al*. 2002, 2014; Evseenko 2003; Vasil'eva 2003; Fedorov 2004; Gritsenko *et al*. 2006; Sokolovsky *et al*. 2007, 2011; Gritsenko 2012; Tuponogov & Kodolov 2014; Romanov 2015; Tuponogov & Yavnov 2015; Dyldin *et al*. 2020b). However, these works were devoted to the ichthyofauna of certain regions or of all the seas of Russia and, therefore, do not provide a complete picture of species diversity or the actual number of species of Sakhalin.

The first list of freshwater fishes of the inland waters of Sakhalin was published in 1982, including 41 species and subspecies (Voronov 1982). Much later a preliminary list of the distribution and occurrence of some freshwater and brackish-water fishes of the island was issued (Safronov & Nikiforov 1995), and the most comprehensive list of ichthyofauna of the island of both freshwater and some brackish-water fishes was presented in 2003 in a separate

publication, including 89 species and subspecies arranged in 12 orders, 28 families and 60 genera (Safronov & Nikiforov 2003). A PhD thesis of Nikiforov (2001) presented the most complete information on the freshwater ichthyofauna of the island and its origin (including 65 species and subspecies of fish-like vertebrates and fishes in 42 genera, 17 families, nine orders and two classes).

Particular attention should be paid to the international project "Biodiversity of Sakhalin Island" (ISIP, 2001–2002), under the leadership of T.W. Pietsch of the University of Washington and the Burke Museum of Natural History and Culture (Seattle, United States), who made a significant contribution to the study of both the freshwater ichthyofauna of Sakhalin and the entire biodiversity of the region (Shedko 2001; Shedko & Shedko 2003; Shedko *et al*. 2005; Pietsch *et al*. 2012; Sokolov *et al*. 2012). A few years later, Nikitin (2012) noted the occurrence of up to 120 species and subspecies in the internal waters and lagoons of Sakhalin. In a recent paper (Labay *et al*. 2014), it has been noted that up to 105 or more species can be observed in the lagoons of the island, however, like in the previous paper without providing a list of these species.

And in our previous works, including four parts under the general title "Ichthyofauna of fresh and brackish waters of Sakhalin: an annotated list with taxonomic comments", we found that freshwater and brackish water fishes include 175 species in three classes, 18 orders, 44 families, 19 subfamilies and 114 genera (Dyldin & Orlov 2016a, b, 2017a, b).

Materials and methods

The work is based mainly on critically analyzed literary sources (books, publications, dissertations, and reports of research institutes), type catalogs and databases, for example, "Catalog of Fishes" (Fricke *et al*. 2021a) or Global Biodiversity Information Facility (GBIF, 2020). Practically for all fish species, the sources containing information on the original description were studied and analyzed.

For a number of species, the section ***Material*** provides information on specimens, including type material obtained in the island and adjacent waters of the southern Sea of Okhotsk and deposited in various scientific institutions of the world (see Table 1). At the same time, various open internet databases (e.g. GBIF) and published scientific catalogs (Voronina & Volkova 2003, 2007, 2019; Sideleva *et al*. 2006a, b; Balushkin *et al*. 2011, 2012; Nakae & Shinohara 2020; Kawai 2020; Catania & Fong 2021; Fricke *et al*. 2021a; GBIF 2020; Lopez 2020; Orrell 2020; UWFC 2020; Natural History Museum 2020) were critically analyzed and subsequently used. We also used seven-volume series of monographs edited by G.U. Lindberg (Lindberg & Legeza 1959, 1965; Lindberg & Krasyukova 1969, 1975, 1987; Lindberg & Fedorov 1993; Lindberg *et al*. 1997) and monograph of Schmidt (1904) that provides information about material from Sakhalin, deposited in the ZIN collection, as well as materials of our own long-term research. In the case when we used our own samples, we indicate them accordingly in the text of species' description with a symbol «#».

Information about each species is presented in the following scheme: serial number assigned to each species; scientific name; and English common name. The Latin names are accompanied by author(s) and year of the original description. The English names for higher taxa (from class to subfamily) are based on Nelson (2006) and "Eschmeyer's Catalog of Fishes" (Fricke *et al*. 2021b). English common names of species are either following published works (Sheiko & Fedorov 2000; Parin *et al*. 2014) or an internet source (Froese & Pauly 2020).

Habitat characteristics for marine, brackish, and migratory (anadromous) species is given mainly in accordance with the latest information provided by FAO (2020) with additions (Fricke *et al*. 2021a), who adopted the following zoogeographical categories: Arctic, North Pacific, western North Pacific, eastern North Pacific, Atlantic, western North Atlantic, eastern North Atlantic, etc., including such general categories as circumglobal and circumpolar. For freshwater species, main common (native) distribution regions (such as Japan, China, and Russia), or river basins (e.g., Amur River basin) are given. In some cases of a wider distribution, the total areal is referred to as East Asia, Siberia, Europe, etc.

To describe the local distribution of marine fishes and lampreys of Sakhalin on the basis of hydrological and climatic conditions, its coastal water area is divided into five regions: southern (Aniva Bay between the Kril'on Peninsula and Aniva Cape, including the La Perouse Strait) **I**, south–eastern (between Capes Aniva and Terpeniya) **II**, northeastern (between Capes Terpeniya and Elizabeth) **III**, southwestern (from Viakhtu Bay to the Kril'on

Peninsula, including Moneron Island) **IV**, and northeastern (from Viakhtu Bay to Severny Bay in Schmidt Peninsula Bay) **V** (Ueno 1971; Dyldin & Orlov 2016a; Dyldin *et al*. 2020a) (Figure 6).

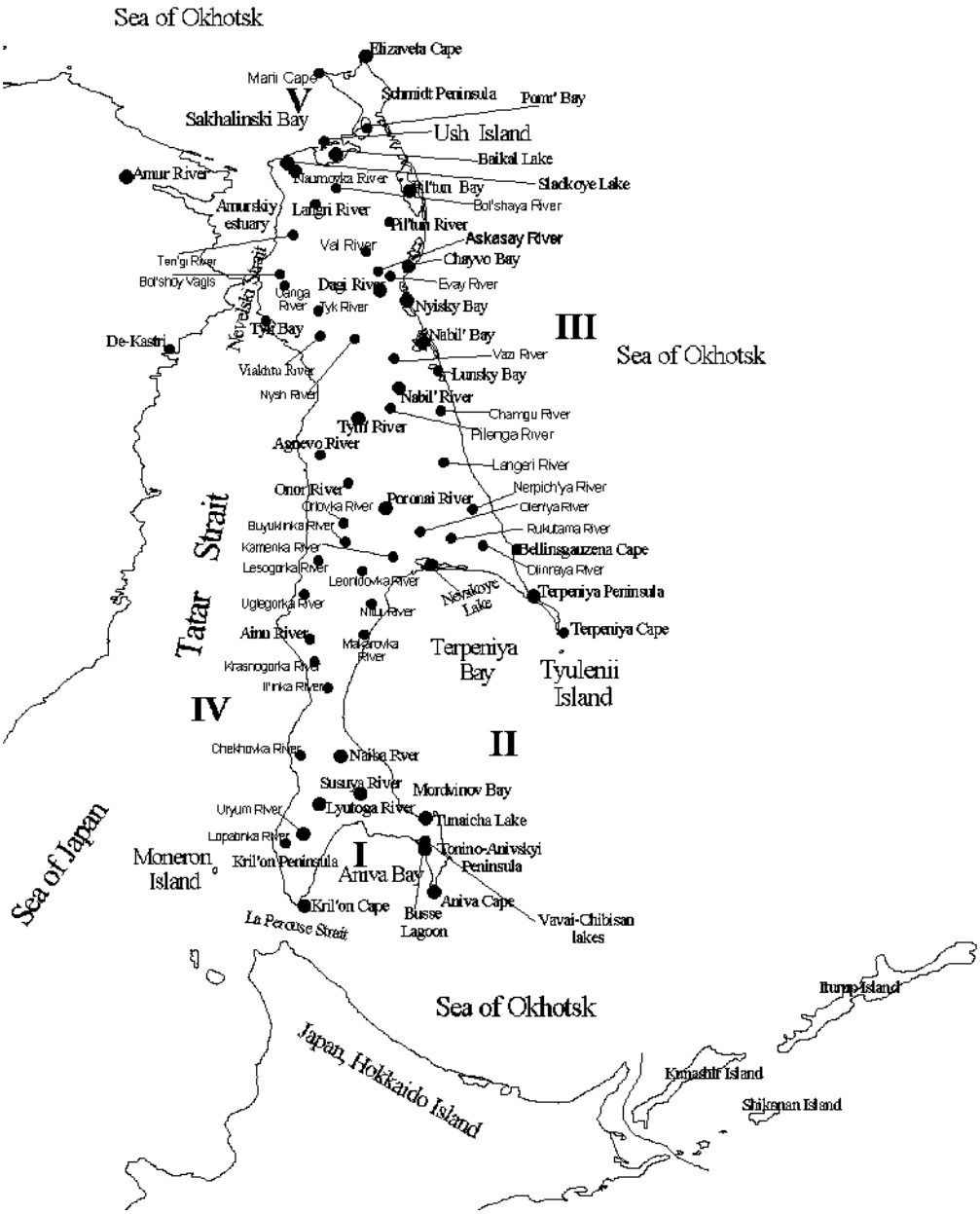

FIGURE 6. Map of Sakhalin Island with indication of natural entities (islands, rivers, lakes, gulfs, etc.).

Depending on the ecological characteristics, the fishes are allocated to one of the following ecological groups: freshwater, freshwater-brackish, marine-brackish, anadromous (sometimes including the landlocked form: populations of anadromous fishes constantly inhabit fresh waters without further migrations to the sea) and amphidromous. Based on abundance, the fishes are also allocated to the following categories: very common, common, uncommon, rare, or very rare. Commercial value is given for all (marine, brackish, and freshwater, including anadromous) species. If it is not specified, then the species is rare, under protection, or of no interest for fishery.

The ***Remarks*** section provides taxonomic and other additional information for most species.

The section ***Conservation status*** provides information on the conservation status (if assessed) in accordance with the criteria of the Red List of the International Union for Conservation of Nature (IUCN); to characterize the conservation status of species, the following categories are used (IUCN 2012, 2021): Extinct, Extinct in the Wild,

Critically Endangered, Endangered, Vulnerable, Near Threatened, Least Concern, Data Deficient, and Not Evaluated. The conservation status of the species is also given in accordance with the Red Data Book of the Sakhalin Oblast (2016) in accordance with the following categories: 0, probably extinct; 1, endangered; 2, decreasing in numbers; 3, rare; 4, with an undefined status; 5, recoverable and recovering; 6, rare with an irregular occurrence; 7, out of danger.

In this paper, the following abbreviations are used: * according to our own or published data, the species was not recorded for Sakhalin, but it is known from the adjacent waters of the southern parts of the Sea of Okhotsk, including Okhotsk Sea coast off Hokkaido, Japan, that does not exclude their records with a high probability within the island; ? taxonomic status or identification is questionable, as well as in cases if the information on distribution, abundance, etc. requires clarification; i, introduced species; ICZN (2021), the International Code of Zoological Nomenclature; IUCN Red List, Red List of Threatened Species of the International Union for Conservation of Nature; RBSO, Red Data Book of the Sakhalin Oblast.

TABLE 1. Ichthyological collections and institution codes*

Instituion code	Location
CAS-SU	California Academy of Sciences, San Francisco, USA
BMNH	The Natural History Museum, London, United Kingdom
HUMZ	Hokkaido University Museum, Hakodate, Japan
KhMSF	Kholmsk Museum of the Sea Fauna, Kholmsk, Sakhalin Island, Russia
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, USA
KAUM	Kagoshima University Museum, Kagoshima, Japan
NSMT	Fish Collection of National Museum of Nature and Science, Tsukuba, Japan
SRM	Sakhalin Regional Museum, Yuzhno-Sakhalinsk, Sakhalin Island, Russia
UAM	University of Alaska Museum of the North, Fairbanks, USA
USNM	National Museum of Natural History, Smithsonian Institution, Washington D.C., USA
UWFC	University of Washington Fish Collection, Seattle, USA
ZIN	Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia
ZMMU	Zoological Museum of M.V. Lomonosov Moscow State University, Moscow, Russia
ZUMT	University Museum, University of Tokyo, Tokyo, Japan

Note: * Institution codes follow Fricke & Eschmeyer (2021).

Annotated species list

I. Class PETROMYZONTI—Lampreys

1. Order PETROMYZONTIFORMES Berg, 1940—Lampreys

1. Family PETROMYZONTIDAE Bonaparte, 1831—Northern lampreys

1. Genus ***ENTOSPHENUS*** Gill, 1862

1. ***Entosphenus tridentatus*** (Richardson, 1837)—Pacific lamprey. North Pacific and adjacent Arctic. Sakhalin: probably on eastern coast (Orlov *et al*. 2008; Dyldin & Orlov 2016a). The species was collected most closely to the island in the northern part of the Sea of Okhotsk and in the Pacific waters off the Kuril Islands. Spawning observed in some rivers of Hokkaido Island and on the Pacific side of central Honshu Island in Japan (Parin 2001; Pietsch *et al*. 2001; Fukutomi *et al*. 2002; Orlov *et al*. 2008; Volvenko *et al*. 2018). Anadromous, with a landlocked form (Clemens *et al*. 2019). Valuable fishing target throughout its range (Volvenko *et al*. 2020).

Conservation status: IUCN (Not Evaluated)

2. Genus ***LETHENTERON*** Gray, 1851

2. *Lethenteron camtschaticum* (Tilesius, 1811)—Arctic lamprey. North Pacific, Arctic and adjacent eastern North Atlantic. Sakhalin: throughout the island (Berg 1948; Taranetz 1937a—as *Lampetra japonica japonica*; Gritsenko 2002; Safronov & Nikiforov 2003; Safronov *et al*. 2008; Pietsch *et al*. 2012; Orlov *et al*. 2014; Dyldin & Orlov 2016a). Anadromous, forming a landlocked morph. Common, very common at many places. Valuable fishing target throughout its range, but not at Sakhalin.

Conservation status: IUCN (Least Concern, 2013)

3. *Lethenteron reissneri* (Dybowski, 1869)—Far Eastern brook lamprey. Basins of the Arctic and North Pacific. Sakhalin: throughout the island, but mainly in the southern and central parts, including basins of Tym' River, Piltun Bay and Nevskoye and Tunaicha lakes (Safronov & Nikiforov 2003; Dyldin & Orlov 2016a; Dyldin *et al*. 2019). Freshwater. Common. Not fished.

Remarks. Berg (1948, p. 43) assumed that specimens presented by A.Ya. Taranets related to lampreys from the Tym' River in northern Sakhalin probably represented a valid new species, which was listed as ZIN 25204 under the name *Lampetra* sp. However, according to Lindberg & Legeza (1959), the manuscript name "*Lampetra sachalinensis* Berg, **sp. n.**" is written on the label of this specimen.

Conservation status: IUCN (Least Concern, 2008)

II. Class ELASMOBRANCHII—Sharks and batoids

2. Order LAMNIFORMES Garman, 1885—Mackerel sharks

2. Family LAMNIDAE Bonaparte, 1835—Mackerel sharks

3. Genus ***CARCHARODON*** Smith, 1838

4. *Carcharodon carcharias* (Linnaeus, 1758)—Great white shark. Circumglobal, in all oceans, but not in Arctic Ocean. Sakhalin: southwestern and southern coasts, including Uryum River mouth (Dyldin 2015; Velikanov *et al*. 2016; Dyldin & Orlov 2016a, 2018). Marine, brackish. Rare. Not fished.

Conservation status: IUCN (Vulnerable, 2019).

4. Genus ***LAMNA*** Cuvier, 1816

5. #***Lamna ditropis*** Hubbs & Follett, 1947—Salmon shark. North Pacific and possibly adjacent Arctic. Sakhalin: probably along entire coast, including Aniva Bay (Taranetz 1937a—as *Lamna nasus*; Dyldin 2015; Dyldin & Orlov 2016a, 2018; Dyldin *et al*. 2020a). Marine, brackish. Common. Not often caught, only as bycatch in salmonid harvesting, but not used.

Material: SRM KP-9188/15 PP-53/15—2 km east of the mouth of the Borisovka River, near Cape Bellingshausen, Sea of Okhotsk, eastern Sakhalin.

Conservation status: IUCN (Least Concern, 2019).

3. Family ALOPIIDAE Bonaparte, 1838—Thresher sharks

5. Genus ***ALOPIAS*** Rafinesque, 1810

6. *Alopias vulpinus* (Bonnaterre, 1788)—Thintail thresher. Circumglobal in temperate and cold waters. Sakhalin: probably in southeastern part and in Aniva Bay (Dyldin & Orlov 2018; Dyldin *et al*. 2020a). It was recorded most closely to the waters of Sakhalin in 2004 in the southern part of the Sea of Okhotsk off Hokkaido Island, Japan (Uchida, 2020). Marine, brackish.

Remarks. This species has not been recorded from Sakhalin, but may possibly penetrate into coastal waters of the island, both from the Sea of Japan and from the adjacent Sea of Okhotsk (Shinohara *et al*. 2014; Dyldin 2015; Dyldin & Orlov 2018).
Conservation status: IUCN (Vulnerable, 2019).

3. Order CARCHARHINIFORMES Garman, 1913—Ground sharks

4. Family TRIAKIDAE Gray, 1851—Hound sharks

6. Genus ***TRIAKIS*** Müller & Henle, 1838

7. ?***Triakis scyllium*** Müller & Henle, 1839—Banded hound shark. Western North Pacific. Sakhalin: southern part (Gubanov 1993; Dyldin & Orlov 2018, with question mark). Marine, brackish. Very rare.
Remarks. The records near Sakhalin require documentary evidence, since apart from the mention in the monograph of Gubanov (1993), we could not find any other information about captures of this species from off Sakhalin Island. The species is known from Japan (Hokkaido), and Russia by two specimens from the Peter the Great Bay (Sea of Japan) and the Southern Kurils (Dyldin 2015; Dyldin & Orlov 2018; Rigby *et al*. 2021).
Conservation status: IUCN (Endangered, 2021).

5. Family CARCHARHINIDAE Jordan & Evermann, 1896—Requiem sharks

7. Genus ***CARCHARHINUS*** Blainville, 1816

8. ***Carcharhinus plumbeus*** (Nardo, 1827)—Sandbar shark. Circumglobal in tropical and temperate waters. Sakhalin: recorded in 1950 off southwestern coast (Probatov 1951—as *Carcharias japonicus*; Lindberg & Legeza 1959—as *Glyphis gangeticus* (Müller & Henle 1839); Dyldin & Orlov 2016a). Marine, brackish. Very rare.
Remarks. According to recent molecular studies, the western Atlantic populations are distinct from those of the Indo-Pacific, and the latter should be renamed as *Carcharhinus japonicus* (Temminck & Schlegel, 1850) (Naylor *et al*. 2012; Ebert *et al*. 2013).
Conservation status: IUCN (Endangered, 2021).

8. Genus ***RHIZOPRIONODON*** Whitley, 1929

9. ***Rhizoprionodon acutus*** (Rüppell, 1837)—Milk shark. Circumglobal in tropical through temperate oceans. Sakhalin: probably along southeastern coast (Dyldin & Orlov 2018). Marine, brackish.
Remarks. The record closest to Sakhalin is from the southern Sea of Okhotsk (Ueno 1971—as *Scoliodon walbeehmi*; Nagasawa & Torisawa 1991); the species is also known from the Sea of Japan (Shinohara *et al*. 2014).
Conservation status: IUCN (Vulnerable, 2020).

6. Family SPHYRNIDAE Bonaparte, 1840—Hammerhead sharks

9. Genus ***SPHYRNA*** Rafinesque, 1810

10. ***Sphyrna zygaena*** (Linnaeus, 1758)—Smooth hammerhead. Circumglobal, but mainly in temperate through tropical waters. Sakhalin: on the western side to northern Tatar Strait (Schmidt & Taranetz 1934; Dyldin & Orlov 2018; Rigby *et al*. 2019). Marine, brackish. Very rare.
Conservation status: IUCN (Vulnerable, 2019).

4. Order SQUALIFORMES Goodrich, 1909—Dogfish sharks

7. Family SQUALIDAE de Blainville, 1816—Dogfish sharks

10. Genus ***SQUALUS*** Linnaeus, 1758

11. ***Squalus suckleyi*** (Girard, 1855)—North Pacific spiny dogfish. North Pacific and adjacent Arctic. Sakhalin: in coastal waters of the island (Fadeev 1960; Orlov *et al*. 2012; Dyldin & Orlov 2018). Marine, brackish. Common, as is also forms large schools in summer in open part of Aniva Bay. Not fished, but in the past, it was used in a specialized Japanese fishery in the southern part of the area (Isii 1940).
Material: KhMSF KP-225. P-152—Tatar Strait, Sakhalin.
Conservation status: IUCN (Least Concern, 2016).

5. Order RAJIFORMES Muller & Henle, 1841—Skates

8. Family RAJIDAE de Blainville, 1816—Rays and skates

11. Genus ***BERINGRAJA*** Ishihara, Treloar, Bor, Senou & Jeong, 2012

12. ***Beringraja pulchra*** (Liu, 1932)—Mottled skate. Western North Pacific. Sakhalin: eastern and southwestern parts, including Moneron Island (Lindberg & Legeza 1959; Dyldin & Orlov 2018; Dulvy *et al*. 2020). Marine, brackish. Common. Fished as bycatch.
Remarks. According to the recent morphological revision (Ishihara *et al*. 2012) and the results of a genetic analysis (Last *et al*. 2016b), this species should be classified in the genus *Beringraja*.
Material: ZIN 35390, 35391—southern Sakhalin; ZIN 35395—La Perouse Strait.
Conservation status: IUCN (Endangered, 2020).

III. Class ACTINOPTERI—Ray-finned fishes (547)

6. Order ACIPENSERIFORMES Berg, 1940—Sturgeons

9. Family ACIPENSERIDAE Bonaparte, 1831—Sturgeons

12. Genus ***ACIPENSER*** Linnaeus, 1758

13. #***Acipenser mikadoi*** Hilgendorf, 1892—Sakhalin sturgeon. Western North Pacific. Sakhalin: recorded along all shores in the past, except the northeastern part (Schmidt 1904; Dyldin & Orlov 2016a; Dyldin *et al*. 2018a). Anadromous. The last capture from this island was 1994 at Aniva Bay (Nikiforov *et al*. 1997). Rare in the past, currently it has disappeared. Not fished.
Material: SRM KP-5086 P-447—mouth of Poronai River, western-central Sakhalin; ZIN 13171—Aniva Bay near Korsakov, Sakhalin.
Conservation status: IUCN (Critically Endangered, 2010) / RBSO (category 1).

14. ***Acipenser schrenckii*** Brandt, 1869—Amur sturgeon. East Asia: Russia, Mongolia, China and northern Hokkaido Island, Japan. Sakhalin: northwestern part (Safronov & Nikiforov 2003; Pietsch *et al*. 2012; Nikitin 2012; Dyldin & Orlov 2016a; Orlov *et al*. 2021). Anadromous, creates landlocked form. Rare. Not fished.
Conservation status: IUCN (Critically Endangered, 2010).

13. Genus ***HUSO*** Brandt & Ratzeburg, 1833

15. ***Huso dauricus*** (Georgi, 1775)—Kaluga. Western North Pacific. Sakhalin: along west coast (Taranetz 1937a; Safronov & Nikiforov 2003; Pietsch *et al*. 2012; Dyldin & Orlov, 2016a; Safronov & Nikitin 2017a; Dyldin *et al*. 2018a; Orlov *et al*. 2021). Anadromous, creates landlocked form. Very rare in southern part, but relatively common in the northwestern part of Sakhalin. Not fished.
Conservation status: IUCN (Critically Endangered, 2010) / RBSO (category 2).

7. Order ANGUILLIFORMES Berg, 1940—Eels

10. Family MURAENESOCIDAE Kaup, 1859—Pike conger eels

14. Genus ***MURAENESOX*** McClelland, 1844

16. ***Muraenesox cinereus*** (Forsskål in Niebuhr, 1775)—Daggertooth pike conger. Indo-Pacific. Sakhalin: recorded by a single specimen caught in Aniva Bay in 2006 (Dyldin *et al*. 2018a). Marine, brackish. Rare. Not fished.
Material: SRM KP 7988 PP-25—near Busse channel mouth, Aniva Bay, Sakhalin.
Conservation status: IUCN (Data Deficient, 2015).

8. Order CLUPEIFORMES Bleeker, 1859—Herrings

11. Family CLUPEIDAE Cuvier, 1816—Herrings

15. Genus ***CLUPEA*** Linnaeus, 1758

17. ***Clupea pallasii*** Valenciennes, 1847—Pacific herring. Arctic, adjacent North Atlantic and North Pacific. Sakhalin: along all coasts (Schmidt 1904, 1950; Taranetz 1937a; Safronov & Nikiforov 2003; Dyldin & Orlov 2016a; Kawai 2020). Marine, brackish. Very common. Commercial species and target of amateur fishing.
Material: HUMZ 139572, 141029—Severny Bay, northern Sakhalin.
Conservation status: IUCN (Data Deficient, 2019).

16. Genus ***KONOSIRUS*** Jordan & Snyder, 1900

18. ***Konosirus punctatus*** (Temminck & Schlegel, 1846)—Dotted gizzard shad. Western North Pacific. Sakhalin: southwestern and southern part (Velikanov 2011; Dyldin & Orlov 2016a; Safronov & Nikitin 2017a; Dyldin *et al*. 2018a). Marine, brackish. Rare. Not fished.
Conservation status: IUCN (Least Concern, 2017).

17. Genus ***SARDINOPS*** Hubbs, 1929

19. ***Sardinops melanosticta*** (Temminck & Schlegel, 1846)—Japanese sardine. North Pacific. Sakhalin: along all coasts, including Amurskiy estuary (Shuntov *et al*. 2003; Velikanov 2016; Dyldin *et al*. 2018a, 2020a). Marine, brackish. Common. Forming large schools in certain years; may then be a target species of fisheries.
Conservation status: IUCN (Not Evaluated).

12. Family ENGRAULIDAE Gill, 1861—Anchovies

18. Genus ***ENGRAULIS*** Cuvier, 1816

20. ***Engraulis japonicus*** Temminck & Schlegel, 1846—Japanese anchovy. Western Pacific. Sakhalin: around the island (Velikanov 2004; Dyldin *et al*. 2018a, 2020a; Kawai 2020). Marine, brackish. Common. Forming large schools in certain years; may then be a target species of fisheries.

Material: HUMZ 187022—Arkovo River estuary, western-central Sakhalin.

Conservation status: IUCN (Least Concern, 2018).

9. Order CYPRINIFORMES Bleeker, 1859—Carps

1. Suborder COBITOIDEI—Loach-like cypriniforms

13. Family BOTIIDAE Berg, 1940—Botiine loaches

1. Subfamily LEPTOBOTIINAE Nalbant, 2002—Chinese pointface loaches

19. Genus ***PARABOTIA*** Dabry de Thiersant, 1872

21. ***Parabotia mantschuricus*** (Berg, 1907)—Manchurian spiny loach. East Asia: Amur River basin (from central part to lower reaches). Sakhalin: northwestern part (Safronov & Nikiforov 2003; Pietsch *et al*. 2012; Nikitin 2012; Dyldin & Orlov 2016b). Freshwater. Uncommon. Not fished.

Remarks. In the past classified in genus *Leptobotia* (Berg 1949b; Safronov & Nikiforov 2003).

Conservation status: IUCN (Not Evaluated).

14. Family COBITIDAE Swainson, 1838—Loaches

20. Genus ***COBITIS*** Linnaeus, 1758

22. ***Cobitis lutheri*** Rendahl, 1935—Luther's spiny loach. East Asia: China, Russia and Korean Peninsula, from lower and middle reaches of Amur River basin to rivers of Yellow Sea basin. Sakhalin: northern to central part (Nikiforov *et al*. 1997; Ivanov & Ivanova 2001; Safronov & Nikiforov 2003; Safronov *et al*. 2008; Pietsch *et al*. 2012; Nikitin 2012; Nikitin *et al*. 2014; Labay *et al*. 2014, 2015; Dyldin & Orlov 2016b; Vasil'eva *et al*. 2016; UWFC 2020). Freshwater, brackish. Common. Not fished.

Remarks. Berg (1949b), Nikolskii (1956) and other researchers treated this species as a junior synonym of *Cobitis taenia* Linnaeus, 1758.

Material: ZIN 25478—lake of Tyk River, Sakhalin; ZIN 41991—Tysyu River, Sakhalin; ZMMU P-20344—Krasnaya River (Tym' River drainage), Sakhalin; ZMMU P-20345—Alba River, Sakhalin; ZMMU P-23369—Chaivo Bay basin, Sakhalin; UWFC 46188—lower Val River basin, northeastern Sakhalin (*Cobitis* cf. *lutheri*); UWFC 46255, 46129—lower Val River Basin, northeastern Sakhalin; UWFC 46239—north of Gastelo, southeastern Sakhalin; UWFC 46242—lover Tym' River basin, south Nogliki, northern-central Sakhalin; UWFC 46236—lover Poronay River basin, east of Leonidovo, southeastern Sakhalin; UWFC 44923—along coast near northern end of Piltun Bay, southeast of Tungor Village, northeastern Sakhalin; UWFC 46172—Krasnaya River basin, just south of the town of Yasnoe, central Sakhalin.

Conservation status: IUCN (Not Evaluated).

23. ?***Cobitis melanoleuca*** Nichols, 1925—Far Eastern spiny loach. At present, the known autochthonous distribution range of this species reaches from Amur River basin to northern China (Kottelat 2012). Sakhalin: northern to central part in Nevskoye Lake basin (Ivanov & Ivanova 2001; Pietsch *et al*. 2012; Nikitin 2012; Labay *et al*. 2015; Dyldin & Orlov 2016b). Freshwater, brackish. Common. Not fished.

Remarks. In the inland waters of Sakhalin, this species remains insufficiently studied, and possibly represents an

undescribed taxon (see also taxonomic remarks by Dyldin & Orlov (2016b)).
Conservation status: IUCN (Least Concern, 2008).

21. Genus ***MISGURNUS*** Lacepède, 1803

24. ***Misgurnus nikolskyi*** Vasil'eva, 2001—Nikolsky's weatherfish. East Asia: Sakhalin: northern to central part in Nevskoye Lake basin (Taranetz 1937b as *M. anguillicaudatus*; Safronov *et al*. 2008; Perdices *et al*. 2012; Pietsch *et al*. 2012; Dyldin & Orlov 2016b); southern part in basin of Naiba and Lyutoga rivers (Dyldin & Orlov 2016b). Freshwater. Common. Not fished.
Remarks. Distribution within the island remains unexplored (see Dyldin & Orlov 2016b).
Material: ZMMU P-21678—Bol'shoye Chibisanskoye Lake, Aniva Bay, Sakhalin; ZMMU P-21679—Maloye Vavayskoye Lake, Aniva Bay, Sakhalin.
Conservation status: IUCN (Not Evaluated).

25. ***Misgurnus mohoity*** (Dybowski, 1869)—Snake weatherfish. East Asia: China, Mongolia and Russia. Sakhalin: Vavai-Chibisan lakes system in southern part, where it was probably unintentionally introduced; also known from the northwestern part in channel of Svetloye Lake (Shedko & Shedko 2003; Shedko *et al*. 2005; Gudkov & Zavarzina 2006; Safronov *et al*. 2010; Labay *et al*. 2014; Dyldin & Orlov 2016b; UWFC 2020). Freshwater, brackish. Rare in southern part; abundance in northwestern part needs clarification. Not fished.
Remarks. Berg (1949a) treated the taxon as a junior synonym of *M. anguillicaudatus* (Cantor, 1842); later it could be demonstrated that *M. mohoity* is a valid species (Bogutskaya *et al*. 2008; Kottelat 2012).
Material: UWFC 44725—inland from Sakhalinsky Bay, northwestern Sakhalin; UWFC 44785—environs of lake Uspenskoe, inland from Sakhalinsky Bay, northwestern Sakhalin (as *M. anguillicaudatus*); UWFC 46167—central Val River basin, west of Chayvo Bay, north of Val, northeastern Sakhalin (as *M. anguillicaudatus*); UWFC 46237—lower Tym' River basin, west of Nabilsky Bay, south of Nogliki, northern-central Sakhalin (as *M. anguillicaudatus*).
Conservation status: IUCN (Not Evaluated).

15. Family NEMACHEILIDAE Regan, 1911—Brook loaches

22. Genus ***BARBATULA*** Linck, 1790

26. ?***Barbatula toni*** (Dybowski, 1869)—Siberian brook loach. The native distribution range of *B. toni* is limited to the type locality in the upper reaches of Amur River (Kottelat 2012). Sakhalin: throughout the island, excluding the southeastern part (Safronov & Nikiforov 2003; Semenchenko *et al*. 2017; Pietsch *et al*. 2012; Dyldin & Orlov 2016b; UWFC 2020). Freshwater, brackish. Very common. Not fished.
Remarks. Usually, a very extensive distribution range is indicated for this species: rivers of the basins of the Pacific and Arctic oceans, Siberia (from the Ob to the Kolyma, including southern Taimyr Peninsula, Lake Baikal and its basin, as well as the basin of the upper reaches of the Lena River) to the system Yellow River in China as well as Japan. This is related to different views on the nomenclature and taxonomic status of this species (see Dyldin & Orlov 2016b). It should also be noted that Kottelat (2012) believes that, within the limits of Hokkaido Island (Japan), Korea, and northern China, *B. toni* is likely to replace *B. oreas* (Jordan & Fowler, 1903), which does not exclude the occurrence of the latter in the southern waters of Sakhalin (Dyldin & Orlov 2016b).
Material: UWFC 46371—north of Aniva Bay, southern Sakhalin.
Conservation status: IUCN (Not Evaluated).

23. Genus ***LEFUA*** Herzenstein, 1888

27. i***Lefua nikkonis*** (Jordan & Fowler, 1903)—Hokkaido brook loach. East Asia: Hokkaido Island and northern Honshu, Japan (Sakai *et al*. 2014; Machida *et al*. 2020). Sakhalin: southern part, including Vavai lakes system,

where it may have been unintentionally introduced (Shedko *et al*. 2008; Pietsch *et al*. 2012; Dyldin & Orlov 2016b; Ooyagi *et al*. 2018); nevertheless, a recent molecular analysis showed that *L. nikkonis* from the south of Sakhalin was accidentally introduced from the Ishikari and Tokachi river systems (Hokkaido, Japan) together with carp and crucian carp (Machida *et al*. 2020). Freshwater. Common. Not fished.

Remarks. At present, this species is treated as valid on the basis of genetic and morphological data (Bogutskaya *et al*. 2008; Shedko *et al*. 2008; Kottelat 2012; Pietsch *et al*. 2012; Ooyagi *et al*. 2018; Machida *et al*. 2020).

Conservation status: IUCN (Least Concern, 2019).

28. *Lefua pleskei* (Herzenstein, 1888)—Pleskei's brook loach. East Asia: Sakhalin: northwestern part (Taranetz 1937a—as *L. costata*; Safronov & Nikiforov 2003; Pietsch *et al*. 2012; Dyldin & Orlov 2016b; Ooyagi *et al*. 2018; Machida *et al*. 2020). Freshwater. Uncommon. Not fished.

Remarks. Berg (1949a) and Nikolskii (1956) considered *L. pleskei* as a junior synonym of *L. costata* (Kessler, 1876). Currently, based on the study of the type material and genetic data, *L. pleskei* is treated as a valid species (Bogutskaya *et al*. 2008; Shedko *et al*. 2008; Ooyagi *et al*. 2018; Machida *et al*. 2020).

Conservation status: IUCN (Not Evaluated).

2. Suborder CYPRINOIDEI Rafinesque, 1810—Carp-like fishes

16. Family CYPRINIDAE Rafinesque, 1815—Carps

2. Subfamily CYPRININAE Rafinesque, 1815—Carps

24. Genus ***CARASSIUS*** Jarocki, 1822

29. *Carassius gibelio* (Bloch, 1782)—Prussian carp. Eurasia. Distribution in Russia covers the whole of Siberia; common in lakes of Primorsky Krai and Amur River basin, and widespread in southwestern Russia, e.g. in the Sea of Azov and Black Sea basins, including the Kuban. Sakhalin: native from northern to central part (Nikolskii 1889—as *C. vulgarius*; Taranetz 1937a; Safronov & Chan 1995; Safronov & Nikiforov 2003; Safronov *et al*. 2008; Labay *et al*. 2014, 2015; Nikitin *et al*. 2014; Dyldin & Orlov 2016b; UWFC 2020); currently acclimatized in the southern part of the island, where in the past it was introduced from Hokkaido (Japan), and from Amur River basin (Russia) (Safronov & Chan 1995; Gudkov & Zavarzina 2006; Dyldin & Orlov 2016b; Machida *et al*. 2020). Freshwater, brackish. Common. Target of local and amateur fisheries.

Remarks. In Sakhalin, it has usually been treated as subspecies *C. auratus gibelio* (Taranetz 1937a; Safronov & Nikiforov 2003), or as *C. auratus* (Linnaeus, 1758) (Pietsch *et al*. 2001, 2012).

Material: UWFC 46234, 46296 (as *Carassius auratus*)—southeastern Sakhalin, northwest of Terpeniya Bay, lower Poronay River basin, Leonidovka branch, east of the town of Leonidovo; UWFC 46258 (as *C. auratus*)—southeastern Sakhalin, south of Mordvinova Bay, east of the town of Okhotskoye; UWFC 44871, 44879 (as *C. auratus*)—southern Sakhalin, 10 km north of Dolinsk near coast of Lake Maly Pribrezhnoye.

Conservation status: IUCN (Not Evaluated).

25. Genus ***CYPRINUS*** Linnaeus, 1758

30. *Cyprinus rubrofuscus* Lacepède, 1803—Amur carp. East Asia: Japan, and also Amur River basin to Red River (China and Vietnam). Sakhalin: native in northern part (Taranetz 1937b; Nikiforov *et al*. 1987, 1993; Safronov & Nikiforov 2003; Pietsch *et al*. 2012; Labay *et al*. 2014, 2015; Nikitin *et al*. 2014; Dyldin & Orlov 2016b; UWFC 2020). Introduced in southern part, both from Amur River basin (Russia) and Hokkaido (Japan); now naturalized and recorded from Tunaicha Lake and Vavai lakes system (Gudkov & Zavarzina 2006; Dyldin & Orlov 2016b; Machida *et al*. 2020). Freshwater, brackish. Common where autochthonous. Target of local and amateur fisheries.

Material: UWFC 46382 (as *C. carpio*)—southeastern Sakhalin, south of Mordvinov Bay, east of Okhotskoe.

Conservation status: IUCN (Least Concern, 2012).

17. Family XENOCYPRIDIDAE Günther, 1868—East Asian minnows

26. Genus ***CHANODICHTHYS*** Bleeker, 1860

31. ***Chanodichthys erythropterus*** (Basilewsky, 1855)—Predatory carp. East Asia: Amur River south to Taiwan and Hainan. Sakhalin: northwestern part (Ivanov & Ivanova 2001; Safronov & Nikiforov 2003; Pietsch *et al*. 2012; Nikitin 2012; Nikitin *et al*. 2014; Dyldin & Orlov 2016b). Freshwater. Uncommon. Target of amateur fishing.
Remarks. In the past, the species was classified in *Culter*, *Erythroculter* or *Cultrichthys* (Dyldin & Orlov 2016b).
Conservation status: IUCN (Least Concern, 2012).

27. Genus ***CTENOPHARYNGODON*** Steindachner, 1866

32. ***Ctenopharyngodon idella*** (Valenciennes, 1844)—Grass carp. East Asia: middle and lower reaches of Amur River, including lowland rivers of China to Hong Kong. Sakhalin: autochthonous in northwest; also introduced in southern part as subject of aquaculture in 1960s and 1970s (Ivanov & Ivanova 2001; Safronov & Nikiforov 2003; Pietsch *et al*. 2012; Nikitin 2012; Labay *et al*. 2014; Nikitin *et al*. 2014; Dyldin & Orlov 2016b). Freshwater, brackish. Common. Target of amateur fishing.
Conservation status: IUCN (Not Evaluated).

28. Genus ***CULTER*** Basilewsky, 1855

33. ***Culter alburnus*** Basilewsky, 1855—Topmouth culter. East Asia: lower and middle reaches of Amur River, south to Red River and central Taiwan, including Hainan Island (China). Sakhalin: northwestern part in Lake Sladkoe, where it was first recorded in 2010 (Nikitin *et al*. 2014; Dyldin & Orlov 2016b). Freshwater, brackish. Rare. Not fished.
Conservation status: IUCN (Not Evaluated).

29. Genus ***ELOPICHTHYS*** Bleeker, 1860

34. ***Elopichthys bambusa*** (Richardson, 1845)—Yellowcheek. East Asia: Russia, China and Vietnam, including Amur River basin. Sakhalin: northwestern part (Ivanov & Ivanova 2001; Pietsch *et al*. 2001, 2012; Safronov & Nikiforov 2003; Nikitin *et al*. 2014; Dyldin & Orlov 2016b). Freshwater. Uncommon. Target of amateur fishing.
Conservation status: IUCN (Data Deficient, 2012).

30. Genus ***HYPOPHTHALMICHTHYS*** Bleeker, 1860

35. ***Hypophthalmichthys molitrix*** (Valenciennes, 1844)—Silver carp. Autochthonous in China and Amur River basin (middle and lower reaches) south to Guangxi. Sakhalin: native in northwestern part (Ivanov & Ivanova 2001; Safronov & Nikiforov 2003; Pietsch *et al*. 2012; Nikitin 2012; Labay *et al*. 2014; Nikitin *et al*. 2014; Dyldin & Orlov 2016b); introduced to southern part, where it is not found at present (Dyldin & Orlov 2016b). Freshwater. Uncommon. Target of amateur fishing.
Conservation status: IUCN (Near Threatened, 2011).

18. Family ACHEILOGNATHIDAE Bleeker, 1863—Bitterlings

31. Genus ***RHODEUS*** Agassiz, 1832

36. ***Rhodeus sericeus*** (Pallas, 1776)—Amur bitterling. East Asia: throughout Amur River basin, south to southern China. Sakhalin: northern to central part in Nevskoe Lake basin (Taranetz 1937b; Berg 1949a; Nikolskii 1956; Zhul'kov & Nikiforov 1988; Nikiforov *et al*. 1997; Ivanov & Ivanova 2001; Safronov & Nikiforov 2003; Nikitin *et al*. 2014; Labay *et al*. 2014, 2015; Dyldin & Orlov 2016b; UWFC 2020). Freshwater. Common. Not fished.

Remarks. In the past, the synonymy of *Rh. sericeus* included *Rh. mantschuricus* Mori, 1934 (Berg 1949a; Nikolskii 1956), which, according to recent data (Arai *et al*. 2001; Bogutskaya *et al*. 2008), is now considered as a valid species which is distributed in the southern Amur River basin. Further revision of the bitterlings of the Amur River basin using genetic and morphological analyses may lead to the description of some new species (Bogutskaya *et al*. 2008), which might also occur on Sakhalin.

Material: UWFC 46254—lower Tym' River basin, west of Bay of Nabilsky, south of Nogliki, northern-central Sakhalin; UWFC 46225—lower Poronai River basin, east of Leonidovo, northwestern of Terpenia Bay, eastern-central Sakhalin; UWFC 46241—lower Val River Basin, west of Chaivo Bay, north of Val, northeastern Sakhalin; UWFC 44733, 44800—environs of Lake Sladkoe, inland from Sakhalinsky Bay, northwestern Sakhalin.

Conservation status: IUCN (Least Concern, 1996).

19. Family GOBIONIDAE Bleeker, 1863—Gobionids

32. Genus ***ABBOTTINA*** Jordan & Fowler, 1903

37. i***Abbottina rivularis*** (Basilewsky, 1855)—Chinese false gudgeon. East Asia: lower and middle reaches of the Amur River southward, possibly to northern Thailand, including Korean Peninsula and Kyushu, Japan. Sakhalin: southern part in Vavai Lakes system; there probably unintentionally introduced from Amur River basin (Shedko & Shedko 2003; Shedko *et al*. 2005; Gudkov & Zavarzina 2006; Nikitin 2012; Labay *et al*. 2014; Dyldin & Orlov 2016b; UWFC 2020). Freshwater. Common. Not fished.

Remarks. Berg (1949a) considered this species in the genus *Pseudogobio*.

Material: UWFC 46210, 46375—east of Korsakov, north of Aniva Bay, southern Sakhalin; UWFC 46256—south-eastern side of Small Chibisanskoe Lake, north of Ozersk, southern Sakhalin; UWFC 46257—channel between Large and Small Chibisanskoe lakes, north of Ozersk, southern Sakhalin; UWFC 44918—west side of Small Chibisanskoe Lake, 25 km east of Korsakov.

Conservation status: IUCN (Not Evaluated).

33. Genus ***GOBIO*** Cuvier, 1816

38. ?***Gobio cynocephalus*** Dybowski, 1869—Amur gudgeon. East Asia: North Korea, China, Mongolia and Russia, but mainly in Amur River basin. Sakhalin: northwestern part; there either native species or unintentionally introduced (Naseka & Gershtein 2006; Bogutskaya *et al*. 2008). Freshwater. Rare. Not fished.

Remarks. The presence of this species in the northwestern part of the island still needs to be documented (Dyldin & Orlov 2016b).

Conservation status: IUCN (Not Evaluated).

39. ***Gobio soldatovi*** Berg, 1914—Soldatov's gudgeon. East Asia: Mongolia, Russia and China, but mainly in middle and lower reaches of Amur River. Sakhalin: northern part (Safronov & Zhivoglyadov 1996; Pietsch *et al*. 2001, 2012; Ivanov & Ivanova 2001; Nikiforov *et al*. 1987; Safronov & Nikiforov 2003; Nikitin 2012; Nikitin *et al*. 2014; Labay *et al*. 2014; Dyldin & Orlov 2016b; UWFC 2020). Freshwater. Very common. Not fished.

Material: UWFC 44790—environs of Lake Sladkoe, inland from Sakhalinsky Bay, northwestern Sakhalin; UWFC 44790—environs of Lake Sladkoe, inland from Sakhalinsky Bay, northwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

34. Genus ***GOBIOBOTIA*** Kreyenberg, 1911

40. ***Gobiobotia pappenheimi*** Kreyenberg, 1911—Eightbarbel gudgeon. East Asia: China and Russia, mainly in middle and lower reaches of Amur River and Yangtze River. Sakhalin: recorded from Bol'shoye Chibisan Lake (Mukhametova 2008—as *Gobiobotia* cf. *pappenheimi*). Freshwater. Its presence needs verification.
Conservation status: IUCN (Not Evaluated).

35. Genus ***HEMIBARBUS*** Bleeker, 1860

41. ***Hemibarbus labeo*** (Pallas, 1776)—Barbel steed. East Asia: across Amur River Basin south to southern China and possibly Vietnam, including Taiwan, Japan, Mongolia, and Hainan (China). Sakhalin: northwestern part (Pietsch *et al*. 2001, 2012; Ivanov & Ivanova 2001; Safronov & Nikiforov 2003; Nikitin 2012; Nikitin *et al*. 2014; Labay *et al*. 2014; Dyldin & Orlov 2016a). Freshwater, brackish. Uncommon. Target of amateur fishing.
Conservation status: IUCN (Not Evaluated).

42. ***Hemibarbus maculatus*** Bleeker, 1871—Spotted steed. East Asia: mainly in lower and middle reaches of Amur River south to Yangtze River, and possibly Vietnam. Sakhalin: northwestern part (Ivanov & Ivanova 2001; Safronov & Nikiforov 2003; Pietsch *et al*. 2012; Nikitin 2012; Labay *et al*. 2014; Nikitin *et al*. 2014; Dyldin & Orlov 2016b). Freshwater. Uncommon. Target of amateur fishing.
Conservation status: IUCN (Not Evaluated).

36. Genus ***PSEUDORASBORA*** Bleeker, 1859

43. i***Pseudorasbora parva*** (Temminck & Schlegel, 1846)—Stone moroko. East Asia: autochthonous in Japan (Honshu Island), Taiwan, Hainan (China), Korean Peninsula, northern Vietnam, China and Mongolia, including the entire Amur River Basin and the rivers of Primorsky Krai. Sakhalin: southern part in Vavai and Chibisan lakes systems, where it was unintentionally introduced from Amur River basin during fishery activities in 1982 (Shedko *et al*. 2005; Gudkov & Zavarzina 2006; Nikitin 2012; Labay *et al*. 2014; Dyldin & Orlov 2016b; UWFC 2020). Freshwater, brackish. Very common. Not fished.
Material: UWFC 44975—west side of Small Chibisankskoe Lake, 25 km east of Korsakov, southern Sakhalin; UWFC 46228—channel between Large and Small Chibisanskoe lakes, north of Ozersk, southern Sakhalin; UWFC 46230—southeasten side of Small Chibisanskoe Lake, north of Ozersk, southern Sakhalin.
Conservation status: IUCN (Least Concern, 2012).

20. Family LEUCISCIDAE Bonaparte, 1835—Leuciscids

3. Subfamily PSEUDASPININAE Bogutskaya, 1990—Far East Asian leuciscines

37. Genus ***PSEUDASPIUS*** Dybowski, 1869

44. ***Pseudaspius brandtii*** (Dybowski, 1872)—Pacific redfin. Western North Pacific. Sakhalin: throughout the island, with highest abundance in central and northern parts (Schmidt 1904—as *Leuciscus taczanowskii* and *L. adele*, 1950; Klyuchareva 1964; Gritsenko 1974, 2002; Nikiforov *et al*. 1993; Pietsch *et al*. 2001, 2012; Safronov & Nikiforov 2003; Safronov *et al*. 2008; Labay *et al*. 2014, 2015; Dyldin & Orlov 2016b; UWFC 2020; Kawai 2020). Anadromous, with a landlocked form. Very common. Target of local and amateur fishing.
Remarks. In the past, this species was classified in the genera *Leuciscus* and *Tribolodon*. According to recent molecular data (Sakai *et al*. 2020), the genus *Tribolodon* was treated as a junior synonym of *Pseudaspius*.
Material: UWFC 44986—mouth of Nayba River, southern Sakhalin; UWFC 46394—lower Tym' River basin,

northern-central Sakhalin; UWFC 46395—north of Aniva Bay, southern Sakhalin; UWFC 44991—Lake Barguzinskoe, southeastern Sakhalin; UWFC 46370—Il'inka River basin, east of Il'insk, southern-central Sakhalin; HUMZ 183355, 183356, 183359, 183364, 183366, 183376, 183377—Lake Aynskoye, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

45. *Pseudaspius hakonensis* (Günther, 1877)—Big-scaled redfin. Western North Pacific. Sakhalin: throughout the island (Nikiforov *et al*. 1987, 1993; Pietsch *et al*. 2001, 2012; Gritsenko 2002; Safronov & Nikiforov 2003; Pietsch *et al*. 2012; Labay *et al*. 2014, 2015; Dyldin & Orlov 2016b; Kawai 2020; UWFC 2020; Catania & Fong 2021). Anadromous, freshwater (in some lakes, in particular in the southern part, with landlocked forms). Common. Target of local and amateur fishing.

Remarks. In the past (Berg 1949a; Nikilskii 1956), this species was treated as a large-scaled form of *P. brandtii*, and was classified either in the genera *Leuciscus* or *Tribolodon*. Nikiforov (2001) noted that under the name *P. hakonensis* an undescribed form is found at Sakhalin, which differs from other representatives of the genus *Pseudaspius* in external body colouration, morphometry, and ecology.

Material: CAS-SU 13351—Korsakov, Aniva Bay, Sakhalin; HUMZ 179553—Aniva Bay, southern Sakhalin; HUMZ 183216—estuary of Aynskaya River, southwestern Sakhalin; HUMZ 183370, 183373, 183378—Lake Aynskoye, southwestern Sakhalin; HUMZ 187083—east of Sokol, southeastern Sakhalin; SRM KP-8232/2 PP-35/2—Susuya River, southern Sakhalin; UWFC 46368—Il'inka River basin, east of Il'insky, southern-central Sakhalin; UWFC 46387—estuary at mouth of Mereya River, southern Sakhalin; UWFC 46390—Small Chibisanskoye Lake, north of Aniva Bay, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

46. *Pseudaspius leptocephalus* (Pallas, 1776)—Redfin. East Asia: mainly in Amur River Basin, from headwaters to estuary. Sakhalin: northwestern part adjacent to Amur River estuary (Nikiforov *et al*. 1987; Pietsch *et al*. 2001, 2012; Ivanov & Ivanova 2001; Safronov & Nikiforov 2003; Nikitin 2012; Nikitin *et al*. 2014; Labay *et al*. 2014, 2015; Dyldin & Orlov 2016b). Freshwater, brackish. Common. Target of amateur fishing.

Conservation status: IUCN (Not Evaluated).

47. *Pseudaspius sachalinensis* (Nikolskii, 1889)—Sakhalin redfin. Western North Pacific. Sakhalin: along all coasts (Safronov & Nikiforov 2003—as *Tribolodon ezoe*; Shedko 2005; Pietsch *et al*. 2012; Dyldin & Orlov 2016b, with question mark; UWFC 2020). Anadromous, with landlocked forms on southern Sakhalin. Common. Target of local and amateur fishing.

Remarks. Shedko (2005) restored *Leuciscus sachalinensis* as a separate species, with *Tribolodon ezoe* Okada & Ikeda, 1937 as a junior synonym. In the past, it was either classified in the genera *Leuciscus* or *Tribolodon*.

This species was originally described by Nikolskii (1889) based on samples from Alexandrovsk-Sakhalinsky, under the name *Leuciscus sachalinensis*.

Material: UWFC 44985 (as *Tribolodon ezoe*)—Small Chibisanskoe Lake, 25 km east of Korsakov, southern Sakhalin; UWFC 44987 (as *T. ezoe*)—Maly Takoy River, southwest of Dolinsk, southern Sakhalin; UWFC 46384—Il'inka River basin, east of Il'insk, southern-central Sakhalin; UWFC 46393 (as *T. ezoe*)—Middle Tym' River basin, western-central Sakhalin; ZIN 6598 (lectotype)—Alexandrovsk-Sakhalinsky, Sakhalin; ZIN 6599 (paralectotypes)—Alexandrovsk-Sakhalinsky, Sakhalin.

Conservation status: IUCN (Not Evaluated).

38. Genus ***RHYNCHOCYPRIS*** Günther, 1889

48. *Rhynchocypris czekanowskii* (Dybowski, 1869)—Czekanowsky's minnow. Distribution area in Russia including Siberia and Far East. Sakhalin: in rivers and lakes between Vagis and Chernaya rivers, as well as upper reaches of Tym' and Poronai rivers (Safronov & Nikiforov 2003; Nikitin & Safronov 2009; Pietsch *et al*. 2012; Nikitin 2010, 2012; Labay *et al*. 2015; Dyldin & Orlov 2016b; UWFC 2020). Freshwater. Uncommon. Not fished.

Remarks. According to recent molecular data (Sakai *et al*. 2020), all previously mentioned genera of Far Eastern

minnows (*Czekanowskiella* Dybowski, 1916, *Eupallasella* Dybowski, 1916, *Lagowskiella* Dybowski, 1916 and *Morynoco* Jordan & Hubbs, 1925) are junior synonyms of *Rhynchocypris*. The actual distribution range of *R. czekanowskii* remain uncertain, and its nomenclature requires further study, including a comparative morphological and genetic analysis of samples from the type habitat and other areas (Dyldin & Orlov 2016b). Most probably, the distribution of this species is limited to the upper reaches of Amur River basin including adjacent areas.

Material: UWFC 47995—Krasnaya River basin, just south of the town of Yasnoe, northern-central Sakhalin; UWFC 47997—lower Val River basin, west of Chayvo Bay, north of Val, northeastern Sakhalin; UWFC 48000—lower Poronai River basin, east of the town of Leonidovo, northwestern Terpeniya Bay, northern-central Sakhalin.

Conservation status: IUCN (Least Concern, 2008).

49. *Rhynchocypris lagowskii* (Dybowski, 1869)—Lagowsky's minnow. East Asia and Siberia. Mongolia, Russia and China, mainly in Amur River basin, Selenga River and upper reaches of Lena River. Sakhalin: northwestern part of island adjacent to Amur River estuary (Nikiforov *et al*. 1987; Pietsch *et al*. 2001, 2012; Shedko & Shedko 2003; Safronov & Nikiforov 2003; Nikitin & Safronov 2009; Nikitin 2010, 2012; Labay *et al*. 2015; Dyldin & Orlov 2016b). Freshwater. Common. Not fished.

Conservation status: IUCN (Not Evaluated).

50. *Rhynchocypris mantschuricus* (Berg, 1907)—Manchurian Lake minnow. East Asia: From lower reaches of Amur River to Korean Peninsula. Sakhalin: northwestern part of island, south to Poronai and Tym' rivers (Taranetz 1937b; Berg 1949b; Nikiforov *et al*. 1997; Ivanov & Ivanova 2001; Safronov & Nikiforov 2003; Safronov & Nikitin 2005; Nikitin & Safronov 2009; Nikitin 2010; Pietsch *et al*. 2012—as *R. perenurus*; Nikitin *et al*. 2014; Labay *et al*. 2015; Dyldin & Orlov 2016b; UWFC 2020); southeastern part (UWFC 2020). Freshwater. Common. Not fished.

Remarks. In the past, several authors (Berg 1949b; Nikolskii 1956; Ivanov & Ivanova 2001; Shedko 2001; Pietsch *et al*. 2012) treated the taxa *Rhynchocypris mantschuricus* and *R. sachalinensis* as subspecies of *R. percnurus* (Pallas, 1814). After their seperation into separate species, another previously reported species (*R. percnurus*) is no longer part of the ichthyofauna of Sakhalin (see Dyldin & Orlov 2016b).

Material: UWFC 44909, 44910 (as *Phoxinus percnurus mantschuricus*)—environs of Sladkoye Lake, inland from Sakhalinsky Bay, northwestern Sakhalin; UWFC 44919 (as *P. p. mantschuricus*)—10 km north of Dolinsk near coast of Lake Maly Pribrezhnoye, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

51. *Rhynchocypris oxycephalus* (Sauvage & Dabry de Thiersant, 1874)—Chinese minnow. East Asia, including Japan (as subspecies *Phoxinus oxycephalus jouyi*—see Nakabo 2002). Lower and middle reaches of Amur River, and rivers flowing into Peter the Great Bay, south to Yangtze River (China). Sakhalin: northwestern part of island, in upper reaches of Tym' and Poronai rivers (Safronov & Nikiforov 2003; Nikitin & Safronov 2009; Nikitin 2012; Dyldin & Orlov 2016b). Freshwater. Uncommon. Not fished.

Conservation status: IUCN (Not Evaluated).

52. *Rhynchocypris sachalinensis* (Berg, 1907)—Sakhalin Lake minnow. Endemic species at Sakhalin and Hokkaido Island, Japan. Sakhalin: throughout the island, except in the northernmost part (Berg 1907, 1949b; Taranetz 1937b; Nikiforov *et al*. 1987, 1993; Pietsch *et al*. 2001, 2012; Safronov & Nikiforov 2003; Safronov & Nikitin 2005; Nikitin & Safronov 2009; Nikitin 2010; Labay *et al*. 2015; Dyldin & Orlov 2016b; UWFC 2020). Freshwater. Common. Not fished.

Remarks. According to Sakai *et al*. (2014, as *R. perenurus sachalinensis*), this taxon is distributed only in southern Sakhalin. It was originally described by Berg (1907: 200) as the subspecies *Phoxinus percnurus sachalinensis* (type locality: Arakul River, southern Sakhalin).

Material: ZIN 13879 (14 syntypes)—Arakul River near Chepizan, system of the Vavaie lakes, southern Sakhalin; UWFC 44903 (as *Phoxinus percnurus sachalinensis*)—environs of lake Uspenskoye, inland from Sakhalinsky Bay, northwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

4. Subfamily LEUCISCINAE Bonaparte, 1835—Leuciscines

39. Genus ***LEUCISCUS*** Cuvier, 1816

53. ***Leuciscus waleckii*** (Dybowski, 1869)—Amur ide. East Asia: Mongolia, China, Korean Peninsula and Russia, mainly from Amur River basin south to Yellow River, China. Sakhalin: northwestern part, from Sakhalinsky Bay south to central part at Nevskoye Lake (Berg 1949b; Taranetz 1937a; Nikolskii 1956; Nikiforov *et al*. 1987, 1997; Ivanov & Ivanova 2001; Pietsch *et al*. 2001, 2012; Safronov & Nikiforov 2003; Safronov *et al*. 2008; Labay *et al*. 2014, 2015; Nikitin *et al*. 2014; Dyldin & Orlov 2016b; UWFC 2020). Freshwater, brackish. Common. Target of local and amateur fishing, also as bycatch.

Material: UWFC 44974—environs of Lake Sladkoe, inland of Sakhalinsky Bay, northwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

5. Subfamily PHOXININAE Bleeker, 1863—Eurasian minnows

40. Genus ***PHOXINUS*** Rafinesque, 1820

54. ?***Phoxinus phoxinus*** (Linnaeus, 1758)—Eurasian minnow. In the basins of the Atlantic, Arctic and Pacific, from France east to Anadyr and Amur rivers. Sakhalin: northern to central part (Nikiforov *et al*. 1987; Pietsch *et al*. 2001, 2012; Safronov & Nikiforov 2003; Nikitin & Safronov 2009; Nikitin 2010, 2012; Labay *et al*. 2015; Dyldin & Orlov 2016b; UWFC 2020). Also in southern Sakhalin (probably unintentionally introduced), record based on UWFC (46363, 46366). Freshwater, brackish. Common. Not fished.

Remarks. According to recent data, the distribution range of *P. phoxinus* is limited to the neotype locality (the Agger River in Germany) and the Rhine River drainage in central Europe (Fricke *et al*. 2021a). Therefore, records of *P. phoxinus* from Sakhalin need clarification, as they may be based on either *P. ujmonensis* Kashchenko, 1899 from Siberia, or *Ph. tumensis* Luo, 1996 from Jilin Province, China.

Material: UWFC 46356—central Val River basin, west of Chayvo Bay, north of Val, northeastern Sakhalin; UWFC 46359, 46369—lower Tym' River, west of Bay of Nabilsky, south of Nogliki, northern-central Sakhalin; UWFC 46360, 46362—lower Poronai River basin, east of Leonidovo, northern-central Sakhalin; UWFC 46363—near mouth of large river Shlyuzovka, inlet to Lake Vavayskoe, southern Sakhalin; UWFC 46364—lower Val River Basin, west of Chayvo Bay, north of Val, northeastern Sakhalin; UWFC 46366—channel between Large and Small Chibisanskoe lakes, north of Ozersk, southern Sakhalin; UWFC 46367—small string of ponds off highway, northwestern of Terpeniya Bay, north of Gastello, northern-central Sakhalin; UWFC 47996—lower Val River basin, west of Chayvo Bay, north of Val, Sakhalin.

Conservation status: IUCN (Least Concern, 2008).

10. Order SILURIFORMES Cuvier, 1816—Catfishes

3. Suborder SILUROIDEI—Freshwater catfishes

21. Family BAGRIDAE Bleeker, 1858—Bagrid catfishes

41. Genus ***TACHYSURUS*** Lacepède, 1803

55. ***Tachysurus sinensis*** Lacepède, 1803—Chinese catfish. Yongding River basin (northern China), but probably widespread in northeastern Asia (requires additional study, see Ng & Kottelat 2007). Sakhalin: northwestern part adjacent to Amur River estuary, where, according to our data, this species is tentatively identified as *T*. cf. *sinensis* (Ivanov & Ivanova 2001; Safronov & Nikiforov 2003; Pietsch *et al*. 2012; Nikitin 2012; Labay *et al*. 2014; Nikitin *et al*. 2014; Dyldin & Orlov 2016b). Freshwater. Common. Target of amateur fishing.

Remarks. See Dyldin & Orlov (2016b) for taxonomic notes on *T. sinensis* in northern Sakhalin.

Conservation status: IUCN (Not Evaluated).

22. Family SILURIDAE Rafinesque, 1815—Sheatfishes

42. Genus ***SILURUS*** Linnaeus, 1758

56. *Silurus asotus* Linnaeus, 1758—Amur catfish. Japan (from Hokkaido to Kyushu), Korea, China, Vietnam (Hanoi) and Mongolia. Sakhalin: northwestern part (Nikiforov *et al*. 1987; Ivanov & Ivanova 2001; Pietsch *et al*. 2001, 2012; Safronov & Nikiforov 2003; Nikitin 2012; Labay *et al*. 2014, 2015; Nikitin *et al*. 2014; Dyldin & Orlov 2016b). Freshwater, brackish. Common. Target of amateur fishing.

Remarks. Berg (1949a) classified this species in the genus *Parasilurus*, but now *Parasilurus* is treated as a junior synonym of *Silurus* (see Kottelat 2013)

Conservation status: IUCN (Least Concern, 2012).

11. Order ESOCIFORMES Rafinesque, 1810—Pikes

23. Family ESOCIDAE Rafinesque, 1815—Pikes

43. Genus ***ESOX*** Linnaeus, 1758

57. *Esox reichertii* Dybowski, 1869—Amur pike. East Asia: China, Mongolia and Russia, including entire Amur River basin and part of Kamchatka Peninsula. Sakhalin: northwestern and central parts, also occasionally introduced in southern part since 1999 (Nikolskii 1889; Taranetz 1937b; Berg 1948; Safronov & Marchenko 1999; Pietsch *et al*. 2001, 2012; Safronov & Nikiforov 2003; Safronov *et al*. 2008; Labay *et al*. 2014, 2015; Nikitin *et al*. 2014; Dyldin & Orlov 2016a). Freshwater, brackish. Common. Target of amateur fishing.

Material: SRM KP-9188/14 PP-53/14—Poronai River, Sakhalin.

Conservation status: IUCN (Not Evaluated).

12. Order SALMONIFORMES Rafinesque, 1810—Salmons

24. Family SALMONIDAE Jarocki, 1822—Salmons

6. Subfamily COREGONINAE Bonaparte, 1845—Whitefishes

44. Genus ***COREGONUS*** Linnaeus, 1758

58. *Coregonus ussuriensis* Berg, 1906—Amur whitefish. East Asia: middle and lower reaches of Amur River, including Lake Khanka and southern Sea of Okhotsk. Sakhalin: along west coast from Sakhalinsky Bay south to Ainskoe Lake in southern Sakhalin. Also recorded from east coast between Schmidt Peninsula and Nabil Bay, but mainly recorded from northern part (Taranetz 1937a; Berg 1948; Schmidt 1950; Gritsenko & Kostyunin 1979; Nikiforov *et al*. 1987, 1997; Pietsch *et al*. 2001, 2012; Gritsenko 2002; Safronov & Nikiforov 2003; Nikitin 2012; Labay *et al*. 2015; Nikitin *et al*. 2014; Dyldin & Orlov 2016b). Freshwater, brackish, marine. Common. Target of amateur fishing.

Material: HUMZ 141031—Severny Bay, northern Sakhalin.

Conservation status: IUCN (Not Evaluated).

7. Subfamily THYMALLINAE Gill, 1885—Graylings

45. Genus ***THYMALLUS*** Linck, 1790

59. #***Thymallus tugarinae*** Knizhin, Antonov, Safronov & Weiss, 2007—Lower Amur grayling. Eastern Asia, northern China and Russia. Sakhalin: northwestern part (Taranetz 1937b; Nikiforov *et al*. 1987; Safronov & Nikiforov 2003; Knizhin *et al*. 2007; Safronov 2009; Nikitin 2012; Labay *et al*. 2015; Dyldin & Orlov 2016b). Freshwater. Common. Target of amateur fishing.

Remarks. Before *T. tugarinae* was recorded from Sakhalin, this species was identified as *T. arcticus* (non Pallas, 1776), *T. arcticus grubii* non Dybowski, 1869 or *Th. grubii* (see Dyldin & Orlov 2016b).

Material: SRM KP-8119/1 PP-32/1, KP-8119/2 PP-32/2, KP-8119/3 PP-32/3, KP-8119/4 PP-32/4, KP-8119/5 PP-32/5, KP-8119/6 PP-32/6 (all listed as *T. grubii*)—Langry River in northwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

8. Subfamily SALMONINAE Jarocki, 1822—Salmons

46. Genus ***BRACHYMYSTAX*** Günther, 1866

60. ***Brachymystax tumensis*** Mori, 1930—Tumen lenok. East Asia and Siberia. Sakhalin: northwestern part (Taranetz 1937a; Nikiforov *et al*. 1987; Alekseev & Dudnik 1989; Ivanov & Ivanov 2001; Pietsch *et al*. 2001, 2012; Safronov & Nikiforov 2003; Safronov 2009; Nikitin 2012; Labay *et al*. 2015; Dyldin & Orlov 2016b). Freshwater. Common. Target of amateur fishing.

Conservation status: IUCN (Not Evaluated).

47. Genus ***HUCHO*** Günther, 1866

61. ***Hucho taimen*** (Pallas, 1773)—Taimen. Eurasia: China, Mongolia and Russia. Sakhalin: occurrence limited to some rivers in northwestern part (Safronov *et al*. 1997; Ivanov & Ivanova 2001; Safronov & Nikiforov 2003; Pietsch *et al*. 2012; Nikitin 2012; Labay *et al*. 2015; Dyldin & Orlov 2016b). Freshwater. Rare. Not fished.

Conservation status: IUCN (Vulnerable, 2013) / RBSO (category 2).

48. Genus ***ONCORHYNCHUS*** Suckley, 1861

62. ***Oncorhynchus gorbuscha*** (Walbaum, 1792)—Pink salmon. Native in North Pacific and adjacent Arctic (from the Lena River delta to the Bering Strait). Sakhalin: along all coasts (Dyldin & Orlov 2016b). Anadromous. Very common. Valuable commercial species.

Conservation status: IUCN (Not Evaluated).

63. ***Oncorhynchus keta*** (Walbaum, 1792)—Chum salmon. North Pacific and adjacent Arctic. Sakhalin: along all coasts (Dyldin & Orlov 2016b). Anadromous. Common. Valuable commercial species.

Material: SRM KP-8119/8 PP-32/8—Ochepuha River, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

64. ***Oncorhynchus kisutch*** (Walbaum, 1792)—Coho salmon. North Pacific and adjacent Arctic. Sakhalin: along all coasts, but mainly on northwest and east coasts (Shuntov *et al*. 2003; Dyldin & Orlov 2016b). Anadromous, with landlocked forms in some lakes of North America and Kamchatka. Common. A target of small-scale fishery and amateur fishing, also as bycatch.

Material: SRM KP-9342/1 PP-55/1—Vestovaya River, central Sakhalin.

Conservation status: IUCN (Not Evaluated).

65. ***Oncorhynchus masou*** (Brevoort, 1856)—Cherry salmon. Western North Pacific. Sakhalin: allong all shores (Dyldin & Orlov 2016b). Anadromous, with landlocked forms. Common. A target of small-scale fishery and amateur fishing; also bycatch in commercial fisheries.

Material: SRM KP-8418 PP-39—Mordvinov Bay, southeastern Sakhalin.

Conservation status: IUCN (Not Evaluated).

66. ***Oncorhynchus nerka*** (Walbaum, 1792)—Sockeye salmon. North Pacific and adjacent Arctic. Sakhalin: northern part (Dyldin & Orlov 2016b). Anadromous, with landlocked forms in some lakes of Kamchatka, the southern Kurils (Iturup Island) and Japan. Rare. May be found as bycatch in fishery of other species.
Conservation status: IUCN (Least Concern, 2011).

67. ***Oncorhynchus tshawytscha*** (Walbaum, 1792)—Chinook salmon. North Pacific and adjacent Arctic. Sakhalin: only once recorded in the past; present in the open waters of the eastern part of the island (Shuntov *et al*. 2003; Dyldin & Orlov 2016b). Anadromous. Rare. Bycatch in commercial fisheries.
Conservation status: IUCN (Not Evaluated).

49. Genus ***PARAHUCHO*** Vladykov, 1963

68. ***Parahucho perryi*** (Brevoort, 1856)—Sakhalin taimen Western North Pacific: Russia and Japan, Hokkaido Island, but in the past also known from northern Honshu. Sakhalin: all coastal zones adjacent to river mouths, including large brackish lagoons and bays (Schmidt 1904, 1950; Taranetz 1937a, 1937b; Nikiforov *et al*. 1987, 1993, 1997; Safronov & Nikiforov 2003; Safronov & Sukhonos 2006; Safronov *et al*. 2008; Pietsch *et al*. 2012; Nikitin 2012; Dyldin & Orlov 2016b; Kawai 2020; UWFC 2020; Natural History Museum 2020; Orrell 2020). Anadromous, with landlocked forms if natural obstacles to migration are present in rivers (Fukushima *et al*. 2011; Dyldin *et al*. 2020a). Common, rare in some places, with decreasing abundance throughout. Over the last decade, it completely disappeared from some rivers of Sakhalin; in others it is on the verge of extinction. Not fished.
Material: HUMZ 183208, 183209—estuary of Aynskaya River, southwestern Sakhalin; HUMZ 187033—estuary of Arkovo River, western-central Sakhalin; BMNH 1992.4.28.1-2—Sakhalin; SRM KP-9188/2 PP-53/2—Mordvinov Bay, Sea of Okhotsk, southeastern Sakhalin; USNM 124490—Korsakov Light, Otomari, southern end of Sakhalin; UWFC 46190—east of Korsakov, north of Aniva Bay, southern Sakhalin.
Conservation status: IUCN (Critically Endangered) / RBSO (category 2).

50. Genus ***SALVELINUS*** Richardson, 1836

69. #***Salvelinus curilus*** (Pallas, 1814)—Kuril charr. Western North Pacific. Sakhalin: throughout island (Dyldin & Orlov 2016b; UWFC 2020). Anadromous, creates landlocked forms. Common, Very common in some places. Target of local and amateur fishing.
Remarks. See Dyldin & Orlov (2016b) for taxonomic notes on this species at Sakhalin.
Material: SRM KP-9188/3 PP-53/3 (as *S. malma krascheninnikovi*)—mouth of the Malaya Khuzi River, northeastern Sakhalin; UWFC—all as *Salvelinus malma* (Walbaum, 1792): UWFC 44742—south of Bol'shoye Langri River mouth, northeastern Sakhalin; UWFC 44837—Sokolovka River, 5 km from Yuzhny Sokol, southern Sakhalin; UWFC 44883—environs of Lake Monchigar, east of Cape Marii, northwestern Sakhalin; UWFC 44892—Belaya River, northeast of Sokol, southern Sakhalin; UWFC 44942—west side of Cape Yelizavety, northern Sakhalin.
Conservation status: IUCN (Not Evaluated).

70. #***Salvelinus leucomaenis*** (Pallas, 1814)—Whitespotted charr. Western North Pacific. Sakhalin: in most rivers, lagoons and lakes connected with the sea (Pietsch *et al*. 2001, 2012; Safronov & Nikiforov 2003; Dyldin & Orlov 2016b; Kawai 2020; UWFC 2020). Anadromous, with landlocked forms. Common; very common in southern part. Target of local and amateur fishing.
Material: HUMZ 183693—west side of Cape Yelizavety, northern tip of Sakhalin; SRM KP-8119/7 PP-32/7—Ochepuha River, southern Sakhalin; UWFC 44720—mouth of the Taliki River, northeastern Sakhalin; UWFC 44755—south of Bolshoye Langri River mouth, northeastern Sakhalin; UWFC 44778—Ochepukha River, 4

km drom mouth, north of Lake Tunaicha, southeastern Sakhalin; UWFC 44881—Belaya River, northeast of Sokol, southern Sakhalin; UWFC 46126—lover Val River basin, west of Chayvo Bay, north of Val, northeastern Sakhalin; UWFC 46327—lover Tym' River basin, west of Bay Nabil'sky, northern-central Sakhalin.

Conservation status: IUCN (Not Evaluated).

71. *Salvelinus vasiljevae* Safronov & Zvezdov, 2005—Vasilieva's charr. Endemic in rivers of northwestern Sakhalin near Amur River estuary and Nevelskoy Strait (Safronov & Zvezdov 2005; Safronov 2009; Pietsch *et al*. 2012; Nikitin 2012; Dyldin & Orlov 2016b). Freshwater, brackish. Common. Target of amateur fishing.

Remarks. Originally described from the upper Tenga River, northwestern Sakhalin by Safronov & Zvezdov (2005: 740, fig. 2) (type locality: Tengi River, upper reaches, northwestern Sakhalin).

Material: ZMMU P-20938 (holotype)—Sakhalin Region, northwestern Sakhalin, upper Tengi River; ZMMU P-20939 (paratypes), Sakhalin Region, northwestern Sakhalin, upper Tengi River.

Conservation status: IUCN (Not Evaluated).

13. Order OSMERIFORMES Regan, 1913—Smelts

25. Family OSMERIDAE Regan, 1913—Smelts

51. Genus ***HYPOMESUS*** Gill, 1862

72. *Hypomesus japonicus* (Brevoort, 1856)—Shishamo smelt. Western North Pacific and Bering Sea. Sakhalin: along all coasts (Taranetz 1937a; Schmidt 1950—as *H. pretiosus*; Pietsch *et al*. 2001; Gritsenko 2002; Safronov & Nikiforov 2003; Zavarzina 2004; Safronov *et al*. 2008; Labay *et al*. 2014, 2015; Dyldin & Orlov 2016; Kawai 2020; UWFC 2020). Marine, brackish. Common. Target of local and amateur fishing.

Material: HUMZ 179706—west side of Cape Elizabeth, northern Sakhalin; HUMZ 186827, 186836—estuary of Arkovo River, western-central Sakhalin; UWFC 44950—west side of Cape Elizabeth, northern Sakhalin.

Conservation status: IUCN (Not Evaluated).

73. *Hypomesus nipponensis* McAllister, 1963—Japanese smelt. Western North Pacific. Sakhalin: along all coasts (Gritsenko & Churikov 1984; Pietsch *et al*. 2001, 2012 Gritsenko 2002; Safronov & Nikiforov 2003; Safronov *et al*. 2008; Labay *et al*. 2014, 2015; Dyldin & Orlov 2016b; Kawai 2020; UWFC 2020). Anadromous, with landlocked form. Very common. Commercial species; also target of amateur fishing.

Material: HUMZ 183199, 183206—estuary of Aynskaya River, southwestern Sakhalin; HUMZ 183339—Lake Aynskoye, southwestern Sakhalin; HUMZ 188415—Korsakov, Aniva Bay, southern Sakhalin; UWFC 46340—south of the Mordvinov Bay, east of the town of Okhotskoye, southeastern Sakhalin.

Conservation status: IUCN (Not Evaluated).

74. *Hypomesus olidus* (Pallas, 1814)—Pond smelt. Arctic (from the Kara Sea to the east to the Chukotka Peninsula) and western North Pacific. Sakhalin: along all coasts (Schmidt 1904; Taranetz 1937b; Nikiforov *et al*. 1987, 1993, 1997; Pietsch *et al*. 2001, 2012; Gritsenko 2002; Safronov & Nikiforov 2003; Labay *et al*. 2014, 2015; Nikitin *et al*. 2014; Dyldin & Orlov 2016b; Kawai 2020; UWFC 2020). Anadromous, with landlocked lacustrine and lacustrine-river forms, in particular in the basins of Tym' and Poronai rivers. Common. Commercial species; also target of amateur fishing.

Remarks. Freshwater and landlocked forms in central and northern Sakhalin from Lake Nevskoye, lakes of the Tym and Poronai river basins, and others, were described in the past (Taranetz 1936a: 85; Hamada 1957: 137) as the separate subspecies *H. olidus bergi* (type locality: tundra lake near Tym' River, 6 km above the village Nogliki, Sakhalin), and *H. sakhalinus* (type locality: Lake Nevskoye [Taraika] in Terpeniya Bay basin, eastern Sakhalin, Russia), respectively. Both are now recognized as ecological forms, and junior synonyms, of *H. olidus* (Saruwatari *et al*. 1997; Bogutskaya *et al*. 2008).

Material: HUMZ 139598, 139619, 139626—Severny Bay, Sakhalin; HUMZ 179202—north of Baikal Bay, northwestern Sakhalin; HUMZ 183071, 183120, 183146—creek at west of Baikal Bay, northwestern Sakhalin; HUMZ 183204—estuary of Aynskaya River, southwestern Sakhalin; HUMZ 186884—north of Tangi, western-

central Sakhalin; UWFC 44960, 44966—environs of Muz'ma settlement, inland from Sakhalinsky Bay, northwestern Sakhalin; UWFC 46337—channel between Large and Small Lakes Chibisanskoye, southern Sakhalin; UWFC 46353—east of Korsakov, north of Aniva Bay, southern Sakhalin; ZIN 25488 (syntypes of *Hypomesus olidus bergi*)—tundra lake near Tym' River, 6 km above the village Nogliki, Sakhalin.

Conservation status: IUCN (Least Concern, 2013).

52. Genus ***MALLOTUS*** Cuvier, 1829

75. *Mallotus catervarius* (Pennant, 1784)—Far Eastern capelin. North Pacific and adjacent Arctic. Sakhalin: along all coasts (Schmidt 1950; Lindberg & Legeza 1965; Velikanov 2002; Safronov & Nikiforov 2003; Dyldin & Orlov 2016b; Dyldin *et al*. 2020a; Kawai 2020). Marine, brackish. Very common. Characterized by a short life cycle and significant fluctuation in abundance. Commercial species.

Remarks. This species was previously recorded from Sakhalin as *M. villosus* (non Müller, 1776), or as its subspecies *M. villosus catervarius* (Pennant, 1784). Currently, based on the results of molecular and morphological analyses, it is treated as a valid species *M. catervarius* (Mecklenburg *et al*. 2016, 2018; Dyldin *et al*. 2020b).

Material: HUMZ 186837 (as *M. villosus*)—estuary of Arkovo River, western-central Sakhalin.

Conservation status: IUCN (Not Evaluated).

53. Genus ***OSMERUS*** Linnaeus, 1758

76. *Osmerus dentex* Steindachner & Kner, 1870—Arctic (Asian) rainbow smelt. North Atlantic, Arctic and North Pacific. Sakhalin: along all coasts (Schmidt 1950; Gritsenko 2002, 2012; Safronov & Nikiforov 2003; Pietsch *et al*. 2012; Dyldin & Orlov 2016b; Kawai 2020; UWFC 2020; Catania & Fong 2021). Anadromous, with landlocked forms in North America. Very common. Target of local and amateur fishing.

Remarks. In the past (Nikolskii 1956; Klyukanov 1969, 1977; Pietsch *et al*. 2001; Gritsenko 2012), this species was recorded from Sakhalin as *O. mordax* (non Mitchill, 1814), or as its subspecies *O. mordax dentex*. Recently, several authors (Bogutskaya *et al*. 2008; Pietsch *et al*. 2012; Dyldin & Orlov 2016b; Dyldin *et al*. 2018a) treated it as an independent species, *O. dentex*, on the basis of genetic and morphological differences.

Material: CAS-SU 23213 (as *O. mordax dentex*)—Korsakov, Aniva Bay, Sakhalin; HUMZ 139657 (as *O. eperlanus* (Linnaeus, 1758))—Severny Bay, Sakhalin; HUMZ 183643, 183657—creek west of Baikal Bay, northwestern Sakhalin; HUMZ 186852—north of Tangi, western-central Sakhalin; SRM KP-9188/5 PP-53/5, KP-9188/6 PP-53/6, KP-9188/7 PP-53/7—Mordvinov Bay, Sea of Okhotsk, southeastern Sakhalin; UWFC 44763 (as *O. mordax*)—environs of Lake Uspenskoye, inland from Sakhalinsky Bay, northwestern Sakhalin; UWFC 46372 (as *O. mordax*)—east of Korsakov, north of Aniva Bay, southern Sakhalin.

Conservation status: IUCN (Least Concern, 2008).

26. Family SALANGIDAE Bleeker, 1859—Icefishes, noodlefishes

54. Genus ***SALANGICHTHYS*** Bleeker, 1860

77. *Salangichthys microdon* (Bleeker, 1860)—Japanese icefish. Western North Pacific. Sakhalin: along all coasts (Schmidt 1904, 1950; Lindberg & Legeza 1965; Pietsch *et al*. 2001; Safronov & Nikiforov 2003; Fadeev 2005; Gudkov & Zavarazina 2006; Safronov *et al*. 2008; Labay *et al*. 2014, 2015; Dyldin & Orlov 2016b; Kawai 2020). Marine, brackish, during spawning period observed in lower reaches of rivers. Common, locally very common. Target of local and amateur fishing.

Material: HUMZ 139570—Severny Bay, Sakhalin; ZIN 13135—in river at Alexandrovsk-Sakhalinsky [Alexandrovskiy post], western-central Sakhalin; ZIN 13136—Amur Liman; ZIN 13138—southern Amur Liman basin.

Conservation status: IUCN (Not Evaluated).

14. Order GADIFORMES Rafinesque, 1810—Cods

27. Family GADIDAE Rafinesque, 1810—Cods

55. Genus ***ELEGINUS*** Fischer, 1813

78. #***Eleginus gracilis*** (Tilesius, 1810)—Saffron cod. North Pacific and adjacent Arctic. Sakhalin: on all coasts (Schmidt 1904, 1950; Taranetz 1937a; Berg 1949b; Nikiforov *et al*. 1993; Safronov & Nikiforov 2003; Orlov *et al*. 2011; Labay *et al*. 2015; Dyldin & Orlov 2017a; Kawai 2020; UWFC 2020). Marine, brackish, entering freshwater lakes and rivers. Very common. In Sakhalin the main target of the winter fishery.

Material: HUMZ 139653, 139654, 141032—Sakhalinsky Bay, northern Sakhalin; SRM KP-9188/4 PP-53/4—10 km north of the mouth of the Ay River, Sea of Okhotsk, southeastern Sakhalin; UWFC 46316—Uryum River basin, west side of Aniva Bay, Sakhalin Island; UWFC 44738—inland from Sakhalinsky Bay, northwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

56. Genus ***GADUS*** Linnaeus, 1758

79. ***Gadus chalcogrammus*** Pallas, 1814—Walleye pollock. North Pacific and adjacent Arctic to Barents and Norwegian Sea. Sakhalin: along all coasts (Schmidt 1950; Lindberg 1959; Dyldin *et al*. 2018a, 2020a; Orrell 2020; Catania & Fong 2021). Marine, brackish. Common. Commercial species, and target of amateur fishing.

Remarks. In the past, this species was classified in the genus *Theragra*. On the basis of genetic research (Coulson *et al*. 2006; Teletchea *et al*. 2006; Ursvik *et al*. 2007; Byrkjedal *et al*. 2008; Carr & Marshall 2008), it was recently transfered to the genus *Gadus*, which is now widely accepted (Mecklenburg *et al*. 2016, 2018; Orlov *et al*. 2020, 2021).

Material: CAS-SU 5721—west of Tyuleniy [Robben] Island, Sea of Okhotsk, eastern-central Sakhalin; USNM 150172—in Gulf of Tartary, southwestern Sakhalin; USNM 148330—eastern Sakhalin, vicinity of Cape Terpeniya, in Sea of Okhotsk; USNM 150173, 150176, 150177—from Korsakov, Aniva Bay, Sakhalin.

Conservation status: IUCN (Near Threatened, 2015).

80. ***Gadus macrocephalus*** Tilesius, 1810—Pacific cod. North Pacific and adjacent Arctic. Sakhalin: along all coasts (Schmidt 1904, 1950; Taranetz 1937a; Dyldin & Orlov 2017a; Dyldin *et al*. 2020a; Orrell 2020). Marine, brackish. Common, locally very common. Commercial species, and target of amateur fishing.

Material: ZIN 12628, 12629, 12631—Kholmsk [Mauka], southwestern Sakhalin; USNM 160633—in Aniva Bay near Korsakov, Sakhalin; USNM 161481—in Gulf of Tartary, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

28. Family LOTIDAE Bonaparte, 1835—Burbots

57. Genus ***LOTA*** Oken, 1817

81. ***Lota lota*** (Linnaeus, 1758)—Burbot. Eurasia and North America. Europe (west to France), Siberia and along Asian coast to Amur River basin; North America in Alaska and Canada to Mackenzie River, including Missouri and Ohio River basins. Sakhalin: northwestern (from Schmidt Peninsula) and central parts to Nevskoye Lake basin, including basins of Poronai and Tym' rivers (Nikolskii 1889—as *Lota vulgaris*; Taranetz 1937b; Pietsch *et al*. 2001, 2012; Safronov & Nikiforov 2003; Safronov *et al*. 2008; Nikitin *et al*. 2014; Labay *et al*. 2015; Dyldin & Orlov 2017a; Orrell 2020). Freshwater, brackish. Locally common. Target of local amateur fishing.

Material: USNM 105233—Tym' River, Sakhalin.

Conservation status: IUCN (Least Concern, 2013).

15. Order SCOMBRIFORMES Rafinesque, 1810—Mackerels

4. Suborder STROMATEOIDEI

29. Family STROMATEIDAE Rafinesque, 1810—Butterfishes

58. Genus ***PAMPUS*** Bonaparte, 1834

82. ***Pampus argenteus*** (Euphrasen 1788)—Korean pomfret. Western North Pacific. Sakhalin: western and south-eastern parts, including Amur River estuary (Dolganov *et al*. 2007; Poltev & Zakharov 2012; Dyldin *et al*. 2018b, 2020a). Marine, brackish (river mouths). Rare. Not fished.

Remarks. Previouly recorded as *P. echinogaster* Basilewsky 1855, which was recently synonymised with *P. argenteus* following molecular and morphometric studies (Yin *et al*. 2019).

Conservation status: IUCN (Not Evaluated).

83. #***Pampus punctatissimus*** (Temminck & Schlegel, 1845)—Speckled pomfret. Western North Pacific. Sakhalin: northwestern part (Ivanov & Ivanova 2001—as *P. argenteus*) and Aniva Bay in southern part (Dyldin *et al*. 2018b, 2020a). Marine, brackish, including river mouths. Rare. Not fished.

Remarks. Some authors (Lindberg & Krasyukova 1975; Parin 2003) considered this species as a junior synonym of *P. argenteus* (Euphrasen, 1788), but at present *P. punctatissimus* is treated as a separate, valid species (Nakabo 2002; Dolganov *et al*. 2007; Yin *et al*. 2019).

Material: KhMSF KP-234. P-161—Aniva Bay, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

5. Suborder SCOMBROIDEI

30. Family SCOMBRIDAE Rafinesque, 1815—Mackerels or tunas

9. Subfamily SCOMBRINAE Rafinesque, 1815—Scombrids

59. Genus ***AUXIS*** Cuvier, 1829

84. ***Auxis thazard*** (Lacepède, 1800)—Frigate tuna. Circumglobal in warm waters, but not in eastern Pacific, which is inhabited by another closely related species, *A. brachydorax* Collette & Aadland, 1996 (Fricke *et al*. 2021a). Sakhalin: southern part, where it appears in the warm season (Isii 1940—as *A. tapeinosoma* Bleeker, 1854; Dyldin *et al*. 2018b, 2020a). Marine, brackish. Rare. Bycatch in commercial fisheries.

Remarks. Previously recorded from Sakhalin as *A. tapeinosoma* Bleeker, 1854 (Isii 1940), which is now considered as a junior synonym of *A. thazard* (see Fricke *et al*. 2021a).

Conservation status: IUCN (Least Concern, 2015).

60. Genus ***SCOMBER*** Linnaeus, 1758

85. ***Scomber japonicus*** Houttuyn, 1782—Chub mackerel. Indo-Pacific. Sakhalin: Aniva Bay and southwest coast (Isii 1940; Lindberg 1959; Lindberg & Krasyukova 1975; Velikanov 2006; Safronov & Nikitin 2017a; Dyldin *et al*. 2018b, 2020a). Marine, brackish. Target of commercial fisheries in years of high abundance. Recently increasing in abundance in Aniva Bay during warm periods (Dyldin *et al*. 2020a).

Conservation status: IUCN (Least Concern, 2011).

31. Family TRICHIURIDAE Rafinesque, 1810—Cutlassfishes

10. Subfamily TRICHIURINAE Rafinesque, 1810—Hairtails

61. Genus ***TRICHIURUS*** Linnaeus 1758

86. ***Trichiurus japonicus*** Temminck & Schlegel, 1844—Japanese cutlassfish. Western North Pacific. Sakhalin: may possibly in Aniva bay and off the southwestern and southeastern coasts in summer due to global warming effects (Dyldin *et al*. 2018b, 2020a). Closest record from southern Sea of Okhotsk near Hokkaido, Japan (Uchida 2020; Kawai 2020). Marine, brackish.

Remarks. Some authors (Lindberg & Krasyukova 1975; Parin 2003; Sokolovsky *et al*. 2007, 2011) treat *T. japonicus* as a junior synonym of *T. lepturus* Linnaeus, 1758, but it was recently classified as a valid species (Nakabo 2002; Shinohara *et al*. 2011; Parin *et al*. 2014).

Conservation status: IUCN (Not evaluated).

16. Order SYNGNATHIFORMES Berg, 1940—Pipefishes

6. Suborder SYNGNATHOIDEI

32. Family SYNGNATHIDAE Bonaparte, 1831—Pipefishes

11. Subfamily SYNGNATHINAE Bonaparte, 1831—Pipefishes

62. Genus ***SYNGNATHUS*** Linnaeus, 1758

87. ***Syngnathus schlegeli*** Kaup 1853—Seaweed pipefish. Western North Pacific. Sakhalin: probably off southwest and southeast coasts (Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a). Closest record from Sea of Okhotsk, Hokkaido, Japan (Ueno 1971; Uchida 2020; Kawai 2020). Marine, brackish.

Material: HUMZ 98641, 98642, 98668—off Horonai, Sea of Okhotsk, Hokkaido, Japan; HUMZ 135841, 135842, 135850-135853, 200973—Sea of Okhotsk, Siretoko Peninsula, Shari, Hokkaido, Japan.

Conservation status: IUCN (Least Concern, 2016).

17. Order GOBIIFORMES Günther, 1880—Gobies

33. Family ODONTOBUTIDAE Hoese & Gill, 1993—Freshwater sleepers

63. Genus ***PERCCOTTUS*** Dybowski, 1877

88. ***Perccottus glenii*** Dybowski, 1877—Asian freshwater sleeper. East Asia: Native in North Korea, northeastern China and the Russian Far East (mainly Amur River basin). Sakhalin: northwestern Uspenovskoe Lake to Lakh River (Taranetz 1937a; Nikiforov *et al*. 1987; Ivanov & Ivanova 2001; Pietsch *et al*. 2001, 2012; Safronov & Nikiforov 2003; Nikitin *et al*. 2014; Dyldin & Orlov 2017b; UWFC 2020). Freshwater, but may be found in brackish water. Locally common. Target of amateur fishing.

Material: UWFC 044726, 44788—inland from Sakhalinsky Bay, northwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

34. Family GOBIIDAE Cuvier, 1816—Gobies

12. Subfamily GOBIONELLINAE Bleeker, 1874—Gobionellins

64. Genus ***ACANTHOGOBIUS*** Gill, 1859

89. ***Acanthogobius lactipes*** (Hilgendorf, 1879)—Whitelimbed goby. East Asia, including Japan, Korean Peninsula, China, Sea of Okhotsk (southern part), Japan, Yellow Sea and East China Sea. Sakhalin: Tunaicha Lake and its basin, southeastern coast (Pinchuk 1978; Pietsch *et al*. 2001, 2012; Safronov & Nikiforov 2003; Gudkov & Zavarzina 2006; Nikitin 2012; Gritsenko 2012; Labay *et al*. 2014; Dyldin & Orlov 2017b; UWFC 2020). Amphidromous. Locally common. Not fished.

Remarks. According to Kottelat (2013), the genus *Acanthogobius* is a synonym of *Synechogobius* Gill, 1859. In the past, some authors (Pinchuk 1978; Safronov & Nikiforov 2003; Nikitin 2012) classified this species in the genus *Aboma*.

Material: UWFC 46180, 46220—east of Okhotskoye Town, south of Mordvinov Bay, southeastern Sakhalin.

Conservation status: IUCN (Not Evaluated).

65. Genus ***GYMNOGOBIUS*** Gill, 1863

90. ***Gymnogobius breunigii*** (Steindachner, 1879)—Breuning's goby. East Asia: Japan (Hokkaido south to Kyushu), Iturup Islands, Kunashir, Shikotan (South Kurils) and South Korea, Sea of Okhotsk (southern part) and Sea of Japan. Sakhalin: southeastern part, Aniva Bay and its basin, including Vavai lakes (Stevenson 2002; Gudkov & Zavarzina 2006; Pietsch *et al*. 2012; Dyldin & Orlov 2017b; UWFC 2020). Amphidromous. Common. Not fished.

Remarks. For taxonomic notes about this species in Sakhalin waters see Dyldin & Orlov (2017b).

Material: UWFC 44782—Lake Dolgoye, 10 km north of Dolinsk, southern Sakhalin; UWFC 46209—near mouth of Shlyuzovka River, southern Sakhalin; UWFC 46310—Large Vavaskoye Lake, southern Sakhalin; UWFC 46208, 46312—inlet into Busse Lake estuary, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

91. ***Gymnogobius castaneus*** (O'Shaughnessy, 1875)—Castaneous goby. East Asia: South Korea, Japan (Hokkaido and Honshu), coast of Primorye and South Kurils (Polonsky, Tanfiliev and Zeleny islands), Sea of Okhotsk (southern part), Sea of Japan and Yellow Sea. Sakhalin: southeastern and southwestern part, including Aniva Bay (Lindberg & Krasyukova 1975; Pinchuk 1978, 1984; Nikiforov *et al*. 1993; Safronov & Nikiforov 2003; Pietsch *et al*. 2001, 2012; Stevenson 2002; Shedko & Chereshnev 2005; Nikitin 2012; Labay *et al*. 2014; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a; Kawai 2020; UWFC 2020). Amphidromous. Common. Not fished.

Remarks. In the past, some authors (Lindberg & Krasyukova 1975) classified this species in the genera *Chloea* or *Chaenogobius*. Currently, *G. castaneus* is regarded as a species complex including several species: several studies showed that this taxon includes two highly divergent groups and several undescribed species (Sota *et al*. 2005; Shinozaki *et al*. 2006; Mukai *et al*. 2010; Chiba *et al*. 2015).

Material: HUMZ 183210-183213—estuary of Aynskaya River, Sea of Japan, southwestern Sakhalin; HUMZ 183318—Lake Aynskoye, southwestern Sakhalin; UWFC 44745—Lake Barguzinskoye, environs of Cape Menaputsy, southeastern Sakhalin; UWFC 44751—environs of Cape Menapatsy, southeastern Sakhalin; UWFC 44860—Mereya River, 2 km north of mouth, 10 km east of Korsakov, southern Sakhalin Island; UWFC 46200—Uryum River basin north of Kirillovo, west side of Aniva Bay southwestern Sakhalin; UWFC 46204—estuary at mouth of Mereya River, east of Korsakov, southern Sakhalin; ZIN 23174—Busse Bay, Aniva Bay, southern Sakhalin.

Conservation status: IUCN (Least Concern, 2019).

92. ?***Gymnogobius macrognathos*** (Bleeker, 1860)—Bigmouth goby. East Asia: Japan, China (coast of the Yellow Sea), South Korea and Russia (coast of Primorye, Peter the Great Bay, including mouths of Volchanka and Partizanskaya rivers). Sakhalin: presence of this species in the southern part needs confirmation; however, at the beginning of the last century, *G. macrognathos* was recorded from Aniva Bay and its basin (Tanaka 1908; Jordan *et al*. 1913). Marine, brackish. Rare. Not fished.

Remarks. Considering the synonymization of *G. raninus* with *G. macrognathos* (Stevenson 2002; Parin *et al*. 2014), as well as removing a number of taxa from the bigmouth goby (such as: *G. petschiliensis*, *G. laevis*, *Ch. aino* and *G. urotaenia*), in Russian waters, *G. macrognathos* is confined to Peter the Great Bay (Pinchuk 1978; Pietsch *et al*. 2001; Stevenson 2002). For taxonomic notes about this species in Sakhalin waters see Dyldin & Orlov (2017b).

Conservation status: IUCN (Not Evaluated).

93. ?***Gymnogobius mororanus*** (Jordan & Snyder, 1901)—Mororan goby. East Asia: The Pacific Japan (Hokkaido and Honshu), South Kurils (Shikotan Island) and Sea of Japan, including Korean Peninsula. Sakhalin: recorded by some authors (Nakabo 2002; Sokolovsky *et al*. 2007 2011), but without material to conform the records. Marine, brackish. Not fished.

Conservation status: IUCN (Not Evaluated).

94. ***Gymnogobius opperiens*** Stevenson, 2002—Waiting goby. Eastern Asia. Japan (Hokkaido and Honshu), South Kurils (Kunashir Island), Korean Peninsula, including southern Sea of Okhotsk and Sea of Japan. Sakhalin: west coast to central part, and east coast to Val River, Aniva Bay and its basin (Stevenson 2002; Shedko & Chereshnev 2005; Pietsch *et al*. 2012; Gritsenko 2012; Nikitin *et al*. 2013; Labay *et al*. 2015; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a; UWFC 2020). Amphidromous. Common. Not fished.

Material: UWFC 46201, 046205—north of Kirillovo, west side of Aniva Bay, southwestern Sakhalin; UWFC 46222—lower Val River basin, northeastern Sakhalin; UWFC 44808, 44820—Lyutoga River valley, downstream from Vysokoye village, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

95. ***Gymnogobius petschiliensis*** (Rendahl, 1924)—Chinese goby. East Asia: Japan (south to Yakushima Island), Korean Peninsula and China, as well as southern Sea of Okhotsk, Japan, Yellow Sea and East China Sea. Sakhalin: southwestern part (Pinchuk 1992); probably in Aniva Bay (Stevenson 2002), but not yet recorded from there (Dyldin *et al*. 2020a). Amphidromous. Rare. Not fished.

Remarks. Berg (1949b) considered this species as a synonym of *G. macrognathos* (Bleeker 1860). Other authors treated it as a brackish-water type of *Chaenogobius annularis* Gill, 1859 (Nakanishi 1978a, 1978b), or as *Chaenogobius* sp. 2 (Pinchuk 1992).

Conservation status: IUCN (Not Evaluated).

96. ***Gymnogobius urotaenia*** (Hilgendorf, 1879)—Far Eastern goby. East Asia: Japan (south to Yakushima Island), South Kurils (Iturup, Kunashir, Shikotan, Tanfiliev and Zelenyi islands), North China, Korean Peninsula, coast of Primorye north to Amur River estuary and lower Amur. Sakhalin: troughout the island (Stevenson 2002; Pietsch *et al*. 2012; Gudkov & Zavarzina 2006; Nikitin *et al*. 2013; Labay *et al*. 2014, 2015; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a; Kawai 2020; UWFC 2020). Amphidromous. Common. Not fished.

Remarks. For taxonomic notes about this species in Sakhalin see Dyldin & Orlov (2017b). Schmidt (1904: 207) described *Chloea aino* as a new species from southern Sakhalin (type locality: Arakul‘ River (channel between Large Vavayskoye [Chepisani] and Tunaicha lakes); Lake Tunaicha, Pervaya River), which was later synonymised with *G. urotaenia* (Stevenson 2002; Dyldin & Orlov 2017b).

Material: HUMZ 183319—Lake Aynskoye, southwestern Sakhalin; UWFC 46162—channel between large and small lakes Chibisanskoye, southern Sakhalin; UWFC 44767—Lake Barguzinskoye, environs of Cape Menaputsy, southeastern Sakhalin; UWFC 44780—Lake Dolgoye, 10 km north of Dolinsk; UWFC 44822—Lyutoga River valley, downstream from Vysokoye village, southern Sakhalin; UWFC 44887—Lake Lebyazhe, environs of Cape Menaputsy, southeastern Sakhalin; UWFC 46179—Lake Khvalisekoye, southeastern Sakhalin; UWFC 46206—estuary at mouth of Mereya River, southern Sakhalin; UWFC 46216—Uryum River basin, southwestern Sakhalin Island; UWFC 46217—Small Chibisanskoye Lake, southern Sakhalin; UWFC 46219—near mouth of Shlyuzovka River, inlet to Lake Vavayskoye, southern Sakhalin; UWFC 6221—Lake Vavayskoye, southern Sakhalin; ZIN 13106 (syntypes of *Chloea aino*)—Lake Tunaycha, Pervaya River); ZIN 13133 (syntypes of *Chloea aino*)—Arakul‘ River (channel between Large Vavayskoye [Chepisani] and Tuna-

icha lakes), southern Sakhalin.
Conservation status: IUCN (Not Evaluated).

66. Genus ***LUCIOGOBIUS*** Gill, 1859

97. ***Luciogobius guttatus*** Gill, 1859—Spotted goby. East Asia: Japan, the Korean Peninsula, China and Russia, including southern Sea of Okhotsk (Japan to the northern Primorye coast), Yellow Sea and East China Sea, and South Kurils (Shikotan and Kunashir islands). Sakhalin: southern part, including Tunaicha and Vavai lakes, as well as Susuya and Taranay rivers and other rivers of Aniva basin (Safronov & Nikiforov 2003; Gudkov & Zavarzina 2006; Pietsch *et al*. 2012; Nikitin 2012; Labay *et al*. 2014; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a). Amphidromous. Locally common. Not fished.
Remarks. For taxonomic notes on this species in Sakhalin see Dyldin & Orlov (2017b).
Conservation status: IUCN (Not Evaluated).

67. Genus ***RHINOGOBIUS*** Gill, 1859

98. ***Rhinogobius*** sp.—Brown goby. Eastern Asia. Sakhalin: first captured in 1988 in middle reaches of Lyutoga River, southern part (Pinchuk 1992; Safronov & Nikiforov 2003; Nikitin 2012; Dyldin & Orlov 2017b—as ?*Rhinogobius brunneus*; UWFC 2020). Freshwater. Abundance needs clarification. Not fished.
Remarks. The distribution range and taxonomic status of the brown goby in southern Sakhalin needs clarification. *Rhinogobius brunneus* was originally described from Nagasaki Bay, Kyushu, southern Japan; although it was previously recorded from Sakhalin (Pinchuk 1992; Pietsch *et al*. 2001, 2012; Safronov & Nikiforov 2003), it is currently not considered as part of the Russian and Sakhalin ichthyofauna (see taxonomic notes by Dyldin & Orlov (2017b)).
Material: (all as *R. brunneus*) UWFC 44781—Lake Dolgoye, 10 km north of Dolinsk, southern Sakhalin; UWFC 44821—Lyutoga River valley, downstream from Vysokoye village, southern Sakhalin; UWFC 46202—Large Vavaskoye Lake, southern Sakhalin; UWFC 46224—Uryum River basin, north of Kirillovo, west side of Aniva Bay, southwestern Sakhalin.
Conservation status: IUCN (Not Evaluated).

68. Genus ***TRIDENTIGER*** Gill, 1859

99. ***Tridentiger bifasciatus*** Steindachner, 1881—Shimofuri tripletooth goby. East Asia: Japan, Korean Peninsula, China and south to Taiwan. Sakhalin: northwestern part up to Amur River estuary (Berg 1949b; Nikolskii 1956; Pinchuk 1992; Lindberg & Krasyukova 1975; Ivanov & Ivanova 2001; Dyldin & Orlov 2017b). Amphidromous. Uncommon. Not fished.
Remarks. In the past (Berg 1949b; Lindberg & Krasyukova 1975), this taxon was treated as a junior synonym of *T. trigonocephalus* (Gill, 1859), which was originally described from Hong Kong, China. Subsequently, the validity of *T. bifasciatus* was restored (Akihito & Sakamoto 1989), and *T. trigonocephalus* was excluded from the Russian ichthyofauna.
Material: ZIN 17812—Amur Liman at Chomi Island.
Conservation status: IUCN (Least Concern, 2009).

100. ***Tridentiger brevispinis*** Katsuyama, Arai & Nakamura, 1972—Shortfin tripletooth goby. East Asia: southern Kuril Islands (Iturup and Kunashir islands), Japan, Korean Peninsula, China south to Taiwan. Sakhalin: southern Aniva Bay basin, including Vavai and Tunaicha lakes system, as well as Lyutoga and Susuya rivers (Klyuchareva 1964; Pinchuk 1978, 1992; Nikiforov *et al*. 1993; Pietsch *et al*. 2001, 2012; Safronov & Nikiforov 2003; Shedko & Chereshnev 2005; Gudkov & Zavarzina 2006; Nikitin 2012; Labay *et al*. 2014, 2015; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a; UWFC 2020). Amphidromous. Common. Not fished.

Remarks. In the past (Berg 1949b; Lindberg & Krasyukova 1975; Pietsch *et al*. 2001; Safronov & Nikiforov 2003), this species was recorded from Far East as *T. obscurus* (non Temminck & Schlegel, 1845), *T. obscurus brevispinis* or *T. kuroiwae brevispinis*. Currently, its is identified as *T. brevispinis* (Pinchuk 1992; Pietsch *et al*. 2012; Dyldin & Orlov 2017b), a species closely related to *T. obscurus* and *T. trigonocephalus*, which are distributed further south, but are not included in the Russian ichthyofauna.

Material: UWFC 46218—Shlyuzovka River, inlet to Lake Vavaiyskoye, southern Sakhalin; UWFC 46309, 46311—Large Vavaskoye Lake, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

18. Order PLEURONECTIFORMES Bleeker, 1859—Flatfishes

7. Suborder PLEURONECTOIDEI

35. Family PARALICHTHYIDAE Regan, 1910—Sand flounders

69. Genus ***PARALICHTHYS*** Girard, 1858

101. ***Paralichthys olivaceus*** (Temminck & Schlegel, 1846)—Bastard halibut. Western North Pacific. Sakhalin: southwestern part, including Aniva Bay and Moneron Island, and probably also off southeast coast, e.g., in the Sea of Okhotsk (Schmidt 1950; Moiseev 1953; Pertseva-Ostroumova 1961; Lindberg & Fedorov 1993; Shuntov *et al*. 2003; Dyldin & Orlov 2017a; Dyldin *et al*. 2018b, 2020a). Marine, brackish. Rare. Not fished.

Conservation status: IUCN (Not Evaluated).

36. Family PLEURONECTIDAE Rafinesque, 1815—Righteye flounders

13. Subfamily MICROSTOMINAE Cooper & Chapleau, 1998– Smallmouth flounders

70. Genus ***GLYPTOCEPHALUS*** Gottsche, 1835

102. ***Glyptocephalus stelleri*** (Schmidt, 1904)—Blackfin flounder. North Pacific. Sakhalin: eastern and western parts, including Sakhalinsky, Terpeniya, Mordvinov and Aniva bays, as well as Amur River estuary (Schmidt 1904, 1950; Moiseev 1953; Pertseva-Ostroumova 1961; Lindberg 1959; Lindberg & Fedorov 1993; Voronina & Volkova 2003; Orlov & Tokranov 2007; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a; Kawai 2020; Orrell 2020). Marine, brackish, including river mouths. Very common. Commercially fished, mainly in western part of Sakhalin, and in Aniva Bay.

Remarks. In the original description of this species, Schmidt (1904: 247) described syntypes from Aniva Bay and the west coast of Sakhalin (type locality: Aniva Bay, Sea of Okhotsk; Sea of Japan from Tatar Strait to Wonsan, Korea).

Material: HUMZ 186960, 186966, 186970—south of Tangi, western-central Sakhalin; HUMZ 187031—estuary of Arkovo River, western-central Sakhalin; HUMZ 188439—Starodubskoye, southeastern Sakhalin; USNM 77020—Tatar Strait, southwestern Sakhalin; USNM 77021—Korsakov Light, approaching Korsakov, Sakhalin; ZIN 12437 (syntype)—Kholmsk [Mauka], Tatar Strait, western Sakhalin; ZIN 13069 (syntype)—at mouth of Tomarinka [Porotomari] River, western Sakhalin; ZIN 13070 (syntype)—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 18001—Amur Liman, 50°43′N 140°41′E; ZIN 47012, 47016—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 47010—Sakhalin Island, 47°N 141°E; ZIN 47014, 47017—Terpeniya Bay, Sea of Okhotsk, Sakhalin; ZIN 47015—Mordvinov Bay, southeastern Sakhalin.

Conservation status: IUCN (Not Evaluated).

14. Subfamily HIPPOGLOSSINAE Gill, 1864—Halibuts

71. Genus ***VERASPER*** Jordan & Gilbert, 1898

103. ***Verasper moseri*** Jordan & Gilbert, 1898—Barfin flounder. Western North Pacific. Sakhalin: eastern and western parts, including Aniva Bay (Schmidt 1950; Moiseev 1953; Lindberg 1959; Pertseva-Ostroumova 1961; Lindberg & Fedorov 1993; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a). Marine, brackish, entering freshwater lakes in northern Sakhalin and in Japan. Comnon. Commercial species, but mainly bycatch in commercial fisheries.

Conservation status: IUCN (Not Evaluated).

15. Subfamily PLEURONECTINAE Rafinesque, 1815—True flounders

72. Genus ***ACANTHOPSETTA*** Schmidt, 1904

104. ***Acanthopsetta nadeshnyi*** Schmidt, 1904—Scale-eye plaice. Western North Pacific. Sakhalin: eastern and western parts, including Aniva, Terpeniya and Sakhalinsky bays (Schmidt 1904, 1950; Moiseev 1953; Lindberg 1959; Pertseva-Ostroumova 1961; Lindberg & Fedorov 1993; Shuntov *et al*. 2003; Voronina & Volkova 2003; Orlov & Tokranov 2014; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a; Kawai 2020; Orrell 2020). Marine, brackish, including river mouths along west coast of Sakhalin. Common. Bycatch in commercial fisheries.

Remarks. In the original description of this species, Schmidt (1904: 237, pl. 5) included syntypes from Aniva Bay and the southwestern coast of the island (type locality: Aniva Bay, Sea of Okhotsk; at mouth of Tomarinka [Porotomari] River, western Sakhalin; Sea of Japan: Amerika Bay and Peter the Great Bay, Primorye, Russia; Wonsan, Korea).

Material: HUMZ 103367—off Terpeniya Bay, Sakhalin; USNM 77107—Tatar Bay, off southwest coast of Sakhalin Island; USNM 77108—off eastern coast, southern end of Sakhalin in Sea of Okhotsk; USNM 77123—Korsakov Light, approaching Korsakov, Sakhalin; ZIN 12346 (syntypes)—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 13066 (syntype)—at mouth of Tomarinka [Porotomari] River, western Sakhalin; ZIN 17702—Sakhalinsky Bay, Sea of Okhotsk, northern Sakhalin, 54°17′N 140°46′E; ZIN 31647, 31648—Rakuma lagoon, Sakhalin; ZIN 44675—Pogranichny village, Sea of Okhotsk, Sakhalin, 50°25′N 144°33′E; ZIN 47023-47025, 47027, 47028, 47030—Terpeniya Bay, Sea of Okhotsk, Sakhalin; ZIN 47029, 47032, 47033—Aniva Bay, Sea of Okhotsk, Sakhalin.

Conservation status: IUCN (Not Evaluated).

73. Genus ***CLEISTHENES*** Jordan & Starks, 1904

105. ***Cleisthenes pinetorum*** (Jordan & Starks, 1904)—Sôhachi flounder. Western North Pacific. Sakhalin: western and southeastern parts, including Terpeniya and Aniva bays (Schmidt 1904, 1950; Moiseev 1953; Lindberg 1959; Lindberg & Fedorov 1993; Voronina & Volkova 2003; Shuntov *et al*. 2014; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a; Orrell 2020). Marine, brackish, entering in freshwater lakes. Common. Bycatch in commercial fisheries.

Remarks. In the original description of this species, Schmidt (1904: 229) included syntypes from Aniva Bay (type localities: Kholmsk [Mauka], southwestern Sakhalin; Peter the Great Bay, and Wonsan, Korea, Sea of Japan). Later, Schmidt (1950) treated it as a subspecies of *C. pinetorum herzensteini.* Lindberg & Fedorov (1993) classified it in the genus *Hippoglossoides*. Recent studies (Vinnikov *et al*. 2018) suggest that *C. herzensteini* is a junior synonym of *C. pinetorum*.

Material: USNM 77099—in Tatar Strait, southwestern Sakhalin; ZIN 12362 (syntype)—Kholmsk [Maoka], western Sakhalin; ZIN 31704—Rakuma lagoon, Sakhalin; ZIN 45587—Sakhalin, 47°N 141°E; ZIN 45589—Aniva Bay, Sea of Okhotsk, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

74. Genus ***HIPPOGLOSSOIDES*** Gottsche, 1835

106. ***Hippoglossoides dubius*** Schmidt, 1904—Flathead flounder. Western North Pacific. Sakhalin: western (north to Amur River estuary) and eastern parts, including Aniva Bay (Schmidt 1904, 1950; Hubbs 1915; Lindberg 1959; Lindberg & Fedorov 1993; Evseenko 2003; Voronina & Volkova 2003; Shuntov *et al*. 2003, 2014; Dyldin *et al*. 2018a, 2020a; Orrell 2020). Marine, brackish. Common. Commercial target species; also captured as bycatch.

Remarks. Schmidt (1904: 227, pl. 6, fig. 1) described this species based on syntypes from Aniva Bay and coast of Kholmsk (type locality: Kholmsk [Mauka], southwestern Sakhalin, Sea of Japan). The syntype from Aniva Bay (ZIN 12367) was later identified as *H. elassodon* (Lindberg & Fedorov 1993).

Material: USNM 77032, 77033—Korsakov Light, (in Aniva Bay, near Korsakov, Sakhalin); ZIN 12366 (syntype by Voronina & Volkova (2019); lectotype designation by Lindberg & Fedorov (1993))—Kholmsk [Mauka], southwestern Sakhalin; ZIN 17910—at Agnevo, Sea of Okhotsk; ZIN 45179—Busse lagoon, Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 48221, 51752—Aniva Bay, Sea of Okhotsk, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

75. Genus ***KAREIUS*** Jordan & Snyder, 1900

107. ***Kareius bicoloratus*** (Basilewsky, 1855)—Stone flounder. Western North Pacific. Sakhalin: southwest coast and Aniva Bay (Hubbs 1915; Sato 1937; Moiseev 1953; Lindberg 1959; Pertseva-Ostroumova 1961; Lindberg & Fedorov 1993; Pietsch *et al*. 2001; Evseenko 2003; Dyldin *et al*. 2018a, 2020a). Marine, brackish, entering freshwater lakes and lower reaches of some rivers. Rare. Bycatch in commercial fisheries.

Remarks. Some authors (Cooper & Chapleau 1998; Vinnikov *et al*. 2018) classified this species in genus *Platichthys*.

Conservation status: IUCN (Not Evaluated).

76. Genus ***LEPIDOPSETTA*** Gill, 1862

108. ***Lepidopsetta mochigarei*** Snyder, 1911—Dusky sole. Western North Pacific. Sakhalin: southern part, including Moneron Island and Aniva Bay, further north along the east coast to Terpeniya Bay and west to Alexandrovsk-Sakhalinsky (Schmidt 1904—as *L. bilineata*, 1950; Hubbs 1915; Lindberg 1959; Lindberg & Fedorov 1993; Evseenko 2003; Voronina & Volkova 2003; Shuntov *et al*. 2014; Dyldin & Orlov 2017b; Dyldin *et al*. 2018a, 2020a; Orrell 2020). Marine, brackish. Common. This species mainly occurs as bycatch of commercial fisheries, but in some years, it is the target of a specialized fishing industry in the southern part of the island.

Remarks. Some authors (Lindberg & Fedorov 1993; Nakabo 2002; Shinohara *et al*. 2012) classified this species in genus *Pleuronectes*. In the past (Schmidt 1950) it was considered as the southern form (subspecies) of the closely related species *L. bilineata*.

Material: USNM 77126, 77133—in Tatar Strait, southwestern Sakhalin; USNM 77127, 77128—Aniva Bay near Korsakov, Sakhalin; ZIN 12360 (as *L. bilineata*)—Kholmsk [Mauka], Sea of Japan, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

77. Genus ***LIMANDA*** Gottsche, 1835

109. ***Limanda aspera*** (Pallas, 1814)—Yellowfin sole. North Pacific and adjacent Arctic Ocean in southern Chukchi Sea. Sakhalin: along all coasts, including Aniva, Terpeniya and Sakhalinsky bays, and Amur River estuary (Schmidt 1904, 1950; Moiseev 1953; Lindberg 1959; Pertseva-Ostroumova 1961; Lindberg & Fedorov 1993; Shuntov *et al*. 2003, 2014; Voronina & Volkova 2003; Dyldin & Orlov 2017b; Dyldin *et al*. 2018a, 2020a; Kawai 2020; Orrell 2020). Marine, brackish, including estuaries of rivers. Common. Target of commercial fisheries, with maximum catch in Terpeniya Bay and northern Tatar Strait.

Remarks. The species *L. asprella* Hubbs, 1915 (type locality: market of Korsakov, Aniva [Aniwa] Bay, Sakhalin, Sea of Okhotsk) was described from Aniva Bay, later synonymised with *L. aspera* (Lindberg & Fedorov 1993). Some authors (Lindberg & Fedorov 1993; Tohkairin *et al*. 2015) classified this species in the genus *Pleuronectes*.

Material: HUMZ 140297—Pil'tun Bay, Sakhalin; USNM 75668 (holotype of *L. asprella*)—market of Korsakov, Aniva Bay, Sea of Okhostk, Sakhalin; ZIN 12356—Kholmsk [Mauka], Tatar Strait, southwestern Sakhalin; ZIN 12357—mouth of Lyutoga River, southern Sakhalin; ZIN 13058, 41268, 46888, 46891, 47003, 47058—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 13060, 17831, 17891—Amur Liman; ZIN 13062—at Popov Cape, Sea of Okhotsk, eastern Sakhalin; ZIN 17819, 17825, 17832, 17834, 17836, 17839—Sakhalinsky Bay, northern Sakhalin; ZIN 31659—Rakuma lagoon, Sakhalin; ZIN 46890—Mordvinov Bay, Sea of Okhotsk, southeastern Sakhalin; ZIN 46892-46894, 46997, 46998, 47001—Terpeniya Bay, Sea of Okhotsk, Sakhalin; ZIN 46900—Chayvo Bay, Sea of Okhotsk, Sakhalin.

Conservation status: IUCN (Not Evaluated).

110. *Limanda sakhalinensis* Hubbs, 1915—Sakhalin sole. North Pacific and adjacent Arctic in southeastern part of Chukchi Sea. Sakhalin: along all coasts, including Aniva, Terpeniya and Sakhalinsky bays and Amur River estuary (Hubbs 1915; Schmidt 1950; Lindberg 1959; Lindberg & Fedorov 1993; Safronov & Nikiforov 2003; Shuntov *et al*. 2003, 2014; Voronina & Volkova 2003; Orlov & Tokranov 2014; Dyldin & Orlov 2017b; Dyldin & Orlov 2017b; Dyldin *et al*. 2018a, 2020a; Kawai 2020; Orrell 2020; Catania & Fong 2021). Marine, brackish. Very common. Bycatch in commercial fisheries.

Remarks. This species was originally described by Hubbs (1915: 480, pl. 26, fig. 6) from Aniva Bay (type locality: Aniva [Aniwa] Bay, Sakhalin, Sea of Okhotsk). Another species, *L. korigarei* Hubbs, 1915 (Hubbs 1915: 483, pl. 27, fig. 8; type locality: Aniva [Aniwa] Bay, Sakhalin, west of Sea of Okhotsk) was later synonymised with *L. aspera* (Lindberg & Fedorov 1993), but is now treated as a synonym of *L. sakhalinensis*. Some authors (Lindberg & Fedorov 1993; Safronov & Nikiforov 2003) classified it in the genus *Pleuronectes*.

Material: CAS-SU 22532 (paratype of *L. korigarei*)—Aniva Bay, southern Sakhalin; CAS-SU 23841, 23842 (as *L. korigarei*)—Aniva Bay, southern Sakhalin; CAS-SU 22530 (paratype of *L. sakhalinensis*)—eastern Sakhalin, vicinity of Cape Terpeniya; HUMZ 103301, 103302, 103348—Aniva Bay, southern Sakhalin; HUMZ 140298—Pil'tun Bay, northern Sakhalin; USNM 75669 (holotype of *L. korigarei*)—Aniva Bay approaching Korsakov, Sakhalin; USNM 75674 (holotype of *L. sakhalinensis*)—Korsakov, Aniva Bay, Sakhalin; ZIN 17718—Amur Liman; ZIN 47002, 47021—Aniva Bay, Sea of Okhotsk, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

78. Genus ***LIOPSETTA*** Gill, 1864

111. *Liopsetta pinnifasciata* (Kner, 1870)—Far Eastern smooth flounder. Western North Pacific. Sakhalin: along all coasts, including Aniva, Terpeniya and Sakhalinsky bays, as well as Amur River estuary (Schmidt 1904, 1950; Moiseev 1953; Lindberg 1959; Pertseva-Ostroumova 1961; Lindberg & Fedorov 1993; Evseenko 2003; Voronina & Volkova 2003; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a; Kawai 2020; UWFC 2020; Catania & Fong 2021). Marine, brackish, entering lower reaches of rivers. Common. Target of local fishing; also bycatch in commercial fisheries.

Remarks. Some authors (Schmidt 1950; Moiseev 1953; Pertseva-Ostroumova 1961; Lindberg & Fedorov 1993) classsified this species in the genus *Pleuronectes*.

Material: CAS-SU 13379—Korsakov, Aniva Bay, Sakhalin; HUMZ 179243—north of Baikal Bay, northwestern Sakhalin; HUMZ 183192—creek west of Baikal Bay, northwestern Sakhalin; HUMZ 141033—Severny Bay, northern Sakhalin; UWFC 48616—environs of Lake Uspenskoye, inland from Sakhalinsky Bay, northwestern Sakhalin; ZIN 12373a—Korsakov, Sea of Okhotsk, Sakhalin; ZIN 12373b, 45201—Busse Bay, Sea of Okhotsk, southern Sakhalin; ZIN 13074—mouth of Lyutoga River, southern Sakhalin; ZIN 17867, 17872, 17875, 17882–17884, 17890, 19060, 43733, 45200—Amur Liman; ZIN 17874—Baikal Bay, northwestern part of Sakhalin; ZIN 19187—southeast of Viakhtu Cape, Sakhalin; ZIN 41414—Izmenchivoye Lake, Sea of Okhotsk, southern Sakhalin; ZIN 45647, 45648—Aniva Bay, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

79. Genus ***MYZOPSETTA*** Gill, 1861

112. ***Myzopsetta proboscidea*** (Gilbert, 1896)—Longhead dab. North Pacific and adjacent Arctic. Sakhalin: northern and eastern parts, including Aniva and Sakhalinsky bays (Schmidt 1904, 1950; Moiseev 1953; Lindberg 1959; Evseenko 2003; Voronina & Volkova 2003; Shuntov *et al*. 2003; Dyldin & Orlov 2017b; Dyldin *et al*. 2018a, 2020a; Natural History Museum 2020; Catania & Fong 2021). Marine, brackish, entering river mouths. Uncommon. Bycatch in commercial fisheries.

Remarks. In the past, this species was treated as a subspecies *L. punctatissima proboscidea*, the so-called northern form (Schmidt 1950; Moiseev 1953). Some authors (Nakabo 2002) classified it in the genus *Pleuronectes*; it was recently included in the genus *Myzopsetta* (see Vinnikov *et al*. 2018).

Material: CAS-SU 13835—Korsakov, southern Sakhalin; HUMZ 140302, 157986, 140299—Pil'tun Bay, Sakhalin; BMNH 1929.4.15.6—Baikal Bay, northern Sakhalin; ZIN 12353—Kholmsk [Mauka], Tatar Starit, southwestern Sakhalin; ZIN 12354—mouth of Lutoga River, southern Sakhalin; ZIN 18165—Sakhalinsky Bay, Sea of Okhotsk, northern Sakhalin; ZIN 18167—Baikal Bay, Sea of Okhotsk, northern Sakhalin; ZIN 47041-47044—Terpeniya Bay, Sea of Okhotsk, Sakhalin.

Conservation status: IUCN (Not Evaluated).

113. ***Myzopsetta punctatissima*** (Steindachner, 1879)—Sand flounder. Western North Pacific. Sakhalin: southeastern and southwestern parts, including Terpeniya and Aniva bays (Schmidt 1950; Moiseev 1953; Lindberg 1959; Pertseva-Ostroumova 1961; Lindberg & Fedorov 1993; Evseenko 2003; Voronina & Volkova 2003; Shuntov *et al*. 2014; Dyldin & Orlov 2017b; Dyldin *et al*. 2018a, 2020a; Kawai 2020). Marine, brackish, entering lower reaches of large rivers. Common, locally very common. It is caught as bycatch, mainly in Aniva Bay and along the west coast.

Remarks. Lindberg & Fedorov (1993) classified this species in genus *Pleuronectes*; Vinnikov *et al*. (2018) treated it as a species of *Myzopsetta*.

Material: HUMZ 183297—Cape Leontyeva, southwestern Sakhalin; ZIN 12353—mouth of Lyutoga River, southern Sakhalin; ZIN 12354—Kholmsk [Mauka], Tatar Strait, southern Sakhalin; ZIN 31654-31658—Rakuma lagoon, Sakhalin; ZIN 37835, 45159—Shirokaya pad', Sea of Okhotsk, southwestern Sakhalin; ZIN 45638, 45641—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 45640—Terpeniya Bay, Sea of Okhotsk, Sakhalin; ZIN 51822—Korsakov, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

80. Genus ***PLATICHTHYS*** Girard, 1854

114. ***Platichthys stellatus*** (Pallas, 1787)—Starry flounder. North Pacific and Arctic. Sakhalin: along all coasts, including Aniva and Sakhalinsky bays, as well as Amur River estuary, from where it enters Amur River upstream to Nikolaevsk (Schmidt 1904, 1950; Moiseev 1953; Lindberg 1959; Lindberg & Fedorov 1993; Evseenko 2003; Shuntov *et al*. 2003, 2014; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a; Kawai 2020; UWFC 2020; Orrell 2020). Marine, brackish, entering lower reaches of rivers. Very common. Target of local fishing; also bycatch in commercial fisheries.

Remarks. In the past, this species was classified in genus *Pleuronectes* Linnaeus, 1758 (Schmidt 1950; Moiseev 1953).

Material: HUMZ 186843—north of Tangi, western-central Sakhalin; HUMZ 186805, 186803—Duet River estuary, southeastern Sakhalin; HUMZ 179653—west of Baikal Bay, northwestern Sakhalin; HUMZ 183188—creek west of Baikal Bay, northwestern Sakhalin; HUMZ 139632, 139629—Severny Bay, Sakhalin; SRM KP-9095/4 PP-51/4—5–6 km southeast of mouth of Lyutoga River, Aniva Bay, Sakhalin; USNM 77173—Korsakov, Sakhalin; UWFC 44729—environs of Odoptu Bay, northeastern Sakhalin; UWFC 44884—mouth of Nayba River, southern Sakhalin; UWFC 46175—lower Val River basin, northeastern Sakhalin; ZIN 6596, 17967—Sakhalinsky Bay, Sea of Okhotsk, northern Sakhalin; ZIN 17960, 17964—Baikal Bay, Sea of Okhotsk, northern Sakhalin; ZIN 17966—Amur Liman; ZIN 43741—Busse Bay, Sea of Okhotsk, southern Sakhalin; ZIN 43742—Aniva Bay, Sea of Okhotsk, southern Sakhalin.

Conservation status: IUCN (Least Concern, 2013).

81. Genus ***PLEURONECTES*** Linnaeus, 1758

115. ***Pleuronectes quadrituberculatus*** Pallas, 1814—Alaska plaice. North Pacific and adjacent Arctic in southern Chukchi Sea. Sakhalin: eastern and western parts, including Aniva, Mordvinov, Terpeniya and Sakhalinsky bays, as well as Amur River estuary (Schmidt 1904, 1950; Moiseev 1953; Lindberg 1959; Pertseva-Ostroumova 1961; Lindberg & Fedorov 1993; Shuntov *et al*. 2003, 2014; Voronina & Volkova 2003; Dyldin & Orlov 2017b; Dyldin *et al*. 2018a, 2020a; Kawai 2020). Marine, brackish, entering river mouths. Very common, mainly in northern part. Commercial species.

Remarks. In the past (Andriyashev 1954; Pertseva-Ostroumova 1961), this species was classified as *Platessa quadrituberculata*.

Material: HUMZ 140296—Pil'tun Bay, northern Sakhalin; ZIN 17985, 17990, 17991—Sakhalinsky Bay, northern Sakhalin; ZIN 17988—Amur Liman; ZIN 17997—Sea of Okhotsk, western Sakhalin, 53°30′10″N 142°20′22″E; ZIN 34297—mouth of Kitousi River, Sea of Okhotsk, southwestern Sakhalin; ZIN 45567—Terpeniya Bay, Sea of Okhotsk, Sakhalin; ZIN 45570—Aniva Bay, Sea of Okhotsk, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

82. Genus ***PSEUDOPLEURONECTES*** Bleeker, 1862

116. ***Pseudopleuronectes herzensteini*** (Jordan & Snyder, 1901)—Littlemouth flounder. Western North Pacific. Sakhalin: southeast and west coasts (to northern Tatar Strait), including Aniva Bay (Schmidt 1904—as *Limanda japonica*; Moiseev 1953; Lindberg 1959; Pertseva-Ostroumova 1961; Lindberg & Fedorov 1993; Evseenko 2003; Voronina & Volkova 2003; Shuntov *et al*. 2014; Dyldin & Orlov 2017b; Dyldin *et al*. 2018a, 2020a). Marine, brackish, entering river mouths. Very common in southern part of island. Commercial species.

Remarks. Some authors (Lindberg & Fedorov 1993) classified it in the genus *Pleuronectes*.

Material: ZIN 12355—Kholmsk [Mauka], southwestern Sakhalin; ZIN 41413—Izmenchivoe Lake, Sea of Okhotsk, southern Sakhalin; ZIN 45163—Schirokaya pad', southwestern Sakhalin; ZIN 45592—Sakhalin, 47°N 141°E; ZIN 51818—mouth of Kitousi River, Sea of Okhotsk, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

117. ***Pseudopleuronectes obscurus*** (Herzenstein, 1890)—Northern black flounder. Western North Pacific. Sakhalin: southeastern and western coasts (north to Alexandrovsk-Sakhalinsky), including Aniva Bay (Schmidt 1904, 1950; Moiseev 1953; Lindberg 1959; Lindberg & Fedorov 1993; Evseenko 2003; Voronina & Volkova 2003; Shuntov *et al*. 2014; Dyldin & Orlov 2017b; Dyldin *et al*. 2018a, 2020a; Catania & Fong 2021). Marine, brackish, entering river mouths. Common, locally very common. Target of local fisheries; also bycatch in commercial fisheries.

Remarks. Some authors (Moiseev 1953; Pertseva-Ostroumova 1961; Lindberg & Fedorov 1993) classified this species in the genera *Pleuronectes* or *Liopsetta*.

Material: CAS-SU 22557—Korsakov, Sakhalin; USNM 77140—Korsakov, Sakhalin; ZIN 12375—Kholmsk [Mauka], Tatar Strait, southwestern Sakhalin; ZIN 31670, 31671—Tobuti, Sea of Okhotsk, southern Sakhalin; ZIN 31672, 31673—Rakuma lagoon, Sakhalin; ZIN 42866—Schirokaya pad', western Sakhalin; ZIN 44323—Izmenchivoe Lake, Sea of Okhotsk, southern Sakhalin; ZIN 45197—Alexandrovsk-Sakhalinsky, western Sakhalin.

Conservation status: IUCN (Not Evaluated).

118. ?***Pseudopleuronectes schrenki*** (Schmidt, 1904)—Cresthead flounder. Western North Pacific. Sakhalin: southeastern and western parts, including Aniva, Terpeniya and Sakhalinsky bays, as well as Amur River estuary (Schmidt 1904, 1950; Lindberg 1959; Lindberg & Fedorov 1993; Evseenko 2003; Voronina & Volkova 2003; Shuntov *et al*. 2014; Dyldin & Orlov 2017b; Dyldin *et al*. 2018a, 2020a; Kawai 2020). Marine, brackish. Very common. Commercial species.

Remarks. This species was originally described by Schmidt (1904: 235) based on syntypes collected at Aniva Bay and off Kholmsk in 1901 (type locality: Korsakov [Korsakovsky Post], Aniva Bay, southern Sea of Okhotsk;

Kholmsk [Mauka], southwestern Sakhalin, Sea of Japan). Some authors (Lindberg & Fedorov 1993; Nakabo 2002; Shinohara *et al*. 2012) classified it in the genera *Pleuronectes* or *Limanda*. This species is often incorrectly identified as *Pseudopleuronectes yokohamae* (Günther, 1877). In addition, it was suggested that *P. schrenki* may be a junior synonym of *P. yokohamae* (Lindberg & Fedorov 1993; Vinnikov *et al*. 2006, 2007).

Material: HUMZ 179257—near Duet River estuary, southeastern Sakhalin; HUMZ 179551—Aniva Bay, southern Sakhalin; HUMZ 179564—Kholmsk, southwestern Sakhalin; HUMZ 182970—Cape Meraputsy, Novikovo, southeastern Sakhalin; ZIN 12377a (syntype)—Korsakov [Korsakovsky post], Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 12377b (syntype)—Kholmsk [Mauka], Tatar Strait, Sea of Japan, southwestern Sakhalin; ZIN 17843—Amur Liman.; ZIN 45157—Schirokaya pad', western Sakhalin; ZIN 47071, 47080, 47085, № 48083—Aniva Bay, Sea of Okhotsk, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

119. *Pseudopleuronectes yokohamae* (Günther, 1877)—Yokohama bay flounder. Western North Pacific. Sakhalin: western and southern parts, in Tatar Strait and Aniva Bay, possibly also off southeast coast (Moiseev 1953; Pertseva-Ostroumova 1961; Lindberg & Fedorov 1993; Dyldin & Orlov 2017b; Dyldin *et al*. 2018a, 2020a). Marine, brackish. Uncommon. Bycatch in commercial fisheries.

Remarks. Some authors (Lindberg & Fedorov 1993; Nakabo 2002) classified this species in *Pleuronectes* or *Limanda,* respectively.

Material: ZIN 12355—Kholmsk [Mauka], Tatar Strait, southwestern Sakhalin; ZIN 43749, 43750, 43952—Antonovo, Tatar Strait, Sea of Japan, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

19. Order BELONIFORMES Berg, 1937—Needlefishes

37. Family SCOMBERESOCIDAE Bleeker, 1859—Sauries

83. Genus ***COLOLABIS*** Gill, 1896

120. *Cololabis saira* (Brevoort, 1856)—Pacific saury. North Pacific. Sakhalin: along all coasts (but probably not in northeastern part), including Terpeniya and Aniva bays and Moneron Island (Schmidt & Taranetz 1934; Isii 1940; Taranetz 1937b; Rumyantsev 1947; Lindberg 1959; Lindberg & Legeza 1965; Ueno 1971; Shuntov *et al*. 2003; Velikanov 2006; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Orrell 2020). Marine, brackish, entering river mouths. Common. This species is targeted by the fishery industry during periods of high abundance, when it forms large schools.

Material: USNM 105226—Arkovo, western Sakhalin.

Conservation status: IUCN (Not Evaluated).

38. Family BELONIDAE Bonaparte, 1835—Needlefishes

84. Genus ***STRONGYLURA*** van Hasselt, 1824

121. *Strongylura anastomella* (Valenciennes, 1846)—Pacific needlefish. Western North Pacific. Sakhalin: Aniva Bay and southwestern part of island (Sokolovsky *et al*. 2007; Velikanov 2011; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a). Marine, brackish. Rare. Not fished.

Conservation status: IUCN (Not Evaluated).

39. Family HEMIRAMPHIDAE Gill, 1859—Halfbeaks

85. Genus ***HYPORHAMPHUS*** Gill, 1859

122. ***Hyporhamphus sajori*** (Temminck & Schlegel, 1846)—Japanese halfbeak. Western North Pacific. Sakhalin: occasionally appearing in Aniva Bay and and off southwestern coast, with warm water currents (Isii 1940; Lindberg & Legeza 1965; Ueno 1971; Velikanov 2004, 2011; Fadeev 2005; Sokolovsky *et al*. 2007; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a). Marine, brackish, entering river mouths. Rare. Not fished.
Conservation status: IUCN (Not Evaluated).

20. Order MUGILIFORMES—Mullets

40. Family MUGILIDAE Jarocki, 1822—Mullets

86. Genus ***MUGIL*** Linnaeus, 1758

123. ***Mugil cephalus*** Linnaeus, 1758—Flathead mullet. Circumglobal. Sakhalin: along all coasts, including Aniva and Terpeniya bays, as well as Amur River estuary (Isii 1940; Lindberg 1959; Lindberg & Legeza 1965; Ueno 1971; Safronov & Nikiforov 2003; Safronov *et al*. 2006; Dyldin & Orlov 2017a; Dyldin *et al*. 2018b, 2020a; Kawai 2020). Marine, brackish, entering lower reaches of rivers. Common. Target of local and amateur fishing.
Material: HUMZ 186806—estuary of Arkovo River, western-central Sakhalin.
Conservation status: IUCN (Least Concern, 2019).

21. Order ACANTHURIFORMES Jordan, 1923—Surgeonfishes

41. Family LOBOTIDAE Gill, 1861—Tripletails

87. Genus ***LOBOTES*** Cuvier, 1829

124. ****Lobotes surinamensis*** (Bloch, 1790)—Atlantic tripletail. Circumglobal, in tropical and subtropical waters of all oceans, except for northeastern Pacific Ocean, where it is replaced by the closely related species *L. pacificus* Gilbert, 1898. Sakhalin: probably Aniva Bay (Dyldin *et al*. 2018b, 2020a). Closest records from Southern Kurils, Sea of Okhotsk, Hokkaido (Japan), and Primorye (Savinykh 1998; Fedorov & Parin 1998; Dyldin *et al*. 2018b, 2020a; Uchida, 2020). Marine, brackish, entering rivers.
Conservation status: IUCN (Least Concern, 2015).

22. Order TETRAODONTIFORMES Berg, 1937—Plectognaths

8. Suborder TETRAODONTOIDEI

88. Genus ***TAKIFUGU*** Abe, 1949

125. ***#Takifugu alboplumbeus*** (Richardson 1845)—Grass puffer. Western North Pacific. Sakhalin: Aniva Bay (Lindberg *et al*. 1997—as *T. niphobles*; Dyldin *et al*. 2016, 2017, 2018b, 2020a; Dyldin & Orlov 2017b). Marine, brackish, entering river mouths. Rare. Not fished.
Remarks. In the past, this species was recorded from Russia as *T. niphobles* (Jordan & Snyder, 1901) or *T. poecilonotus* (Temminck & Schlegel, 1850) (see Orlov 2013a; Dyldin *et al*. 2016, 2017, 2018b; Dyldin & Orlov 2017b). Matsuura (2017) demonstrated that *T. niphobles* and *T. poecilonotus* are junior synonyms of *T. alboplumbeus*.
Material: ZIN 31566, 31567 (all as *T. niphobles*)—Aniva Bay, Sea of Okhotsk, southern Sakhalin.
Conservation status: IUCN (Least Concern, 2014).

126. ***Takifugu porphyreus*** (Temminck & Schlegel, 1850)—Purple puffer. Western North Pacific. Sakhalin: west coast from southern to central part; east coast north to mouth of Langri River, including Aniva Bay and Kholmsk (Kamohara 1964; Lindberg *et al*. 1997; Shelekhov 2005; Velikanov & Stominok 2006; Gudkov 2010; Poltev & Koynov 2011; Velikanov *et al*. 2016; Dyldin *et al*. 2016, 2017, 2018b, 2020a; Dyldin & Orlov 2017b). Marine, brackish. Recently, this species became more common due to warmer water in Aniva Bay. Not fished.

Remarks. In the past, this species was recorded from Primorye and southern Sakhalin as *T. borealis* (Jordan & Snyder 1901) (see Taranetz 1937a; Velikanov 2004). It is now synonymised with *T. porphyreus* (Lindberg *et al*. 1997; Parin *et al*. 2014; Dyldin *et al*. 2016).

Conservation status: IUCN (Least Concern, 2014).

127. #***Takifugu rubripes*** (Temminck & Schlegel, 1850)—Japanese puffer. Western North Pacific. Sakhalin: caught several times between southern Sea of Okhotsk and Aniva Bay, including Lyutoga River estuary (Lindberg *et al*. 1997; Orlov 2013b; Dyldin *et al*. 2016, 2018b, 2020a). Marine, brackish, entering rivers. Rare. Not fished.

Remarks. Based on genetic studies, Song *et al*. (2001) and Reza *et al*. (2008, 2011) demonstrated that *T. chinensis* and *T. pseudommus* are junior synonyms of *T. rubripes*.

Material: SRM KP-9095/1 PP-51/1—Aniva Bay at mouth of Lyutoga River, Sea of Okhotsk, southern Sakhalin.

Conservation status: IUCN (Near Threatened, 2014).

128. ***Takifugu stictonotus*** (Temminck & Schlegel, 1850)—Spottyback puffer. Western North Pacific. Sakhalin: extremely rare in southern Sakhalin (coast of Kholmsk) (see Isii 1940). This species may also be present at Aniva Bay (Dyldin *et al*. 2018b). It is known from the adjacent waters of northern Japan and Primorye, including Olga Bay (Lindberg *et al*. 1997; Dyldin *et al*. 2016). Marine, brackish. Very rare. Not fished.

Conservation status: IUCN (Least Concern, 2014).

129. #***Takifugu xanthopterus*** (Temminck & Schlegel, 1850)—Yellowfin puffer. Western North Pacific. Sakhalin: first record from Aniva Bay near mouth of Lutoga River in end of August 2015 (Dyldin *et al*. 2016; Dyldin & Orlov 2017b). Second specimen collected in northern Sakhalin in late summer of 2018 (specimen not preserved, our data). The species is also found in the adjacent southern Sea of Okhotsk near Hokkaido, Japan (Uchida 2020), and Primorye north to southern Tatar Strait (Orlov 2013c). Marine, brackish, entering river mouths. Rare. Not fished.

Material: SRM KP-9095/2 PP-51/2—Aniva Bay, 1.5 km east of Lyutoga River mouth, southern Sakhalin.

Conservation status: IUCN (Least Concern, 2014).

42. Family MONACANTHIDAE Nardo, 1843—Filefishes

89. Genus ***THAMNACONUS*** Smith, 1949

130. ***Thamnaconus modestus*** (Günther, 1877)—Modest filefish. Western North Pacific. Sakhalin: two records from Aniva Bay and off southwest coast in summer 2005 and 2011 (Zver'kova & Shvetsov 1975; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a). The species is known from the adjacent southern Sea of Okhotsk near Hokkaido, Japan (Uchida 2020), and from Primorye north to northern Tatar Strait (Orlov 2013d). Marine, brackish, entering river mouths. Rare. Not fished.

Remarks. In the past, this species was classified in *Navodon* or *Cantherines* (see Dyldin & Orlov 2017b).

Conservation status: IUCN (Least Concern, 2019).

23. Order CENTRARCHIFORMES

9. Suborder PERCICHTHYOIDEI

43. Family PERCICHTHYIDAE Jordan & Eigenmann, 1890—Temperate perchs

90. Genus ***SINIPERCA*** Gill, 1862

131. ***Siniperca chuatsi*** (Basilewsky, 1855)—Chinese perch. East Asia: China, Korean Peninsula and Russia, from the lower part of Amur River basin south to Canton, southern China. Sakhalin: northwestern part adjacent to Amur River estuary (Ivanov & Ivanova 2001; Safronov & Nikiforov 2003; Pietsch *et al*. 2012; Nikitin 2012; Nikitin *et al*. 2014; Dyldin & Orlov 2017a). Freshwater, tolerating brackish waters. Rare. Target of amateur fishing.

Conservation status: IUCN (Not evaulated).

10. Suborder TERAPONTOIDEI

44. Family OPLEGNATHIDAE Bleeker, 1853—Knifejaws

91. Genus ***OPLEGNATHUS*** Richardson, 1840

132. ***Oplegnathus fasciatus*** (Temminck & Schlegel, 1844)—Barred knifejaw. Western North and central Pacific. Sakhalin: southwestern part (Velikanov 2004; Dyldin *et al*. 2018b, 2020a). Probably found off the southeast coast and in Aniva Bay, since it was recorded from the Sea of Okhotsk off the Southern Kurils (Lindberg & Krasyukova 1969) and Hokkaido, Japan (Lindberg & Krasyukova 1969; Uchida 2020; Kawai 2020—HUMZ 132554, 132532, 132574-132576, 132579, 142478). Marine, brackish. Rare. Not fished.

Remarks. Another closely related species, *O. punctatus* (Temminck & Schlegel, 1844) (Borets 2000; Uchida 2020) was recorded from the southern Sea of Okhotsk and may therefore also be present in southern Sakhalin (Dyldin *et al*. 2018b).

Conservation status: IUCN (Not Evaluated).

24. Order ACROPOMATIFORMES

45. Family LATEOLABRACIDAE Springer & Raasch, 1995—Asian seaperches

92. Genus ***LATEOLABRAX*** Bleeker, 1855

133. #***Lateolabrax japonicus*** (Cuvier, 1828)—Japanese sea perch. Western North Pacific. Sakhalin: first record about 30 km from from mouth of Lyutoga River in summer of 2014; second record from north of Kholmsk, Tatar Strait, Sea of Japan on 11 July 2018 (Velikanov *et al*. 2016; Dyldin & Orlov 2017a; Dyldin *et al*. 2018b, 2020a). Also recorded from Sea of Okhotsk at Hokkaido, Japan (Uchida 2020). Marine, brackish, freshwater (entering rivers). Rare. Not fished.

Material: SRM KP-9363/1 PP-56/1—north of Kholmsk city, Tatar Strait, northern Sea of Japan, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

25. Order PERCIFORMES sedis mutabilis[1]

46. Family ECHENEIDAE Rafinesque, 1810—Remoras

93. Genus ***ECHENEIS*** Linnaeus, 1758

134. ***Echeneis naucrates*** Linnaeus, 1758—Slender remora. Circumglobal in warm to temperate waters. Sakhalin:

1 Where the sequencing of groups is uncertain, they are indicated as sedis mutabilis. Classifications are based on Fricke *et al*. (2021a).

probably in southern part. Closest record from Sea of Okhotsk coast of Hokkaido, Japan, and Sea of Japan coast of Primorye, Russia (Lindberg *et al*. 1997; Borets 2000; Sokolovsky *et al*. 2007, 2011; Shinohara *et al*. 2012; Uchida 2020). Marine, brackish.

Conservation status: IUCN (Data Deficient, 2015).

47. Family CARANGIDAE Rafinesque, 1815—Amberjacks

94. Genus ***SERIOLA*** Cuvier, 1816

135. ***Seriola aureovittata*** Temminck & Schlegel, 1845—Japanese yellowtail. Western North Pacific (Martinez-Takeshita *et al*. 2015). Sakhalin: southwestern part, Aniva Bay and Moneron Island (Taranetz 1937a; Lindberg & Krasyukova 1969; Balanov 2008; Velikanov *et al*. 2016; Dyldin & Orlov 2017a; Safronov & Nikitin 2017; Dyldin *et al*. 2018b, 2020a). Marine, brackish. Currently common in summer at Aniva Bay. Target of recreational fishing; also as bycatch.

Remarks. Lindberg & Krasyukova (1969) recorded *S. aureovittata* from Far East of Russia. The taxon was subsequently synonymised with *S. lalandi* Valenciennes, 1833 (see Parin 2003; Parin *et al*. 2014), but it was revalidated by Martinez-Takeshita *et al*. (2015), based on genetic and morphological studies.

Seriola lalandi is restricted to the Southern Hemisphere and does not occur in Russia. Martinez-Takeshita *et al*. (2015) included only the single species *S. aureovittata* in the western North Pacific, without information on the closely related species *S. quinqueradiata*. We therefore consider *S. quinqueradiata* as a junior synonym of *S. aureovittata*.

Conservation status: IUCN (Least Concern, 2018).

48. Family SPARIDAE Rafinesque, 1818—Sea breams

95. Genus ***PAGRUS*** Cuvier, 1816

136. ***Pagrus major*** (Temminck & Schlegel, 1843)—Japanese red seabream. Western North Pacific. Sakhalin: possibly Aniva Bay and southwest coast (Dyldin *et al*. 2018b; Dyldin *et al*. 2020a—as *Chrysophrys major*). Closest record from Peter the Great Bay north to Olga Bay (northern Primorye), and Sea of Okhotsk waters of Hokkaido, Japan (Lindberg & Krasyukova 1969; Ueno 1971; Parin 2003; Sokolovsky *et al*. 2007, 2011). Marine, brackish.

Conservation status: IUCN (Least Concern, 2014).

26. Order PERCIFORMES Rafinesque, 1810—Perches

11. Suborder LABROIDEI

49. Family EMBIOTOCIDAE Agassiz, 1853—Surfperches

96. Genus ***DITREMA*** Temminck & Schlegel, 1844

137. ***Ditrema temminckii*** Bleeker, 1853—Temminck's surfperch. Western North Pacific. Sakhalin: southwestern area near Korsakov in Aniva Bay (Schmidt 1950; Lindberg & Krasyukova 1969; Dyldin *et al*. 2018b, 2020a). Also known from the adjacent waters of the Sea of Okhotsk coast of Hokkaido, Japan (Uchida 2020). Marine, brackish. Rare. Not fished.

Material: ZIN 13107—at Korsakov, Aniva Bay, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

50. Family ZOARCIDAE Swainson, 1839—Eelpouts

12. Suborder ZOARCOIDEI

16. Subfamily ZOARCINAE Andriashev, 1939—Eelpouts

97. Genus ***ZOARCES*** Cuvier, 1829

138. ***Zoarces elongatus*** Kner, 1868—Eastern eelpout. Western North Pacific. Sakhalin: eastern and western parts, including Sakhalinsky, Terpeniya and Aniva bays, as well as Amur River estuary (Schmidt 1904, 1950; Tanaka 1908; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1975; Safronov & Nikiforov 2003; Balushkin *et al*. 2011; Dyldin & Orlov 2017a; Dyldin *et al*. 2018b, 2020a; Kawai 2020; UWFC 2020; Orrell 2020). Marine, brackish, entering river mouths. Common. Target of amateur fishing; also bycatch in commercial fisheries.

Material: HUMZ 141009—Severny Bay, northern Sakhalin; HUMZ 179709—west side of Cape Elizabeth, northern Sakhalin; HUMZ 186781—Duet River estuary, southeastern Sakhalin; HUMZ 186926—Starodubskoye, southeastern Sakhalin; USNM 143425—Korsakov, Sakhalin; UWFC 46138—southern Sakhalin, north of Aniva Bay, east of Korsakov; ZIN 12397—Sea of Okhotsk, Aniva Bay, at Korsakov; ZIN 13008, 28014—Sea of Okhotsk, Aniva Bay; ZIN 20141—Sea of Okhotsk, Sakhalinsky Bay, Baikal Bay; ZIN 20351, 20352—Sea of Japan, western Sakhalin, Viakhtu lagoon; ZIN 20359—Sea of Japan, southern Sakhalin, estuary near Langr Island; ZIN 20534—Sea of Okhotsk, Sakhalin; ZIN 23661—Sea of Japan, Sakhalin, off Tamlevo; ZIN 24746—Sea of Japan, western Sakhalin, Viakhtu Lagoon; ZIN 25244—Sea of Japan, Tartar Strait, off Alexandrovsk; ZIN 33090—Sea of Japan, Sakhalin, mouth of Pilevo River; ZIN 34738—Sea of Japan, Sakhalin, Shirokaya Pad'; ZIN 45104—Sea of Japan, Tartar Strait, lagoon near Antonovo Village; ZIN 45476—Sea of Japan, Sakhalin, 400 m from mouth of Bol'shaya Uandi River; ZIN 45479—Sea of Okhotsk, Sakhalin, Starodubskoe Village.

Conservation status: IUCN (Not Evaluated).

17. Subfamily GYMNELINAE Gill, 1863—Pouts

98. Genus ***DAVIDIJORDANIA*** Popov, 1931

139. ***Davidijordania brachyrhyncha*** (Schmidt, 1904)—Shortbilled eelpout. Western North Pacific. Sakhalin: eastern and western parts, including Aniva, Terpeniya and Sakhalinsky bays (Schmidt 1904, 1950; Taranetz 1937a; Lindberg 1959; Lindberg & Krasyukova 1975; Balushkin *et al*. 2011; Shuntov *et al*. 2014; Dyldin & Orlov 2017a; Dyldin *et al*. 2018b, 2020a). Marine, brackish. Abundance requires additional study, but probably uncommon. Not fished.

Remarks. Schmidt (1904: 201, pl. 6, fig. 3) described this species based on syntypes from Sakhalin (type locality: Aniva Bay, Sea of Okhotsk and St. Catherine Cape, Nevelskoy Strait, northern Sea of Japan, Russia). Later, Schmidt (1936) placed the species in genus *Davidijordania*, misspelled as *Davidojordania* (see Fricke *et al*. 2021a).

Material: ZIN 13090 (syntype of *Lycenchelys brachyrhynchus*)—off St. Catherine Cape, Sakhalin, northern Sea of Japan; ZIN 13091 (syntypes of *L. brachyrhynchus*)—Sea of Okhotsk, Aniva Bay; ZIN 42276, 43456, 44721—Sea of Okhotsk, Aniva Bay, off Korsakov; ZIN 42278—Sea of Okhotsk, Sakhalin, Terpeniya Bay; ZIN 43455—Sea of Okhotsk, Sakhalin, Terpeniya Peninsula, section from Poronaisk, Kotikova village.

Conservation status: IUCN (Not Evaluated).

99. Genus ***HADROPAREIA*** Schmidt, 1904

140. ***Hadropareia middendorffii*** Schmidt, 1904—Middendorff's eelpout. Western North Pacific. Sakhalin: the northern and of this island (Kawai 2020). Marine, brackish. Rare. Not fished.

Material: HUMZ 139811-139813—Severny Bay, northern Sakhalin; HUMZ 188014, 188015—west side of Cape Elizabeth, northernmost tip of Sakhalin.
Conservation status: IUCN (Least Concern, 2017).

51. Family NEOZOARCIDAE Jordan & Snyder, 1902—Neozoarcids

100. Genus ***NEOZOARCES*** Steindachner, 1880

141. ***Neozoarces pulcher*** Steindachner, 1881—Beautiful eelpout. Western North Pacific. Sakhalin: western and eastern parts, including Aniva Bay (Schmidt 1904, 1950; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1975; Balushkin *et al*. 2012; Dyldin *et al*. 2018b, 2020a; Kawai 2020). Marine, brackish. Common. Not fished.
Material: HUMZ 179417, 185261, 185265—Korsakov, Aniva Bay, southern Sakhalin; HUMZ 179431—Kholmsk, southwestern Sakhalin; HUMZ 187949, 187950—south of Tangi, western-central Sakhalin; HUMZ 187965—Tri Brata Rocks, Aleksandrowsk-Sakhalinsky, western-central Sakhalin; ZIN 12398, 12399—Sea of Okhotsk, Sakhalin, Aniva Bay, Busse lagoon; ZIN 12400, 12401—Kholmsk [Mauka], southwestern Sakhalin.
Conservation status: IUCN (Not Evaluated).

142. ?***Neozoarces steindachneri*** Jordan & Snyder, 1902—Steindachner's eelpout. Western North Pacific. Sakhalin: eastern and western parts, including Aniva and Terpeniya bays (Tanaka 1908; Jordan *et al*. 1913; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1975; Dyldin *et al*. 2018b, 2020a; UWFC 2020). Marine, brackish. Common. Not fished.
Remarks. *N. steindachneri* may be a junior synonym of *N. pulcher* Steindachner, 1881 (Mecklenburg & Sheiko 2004; Balushkin *et al*. (2012). According to Markevich & Gnyubkina (2008), *N. pulcher* has a distinct sexual dimorphism, and *N. steindachneri* may represent females of *N. pulcher*. Until knowing the results of relevant genetic studies, we continue to consider *N. steindachneri* as a valid species.
Material: UWFC 44978—southern Moneron Island; ZIN 25475—western Sakhalin; ZIN 31625—southern Sakhalin; ZIN 37667—Antonovo, southwestern Sakhalin; ZIN 37668—Aniva Bay, Sea of Okhotsk, southern Sakhalin.
Conservation status: IUCN (Not Evaluated).

52. Family STICHAEIDAE Gill, 1864—Pricklebacks

18. Subfamily STICHAEINAE Gill, 1864—Pricklebacks

101. Genus ***ERNOGRAMMUS*** Jordan & Evermann, 1898

143. ***Ernogrammus hexagrammus*** (Schlegel, 1845)—Six-lined prickleback. Western North Pacific. Sakhalin: western part north to Cape Tyk, and southern part into Aniva Bay (Taranetz 1937a; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1975; Dyldin & Orlov 2017a; Dyldin *et al*. 2018b, 2020a; Kawai 2020). Marine, brackish. Rare. Not fished.
Material: HUMZ 179426, 179429—Kholmsk, southwestern Sakhalin, HUMZ 179571—western Aniva Bay, southern Sakhalin; HUMZ 183706—Korsakov, Aniva Bay, southern Sakhalin; ZIN 39874—western Sakhalin.
Conservation status: IUCN (Not Evaluated).

102. Genus ***STICHAEOPSIS*** Kner, 1870

144. ***Stichaeopsis nana*** Kner, 1870—Network prickleback. Western North Pacific. Sakhalin: western and northeastern parts, and Aniva Bay in southern part of island (Taranetz 1937a; Lindberg 1959; Ueno 1971; Lindberg &

Krasyukova 1975; Fedorov 2004; Mecklenburg & Sheiko 2004; Balushkin *et al*. 2012; Dyldin & Orlov 2017a; Dyldin *et al*. 2018b, 2020a; Kawai 2020). Marine, brackish, entering river mouths. Rare. Uncommon.

Material: HUMZ 179410, 179411—near Chekhov city, southwestern Sakhalin; HUMZ 179570—western Aniva Bay, southern Sakhalin; HUMZ 183274—near Sima River, south of Starodubskoye, southeastern Sakhalin; HUMZ 183711—north side of Cape Marii, northern Sakhalin; HUMZ 186777—Duet River estuary, southeastern Sakhalin; HUMZ 186908—Tri Brata Rocks, Alexandrowsk-Sakhalinsky, western-central Sakhalin; ZIN 31676, 31731—southwestern Sakhalin, Antonovo; ZIN 35161—Sea of Japan, Tatar Strait, Pil'vo Village; ZIN 33311, 34821, 41691—Sea of Japan, Tatar Strait, Sakhalin.

Conservation status: IUCN (Not Evaluated).

103. Genus ***STICHAEUS*** Reinhardt, 1836

145. #***Stichaeus grigorjewi*** Herzenstein, 1890—Grigorjew's prickleback. Western North Pacific. Sakhalin: southeastern and western parts, including Aniva Bay (Schmidt 1904; Tanaka 1908; Jordan *et al*. 1913; Taranetz 1937a; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1975; Balushkin *et al*. 2012; Dyldin *et al*. 2018b, 2020a). Marine, brackish. Common. Bycatch in commercial fisheries.

Material: SRM KP-9342/5 PP-55/5—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 13095—eastern Sakhalin, near Kosunai River estuary.

Conservation status: IUCN (Not Evaluated).

146. ***Stichaeus nozawae*** Jordan & Snyder, 1902—Nozawa's prickleback. Western North Pacific. Sakhalin: eastern and western parts, including Aniva Bay (Taranetz 1937a; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1975; Lavrova 1990; Balushkin *et al*. 2012; Shuntov *et al*. 2014; Dyldin *et al*. 2018b, 2020a; Kawai 2020). Marine, brackish. Common. Bycatch in commercial fisheries.

Remarks. This species is often misidentified as *Stichaeus fuscus* (non Miki & Maruyama, 1986) (see Pitruk *et al*. 2011).

Material: HUMZ 103336, 103349—off Aniva Bay, Sakhalin; ZIN 25460—Sea of Japan, Tatar Strait, Sakhalin, 51°26.5′N, 141°29.5′E; ZIN 39793, 39795, 39805, 39810, 39809, 40296, 40298—Aniva Bay, southern Sakhalin; ZIN 39794—Kholmsk [Mauka], southwestern Sakhalin; ZIN 39796—Antonovo, southwestern Sakhalin; ZIN 39799, 39802, 39804—La Perouse Strait, Sakhalin; ZIN 39814—Tomari, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

147. #***Stichaeus ochriamkini*** Taranetz, 1935—Ochriamkin's prickleback. Western North Pacific. Sakhalin: southeastern and western parts, including Aniva Bay and Moneron Island (Taranetz 1937a; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1975; Lavrova 1990; Mecklenburg & Sheiko 2004; Gudkov & Zavarzina 2006; Balushkin *et al*. 2012; Shuntov *et al*. 2014; Dyldin *et al*. 2018b, 2020a; Kawai 2020). Marine, brackish. Common. Not fished.

Remarks. The original description of this species by Taranetz (1935: 96) was based on syntypes from Aniva Bay (type locality: northern Sea of Japan to Peter the Great Bay and Aniva Bay, Sakhalin).

Material: HUMZ 188407—Korsakov, Aniva Bay, HUMZ 185276, 185280—near the Duet River estuary, southeastern Sakhalin; ZIN 12443 (listed by Schmidt (1904) as *S. punctatus*), 29482, 31675, 39824–39826, 40307—Aniva Bay, southern Sakhalin; ZIN 18732—Tatar Strait, Sea of Japan, Sakhalin; ZIN 31675—Antonovo, southwestern Sakhalin, 50°58′N, 142°01′15″E.; ZIN 40285—Alexandrovsk, Tri Brata Rocks.

Conservation status: IUCN (Not Evaluated).

53. Family LUMPENIDAE Jordan & Evermann, 1898—Lumpenids

104. Genus ***ACANTHOLUMPENUS*** Makushok, 1958

148. #***Acantholumpenus mackayi*** (Gilbert, 1896)—Pighead prickleback. North Pacific and adjacent Arctic. Sa-

khalin: eastern and western parts, including Aniva and Terpeniya bays, as well as Amur River estuary (Schmidt 1904, 1950; Tanaka 1908; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1975; Lavrova 1990; Gudkov & Zavarzina 2006; Balushkin *et al*. 2012; Shuntov *et al*. 2014; Dyldin & Orlov 2017a; Dyldin *et al*. 2018b, 2020a; Orrell 2020). Marine, brackish. Common. Bycatch in commercial fisheries.

Remarks. Schmidt (1904) recorded this species from Aniva Bay as *Lumpenus fowleri* Jordan & Snyder, 1902; the taxon was later synonymised with *A. mackayi* (see Lindberg & Krasyukova 1975; Parin *et al*. 2014).

Material: SRM KP-9342/7 PP-55/7, KP-9342/8 PP-55/8, KP-9342/9 PP-55/9, KP-9342/10 PP-55/10, KP-9342/11 PP-55/11—Aniva Bay, southern Sakhalin; USNM 134955 (as *Lumpenus fowleri*)—Korsakov, Sakhalin; ZIN 8722—Dye, western Sakhalin; ZIN 12412—Korsakov, Aniva Bay, southern Sakhalin; ZIN 13013, 18835—Amur Liman; ZIN 18833—Baikal Bay, northern Sakhalin; ZIN 20529—Viakhtu lagoon, Sakhalin; ZIN 40195, 40196—Aniva Bay, southern Sakhalin; ZIN 40197—Sea of Okhotsk, Terpeniya Bay, at Gastello Village; ZIN 40198—Sea of Okhotsk, Terpeniya Bay.

Conservation status: IUCN (Not Evaluated).

105. Genus ***LEPTOCLINUS*** Gill, 1861

149. ?***Leptoclinus maculatus*** (Fries, 1837)—Daubed prickleback. Arctic (circumpolar), North Pacific and North Atlantic. Sakhalin: eastern and southwestern parts, including Terpeniya, Mordvinov and Aniva bays (Schmidt 1904, 1950; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1975; Lavrova 1990; Shuntov *et al*. 2003; Balushkin *et al*. 2012; Dyldin *et al*. 2018b, 2020a; Kawai 2020). Marine, brackish. Common. Not fished.

Remarks. *Plectobranchus diaphanocarus* was originally described by Schmidt (1904: 182) (type locality: near Cape Rymnik and near Cape Popov, eastern Sakhalin, Sea of Okhotsk); the taxon was later considered as a subspecies *Leptoclinus maculatus diaphanocarus* with a distribution range in Bering Sea, Sea of Okhotsk (Hokkaido, Japan) and Sea of Japan (Dyldin *et al*. 2018b). According to the opinion of recent authors (Mecklenburg *et al*. 2011), this subspecies identification is no longer accepted, based on a molecular analysis. Some authors (Rand & Logerwell 2011) classified the species in the genus *Lumpenus*.

Material: HUMZ 103338, 103339—off Aniva Bay, Sakhalin; ZIN 12960 (syntypes of *Plectobranchus diaphanocarus*)—Sea of Okhotsk, Sakhalin, near Cape Popov; ZIN 34889, 34890—Sea of Okhotsk, Sakhalin, Cape Elizabeth; ZIN 40200, 40202—Sea of Japan, Tatar Strait, Sakhalin; ZIN 40203—Sea of Okhotsk, Sakhalin, Aniva Bay; ZIN 40205, 40206—Sea of Okhotsk, Sakhalin, Terpeiniya Bay; ZIN 40207—Sea of Okhotsk, Sakhalin, Cape Tonin; ZIN 40208, 40210—Sea of Okhotsk, Sakhalin, Mordvinov Bay; ZIN 40209—Sea of Okhotsk, Sakhalin, Vzmor'e Village.

Conservation status: IUCN (Not Evaluated).

106. Genus ***LUMPENUS*** Reinhardt, 1836

150. ***Lumpenus sagitta*** Wilimovsky, 1956—Arrow prickleback. North Pacific. Sakhalin: eastern and western parts, including Terpeniya, Aniva and Sakhalinsky bays (Schmidt 1904, 1950; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1975; Lavrova 1990; Shuntov *et al*. 2003, 2014; Balushkin *et al*. 2012; Dyldin *et al*. 2018b, 2020a). Marine, brackish. Common. Not fished.

Material: ZIN 13016, 13017, 40199, 40313, 40316, 40318, 40323, 40324, 40326, 40327, 40328—Terpeniya Bay, Sea of Okhotsk, eastern Sakhalin; ZIN 18812—Sea of Okhotsk, Sakhalin, Cape Elizabeth; ZIN 40315, 40322, 40325, 40329—Sea of Okhotsk, Aniva Bay; ZIN 40344—La Perouse Strait; ZIN 40330—Sea of Okhotsk, Sakhalin, Mordvinov Bay.

Conservation status: IUCN (Not Evaluated).

54. Family OPISTHOCENTRIDAE Jordan & Evermann, 1898—Opisthocentrids

107. Genus ***OPISTHOCENTRUS*** Kner, 1868

151. ***Opisthocentrus ocellatus*** (Tilesius, 1811)—Ocellated prickleback. Western North Pacific. Sakhalin: eastern and western parts, including Aniva and Terpeniya bays, as well as Moneron Island and Amur River estuary (Schmidt 1904, 1950; Tanaka 1908; Jordan *et al*. 1913; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1975; Lavrova 1990; Gudkov & Zavarzina 2006; Balushkin *et al*. 2012; Dyldin & Orlov 2017a; Dyldin *et al*. 2018b, 2020a; Kawai 2020). Marine, brackish. Common. Not fished.

Material: HUMZ 187993—north of Tomari, southwestern Sakhalin; UWFC 44935—west side of Cape Elizabeth, northern Sakhalin; ZIN 12411, 40382—Sea of Okhotsk, Sakhalin Island, Aniva Bay, Busse lagoon; ZIN 13021—Sea of Okhotsk, Sakhalin, Terpeniya Bay, Shamov Bay; ZIN 13022—Sea of Japan, southern Sakhalin, at Moneron Island; ZIN 13103, 13104—Sea of Okhotsk, Sakhalin, Aniva Bay, Korsakov; ZIN 31389, 31586-31588, 31589—Sea of Okhotsk, Aniva Bay; ZIN 44339—Sea of Japan, Tatar Strait, Sakhalin, Antonovo Village.

Conservation status: IUCN (Not Evaluated).

152. ***Opisthocentrus tenuis*** Bean & Bean, 1897—Slender prickleback. Western North Pacific. Sakhalin: not recorded, but probably occurs off the southwest coast around Aniva Bay (Dyldin *et al*. 2018b, 2020a). The records closest to Sakhalin are from La Perouse Strait and Iturup Island, South Kurils (Shiogaki 1981, 1984; Fedorov 2004; Mecklenburg & Sheiko 2004; Sokolovsky *et al*. 2007, 2011; Shinohara *et al*. 2012; Nakae & Shinohara 2020; Catania & Fong 2021). Marine, brackish.

Material: CAS-SU 5730—Shana Bay, Pacific coast of Iturup Island, Kuril Islands; NSMT 115768—Kurilsk Bay, Iturup Island, Sea of Okhotsk side, near Rybaki Settlement; NSMT 34700, 34703—west of Soya Cape (La Perouse Strait), Hokkaido, Japan.

Conservation status: IUCN (Not Evaluated).

153. ***Opisthocentrus zonope*** Jordan & Snyder, 1902—Muroran prickleback. Western North Pacific. Sakhalin: southwestern and southeastern parts, including Aniva Bay (Lindberg 1959; Ueno 1971; Sokolovsky *et al*. 2007; Parin *et al*. 2014; Dyldin *et al*. 2018b, 2020a). Marine, brackish. Uncommon. Not fished.

Conservation status: IUCN (Not Evaluated).

108. Genus ***PHOLIDAPUS*** Bean & Bean, 1897

154. ***Pholidapus dybowskii*** (Steindachner, 1880)—Dybowski's prickleback. Western North Pacific. Sakhalin: eastern and western parts, including Sakhalinsky, Terpeniya and Aniva bays (Schmidt 1904, 1950; Tanaka 1908; Lindberg 1959; Ueno, 1971; Lindberg & Krasyukova 1975; Lavrova 1990; Fedorov 2004; Balushkin *et al*. 2012; Dyldin & Orlov 2017a; Dyldin *et al*. 2018b, 2020a; Kawai 2020; Orrell 2020). Marine, brackish, entering river mouths. Common. Not fished.

Remarks. In the past, some authors classified this species in genus *Opisthocentrus* (Ueno 1971; Lindberg & Krasyukova 1975; Lavrova 1990; Rutenko & Ivankov 2009), based on comparative morphological analyses. However, the validity of the genus *Pholidapus* was confirmed following detailed molecular and morphological studies (Shiogaki 1984; Chereshnev *et al*. 2011).

Material: HUMZ 139796, 139800, 141013—Severny Bay, northern Sakhalin; HUMZ 179432—Kholmsk, southwestern Sakhalin; HUMZ 179554—Aniva Bay, southern Sakhalin; HUMZ 186776—Duet River estuary, southeastern Sakhalin; HUMZ 186962—Starodubskoye, southeastern Sakhalin; HUMZ 187994—north of Tomari, southwestern Sakhalin; HUMZ 188401—Cape Leontyeva, southwestern Sakhalin; USNM 135611(as *Abryois azumae*)—Korsakov, Aniva Bay; UWFC 44940—environs of Lake Uspenskoye, northwestern Sakhalin; ZIN 12385, 12386, 40562, 40563—Sea of Okhotsk, Sakhalin, Aniva Bay, Busse lagoon; ZIN 12391—Sea of Okhotsk, Sakhalin, Aniva Bay, Korsakov; ZIN 12392, 12469, 13080—Sea of Japan, southwestern Sakhalin, Klomsk [Mauka]; ZIN 12395, 12396—Sea of Okhotsk, Sakhalin, Aniva Bay; ZIN 13079—Sea of Okhotsk, Sakhalin, Aniva Bay, Busse lagoon, Shishkevich River; ZIN 17586—Sea of Okhotsk, Sakhalin, Kuegda channel; ZIN 17588, 18703—Sea of Okhotsk, northern Sakhalin, Baikal Bay; ZIN 18072—Sea of Japan, Tatar Strait, Sakhalin, Stark Bay, Cape Syurkum; ZIN 20531—Sea of Japan, Tatar Strait, Sakhalin, Viakhtu lagoon; ZIN 33313, 34339—Sea of Japan, Tatar Strait, Sakhalin, Shirokaya Pad'; ZIN 44340—Sea of Okhotsk, Sakhalin,

Izmenchivoye Lake.
Conservation status: IUCN (Not Evaluated).

55. Family PHOLIDAE Gill, 1893—Gunnels

19. Subfamily PHOLINAE Gill, 1893—Pigmented gunnels

109. Genus ***PHOLIS*** Scopoli, 1777

155. ***Pholis crassispina*** (Temminck & Schlegel, 1845)—Mottled gunnel. Western North Pacific. Sakhalin: probably Aniva Bay and the southwestern part (Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a). The records closest to Sakhalin are from the Sea of Okhotsk side of Hokkaido, Japan, and along the continental coast of the northwestern Sea of Japan (Chereshnev & Nazarkin 2008; Uchida 2020; Kawai 2020). Marine, brackish.
Material: HUMZ 98009, 98010—Cape Kitami-Kamui, Sea of Okhotsk, Hokkaido, Japan; HUMZ 99182, 99183—Okajima gyoko, between Cape Kamui and Omu, Sea of Okhotsk coast of Hokkaido, Japan; HUMZ 204849—off Shiretoko Peninsula, Aidomari, Sea of Okhotsk, Hokkaido, Japan.
Conservation status: IUCN (Not Evaluated).

156. ?***Pholis fasciata*** (Bloch & Schneider, 1801)—Banded gunnel. Western North Atlantic, Arctic and North Pacific. Sakhalin: Aniva Bay and southeastern part (Lindberg & Krasyukova 1975; Fedorov 2004; Balushkin *et al*. 2012; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a; Kawai 2020). Marine, brackish, entering river mouths. Uncommon. Not fished.
Remarks. The occurrence of this species in Sakhalin needs confirmation. It may have been incorrectly identified in the southern Sea of Okhotsk and in the Sea of Japan, and it may there be replaced by *P. nea* or *P. crassispina* (Mecklenburg *et al*. 2016, 2018).
Material: HUMZ 186801—Duet River estuary, southeastern Sakhalin; ZIN 41662—Sea of Okhotsk, Aniva Bay, Sakhalin.
Conservation status: IUCN (Not Evaluated).

157. ***Pholis nea*** Peden & Hughes, 1984—Hokkaido gunnel. Western North Pacific. Sakhalin: along entire west coast north to Amur River estuary; also Aniva Bay and southeastern part (Lindberg & Krasyukova 1975—as *Ph. ornatus*; Balushkin *et al*. 2012—as *Ph. ornata*; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a; Kawai 2020). Marine, brackish. Abundance needs additional studies. Not fished.
Remarks. Detailed observations on this species within Sakhalin see Dyldin & Orlov (2017b) and Dyldin *et al*. (2018b).
Material: HUMZ 183718—Cape Leontyev, southwestern Sakhalin; HUMZ 186792, 186798, 186800—Duet River estuary, southeastern Sakhalin; HUMZ 186943, 186948, 186951—Starodubskoye, southeastern Sakhalin; HUMZ 187104—east of Sokol, southeastern Sakhalin Island; HUMZ 187684—south of Tangi, western-central Sakhalin; HUMZ 187996—western Aniva Bay, southern Sakhalin; ZIN 34341 (as *P. ornata*)—Sea of Japan, Tatar Strait, Sakhalin, Shirokaya Pad'; ZIN 41687 (as *P. ornata*)—Sea of Japan, Tatar Strait, Sakhalin, Alexandrovsk-Sakhalinsky; ZIN 41689 (as *P. ornata*)—Sea of Japan, Tatar Strait, Sakhalin, Alexandrovsk-Sakhalinsky, at Tri Brata Rocks.
Conservation status: IUCN (Not Evaluated).

158. ?***Pholis nebulosa*** (Temminck & Schlegel, 1845)—Tidepool gunnel. Western North Pacific. Sakhalin: western part north to Alexandrovsk-Sakhalinsky (Ueno 1971; Lindberg & Krasyukova 1975; Sokolovsky *et al*. 2007; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a). Marine, brackish, including river mouths. Abundance needs further studies. Not fished.
Remarks. The presence of this species in the coastal waters of Sakhalin needs verification.
Conservation status: IUCN (Least Concern, 2010).

159. ***Pholis picta*** (Kner, 1868)—Painted gunnel. Western North Pacific. Sakhalin: southeastern part, Aniva Bay and west coast north to Amur River estuary (Schmidt 1904, 1950; Tanaka 1908; Jordan *et al*. 1913; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1975; Fedorov 2004; Gudkov & Zavarzina 2006; Balushkin *et al*. 2012; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a; Kawai 2020). Marine, brackish, including river mouths (our data). Common. Not fished.

Material: HUMZ 179556—Aniva Bay, southern Sakhalin; HUMZ 186930, 186931—Starodubskoye, southeastern Sakhalin; ZIN 12405, 12408, 13098—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 18036—Pil'vo, Sea of Japan, Tatar Strait, southwestern Sakhalin; ZIN 30487-30489, 34768—western Sakhalin, Shirokaya Pad'; ZIN 31607-31611, 41663—Antonovo, Tatar Strait, Sea of Japan, southwestern Sakhalin; ZIN 41671—Sea of Japan, southern Sakhalin, at Moneron Island; ZIN 41685—Sea of Japan, Tatar Strait, Sakhalin, Alexandrovsk-Sakhalinsky.

Conservation status: IUCN (Not Evaluated).

20. Subfamily APODICHTHYINAE Hubbs, 1927—Penpoint gunnels

110. Genus ***RHODYMENICHTHYS*** Jordan & Evermann, 1896

160. ***Rhodymenichthys dolichogaster*** (Pallas, 1814)—Stippled gunnel. North Pacific and adjacent Arctic. Sakhalin: eastern and western parts, including Terpeniya, Mordvinov and Aniva bays (Jordan *et al*. 1913; Schmidt 1950; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1975; Fedorov 2004; Balushkin *et al*. 2012; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a; Kawai 2020; UWFC 2020). Marine, brackish, including river mouths. Common. Not fished.

Remarks. In the past, this species was classified in genus *Pholis* (see Schmidt 1950; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1975). Based on molecular genetic studies, Yatsu (1981) and Radchenko (2017) concluded that genus *Rhodymenichthys* is distinct from *Pholis*.

Material: HUMZ 139806, 139807—Severny Bay, northern Sakhalin; HUMZ 179555—Aniva Bay, southern Sakhalin; HUMZ 186784, 187969—Duet River estuary, southeastern Sakhalin Island; HUMZ 186922, 187955—Starodubskoye, southeastern Sakhalin; HUMZ 187098—east of Sokol, southeastern Sakhalin; HUMZ 187958—south of Tangi, western-central Sakhalin; UWFC 44936—environs of Cape Menapatsy, northeastern Sakhalin; ZIN 31661, 31662, 31722—Sea of Japan, Tatar Strait, Sakhalin, Antonovo village; ZIN 34342, 32343, 34769, 37158—Sea of Japan, Tatar Strait, Sakhalin, Shirokaya Pad'; ZIN 41642—Sea of Okhotsk, Sakhalin, Mordvinov Bay.

Conservation status: IUCN (Not Evaluated).

56. Family CRYPTACANTHODIDAE Gill, 1861—Wrymouths

111. Genus ***CRYPTACANTHODES*** Storer, 1839

161. ***Cryptacanthodes bergi*** (Lindberg, 1930)—Berg's wrymouth. Western North Pacific. Sakhalin: western and southeastern parts, including Aniva Bay (Lindberg 1959; Lindberg & Krasyukova 1975; Fedorov 2004; Sokolovsky *et al*. 2007; Antonenko *et al*. 2011; Radchenko *et al*. 2011; Dyldin & Orlov 2017a; Dyldin *et al*. 2018b, 2020a). Marine, brackish, recorded from river mouths. Common. Not fished.

Material: ZIN 31831, 31832—Sea of Okhotsk, Sakhalin, Aniva Bay.

Conservation status: IUCN (Not Evaluated).

13. Suborder TRACHINOIDEI

57. Family TRICHODONTIDAE Bleeker, 1859—Sandfishes

112. Genus ***ARCTOSCOPUS*** Jordan & Evermann, 1896

162. ***Arctoscopus japonicus*** (Steindachner, 1881)—Sailfin sandfish. Western North Pacific. Sakhalin: western and eastern parts, including Aniva, Mordvinov, Terpeniya and Sakhalinsky bays, as well as Amur River estuary (Schmidt 1904, 1950; Tanaka 1908; Isii 1940; Lindberg 1959; Lindberg & Krasyukova 1975; Ueno 1971; Shuntov *et al*. 2003, 2014; Dyldin & Orlov 2017b; Safronov & Nikitin 2017; Dyldin *et al*. 2018b, 2020a; Kawai 2020). Marine, brackish, including river mouths. Common, in places forms abundant clusters. May be a promising target species for commercial fisheries (Dyldin *et al*. 2020a).

Material: HUMZ 139568—Severny Bay, Sakhalin; USNM 149647—Gulf of Tartary, southwestern Sakhalin; ZIN 12440, 12995—Aniva Bay, southern Sakhalin, 12996—southern Sakhalinsky Bay, northern Sakhalin.

Conservation status: IUCN (Not Evaluated).

58. Family AMMODYTIDAE Bonaparte, 1835—Sand lances

113. Genus ***AMMODYTES*** Linnaeus, 1758

163. ***Ammodytes hexapterus*** Pallas, 1814—Pacific sandeel. Western North Pacific and adjacent Arctic. Sakhalin: eastern and western parts, including Sakhalinsky, Terpeniya and Aniva bays (Schmidt 1904, 1950; Lindberg 1959; Ueno 1971; Shuntov *et al*. 2003; Gudkov & Zavarzina 2006; Dyldin & Orlov 2017b; Dyldin *et al*. 2018b, 2020a; Turanov *et al*. 2019; Lopez 2020). Marine, brackish. Very common. Commercial species.

Material: UAM 10015, 10016—Sea of Okhotsk, northeastern Sakhalin; ZIN 13000—southern Sakhalinsky Bay, northern Sakhalin; ZIN 13001—Cape Catherine, northern Sakhalin; ZIN 13002—Terpeniya Bay, eastern Sakhalin; ZIN 13003—Estafiya Cape, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

164. #***Ammodytes japonicus*** Duncker & Mohr, 1939—Western sand lance. Western North Pacific. Sakhalin: southern part, including La Perouse Strait (Dyldin *et al*. 2018b, 2020a; Turanov *et al*. 2019). Marine, brackish. Uncommon. Not fished.

Conservation status: IUCN (Not Evaluated).

14. Suborder SCORPAENOIDEI

59. Family SEBASTIDAE Kaup, 1873—Rockfishes

21. Subfamily SEBASTINAE Kaup, 1873—Rockfishes

114. Genus ***SEBASTES*** Cuvier, 1829

165. ?#***Sebastes nivosus*** Hilgendorf, 1880—Hokkaido rockfish or snowy rockfish. Western North Pacific. Sakhalin: southwestern end of the island (Barsukov 2003), probably in Aniva Bay, as it was recorded from adjacent waters of the Sea of Okhotsk (Hokkaido and Southern Kurils) (Ueno 1971; Lindberg & Krasyukova 1987; Nakabo 2002; Dyldin *et al*. 2018a, 2020a). Nevertheless, the presence of this species in the southern Sea of Okhotsk and southwestern Sakhalin needs verification. Marine, brackish. Rare. Uncommon.

Conservation status: IUCN (Data Deficient, 2017).

166. #***Sebastes owstoni*** (Jordan & Thompson, 1914)—Owston's red rockfish. Western North Pacific. Sakhalin: from La Perouse Strait and southwestern coast to northern Tatar Strait (Shvydky & Kalchugin 2000; Velikanov *et al*. 2007; Shuntov *et al*. 2014; Dyldin *et al*. 2018a, 2020a; Kim Sen Tok & Kim 2019; Orrell 2020); possibly off the east coast, because this species is known from the adjacent Sea of Okhotsk near Hokkaido, Japan (Snytko 2001; Barsukov 2003; Kawai 2020). Marine, brackish. Common. Bycatch in commercial fisheries.

Material: HUMZ 120214—Sea of Okhotsk; USNM 160646—in the Gulf of Tartary, southwestern Sakhalin.
Conservation status: IUCN (Not Evaluated).

167. ***Sebastes schlegelii*** Hilgendorf, 1880—Schlegel's black rockfish. Western North Pacific. Sakhalin: eastern and southwestern parts, including Terpeniya and Aniva bays (Schmidt 1904, 1950; Isii 1940; Frydlyand 1949; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Snytko 2001; Gudkov & Zavarzina 2006; Velikanov *et al*. 2007; Voronina & Volkova 2007; Gudkov 2010; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Orrell 2020). Marine, brackish, entering estuaries of rivers. Common. Target of amateur fishing.
Material: USNM 117905—Korsakov, Sakhalin; ZIN 12417—Busse Bay at Shishkevich River, Aniva Bay; ZIN 31650, 43843—Sea of Okhotsk, southern Sakhalin, Aniva Bay, Murav'yovo [Tobuti].
Conservation status: IUCN (Not Evaluated).

168. ***Sebastes taczanowskii*** Steindachner, 1880—White-edged rockfish. Western North Pacific. Sakhalin: southeastern and western parts, including Moneron Island and Terpeniya and Aniva bays (Schmidt 1904—in part as *Sebastodes ciliatus*, 1950; Tanaka 1908; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Snytko 2001; Barsukov 2003; Velikanov *et al*. 2007; Voronina & Volkova 2007; Shuntov *et al*. 2014; Dyldin *et al*. 2018a, 2020a; Shelekhov *et al*. 2020; Orrell 2020). Marine, brackish, occasionally entering river mouths. Common. Target of amateur fishing.
Material: USNM 135657—eastern Sakhalin, vicinity of Cape Terpeniya [Patience], in Sea of Okhotsk; ZIN 24622—Sea of Japan, Tatar Strait, Kholmsk; ZIN 31649, 31652, 31653, 42562, 42566, 42568—Sea of Okhotsk, Aniva Bay; ZIN 31651—Tatar Strait, Antonovo; ZIN 42570—Tatar Strait, southern Sakhalin, Kholmsk [Maoka]; ZIN 42572—Moneron Island, Sea of Japan.
Conservation status: IUCN (Not Evaluated).

60. Family TRIGLIDAE Rafinesque, 1815—Searobins or gurnards

115. Genus ***LEPIDOTRIGLA*** Günther, 1860

169. ***Lepidotrigla microptera*** Günther, 1873—Redwing gurnard. Western North Pacific. Sakhalin: first record from southern Aniva Bay in 2007, from near mouth of Lyutoga River (Gudkov 2010); southwest coast north to northern Tatar Strait (Shuntov *et al*. 2014). Closest records to Sakhalin from southern Sea of Okhotsk near Hokkaido, Japan (Dyldin *et al*. 2018a, 2020a; Kawai 2020). Marine, brackish. Rare. Not fished.
Material: HUMZ 98645-98648, 98664-98667, 98673—off Horonai, Sea of Okhotsk, Hokkaido, Japan.
Conservation status: IUCN (Not Evaluated).

15. Suborder GASTEROSTEOIDEI

61. Family HYPOPTYCHIDAE Steindachner, 1880—Sand eels

116. Genus ***HYPOPTYCHUS*** Steindachner, 1880

170. ***Hypoptychus dybowskii*** Steindachner, 1880—Korean sandeel. Western North Pacific. Sakhalin: southeastern and western parts, including Aniva and Terpenyia bays (Schmidt 1904, 1950; Taranetz 1937a; Lindberg 1959; Lindberg & Krasyukova 1987; Ueno, 1971; Shuntov *et al*. 2014; Dyldin & Orlov 2017; Dyldin *et al*. 2018, 2020a; Orrell 2020). Marine, brackish. Common. Not fished.
Material: USNM 51494—Khlomsk [Maoka], Sakhalin; ZIN 12600—at Korsakov, Aniva Bay, southern Sakhalin; ZIN 12383, 12834—Khlomsk [Maoka], Tatar Strait, Sea of Japan, southwestern Sakhalin.
Conservation status: IUCN (Data Deficient, 2017).

62. Family GASTEROSTEIDAE Bonaparte, 1831—Sticklebacks

117. Genus ***GASTEROSTEUS*** Linnaeus, 1758

171. ***Gasterosteus aculeatus*** Linnaeus, 1758—Three-spined stickleback. North Atlantic, North Pacific and adjacent Arctic. Sakhalin: probably only in northwestern part (Pietsch *et al*. 2012; Dyldin & Orlov 2017a, 2020a). Amphidromous. Common. Not fished.

Remarks. This species has been poorly studied in Sakhalin. According to Pietsch *et al*. (2012), its distribution is limited to the northwestern part of the island, and for the remainder, including the northern part, *G. nipponicus* Higuchi, Sakai & Goto, 2014 is recorded (Dyldin & Orlov 2017a; Petukhova *et al*. 2019; Dyldin *et al*. 2020a).

Conservation status: IUCN (Least Concern, 2019).

172. ***Gasterosteus nipponicus*** Higuchi, Sakai & Goto, 2014—Japanese three-spined stickleback. Western North Pacific. Sakhalin: southern, western and northern parts (Higuchi *et al*. 2014; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Petukhova *et al*. 2019; Kawai 2020). Anadromous, with estuarine (landlocked) forms. Very common. Not fished.

Material: HUMZ 140390-140399—Severny Bay lagoon, northern Sakhalin; 183229-183238—Aynskaya River estuary, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

118. Genus ***PUNGITIUS*** Coste, 1848

173. ***Pungitius polyakovi*** Shedko, Shedko & Pietsch, 2005—Polyakov's ninespine stickleback. Endemic to southeastern Sakhalin, where it inhabits small rivers flowing into Svobodinsky, Russkoe, the Vavai-Chibisan lakes systems and Busse lagoon (Shedko *et al*. 2005; Pietsch *et al*. 2012; Dyldin & Orlov 2017a). Freshwater. Locally common. Not fished.

Remarks. Original description by Shedko *et al*. (2005: 223, figs. 1-2) from southeastern Sakhalin (type locality: 46°47.035'N, 143°47.337'E, Puzin Peninsula, Sakhalin).

Material: ZIN 53441 (holotype), 53442 (paratypes)—46°47.035'N, 143°47.337'E, source of the stream flowing from Khvalisekoe Lake into Russkoe Lake, Puzin Peninsula, Sakhalin.

Conservation status: IUCN (Near Threatened, 2015).

174. ***Pungitius sinensis*** (Guichenot, 1869)—Chinese ninespine stickleback. Western North Pacific. Sakhalin: along all coasts (Berg 1949b; Schmidt 1950; Lindberg 1959; Lindberg & Legeza 1965; Nikiforov *et al*. 1987, 1997; Safronov & Nikiforov 2003; Pietsch *et al*. 2001, 2012; Gudkov & Zavarzina 2006; Safronov *et al*. 2008; Nikitin *et al*. 2014; Labay *et al*. 2015; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Kawai 2020; UWFC 2020; Orrell 2020). Anadromous, with landlocked form. Common. Not fished.

Remarks. In the past, several authors (Berg 1949b; Schmidt 1950; Nikolskii 1956; Pietsch *et al*. 2001) treated this taxon as a subspecies *P. pungitius sinensis*. According to some authors (Berg 1949b; Schmidt 1950—in part; Nikolskii 1956; Lindberg & Legeza 1965; Keivany & Nelson 2000), the species *Pungitius pungitius* (Linnaeus, 1758) (Ninespine stickleback) is replaced by the subspecies *P. pungitius sinensis* (Guichenot, 1869) and *P. pungitius tymensis* (Nikolskii, 1889) in the southern Sea of Okhotsk (throughout Sakhalin) and the Sea of Japan. If we accept the validity of *P. sinensis* and *P. tymensis* (Bogutskaya *et al*. 2008; Dyldin & Orlov 2017a; Dyldin *et al*. 2020a), then *P. pungitius* would not be member of the ichthyofauna of Sakhalin. Members of the genus *Pungitius* should be here included in species *P. sinensis* or *P. tymensis*. But current knowledge does not allow this question to be answered. Comments on the taxonomic position of *P. pungitius* in island waters are presented in earlier papers (Dyldin & Orlov 2017a; Dyldin *et al*. 2020a).

Material: HUMZ 139704, 139705—Severny Bay, northern Sakhalin; USNM 57469—Aniva Bay, Sakhalin; USNM 105254—lake in Tym' River basin, Sakhalin; UWFC 44758—northeastern Sakhalin, south of Bolshoye Langri River mouth; UWFC 44818—northeastern Sakhalin, east of Tungor village, environs of Odoptu Bay; UWFC 46125, 46288—northeastern Sakhalin, lower Val River basin, west of Chayvo Bay, north of Val; UWFC

46196—southeastern Sakhalin, south of Mordvinova Bay, east of Okhotskoye; UWFC 46198—northern-central Sakhalin, lower Tym' River basin, west of Bay of Nabilsky, south of Nogliki; UWFC 46306—southern-central Sakhalin, Ilinka River basin, east of Ilinsky.

Conservation status: IUCN (Vulnerable, 2015).

175. ***Pungitius tymensis*** (Nikolskii, 1889)—Sakhalin ninespine stickleback. Russian Far East and Japan. Sakhalin: from Schmidt Peninsula in the north and the Tym' River basin to the Tunaicha Lake and Aniva Bay in southern part of island (Nikolskii 1889; Tanaka 1908; Jordan *et al*. 1913; Taranetz 1937a, b; Schmidt 1950; Lindberg & Legeza 1965; Nikiforv *et al*. 1997; Pietsch *et al*. 2001, 2012; Safronov & Nikifiiv 2003; Gudkov & Zavarzina 2006; Safronov *et al*. 2008; Gritsenko 2012; Labay *et al*. Dyldin & Orlov 2017a; UWFC 2020). Freshwater. Common. Not fished.

Remarks. Nikolskii (1889: 293) described this species based on syntypes from small freshwater lakes near Tym' River mouth, northeastern Sakhalin (type locality: in the estuary Tym' River in small lakes, northeastern Sakhalin). In the past (Lindberg & Legeza 1965; Nikiforov *et al*. 1997), this taxon was considered as a subspecies *P. pungitius tymensis*.

Material: UWFC 44787—northwestern Sakhalin, inland of Sakhalinsky Bay, environs of Lake Uspenskoye; UWFC 46122—southeastern Sakhalin, south of Mordvinova Bay, east of the town of Okhotskoye; UWFC 46261—northern-central Sakhalin, lower Tym' River basin, west of Bay of Nabilskiv, south of Nogliki; UWFC 46264—central Sakhalin, Krasnaya River basin, just south of Yasnoye; UWFC 46282—northeastern Sakhalin, lower Val River basin, west of Chayvo Bay, north of Val; UWFC 46283—southeastern Sakhalin, south of Mordvinova Bay, east of Okhotskoye; UWFC 46286—southern-central Sakhalin, Ilinka River basin, east of Ilinsky; UWFC 046294—southeastern Sakhalin, Sokol base camp, Belaya River; UWFC 46302—southern-central Sakhalin, Manuy River basin, northwest of Vzmorye; ZIN 6593-6595 (syntypes)—Tym' River estuary, in small lakes, northeastern Sakhalin.

Conservation status: IUCN (Data Deficient, 2017)

16. Suborder COTTOIDEI

63. Family HEXAGRAMMIDAE Jordan, 1888—Greenlings

22. Subfamily HEXAGRAMMINAE Jordan, 1888—Greenlings

119. Genus ***HEXAGRAMMOS*** Tilesius, 1810

176. ***Hexagrammos agrammus*** (Temminck & Schlegel, 1843)—Spotbelly greenling. Western North Pacific. Sakhalin: Aniva Bay and southwest coast (Rutenberg 1962; Safronov & Nikitin 2017a; Dyldin & Orlov 2017a; Dyldin *et al*. 2018, 2020a). Recorded from Sea of Okhotsk coast of Hokkaido, Japan (National Museum of Nature and Science, Japan 2020). Marine, brackish. Rare. Not fished.

Remarks. In some earlier publications (Rutenberg 1962; Ueno 1971; Lindberg & Krasyukova 1987), this species was classified in genus *Agrammus*. According to other sources (Quast 1964; Parin *et al*. 2002, 2014), it is a member of *Hexagrammos*.

Material: KAUM 75315—Sea of Okhotsk, Syari, Hokkaido, Japan.

Conservation status: IUCN (Not Evaluated).

177. ***Hexagrammos lagocephalus*** (Pallas, 1810)—Rock greenling. North Pacific. Sakhalin: eastern and southwestern part, including Terpenyia Bay (Schmidt 1904, 1950; Tanaka 1908; Jordan *et al*. 1913; Isii 1940; Lindberg 1959; Rutenberg 1962; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Catania & Fong 2021); also recorded from southern Sea of Okhotsk near Hokkaido, Japan (Tohkairin *et al*. 2015; Uchida 2020). Marine, brackish. Uncommon. Commercial species with minor importance (secondary target species) (Orlov & Zolotov 2010).

Material: CAS-SU 5740—Tyuleniy [Robben] Island, Sea of Okhotsk, eastern-central Sakhalin; SRM KP-9188/10

PP-53/10—at Cape Svobodnyi, Mordvinov Bay, Sea of Okhotsk, Sakhalin.
Conservation status: IUCN (Least Concern, 2020).

178. #***Hexagrammos octogrammus*** (Pallas, 1814)—Masked greenling. North Pacific. Sakhalin: along all coasts (ubiquitous in lagoons), but mainly in western part including Aniva and Terpeniya bays (Schmidt 1904, 1950; Tanaka 1908; Jordan *et al*. 1913; Lindberg 1959; Lindberg & Krasyukova 1987; Ueno 1971; Safronov & Nikiforov 2003; Gudkov *et al*. 2004; Voronina & Volkova 2007; Safronov & Nikitin 2017a; Shuntov *et al*. 2014; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Kawai, 2020; Orrell 2020; Catania & Fong 2021). Marine, brackish. Very common. Commercial species with minor importance.

Material: CAS-SU 5716—west of Tyuleniy [Robben] Island, Sea of Okhotsk, eastern-central Sakhalin; HUMZ 179412—near Chekhov, southwestern Sakhalin; HUMZ 183001—Cape Meraputsy, Novikovo, southeastern Sakhalin; HUMZ 183723—Cape Leontyeva, southwestern Sakhalin; HUMZ 186748, 186752—Duet River estuary, southeastern Sakhalin; HUMZ 186907—Tri Brata Rocks, Alexandrovsk-Sakhalinsky, western-central Sakhalin; HUMZ 186979—south of Tangi, western-central Sakhalin; HUMZ 186985, 186995—Starodubskoye, southeastern Sakhalin; HUMZ 187107—east of Sokol, southeastern Sakhalin; HUMZ 187992—north of Tomari, southwestern Sakhalin; HUMZ 139641, 139647—Severny Bay, northern Sakhalin; USNM 160600—Korsakov, Aniva Bay, southern Sakhalin; SRM KP-9188/8 PP-53/8—near mouth of channel connecting Lake Izmenchivoye with Mordvinov Bay, Sea of Okhotsk, southeastern Sakhalin; SRM KP-9363/3 PP-56/3 Mordvinov Bay, Sea of Okhotsk, southeastern Sakhalin; ZIN 12524, 12527—Korsakov, Aniva Bay, Sea of Okhotsk.
Conservation status: IUCN (Not Evaluated).

179. ***Hexagrammos otakii*** Jordan & Starks, 1895—Otaki's greenling. Western North Pacific. Sakhalin: southeastern and southern parts, including Aniva Bay (Schmidt 1904, 1950; Tanaka 1908; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Parin *et al*. 2014; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a). Marine, brackish. Rare. Bycatch in commercial fisheries.

Material: ZIN 12528—Kholmsk [Maoka], Sea of Japan; ZIN 12529—Korsakov, Aniva Bay, Sea of Okhotsk.
Conservation status: IUCN (Not Evaluated).

180. ***Hexagrammos stelleri*** Tilesius, 1810—Whitespotted greenling. North Pacific and adjacent Arctic. Sakhalin: along all coasts, but mainly in western part, including Aniva and Terpeniya bays, as well as Amur River estuary (Schmidt 1904, 1950; Ueno 1971; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003, 2014; Gudkov *et al*. 2004; Voronina & Volkova 2007; Safronov & Nikitin 2017a; Mecklenburg *et al*. 2016, 2018; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Kawai 2020; UWFC 2020). Marine, brackish. Very common. Fished as bycatch; also targeted by amateur fishing.

Material: HUMZ 139638, 139688—Severny Bay, northern Sakhalin; HUMZ 179557—Kholmsk, southwestern Sakhalin; HUMZ 182999—Cape Meraputsy, Novikovo, southeastern Sakhalin; HUMZ 187074—east of Sokol, southeastern Sakhalin; UWFC 044968—southeastern Sakhalin, environs of Cape Menapatsy; ZIN 12531, 12532, 12597, 13034, 31269-31271, 31511, 31620, 33785-33790, 43454—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 12833—Terpeniya Bay, Sea of Okhotsk, Sakhalin; ZIN 12985—near river in Simakov Village at Kholmsk [Poroto-mari], southwestern Sakhalin; ZIN 19007, 19008—Sakhalinsky Bay, Sea of Okhotsk, northern Sakhalin; ZIN 23724—Baikal Bay, Sea of Okhotsk, northern Sakhalin; ZIN 31013—Alexandrovsk-Sakhalinsky, Tatar Strait, Sea of Japan, Sakhalin; ZIN 31512, 40589—at Antonovo [Rakuma lagoon], Tatar Strait, Sea of Japan, southwestern Sakhalin; ZIN 41447—4 km east of Starodubskoe, Sea of Okhotsk, southeastern Sakhalin.
Conservation status: IUCN (Not Evaluated).

23. Subfamily PLEUROGRAMMINAE Rutenberg, 1954—Atka mackerels

120. Genus ***PLEUROGRAMMUS*** Gill, 1861

181. ***Pleurogrammus azonus*** Jordan & Metz, 1913—Arabesque greenling. Western North Pacific. Sakhalin: along

all coasts, including Aniva and Terpenyia bays, Tunaicha Lake and waters around Moneron Island, but probably not in northwestern part (Taranetz 1937a; Isii 1940; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Gudkov & Zavarzina 2006; Voronina & Volkova 2007; Safronov & Nikitin 2017a; Dyldin & Orlov 2017; Dyldin *et al*. 2018a, 2020a; Lopez 2020). Marine, brackish. Very common. Commercial species.

Remarks. Some authors (Mecklenburg & Eschmeyer 2003) classified this taxon as a junior synonym or subspecies of *P. monopterygius* (Pallas, 1810). Recently revalidated based on molecular studies (Crow *et al*. 2004).

Material: UAM 8269—Sea of Okhotsk, Sakhalin; SRM KP-9342/3 PP-55/3—Mordvinov Bay, Sea of Okhotsk, southeastern Sakhalin; ZIN 12522, 12598, 39140—Kholmsk [Maoka], Tatar Strait, Sea of Japan; ZIN 31381, 31382, 31414, 31416-31418, 33796, 39143, 43295—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 39141—near Chekhov [Nodo], Tatar Strait, Sea of Japan, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

64. Family COTTIDAE Bonaparte, 1831—Sculpins

121. Genus ***ARTEDIELLUS*** Jordan, 1885

182. ***Artediellus dydymovi*** Soldatov, 1915—Dydymov's hookear sculpin. Western North Pacific. Sakhalin: western and eastern parts, including Aniva Bay and Amur River estuary (Schmidt 1927; Lindberg 1959; Isii 1940; Ueno 1971; Neelov 1979; Lindberg & Krasyukova 1987; Sideleva *et al*. 2006b; Shuntov *et al*. 2014; Parin *et al*. 2014; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Orrell 2020; Catania & Fong 2021). Marine, brackish. Uncommon. Not fished.

Material: CAS-SU 22240—Sea of Okhotsk, Sakhalin; USNM 74461, 74486-74490—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 18657—Tatar Strait near Sakhalin coast; ZIN 36590 — Sea of Okhotsk, Sakhalin, 47°50′N, 142°53′E.

Conservation status: IUCN (Not Evaluated).

183. ***Artediellus ochotensis*** Gilbert & Burke, 1912—Okhotsk hookear sculpin. North Pacific and adjacent Arctic. Sakhalin: western and eastern parts, including Aniva, Mordvinov, Terpeniya and Sakhalinsky bays, in coastal area of Moneron Islands, as well as Amur River estuary (Gilbert & Burke 1912; Schmidt 1927, 1950; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003; Sideleva *et al*. 2006b; Dyldin & Orlov, 2017a; Dyldin *et al*. 2018a, 2020a; Catania & Fong 2021). Marine, brackish. Common. Not fished.

Remarks. In the past, some authors (Schmidt 1950; Lindberg 1959) treated this taxon as a subspecies *A. pacificus ochotensis*.

Material: CAS-SU 5744—west of Tyuleniy [Robben] Island, Sea of Okhotsk, eastern-central Sakhalin; ZIN 12188, 12189, 44557, 44562, 44563, 44568—Aniva Bay, Sea of Okhotsk, Sakhalin; ZIN 12908—near Cape Kril'on [Notoro]; ZIN 12910, 44559, 44560, 44565, 44567, 44617—Sea of Okhotsk, Terpeniya Bay; ZIN 12912—Sea of Okhotsk, eastern Sakhalin Island, near Cape Senyavin; ZIN 12914—Sea of Japan near Moneron Island; ZIN 21308—Sea of Okhotsk, near entrance of Sakhalinsky Bay, 59°12′ N, 144°37′ E; ZIN 44551—Sea of Okhotsk, Sakhalin, Mordvinov Bay; ZIN 44555, 44569, 44570, 44574—Sea of Okhotsk, Sakhalin, near Starodubskoe village; 44564—Sea of Okhotsk, southeastern Sakhalin; ZIN 44621—Sea of Okhotsk, Sakhalin, 48°23′N, 141°53′E.

Conservation status: IUCN (Not Evaluated).

122. Genus ***ASTROCOTTUS*** Bolin, 1936

184. ***Astrocottus regulus*** Tsuruoka, Maruyama & Yabe, 2008—Regulus sculpin. Western North Pacific. Recorded from southern Sea of Okhotsk near northern Hokkaido, Japan (Tsuruoka *et al*. 2008). Also known from Pacific coast of Honshu, Miyagi and Fukushima prefectures, Japan (Tsuruoka *et al*. 2008; Orrell 2020; Kawai 2020; Nakae & Shinohara 2020). Not yet recorded from Russian water, but expected in Aniva Bay (Dyldin *et al*. 2018a, 2020a). Marine, brackish.

Material: HUMZ 98733—off Kawajiri Omu, Sea of Okhotsk, Hokkaido, Japan; HUMZ 190094 (holotype)—off Oumu, Sea of Okhotsk, Hokkaido, Japan, 44°33.89'N, 143°07.10'E; NSMT 34091—Sea of Okhotsk, off mouth of Omu-gawa River, Hokkaido, Japan; NSMT 76686-76689, (all specimens are paratypes)—Japan, Hokkaido, Oumu, Sea of Okhotsk coast; USNM 384159 (paratypes)—off Oumo, Sea of Okhotsk coast, Hokkaido, Japan.
Conservation status: IUCN (Not Evaluated).

123. Genus ***COTTUS*** Linnaeus, 1758

185. ***Cottus amblystomopsis*** Schmidt, 1904—Sakhalin sculpin. Western North Pacific. Sakhalin: throughout the island (Schmidt 1904; Jordan *et al*. 1913; Taranetz 1937b; Berg 1949b; Lindberg & Krasyukova 1975; Goto 1980; Pietsch *et al*. 2001, 2012; Nakabo 2002; Safronov & Nikiforov 2003; Sideleva *et al*. 2006b; Nikitin *et al*. 2013; Labay *et al*. 2015; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Kawai 2020; UWFC 2020). Amphidromous. Very common. Not fished.
Remarks. Original description of this species by Schmidt (1904: 89, pl. 2, figs. 1-3) based on the unique holotype from Lyutoga River that flows into Aniva Bay (type locality: about 13 km (12 versts) from mouth upstream of Lyutoga River, at Petropavlovskoe Village, southern Sakhalin).
Material: HUMZ 156105, 156107, 156108—Lyutoga River, Sakhalin; UWFC 44750—environs of Tym' River mouth, northwestern Sakhalin; UWFC 44836—Bakhura River, southern Sakhalin, east of Sokol; UWFC 44894—Bakura River mouth, southeast of Dolinsk, southern Sakhalin; UWFC 46300—west side of Aniva Bay, north of Kirillovo, southwestern Sakhalin; UWFC 46399—Manuy River basin, northwest of Vzmorye, southern-central Sakhalin; UWFC 46514—Sea of Okhotsk, Bakhura River basin, southeast of Dolinsk, southeastern Sakhalin; ZIN 12763 (holotype)—about 13 km (12 versts) from mouth upstream of Lyutoga River, at Petropavlovskoe Village, southern Sakhalin, Russia; ZIN 31693—Antonovo [Rakuma], Tatar Strait, southwestern Sakhalin; ZIN 31728—at Yablochnoe [Randomari] Village, Tatar Strait, Sea of Japan, southwestern Sakhalin; 31694—Kalinino [Tarantomari] Village, Kholmsky district, Tatar Strait, southwestern Sakhalin; ZIN 34509—Shirokaya Pad' River, western Sakhalin; ZIN 38734, 38847—mouth of the Kitousi River, tributary-Shirokaya Pad' River, western Sakhalin; ZIN 46510—Nyyskiy Bay, northeastern Sakhalin; ZIN 48662, 49212, 49213, 49218—Bakhura River, Sakhalin; ZIN 49214—12 km from mouth of Manuy River, Sakhalin; ZIN 50187—200 km from mouth of Uryum River, Sakhalin; ZIN 48660—6 km from mouth of Dudinka River, Sakhalin; ZIN 48661—0.5 km from mouth of Sima River, Sakhalin; ZIN 48663—0.5 km from mouth of Kura River, Sakhalin; ZIN 52567—near Novoselovka Village, Sakhalin.
Conservation status: IUCN (Not Evaluated).

186. ?***Cottus hangiongensis*** Mori, 1930—Japanese river sculpin. Western North Pacific. Northern Japan and eastern Korea, including the Sea of Okhotsk and Sea of Japan. Sakhalin: southern part (Goto *et al*. 2014). In addition, the records closest to Sakhalin are from northern Japan (Hokkaido and northern Honshu), Southern Kurils (Shikotan Island) and Korean Peninsula (Pietsch *et al*. 2001; Schedko 2002; Chereshnev 2003; Fujii *et al*. 2005; Sideleva *et al*. 2006b; Gritsenko 2012; Miyazaki *et al*. 2013; Goto *et al*. 2014; Dyldin & Orlov 2017a). Amphidromous. Abundance needs further studies. Not fished.
Remarks. Its presence at southern Sakhalin needs verification.
Conservation status: IUCN (Not Evaluated).

187. ?***Cottus nozawae*** Snyder, 1911—Nozawa's sculpin. Western North Pacific. Endemic species to northern Japan (Hokkaido and northern Honshu) and Korean Peninsula. Sakhalin: southern part (Okada & Ikeda 1938; Safronov & Nikiforov 2003; Nikitin 2012; Labay *et al*. 2015). Freshwater. Abundance needs further studies. Not fished.
Remarks. Its presence in southern Sakhalin needs verification. In the past, *C. nozawae* was treated as a synonym of *C. amblystomopsis* Schmidt, 1904 or *C. pollux* Günther, 1873 (Berg 1949b; Watanabe 1960). It was later reestablished as a valid species, based on its ecology, genetic data, and considering its reproductive isolation (Goto 1980, 1983; Okumura & Goto 1996; Yokoyama & Goto 2002).
Conservation status: IUCN (Not Evaluated).

188. ***Cottus szanaga*** Dybowski, 1869—Onon sculpin. Throughout Amur River and Onon River basins and rivers of Sea of Japan basin. Sakhalin: restricted to northern part, including Schmidt Peninsula and rivers flowing into Amur River estuary (Taranetz 1937b—as *C. poecilopus*; Sideleva *et al*. 2006b—as *C. poecilopus*; Safronov *et al*. 2012; Labay *et al*. 2015; Pietsch *et al*. 2012; Goto *et al*. 2015; Dyldin & Orlov 2017a; UWFC 2020). Freshwater, brackish. Uncommon. Not fished.

Remarks. Berg (1949b), and later Nikolskii (1956) treated *C. szanaga* as a junior synonym of *C. poecilopus* Heckel, 1837; the taxon was recently revalidated (Shedko & Shedko 2003; Kottelat 2006; Bogutskaya *et al*. 2008; Sideleva & Goto 2009; Goto *et al*. 2015), and *C. poecilopus* is restricted to Europe.

Material: UWFC 44760 (as *C. poecilopus*)—near mouth of Toy River, west of Cape Elzabeth, northern Sakhalin; ZIN 8847 (as *C. poecilopus*), 15930—Amur Liman; ZIN 8847 (as *C. poecilopus*).

Conservation status: IUCN (Not Evaluated).

124. Genus ***ENOPHRYS*** Swainson, 1839

189. #***Enophrys diceraus*** (Pallas, 1787)—Antlered sculpin. Western North Pacific, Bering Sea and adjacent Arctic. Sakhalin: along all coasts, including Aniva, Terpeniya and Sakhalin bays, as well as Moneron Island and Amur River estuary (Schmidt 1904, 1950; Jordan & Starks 1904a; Tanaka 1908; Jordan *et al*. 1913; Isii 1940; Lindberg 1959; Lindberg & Krasyukova 1975; Ueno 1971; Mecklenburg *et al*. 2016, 2018; Safronov & Nikitin 2017a; Dyldin *et al*. 2018a, 2020a; Panchenko & Pushchina 2019; Kawai 2020; Orrell 2020). Marine, brackish. Common. Bycatch in commercial fisheries.

Remarks. From Aniva Bay and southern Sakhalin, another species was recorded in the past, either as *Ceratocottus namiyei* Jordan & Starks, 1904 (Namiye's sculpin) or *Enophrys diceraus namiyei* (Jordan & Starks, 1904a; Tanaka 1908; Isii 1940; Lindberg 1959), sometimes also synonymised with *E. diceraus* (Neelov 1979; Parin *et al*. 2014). *E. namiyei* was revalidated based on molecular genetic and karyological data (Moreva *et al*. 2017).

Material: HUMZ 140707, 140710, 141027—Severny Bay, northern Sakhalin; HUMZ 183694—off Novikovo, southeastern Sakhalin; SRM KP-9289/3 PP-54/3—Tatar Strait, 5 km west of Kholmsk, Tatar Strait, southwestern Sakhalin; USNM 74755—Korsakov, Aniva Bay, southern Sakhalin; ZIN 12259, 44777, 44778—Kholmsk [Maoka], Tatar Strait, southwestern Sakhalin; ZIN 12855, 39197, 44765—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 12857—near Moneron Island, Sea of Japan; ZIN 14683—Nadezhda Bay, Tatar Strait, Sea of Japan, Sakhalin; ZIN 31696, 31732—Antonovo [Rakuma lagoon], Tatar Strait, southwestern Sakhalin; ZIN 44199, 44201, 44202, 44775—Terpeniya Bay, Sea of Okhotsk, eastern Sakhalin; ZIN 44770, 44776—4 km north of Starodubskoe, Sea of Okhotsk, southeastern Sakhalin.

Conservation status: IUCN (Not Evaluated).

125. Genus ***GYMNOCANTHUS*** Swainson, 1839

190. ***Gymnocanthus herzensteini*** Jordan & Starks, 1904—Blackedged sculpin. Western North Pacific. Sakhalin: southeastern and western part, including Aniva Bay (Taranetz 1937a; Isii 1940; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Nakabo 2002; Sideleva *et al*. 2006a; Sokolovsky *et al*. 2007; Shuntov *et al*. 2014; Parin *et al*. 2014; Dyldin *et al*. 2018a, 2020a; Kim Sen Tok & Kim A. 2019). Marine, brackish. Common. Bycatch in commercial fisheries.

Material: ZIN 12274, 52743—Kholmsk [Maoka], Tatar Strait, Sea of Japan, southwestern Sakhalin; ZIN 31665—Antonovo [Rakuma lagoon], Tatar Strait, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

191. ***Gymnocanthus pistilliger*** (Pallas, 1814)—Threaded sculpin. North Pacific and adjacent Arctic. Sakhalin: eastern and western parts, including Sakhalinsky, Terpeniya and Aniva bays, as well as Moneron Island and Amur River estuary (Schmidt 1904, 1950; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Sideleva *et al*. 2006a; Shuntov *et al*. 2014; Mecklenburg *et al*. 2016, 2018; Safronov & Nikitin 2017a; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Orrell 2020). Marine, brackish. Common. Bycatch in commercial fisheries.

Remarks. Schmidt (1950) distinguished a subspecies *G. pistilliger ventralis* (Cuvier & Valenciennes, 1829), based on some morphological differences. According to his opinion, this subspecies inhabited the entire west coast of Sakhalin.

Material: USNM 74708—Aniva Bay, approaching Korsakov, Sakhalin; ZIN 12191, 12216, 12230-12232, 12234, 12848, 44982—Aniva Bay, Sea of Okhotsk, Sakhalin; ZIN 12849—near Kril'on Cape [Notoro]; ZIN 20415, 20419—Sakhalinsky Bay, Sea of Okhotsk, northern Sakhalin; ZIN 21807—Amur Liman at the entrance to the Sakhalinsky Bay; ZIN 21809—Pil'tun Bay, Sea of Okhotsk, northern Sakhalin; ZIN 44979, 44988—Moneron Island, Sea of Japan; ZIN 44989—near Starodubskoe village, Sea of Okhotsk, southeastern Sakhalin; ZIN 44990—near Krasnogorsk, Tatar Strait, western Sakhalin.

Conservation status: IUCN (Not Evaluated).

126. Genus ***HEMILEPIDOTUS*** Cuvier, 1829

192. *Hemilepidotus papilio* (Bean, 1880)—Butterfly sculpin. North Pacific and adjacent Arctic. Sakhalin: on the Okhotsk side, from Amur River estuary to Aniva Bay, as well as Nevelskoy Strait in northern Tatar Strait (Schmidt 1904, 1950; Soldatov & Lindberg 1930; Isii 1940; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003; Tokranov *et al*., 2003; Sideleva *et al*. 2006a; Mecklenburg *et al*. 2016, 2018; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Kawai 2020). Marine, brackish. Very common. Commerical species of minor importance (secondary target species).

Remarks. According to some auhors (Parin *et al*. 2014; Mecklenburg *et al*. 2016, 2018), genus *Melletes* is a junior synonym of *Hemilepidotus*.

Material: HUMZ 102071, 103366—off Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 12834—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 17792, 17794, 21414, 21415—near entrance to Sakhalinsky Bay, Sea of Okhotsk, northern Sakhalin; ZIN 20573, 20581, 20820—Sakhalinsky Bay, Sea of Okhotsk, northern Sakhalin; ZIN 21413—Amur Liman, near entrance to Sakhalinsky Bay; ZIN 44158, 44159, 44161—Terpeniya Bay, Sea of Okhotsk, Sakhalin; ZIN 44163—near Starodubsk village, Sea of Okhotsk, Sakhalin; ZIN 44876—Pilitun Bay, Sea of Okhotsk, Sakhalin; ZIN 44881—Pogranichnyi village, Sea of Okhotsk, Sakhalin; ZIN 45119—east coast, Sea of Okhotsk, Sakhalin.

Conservation status: IUCN (Least Concern, 2010, as *Melletes papilio*).

127. Genus ***ICELUS*** Krøyer, 1845

193. *Icelus cataphractus* (Pavlenko, 1910)—Thorny sculpin. Western North Pacific. Sakhalin: southeast side, north to Terpeniya Bay, Aniva Bay, and southwest side, including Moneron Island (Schmidt 1904, 1950; Lindberg 1959; Nelson 1984; Lindberg & Krasyukova 1987; Sokolovsky *et al*. 2007, 2011; Shuntov *et al*. 2014; Parin *et al*. 2014; Dyldin *et al*. 2018a, 2020a; Kawai 2020 Orrell 2020). Marine, brackish, entering river mouths. Common. Not fished.

Remarks. In the past, some authors (Schmidt 1904, 1950; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Sokolovsky *et al*. 2007) recorded this species as *I. spiniger* (non Gilbert, 1896, or as a subspecies *I. spiniger cataphractus*. Recently, *I. spiniger* was restricted to northern waters, i.e., the northern Sea of Okhotsk and Bering Sea. The closely related species *I. cataphractus* is found in southern regions (Nelson 1984; Parin *et al*. 2014).

Material: HUMZ 102051, 102065, 103341, 103352—Aniva Bay, Sea of Okhotsk, southern Sakhalin; HUMZ 103327—off Terpeniya Bay, Sea of Okhotsk, eastern Sakhalin; USNM 74544—Korsakov, Aniva Bay, Sakhalin; USNM 74561, 74565, 74566—vicinity of Cape Terpeniya in Sea of Okhotsk, eastern Sakhalin; ZIN 12222–12224 (identified by Schmidt (1904) as *I. spiniger*), 33597—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 44428—near Il'insk, western Sakhalin; ZIN 44760—near Starodubskoe village, Sea of Okhotsk, southeastern Sakhalin Island; ZIN 44762—Moneron Island, Sea of Japan; ZIN 44763—near Chehov [Nodo], Tatar Strait, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

194. ***Icelus ochotensis*** Schmidt, 1927—Okhotsk scaly sculpin. Western North Pacific. Sakhalin: from Amur River estuary along the eastern Sea of Okhotsk side to southern tip of island near Tonino-Anivsky Peninsula (Andriashev 1937; Nelson 1984; Sideleva *et al*. 2006a; Kawai 2020; Orrell 2020). Marine, brackish. Rare. Not fished.

Remarks. The subspecies *Icelus uncinalis crassus* was originally described by Andriashev (1937: 265, pl. 5, fig. 2) based on syntypes (ZIN 21905) from Sea of Okhotsk side of northeastern Sakhalin (type locality: Penzhinskii Bay and northeastern Sakhalin, Sea of Okhotsk, Russia). Later, this subspecies was synonymised with *I. ochotensis* (see Nelson 1984; Parin *et al*. 2002, 2014).

Material: HUMZ 103297, 103298—Terpeniya Bay, Sea of Okhotsk, Sakhalin; USNM 119856, 119861—east coast, southern end of Sakhalin in Sea of Okhotsk; ZIN 17643, 17644—Amur Liman; ZIN 25133, 29081—near Elizabeth Cape, northern Sakhalin.

Conservation status: IUCN (Not Evaluated).

128. Genus ***MEGALOCOTTUS*** Gill, 1861

195. ***Megalocottus taeniopterus*** (Kner, 1868)—Southern flathead sculpin. Western North Pacific. Sakhalin: along all coasts, including Sakhalinsky, Terpeniya and Aniva bays, as well as Amur River estuary and some large river mouths, e.g. Lyutoga and Tym‘ (Schmidt 1904, 1950; Tanaka 1908; Jordan *et al*. 1913; Taranetz 1937a; Berg 1949b; Neelov 1976, 1979—in the genus *Porocottus*; Lindberg & Krasyukova 1987; Safronov & Nikiforov 2003; Volodin 1996, 1999; Nikiforov *et al*. 1997; Gudkov 2004, 2006; Sideleva *et al*. 2006a; Safronov *et al*. 2008; Labay *et al*. 2014, 2015; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Radchenko & Petrovskaya 2019; Kawai 2020). Marine, brackish, entering lower reaches of rivers. Common. Fished as bycatch; also target of amateur fishing.

Remarks. This taxon has often been classified as a subspecies *M. platycephalus taeniopterus* or *Myoxocephalus platycephalus taeniopterus*, or was synonymised with *Megalocottus platycephalus* (Pallas, 1814) (Berg 1949b; Lindberg & Krasyukova 1987; Mecklenburg *et al*. 2016, 2018; Gudkov & Zavarzina 2006; Radchenko & Petrovskaya 2019). It is now recognized as valid (Bogutskaya *et al*. 2008; Parin *et al*. 2014; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a).

Tanaka (1908) described two species from southern Sakhalin: *Porocottus nigrescens* Tanaka, (1908: 37, pl. 9, figs. 1, 2) (type locality: southern Sakhalin, western Sea of Okhotsk, Russia), and *P. ijimai* Tanaka (1908: 39, pl. 9, figs. 3, 4) (type locality: mouth of Susuya River, southern Sakhalin); these may represent valid species (Dyldin & Orlov 2017a), but are currently synonymised with *M. taeniopterus* (see Parin *et al*. 2014).

Material: HUMZ 139563 (as *Megalocottus platycephalus*)—Severny Bay, Sakhalin; HUMZ 140294 (as *M. platycephalus*)—Pil’tun Bay, Sakhalin; HUMZ 183056 (as *M. platycephalus*)—creek west of Baikal Bay, northwestern Sakhalin; HUMZ 187030 (as *M. p.* subsp. *taeniopterus*)—estuary of Arkovo River, western-central Sakhalin; UWFC 46308 (as *M. platycephalus*)—Uryum River basin north of Kirillovo, west side of Aniva Bay, southwestern Sakhalin; ZIN 12205—Busse Bay, Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 12256—Lyutoga River, Aniva Bay, Sea of Okhotsk, Sakhalin; ZIN 12257—Korsakov, Корсаковск, Vtoraya Pad’; ZIN 12831, 15686, 18513-18515, 18518-18520, 18524, 19421—Amur Liman; ZIN 14684—Nadezhda Bay, Sakhalin; ZIN 14685—Kuegda Bay, Sakhalin; ZIN 14686—near Tamlev, Sakhalin Island; ZIN 18511, 19425—Baikal Bay, Sea of Okhotsk, Sakhalin; ZIN 18512—near Cape Nevelskoy, Tatar Strait; ZIN 18522, 18525, 18530, 21398—Sakhalinsky Bay, Sea of Okhotsk; ZIN 25122—Tym’ River from Nogliki to mouth, Sakhalin; ZIN 42548—Atlasovo [Tissiya], Aniva Bay, Sea of Okhotsk, Sakhalin; ZIN 47123—Nyisky Bay, northeastern Sakhalin; ZIN 49217—Chingai River, Sakhalin; ZIN 52821—Chaivo Bay, Sea of Okhotsk, Sakhalin; ZUMT 1387 (holotype of *Porocottus nigrescens*)—southern Sakhalin; ZUMT 21700 (holotype of *Porocottus ijimai*)—mouth of Susuya River, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

129. Genus ***MESOCOTTUS*** Gratzianov, 1907

196. ***Mesocottus haitej*** (Dybowski, 1869)—Ussuri sculpin. East Asia: everywhere in Amur River basin. Sakhalin:

rivers in northwestern part, including Amur River estuary (Taranetz 1937a,b; Berg 1949b; Nikolskii 1965; Nkiforov *et al*. 1987; Safronov & Nikiforov 2003; Pietsch *et al*. 2001, 2012; Sideleva *et al*. 2006b; Labay *et al*. 2015; Dyldin & Orlov 2017a). Freshwater, brackish. Common. Not fished.

Material: ZIN 49216—lover Chigai River, Sakhalin; ZIN 49219—Bakhura River, Sakhalin.

Conservation status: IUCN (Not Evaluated).

130. Genus ***MICROCOTTUS*** Schmidt, 1940

197. ***Microcottus sellaris*** (Gilbert, 1896)—Brightbelly sculpin. North Pacific and adjacent Arctic. Sakhalin: western and eastern parts, including Terpeniya Bay and Nevelskoy Strait (Schmidt 1950; Lindberg 1959; Lindberg & Krasyukova 1987; Neelov 1976, 1979; Sideleva *et al*. 2006a; Sokolovsky *et al*. 2007; Shuntov *et al*. 2014; Mecklenburg *et al*. 2016, 2018). Marine, brackish. Common. Not fished.

Material: ZIN 26487—Pil'vo, western Sakhalin; ZIN 38021, 38023, 38024—Terpeniya Bay, Sea of Okhotsk, Sakhalin.

Conservation status: IUCN (Not Evaluated).

131. Genus ***MYOXOCEPHALUS*** Tilesius, 1811

198. ***Myoxocephalus brandtii*** (Steindachner, 1867)—Snowy sculpin or Brandt's sculpin. Western North Pacific. Sakhalin: eastern and western parts, including Aniva Bay and Amur River estuary (Schmidt 1904, 1950; Tanaka 1908; Jordan *et al*. 1913; Soldatov & Lindberg 1930; Isii 1940; Lindberg 1959; Lindberg & Krasyukova 1987; Gudkov & Zavarzina 2006; Sideleva *et al*. 2006a; Safronov & Nikitin 2017a; Shuntov *et al*. 2014; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a). Marine, brackish. Common. Bycatch in commercial fisheries.

Remarks. In the past, this taxon was recorded from Sakhalin as *Cottus nivosus* Herzenstein, 1890 (Tanaka 1908; Jordan *et al*. 1913), but this name was later synonymised with *M. brandtii* (Neelov 1979; Parin *et al*. 2014; Dyldin & Orlov 2017a).

Material: ZIN 12195, 12196, 12200, 12284, 12285, 12287, 31643, 44396-44399—Aniva Bay, Sea of Okhotsk, southern Sakhalin; 12286—Kholmsk [Maoka], Tatar Strait, southwestern Sakhalin; ZIN 31636, 31641, 31642, 44337—Antonovo [Rakuma lagoon], Tatar Strait, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

199. #*Myoxocephalus jaok* (Cuvier, 1829)—Plain sculpin or Kamchatka sculpin. North Pacific and adjacent Arctic. Sakhalin: along all coasts, including Aniva, Terpeniya and Sakhalinsky bays, as well as Amur River estuary (Jordan & Evermann 1898; Jordan *et al*. 1913; Isii 1940; Schmidt 1950; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003, 2014; Gudkov & Zavarzina 2006; Sideleva *et al*. 2006a; Mecklenburg *et al*. 2016, 2018; Safronov & Nikitin 2017a; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Catania & Fong 2021; Kawai 2020). Marine, brackish, entering river mouths. Common. Bycatch in commercial fisheries.

Material: CAS-SU 18644—Korsakov, Aniva Bay; HUMZ 140295—Pil'tun Bay, Sakhalin; SRM KP-9342/6 PP-55/6—Aniva Bay, southern Sakhalin; ZIN 17503—Amur Liman; ZIN 17506—Sakhalinsky Bay, Sea of Okhotsk, northern Sakhalin; ZIN 19427, 20634—Baikal Bay, northwestern Sakhalin; 21972—Severnyi Bay, Sea of Okhotsk, northern Sakhalin; ZIN 31645—Antonovo [Rakuma lagoon], Tatar Strait, southwestern Sakhalin; ZIN 34288—mouth of Kitousi River, tributary of Shirokaya Pad' River, western Sakhalin; ZIN 39885, 44390-44395—Aniva Bay, southern Sakhalin; ZIN 44538—Cape Elizabeth, Sea of Okhotsk, northern Sakhalin.

Conservation status: IUCN (Not Evaluated).

200. ***Myoxocephalus polyacanthocephalus*** (Pallas, 1814)—Great sculpin. North Pacific and adjacent Arctic. Sakhalin: along all coasts, including Aniva and Terpeniya bays (Taranetz 1937a; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003; Sideleva *et al*. 2006a; Mecklenburg *et al*. 2016, 2018; Safronov & Nikitin 2017a; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Catania & Fong 2021). Marine, brackish, entering river mouths. Very common. Bycatch in commercial fisheries.

Remarks. Taranetz (1937a) recorded a subspecies *Myoxocephalus polyacanthocephalus ensiger* (Jordan & Starks, 1904) from the Sea of Okhotsk and the northern Sea of Japan, which Schmidt (1950) classified as a valid species *M. ensiger*. Later, Neelov (1979) synonymised this taxon with *M. polyacanthocephalus*.

Material: CAS-SU 18645—in Aniva Bay, approaching Korsakov, Sakhalin; ZIN 13958, 44409, 44413—Aniva Bay, Sea of Okhotsk, Sakhalin; ZIN 44406—Sea of Japan, southwestern Sakhalin; ZIN 44408—near Krasnogorsk, Tatar Strait, western Sakhalin; ZIN 44405—4 km east of Starodubskoye, Sea of Okhotsk, southeastern Sakhalin; ZIN 44411, 44412—near Starodubskoye, Mordvinov Bay, southeastern Sakhalin; ZIN 44419—Terpeniya Bay, Sea of Okhotsk, eastern Sakhalin.

Conservation status: IUCN (Not Evaluated).

201. #*Myoxocephalus stelleri* Tilesius, 1811—Steller's sculpin. North Pacific. Sakhalin: eastern and western parts, including Aniva Bay, and Amur River estuary (Schmidt 1904, 1950; Tanaka 1908; Jordan *et al*. 1913; Taranetz 1937a; Isii 1940; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003; Safronov & Nikiforov 2003; Gudkov *et al*. 2004; Gudkov & Zavarzina 2006; Sideleva *et al*. 2006a; Labay *et al*. 2014; Safronov & Nikitin 2017a; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Kawai 2020; UWFC 2020). Marine, brackish, often entering lower reaches of large rivers, including freshwater habitats, e.g. in southern Sakhalin (Lyutoga River). Very common. Bycatch in commercial fisheries.

Remarks. In the past, some authors recorded this taxon from Sakhalin as *M. raninus* Jordan & Starks, 1904 (Tanaka 1908; Isii 1940), which was later synonymised with *M. stelleri* (Parin *et al*. 2014; Dyldin & Orlov 2017a). Taranetz (1937a) mentioned two forms of Steller's sculpin: southern form from the Sea of Japan, and a northern form from the Sea of Okhotsk and Bering Sea; he considered the southern form as a subspecies *M. stelleri decastrensis* (Kner, 1865).

Material: HUMZ 139677—Severny Bay, northern Sakhalin; HUMZ 179270—near the Duet River estuary, southeastern Sakhalin; HUMZ 179356, 179547—Aniva Bay, southern Sakhalin; HUMZ 179443, 179469—Kholmsk, southwestern Sakhalin; HUMZ 183289—near Sima River, south of Starodubskoye, southeastern Sakhalin; HUMZ 186969, 186972—south of Tangi, western-central Sakhalin; HUMZ 186745, 186763, 186767—Duet River estuary, southeastern Sakhalin; HUMZ 187086—east of Sokol, southeastern Sakhalin; SRM KP-9289/2 PP-54/2—Mordvinov Bay, southeastern Sakhalin; UWFC 44864—near mouth of Toy River, west of Cape Elizabeth, northern Sakhalin; ZIN 12202, 12288—Kholmsk, Tatar Strait, southwestern Sakhalin; ZIN 12203, 12266, 12269, 12829, 44420, 44422, 44423—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 12267—Lyutoga River estuary, Aniva Bay, southern Sakhalin; ZIN 12952—Amur Liman, Sea of Okhotsk; ZIN 31637-31640, 44435—Antonovo [Rakuma lagoon], Tatar Strait, southwestern Sakhalin; ZIN 34287, 34357, 34529—Shirokaya Pad' River, western Sakhalin; ZIN 45410—Nevel'sk, southwestern Sakhalin; ZIN 31664 (as *M. stelleri decastriensis*)—Antonovo [Rakuma lagoon], Tatar Strait, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

202. *#*Myoxocephalus tuberculatus* Soldatov & Pavlenko, 1922—Shantar sculpin. Western North Pacific. Closest record to Sakhalin from Sakhalinsky Bay (Sideleva *et al*. 2006a). Marine, brackish.

Material: ZIN 20615 (male—lectotype and female—paralectotype)—Sakhalinsky Bay, Sea of Okhotsk, 54°17′N, 140°08′E.

Conservation status: IUCN (Data Deficient, 2017).

132. Genus ***POROCOTTUS*** Gill, 1859

203. *Porocottus japonicus* Schmidt, 1935—Japanese fringed sculpin. Western North Pacific. Sakhalin: from northern Tatar Strait including Alexandrovsk-Sakhalinsky to southern Sea of Okhotsk in Aniva Bay (Taranetz 1935, 1937a; Schmidt 1940; Neelov 1967, 1976, 1979; Lindberg & Krasyukova 1987; Yabe *et al*. 2004; Sideleva *et al*. 2006a; Shuntov *et al*. 2014; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Kawai 2020). Marine, brackish, entering lower reaches of rivers. Uncommon. Bycatch in commercial fisheries.

Remarks. The lectotype of this species (ZIN 26314) originates from western Sakhalin, Kitousi River estuary, tributary of Shirokaya Pad' River (Neelov 1976, 1979; Lindberg & Krasyukova 1987; Sideleva *et al*. 2006a).

In the original description (P. 177), the locality was given as „Chikhachev [De-Kastri] Bay and western coast of Sakhalin".

Material: HUMZ 179346, 182891-182893—Aniva Bay, southern Sakhalin; HUMZ 183002—Cape Meraputsy, Novikovo, Aniva Bay, southeastern Sakhalin; HUMZ 187991—north of Tomari, southwestern Sakhalin; ZIN 26309—Pil'vo, Sea of Japan, western Sakhalin; ZIN 26310—Shirokaya Pad' River, western Sakhalin; ZIN 26311, 26317—Alexandrovsk-Sakhalinsky, western Sakhalin; ZIN 26312, 26313, 26315—Shirokaya Pad' River, western Sakhalin; ZIN 26314 (lectotype, adult female)—western Sakhalin, Kitousi River estuary, tributary of Shirokaya Pad' River; ZIN 26314a (paralectotypes)—western Sakhalin, Kitousi River estuary, tributary of the Shirokaya Pad' River.

Conservation status: IUCN (Not Evaluated).

204. ***Porocottus minutus*** (Pallas, 1814)—Okhotsk fringed sculpin. Western North Pacific. Sakhalin: northern end of island, and Aniva Bay in southern part (Dyldin *et al*. 2018a, 2020a; Kawai 2020; UWFC 2020). Marine, brackish. rare. Not fished.

Material: HUMZ 185267, 185268—Korsakov, Aniva Bay, southern Sakhalin; HUMZ 188011, 188010—west side of Cape Yelizavety, northern tip of Sakhalin; UWFC 44804—west side of Cape Yelizavety, northern Sakhalin.

Conservation status: IUCN (Not Evaluated).

205. ***Porocottus tentaculatus*** (Kner, 1868)—Southern fringed. Western North Pacific. Sakhalin: western side from northern Tatar Strait and Alexandrovsk-Sakhalinsky to Kholmsk and southern Sea of Okhotsk at Aniva Bay (Taranetz 1937a; Schmidt 1940; Neelov 1976, 1979; Lindberg & Krasyukova 1987; Sideleva *et al*. 2006a; Dyldin & Orlov 2017a; Dyldin *et al*. 2018, 2020; Kawai 2020). Marine, entering lower reaches of rivers. Uncommon. Bycatch in commercial fisheries.

Material: HUMZ 179347, 179348—eastern Aniva Bay, southern Sakhalin; HUMZ 186769—Duet River estuary, southeastern Sakhalin; HUMZ 186838—south of Tangi, western-central Sakhalin; HUMZ 187015, 187016—Starodubskoye, southeastern Sakhalin; HUMZ 187080, 187091—east of Sokol, southeastern Sakhalin; HUMZ 188408—Korsakov, Aniva Bay, southern Sakhalin; ZIN 25461, 38272—Shirokaya Pad' River, western Sakhalin, Shirokaya Pad' River; ZIN 25463, 25465, 26308, 26316—Alexandrovsk-Sakhalinsky, western Sakhalin; ZIN 31687—Antonovo [Rakuma lagoon], Tatar Strait, southwestern Sakhalin; ZIN 38277—Aniva Bay, Sea of Okhotsk, Sakhalin; ZIN 43719, 44625—Sea of Okhotsk, Sakhalin.

Conservation status: IUCN (Not Evaluated).

133. Genus ***STELGISTRUM*** Jordan & Gilbert, 1898

206. ***Stelgistrum stejnegeri*** Jordan & Gilbert, 1898—Fur-seal sculpin. Western North Pacific. Sakhalin: eastern and western parts, including Sakhalinsky, Terpeniya, Mordvinova and Aniva bays, as well as Moneron Island (Jordan & Evermann 1898; Schmidt 1904, 1950; Jordan & Starks 1904a; Jordan *et al*. 1913; Taranetz 1937a; Ueno 1971; Lindberg & Krasyukova 1987; Sideleva *et al*. 2006a; Tsuruoka *et al*. 2009; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Lopez 2020; Orrell 2020; Catania & Fong 2021). Marine, brackish. Common. Not fished.

Remarks. Original description of this species by Jordan & Gilbert in Jordan & Evermann (1898: 1921) based on the unique holotype obtained on the Sea of Okhotsk side of Sakhalin (type locality: off Tyuleniy Island [Robben], Sea of Okhotsk, eastern Sakhalin).

Material: CAS-SU 7577—Aniva Bay, Sakhalin; UAM 4681—Sea of Okhotsk, Sakhalin; USNM 48236 (holotype)—off Tyulenii Island [Robben], Sea of Okhotsk, eastern Sakhalin; ZIN 12929—north of Terpeniya Cape, Sea of Okhotsk; ZIN 12930—near Bellingshausen Cape, Sea of Okhotsk; ZIN 12931—Terpeniya Bay, Sea of Okhotsk; ZIN 12932, 44166, 44167, 44649—Aniva Bay, Sea of Okhotsk, Sakhalin; ZIN 17624—Sakhalinsky Bay, Sea of Okhotsk, 54°17′N, 140°08′ E; ZIN 21453—near Sakhalinsky Bay, 59°12′N, 144°37′E; ZIN 29093—near Cape Elizabeth, Sea of Okhotsk; ZIN 31729—Antonovo [Rakuma lagoon], Tatar Strait, southwestern Sakhalin; ZIN 44165—Mordvinov Bay, Sea of Okhotsk, Sakhalin; ZIN 44168—Moneron Island, Sea of Japan; ZIN 44650—Sea of Japan, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

134. Genus ***TRIGLOPS*** Reinhardt, 1830

207. ***Triglops jordani*** (Schmidt, 1904)—Jordan's sculpin. Western North Pacific. Sakhalin: western and eastern parts, including Moneron Island and Aniva, Terpeniya and Sakhalinsky bays (Jordan & Starks 1904a; Schmidt 1904, 1950; Jordan *et al*. 1913; Isii 1940; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003, 2014; Sideleva *et al*. 2006a; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Orrell 2020). Marine, brackish. Common. Not fished.

Remarks. This species was recorded as *Prionistius macellus* (non Bean 1884) by Schmidt (1904) based on material from Aniva Bay (ZIN 12237–12239, 12242, 12928); the material was later reidentified as *T. jordani* (see Schmidt 1950).

Material: USNM 74729—Aniva Bay, approaching Korsakov, Sakhalin; USNM 74730—Tatar Strait, southwestern Sakhalin; ZIN 12237–12239, 12242, 12928, 33935, 44215-44217, 44223, 44230, 44231, 44233, 44234, 44239, 44241, 44351, 44352—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 12925—near Moneron Island, Sea of Japan; ZIN 17611, 17623—Sakhalinsky Bay, Sea of Okhotsk; ZIN 31698—Antonovo [Rakuma lagoon], Tatar Strait, southwestern Sakhalin; ZIN 44218, 44237—Mordvinov Bay, Sea of Okhotsk, eastern Sakhalin; ZIN 44220, 44221, 44245—Terpeniya Bay, Sea of Okhotsk, eastern Sakhalin; ZIN 44224, 44229, 44371, 44646—near Krasnogorsk, Tatar Strait, western Sakhalin; ZIN 44246, 44248, 44249—near Starodubskoye Village, Sea of Okhotsk, southeastern Sakhalin.

Conservation status: IUCN (Not Evaluated).

65. Family HEMITRIPTERIDAE Gill, 1865—Searavens or sailfin sculpins

135. Genus ***BLEPSIAS*** Cuvier, 1829

208. ***Blepsias cirrhosus*** (Pallas, 1814)—Silverspotted sculpin. North Pacific. Sakhalin: along all coasts, including Aniva and Terpeaniya bays (Schmidt 1904, 1950; Tanaka 1908; Isii 1940; Lindberg 1959; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003; Sideleva *et al*. 2006a; Labay *et al*. 2014; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Kawai 2020; Orrell 2020; UWFC 2020; Catania & Fong 2021). Marine, brackish. Common. Not fished.

Remarks. In the past, some authors (Tanaka 1908; Isii 1940; Schmidt 1950; Lindberg 1959) recorded this taxon as *Blepsias cirrhosus draciscus* or *Blepsias draciscus* Jordan & Starks, 1904; the latter was later treated as a junior synonym of *B. cirrhosus* (see Lindberg & Krasyukova 1987).

Material: CAS-SU 17174—Korsakov, Aniva Bay, Sakhalin (as *B. draciscus*); HUMZ 139581, 139703—Severny Bay, Sakhalin; HUMZ 142591—Lebyazhiya Bay, Cape Arka, Sakhalin; HUMZ 179343, 179344—Aniva Bay, southern Sakhalin; HUMZ 187934—south of Tangi, western-central Sakhalin; HUMZ 187938—Starodubskoye, southeastern Sakhalin; USNM 119863—Korsakov market, Sakhalin; UWFC 44929—west side of Cape Yelizavety, northern Sakhalin; ZIN 12193, 12326, 12328, 12953—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 12372, 12468, 12744—Kholmsk [Maoka], Tatar Strait, southwestern Sakhalin; ZIN 31579-31583—Antonovo [Rakuma lagoon], Tatar Strait, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

136. Genus ***HEMITRIPTERUS*** Cuvier, 1829

209. ***#Hemitripterus villosus*** (Pallas, 1814)—Shaggy sculpin. North Pacific. Sakhalin: along all coasts, including Aniva and Terpeniya bays (Schmidt 1904, 1950; Tanaka 1908; Jordan *et al*. 1913; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003; Gudkov *et al*. 2004; Sideleva *et al*. 2006b; Labay *et al*. 2014; Dyldin & Orlov 2017a; Safronov & Nikitin 2017a; Dyldin *et al*. 2018a, 2020a; Kawai 2020), as well as in

southern Sea of Okhotsk off Hokkaido, Japan (Tokranov & Orlov 2006). Marine, brackish. Common. Bycatch in commercial fisheries.

Material: HUMZ 186770—Duet River estuary, southeastern Sakhalin; SRM KP-9342/2 PP-55/2—3 km west of Kholmsk, Tatar Strait, southwestern Sakhalin; ZIN 12206, 44176, 44179—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 12250—Kholmsk [Maoka], Tatar Strait, southwestern Sakhalin; ZIN 44171, 44175, 44183—Terpeniya Bay, Sea of Okhotsk, eastern Sakhalin.

Conservation status: IUCN (Not Evaluated).

137. Genus ***NAUTICHTHYS*** Girard, 1858

210. ***Nautichthys pribilovius*** (Jordan & Gilbert, 1898)—Eyeshade sculpin. North Pacific and adjacent Arctic. Sakhalin: eastern and western parts, including Moneron Island as well as Sakhalinsky, Terpeniya and Aniva bays and Amur River estuary (Schmidt 1904, 1950; Jordan *et al*. 1913; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Sideleva *et al*. 2006a; Shuntov *et al*. 2003, 2014; Dyldin & Orlov 2017a; Dyldin *et al*. 2018, 2020a; Kawai 2020). Marine, brackish. Uncommon. Not fished.

Material: HUMZ 141190—Serverny Bay, northern Sakhalin; HUMZ 142592—Lebyazhiya Bay, Cape Arka, Sakhalin; ZIN 12218, 12841, 44152, 44153, 44156—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 12837—near Moneron Island, Sea of Japan; ZIN 12838—near Bellingshausen Cape, Sea of Okhotsk; ZIN 12840—near Rymnik Cape, Sea of Okhotsk, Sakhalin; ZIN 12845, 44751—Terpeniya Bay, Sea of Okhotsk, eastern Sakhalin; ZIN 44151—Mordvinov Bay, Sea of Okhotsk, southeastern Sakhalin; ZIN 44157—48°23′N, 141°53′E, Sea of Okhotsk, Sakhalin; ZIN 44754—southeastern Sakhalin.

Conservation status: IUCN (Not Evaluated).

66. Family AGONIDAE Swainson, 1839—Poachers

24. Subfamily AGONINAE Swainson, 1839—Poachers

138. Genus ***FREEMANICHTHYS*** Kanayama, 1991

211. ***Freemanichthys thompsoni*** (Jordan & Gilbert, 1898)—Cockscomb poacher. Western North Pacific. Sakhalin: eastern and western parts, including Sakhalinsky, Terpeniya and Aniva bays, as well as Amur River estuary (Schmidt 1904, 1950; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003; Dyldin *et al*. 2018a, 2020a). Marine, brackish. Common. Not fished.

Remarks. Originally described in the genus *Podothecus;* later Kanayama (1991) classified it in genus *Freemanichthys*.

Material: ZIN 12872, 24229—Sakhalinsky Bay, Sea of Okhotsk; ZIN 12873—Amur River estuary; ZIN 44968—Antonovo, Tatar Strait, southwestern Sakhalin; ZIN 31678, 31679, 31720, 33083—Aniva Bay, Sea of Okhotsk, southern Sakhalin.

Conservation status: IUCN (Not Evaluated).

139. Genus ***PODOTHECUS*** Gill, 1861

212. ***Podothecus sturioides*** (Guichenot, 1869)—Hawk poacher. Western North Pacific. Sakhalin: along all coasts, including Sakhalinsky, Terpeniya and Aniva bays, as well as Amur River estuary (Schmidt 1904, 1950; Tanaka 1908; Taranetz 1937a; Lindberg 1959; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003; Dyldin *et al*. 2018a, 2020a; Orrell 2020; Catania & Fong 2021). Marine, brackish. Common. Not fished but is eatable in Japan and consider prospective target of local amateur fisheries (Orlov 2008).

Remarks. In the past, Jordan & Starks (1895) described a new species on the basis of a single specimen (holotype) obtained off eastern Sakhalin: *Podothecus accipiter* Jordan & Starks, 1895. P. 816, pl. 88 (type locality: Tyule-

niy [Robin] Island, Terpeniya Bay, Sakhalin). Schmidt (1904, 1950), Tanaka (1908), Lindberg & Krasyukova (1987) for Sakhalin cited as the *P. accipiter* Jordan & Starks, 1895, or *P. gilberti* (Collett, 1895), the latter at present synonymised with *P. sturioides* (Kanayama 1991; Sheiko & Mecklenburg 2004; Dyldin *et al*. 2020a).

Material: CAS-SU 3835 (holotype of *P. accipiter*)—Tyulenii [Robin] Island, Terpeniya Bay, Sakhalin; CAS-SU 5714—west of Tyuleniy [Robben] Island, Sea of Okhotsk, eastern-central Sakhalin, as *Podothecus podothecus gilbert*; USNM 148833, 149561—in Tatar Strait, southwestern Sakhalin; USNM 148834, 148835, 149580—in Aniva Bay, near Korsakov, Sakhalin; ZIN 12297, 31677, 31719, 43508, 44808, 44809, 44814, 44816, 46128—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 24262—Sakhalinsky Bay, Sea of Okhotsk; ZIN 44801, 44804, 44959, 44961, 44963, 46124—Sea of Okhotsk, southeastern Sakhalin.

Conservation status: IUCN (Not Evaluated).

25. Subfamily ANOPLAGONINAE Gill, 1861—Alligatorfishes

140. Genus ***ASPIDOPHOROIDES*** Lacepède, 1801

213. ***Aspidophoroides bartoni*** Gilbert, 1896—Barton's alligatorfish. North Pacific and adjacent Arctic. Sakhalin: eastern and western parts, including Moneron Island, Terpeniya and Aniva bays, as well as Amur River estuary (Schmidt 1904, 1950; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003, 2014; Dyldin *et al*. 2018a, 2020a; Orrell 2020). Marine, brackish. Common. Not fished.

Remarks. According to some authors (Kanayama 1991; Mecklenburg *et al*. 2016, 2018), *A. bartoni* is a junior synonym of *A. monopterygius* (Bloch, 1786). If we follow them,, the distribution range of this species would include the North Pacific. Most recent authors (Tokranov & Orlov 2005; Sokolovsky *et al*. 2011; Glubokov & Orlov 2008) treat *A. bartoni* as a valid species in Far Eastern waters. We currently do not consider *A. monopterygius* as a member of the ichthyofauna of the North Pacific.

Material: USNM 149886, 149887—Terpeniya Cape [Patience], Sea of Okhotsk, eastern Sakhalin, as *A. monopterygius*; USNM 149891—Aniva Bay near Korsakov, Sakhalin, as *A. monopterygius*; ZIN 12291, 12896, 31821, 31823-31826—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 12897, 18913, 18926—Amur Liman; ZIN 12903—Rymnik Cape, Sea of Okhotsk, eastern Sakhalin; ZIN 12992, 12993, 31827, 31833—Terpeniya Bay, Sea of Okhotsk, eastern Sakhalin; ZIN 31814-31820—from Mordvinov Bay to Terpeniya Bay, eastern coast of Sakhalin; ZIN 18916, 18918—western Sakhalin, Tatar Strait; ZIN 31822, 31829, 31830, 43528, 43540, 43541, 43543, 44038, 44041, 44779—southwestern Sakhalin, Tatar Strait; ZIN 31828, 44039—Moneron Island, Sea of Japan; ZIN 43539—east of Terpeniya Peninsula.

Conservation status: IUCN (Not Evaluated).

26. Subfamily BRACHYOPSINAE Jordan & Evermann, 1898—Brachyopsins

141. Genus ***BRACHYOPSIS*** Gill, 1861

214. ***Brachyopsis segaliensis*** (Tilesius, 1809)—Longsnout poacher. Western North Pacific. Sakhalin: eastern and western parts, including Sakhalinsky, Terpeniya and Aniva bays, as well as Amur River estuary (Schmidt 1904, 1950; Tanaka 1908; Jordan *et al*. 1913; Lindberg 1959; Klyuchareva 1964; Lindberg & Krasyukova 1987; Safronov & Nikiforov 2003; Safronov & Nikitin 2017a; Kanayama 1991; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Kawai 2020; Orrell 2020; UWFC 2020). Marine, brackish, entering river mouths. Common, locally very common. Not fished.

Remarks. Tilesius (1809: 216, pl. 14) described this species based on specimens from Terpeniya Bay. Some authors (Tanaka 1908; Lindberg & Krasyukova 1987; Ueno 1971; Nakabo 2002) recorded it from Aniva bay and adjacent waters under the name of *B. rostratus* (Tilesius, 1813). Other authors (Schmidt 1950; Kanayama 1991; Parin *et al*. 2002; Sheiko & Mecklenburg 2004) synonymised *B. rostratus* with *A. segaliensis*. Schmidt (1950) mentioned that W.G. von Tilesius described the same species under four different names (*B. segaliensis*, *B. rostratus*, *Phalangistes fusiformis* Tilesius in Pallas, 1814, and *Agonus laevigatus* Tilesius, 1813), with *B.*

segaliensis as the senior synonym. The description of *P. fusiformis* was based on specimens from Aniva Bay and the Kuril Islands, and *Agonus laevigatus* was based on individuals from Terpeniya Bay.

Material: HUMZ 188002 (as *B. rostratus*)—north side of Cape Marii, northern Sakhalin; USNM 148841—Korsakov market, Aniva Bay, Sakhalin; UWFC 44794—environs of Lake Uspenskoye, inland from Sakhalinsky Bay, northern Sakhalin; ZIN 12320, 12322, 31801-31803—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 18009—Amur Liman; ZIN 19024—Sakhalinsky Bay, Sea of Okhotsk; ZIN 31683—Antonovo, Sea of Japan, southwesterm Sakhalin; ZIN 43493—Starodubskoye, Sea of Okhotsk, southeastern Sakhalin.

Conservation status: IUCN (Not Evaluated).

142. Genus ***OCCELLA*** Jordan & Hubbs, 1925

215. *Occella dodecaedron* (Tilesius, 1813)—Bering poacher. North Pacific and adjacent Arctic. Sakhalin: eastern and western parts, including Sakhalinsky, Terpeniya and Aniva bays, as well as Amur River estuary (Schmidt 1904, 1950; Tanaka 1908; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Kanayama 1991; Dyldin & Orlov 2017a; Dyldin *et al*. 2018, 2020a; UWFC 2020). Marine, brackish. Common. Not fished.

Material: UWFC 44795—environs of Lake Uspenskoye, inland from Sakhalinsky Bay, northern Sakhalin; ZIN 12875—Terpeniya Bay, Sea of Okhotsk, eastern Sakhalin; ZIN 12876, 31807-31809—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 18897—Amur Liman; ZIN 18901—Sakhalinsky Bay, Sea of Okhotsk; ZIN 18903—Nevelskoy Cape, Tatar Strait; ZIN 28981—Nevelskoy Strait.

Conservation status: IUCN (Not Evaluated).

143. Genus ***PALLASINA*** Cramer, 1895

216. *Pallasina barbata* (Steindachner, 1876)—Tubenose poacher. North Pacific and adjacent Arctic. Sakhalin: eastern and western parts, including Sakhalinsky, Terpeniya and Aniva bays, as well as Amur River estuary (Schmidt 1904, 1950; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Kanayama 1991; Gudkov *et al*. 2004—as *P. aix*; Dyldin & Orlov 2017a; Safronov & Nikitin 2017a—as *P. aix*; Dyldin *et al*. 2018a, 2020a; Kawai 2020; Orrell 2020; UWFC 2020; Catania & Fong 2021). Marine, brackish. Common. Not fished.

Remarks. Kanayama (1991) revised the family Agonidae in the North Pacific, and confirmed that the nominal species *Pallasina aix* Starks, 1896 and *Pallasina eryngia* Jordan & Richardson, 1907 are junior synonyms of *P. barbata*, based on morphological data. This was later confirmed by several authors (e.g., Sheiko & Mecklenburg 2004).

Material: CAS-SU 26762—Korsakov market, Sakhalin; HUMZ 187933—Starodubskoye, southeastern Sakhalin; HUMZ 179215, 188424—north of Baikal Bay, Western North Sakhalin; USNM 148796—Korsakov market, Sakhalin; UWFC 44793—environs of Lake Uspenskoye, inland from Sakhalinsky Bay, northern Sakhalin; UWFC 44805, 44930—west side of Cape Yelizavety, northern Sakhalin; ZIN 12308—Aniva Bay, Sea of Okhotsk, southern Sakhalin; ZIN 12892—Amur Liman; ZIN 12893, 31799—Terpeniya Bay, Sea of Okhotsk; ZIN 29471—Sakhalinsky Bay, Sea of Okhotsk; ZIN 31797—Kholmsk, Tatar Strait, southwestern Sakhalin; ZIN 31800—Starodybskoye, Sea of Okhotsk, southeastern Sakhalin.

Conservation status: IUCN (Not Evaluated).

144. Genus ***TILESINA*** Schmidt, 1904

217. *Tilesina gibbosa* Schmidt, 1904—Humpback poacher. Western North Pacific. Sakhalin: western and southeastern parts, including Aniva and Terpeniya bays (Schmidt 1904; Tanaka 1908; Jordan *et al*. 1913; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Kanayama 1991; Dyldin *et al*. 2018a, 2020a; Catania & Fong 2021). Marine, brackish. Common. Not fished.

Material: CAS-SU 16751-16753—in Tatar Strait, southwestern Sakhalin; ZIN 31701—Aniva Bay, Sea of Okhotsk; ZIN 31795, 43488, 44798-44800—western and southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

27. Subfamily HYPSAGONINAE Gill, 1861—Dragon poachers

145. Genus ***AGONOMALUS*** Guichenot, 1866

218. ***Agonomalus jordani*** Jordan & Starks, 1904—Jordan's poacher. Western North Pacific. Sakhalin: western and eastern parts, including Aniva, Mordvinov and Terpeniya bays (Schmidt 1904, 1950; Tanaka 1908; Jordan *et al*. 1913; Taranetz 1937a; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Kanayama 1991—in genus *Hypsaganus*; Shuntov *et al*. 2003, 2014; Dyldin *et al*. 2018a, 2020a). Marine, brackish. Common. Not fished.

Remarks. This species was originally described by Schmidt (1904) as *Agonomalus jordani* in October 1904 (type locality: several locations including Aniva Bay, Sea of Okhotsk, Sakhalin), but a few months earlier in February 1904 by Jordan & Starks (1904b) (see Fricke *et al*. 2021a).

Material: ZIN 12869, 31786-31788—Aniva Bay, Sea of Okhotsk; 31789—Mordvinov Bay, southeastern Sakhalin; ZIN 31790, 31791, 43669—Terpeniya Bay, Sea of Okhotsk; ZIN 31792—Sea of Japan, Sakhalin.

Conservation status: IUCN (Not Evaluated).

219. ***Agonomalus proboscidalis*** (Valenciennes, 1858)—Proboscidean poacher. Western North Pacific. Sakhalin: western part north to Amur River estuary, and eastern part north to Terpeniya Bay, including Aniva Bay and Moneron Island (Schmidt 1904; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Shuntov *et al*. 2014; Dyldin *et al*. 2018a, 2020a). Marine, brackish. Uncommon. Not fished.

Remarks. Some authors (Kanayama 1991; Nakabo 2002; Shinohara *et al*. 2012) classified this species into *Hypsagonus* Gill, 1861, and treated *Agonomalus* as a junior synonym of that genus.

Material: ZIN 12864—Moneron Island, Sea of Japan; ZIN 31715, 31716—Aniva Bay, Sea of Okhotsk; ZIN 31793—Terpeniya Bay, Sea of Okhotsk; ZIN 46143—south of Krasnogorsk, Sea of Japan, western Sakhalin.

Conservation status: IUCN (Not Evaluated).

67. Family CYCLOPTERIDAE Bonaparte, 1831—Lumpfishes

28. Subfamily LIPAROPSINAE Garman, 1892—Smooth lumpsuckers

146. Genus ***APTOCYCLUS*** De la Pylaie, 1835

220. ***Aptocyclus ventricosus*** (Pallas, 1769)—Smooth lumpsucker. North Pacific. Sakhalin: southwestern and eastern parts, including Aniva Bay (Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003, 2014; Solomatov & Orlov 2018; Dyldin *et al*. 2018b, 2020a; Kim Sen Tok & Kim A. 2019). Marine, brackish. Common. Not fished in Russia but has some commercial importance in Japan (Orlov & Tokranov 2008).

Material: ZIN 33642—Antonovo, Sea of Japan, southwestern Sakhalin.

Conservation status: IUCN (Not Evaluated).

29. Subfamily EUMICROTREMINAE Oku, Imamura & Yabe, 2017—Spiny lumpsuckers

147. Genus ***EUMICROTREMUS*** Gill, 1862

221. ***Eumicrotremus schmidti*** Lindberg & Legeza, 1955—Schmidt's lumpsucker. Western North Pacific. Sakhalin: throughout eastern part, including Terpeniya and Aniva bays, as well as Amur River estuary (Schmidt 1904—in part, as *E. orbis*; Popov 1928—in part, as *E. orbis* and *E. birulai*; Lindberg & Legeza 1955; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Shuntov *et al*. 2003; Mecklenburg & Sheiko 2003; Dyldin *et al*. 2018b, 2020a; Voskoboynikova & Orlovskaya 2020). Marine, brackish. Common. Not fished.

Remarks. Lindberg & Legeza (1955) described this species on the basis of syntypes including the specimen ZIN 22009 from Gizhiginskaya Bay, Shelikhov Gulf, Sea of Okhotsk, Russia, which was later selected as the lectotype (Mecklenburg & Sheiko 2003). However, the paralectotypes (ZIN 12917-12920, 12957, 18024, 22009, 22010, 24253, 25384, 33673) were collected from Bellingshausen Cape, north of Cape Terpeniya, at Cape Ekaterina, and Amur River estuary (Mecklenburg & Sheiko, 2003; Voskoboinikova & Orlovskaya 2020).

Material: ZIN 12918 (paralectotypes)—Sakhalinsky Bay, Catherine Cape, Sea of Okhotsk, (Schmidt 1904; Popov 1928, as *E. orbis*); ZIN 12919 (paralectotypes)—northern Amur Liman, (Schmidt 1904; Popov 1928, as *E. orbis*); ZIN 12920 (paralectotypes)—Bellingshausen Cape, Sea of Okhotsk, eastern Sakhalin, Popov (1928, 1 specimen, as syntype of *E. birulai*); ZIN 33673 (paralectotypes)—Terpeniya Bay, Sea of Okhotsk; ZIN 34167—at Leveron Cape, eastern coast of Sakhalin; ZIN 44666—eastern Sakhalin.

Conservation status: IUCN (Not Evaluated).

68. Family LIPARIDAE Gill, 1861—Snailfishes

148. Genus ***LIPARIS*** Scopoli, 1777

222. ***Liparis agassizii*** Putnam, 1874—Agassiz's snailfish. Western North Pacific. Sakhalin: southeastern and western parts, including Terpeniya, Mordvinov and Aniva bays (Tanaka 1908; Taranetz 1937a; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Pitruk 1990; Shuntov *et al*. 2003; Chernova *et al*. 2004; Chernova 2008; Dyldin & Orlov 2017a; Dyldin *et al*. 2018b, 2020a; Kawai 2020; Harvard University & Morris 2021). Marine, brackish. Common. Not fished.

Remarks. Putnam (1874: 339) described this species based on syntypes obtained from the Tatar Strait, Sakhalin. Kido (1988) and Parin *et al*. (2002) considered *L. takashimensis* and *L. tunicatiformis* as junior synonyms of *L. agassizii*. However, both are currently considered as valid (based on a neotype designation for *L. takashimensis* from Aniva Bay) (Chernova 2008).

Material: HUMZ 186893, 186894 –Tri Brata Rocks, Alexandrovsk-Sakhalinsky, western-central Sakhalin; HUMZ 186958, 187947—Starodubskoye, southeastern Sakhalin; HUMZ 187939—east of Sokol, southeastern Sakhalin; HUMZ 187941, 187944, 187945—Duet River estuary, southeastern Sakhalin; MCZ 32262 (syntype)—Sakhalin Channel, Tatar Strait; ZIN 29110—eastern Sakhalin, Sea of Japan.

Conservation status: IUCN (Not Evaluated).

223. ***Liparis dubius*** Soldatov, 1930—Whitespotted snailfish. Western North Pacific. Sakhalin: southern part in Aniva Bay (Lindberg 1959; Lindberg & Krasyukova 1987; Pitruk 1990; Parin *et al*. 2014; Dyldin & Orlov 2017a; Dyldin *et al*. 2018b, 2020a); ?Terpeniya Bay in eastern part (Parin *et al*. 2014). Marine, brackish. Rare. Not fished.

Remarks. The current distribution range of *L. dubius* needs additional study, since the taxon was previously regarded as a junior synonym of *L. ochotensis* Schmidt, 1904 (Kido 1988; Parin *et al*. 2002). It was only recently revalidated (Chernova *et al*. 2004; Chernova 2008; Parin *et al*. 2014).

Conservation status: IUCN (Not Evaluated).

224. ***Liparis kusnetzovi*** Taranetz, 1936—Kuznetzov's snailfish. Western North Pacific. Sakhalin: western part north to northern Tatar Strait; eastern part north to Pil'tun Bay, including Aniva Bay (Taranetz 1936a, 1937a; Ueno 1971; Lindberg & Krasyukova 1987; Chernova 1998, 2008; Balanov & Epur 2011; Parin *et al*. 2014; Dyldin & Orlov 2017a; Dyldin *et al*. 2018a, 2020a; Mukhametova 2020; Kawai 2020). Marine, brackish. Uncommon. Not fished.

Remarks. Taranetz (1936a: 86) described this species based on 12 syntypes captured off southwestern Sakhalin (type locality: southwest of Sakhalin, reefs near Shirokaya pad', Russia). Subsequently, Chernova (2008) selected the specimen ZIN 25482 as the lectotype.

Material: HUMZ 186998—Starodubskoye, southeastern Sakhalin; HUMZ 187092, 187093—east of Sokol, southeastern Sakhalin; ZIN 25482 (lectotype), 25482-A (paralectotypes)—southwestern Sakhalin, reefs near Shirokaya pad'.

Conservation status: IUCN (Not Evaluated).

225. ***Liparis ochotensis*** Schmidt, 1904—Okhotsk snailfish. North Pacific. Sakhalin: North Pacific. Sakhalin: eastern and western parts, including Terpeniya and Aniva bays (Schmidt 1904, 1950; Tanaka 1908; Gilbert & Burke 1912; Jordan *et al*. 1913; Burke 1930; Lindberg 1959; Ueno 1971; Lindberg & Krasyukova 1987; Pitruk 1990; Chernova 1998; Shuntov *et al*. 2003; Chernova *et al*. 2004; Safronov & Nikiforov 2017a; Dyldin & Orlov 2017a; Dyldin *et al*. 2018b, 2020a; Orrell 2020; Kawai 2020). Marine, brackish. Common. Not fished.

Remarks. Schmidt (1904: 163, fig. 11) described this species based on syntypes from different parts of Sakhalin (type locality: Sea of Okhotsk north of Cape Terpeniya [Patience], near Popov Point, eastern Sakhalin). Chernova (1998) selected the specimen ZIN 12963 as the lectotype. Schmidt (1904) gave a distribution range from the Amur River estuary and Okha region (northern Sakhalin) to Terpeniya Bay in Sea of Okhotsk; Schmidt (1950) also recorded the species from Aniva Bay. Gilbert & Burke (1912) confirmed the presence of *L. ochotensis* in Aniva Bay based on specimens collected during the «*Albatross*» expedition in 1906. The actual distribution range of *L. ochotensis* needs additional study. Some authors (Sheiko & Fedorov 2000; Kido 1988; Chernova *et al*. 2004) included the following nominal species as junior synonyms: *L. dubius* Soldatov, 1930*, L. ingens* Gilbert & Burke, 1912, *L. meridionalis* Schmidt, 1950, *L. niger* Soldatov & Lindberg, 1930 and *L. rhodosoma* Burke, 1930. However, they are now all recognized as valid species (Chernova 2008; Parin *et al*. 2014; Fricke *et al*. 2021a).

Material: HUMZ 107083, 107084—Terpeniya Bay, off Sakhalin; USNM 74683, 74688—Korsakov, Aniva Bay, Sakhalin; ZIN 12963 (lectotype), 12963A (paralectotypes)—Sea of Okhotsk north of Cape Terpeniya [Patience], near Popov Point, eastern Sakhalin; ZIN 12964 (paralectotype)—southern Sakhalinsky Bay; ZIN 12965 (paralectotype)—near Cape Rumnik; ZIN 42384—Aniva Bay, Sea of Okhotsk; ZIN 42385—Terpeniya Bay, Sea of Okhotsk, eastern Sakhalin.

Conservation status: IUCN (Not Evaluated).

226. ***Liparis tessellatus*** (Gilbert & Burke, 1912)—Cubed snailfish. Western North Pacific. Sakhalin: southeastern part, along west side north to Alexandrovsk-Sakhalinsky (Schmidt 1904—in part as *L. pulchellus*; Quast & Hall 1972—as *L. pulchellus*; Lindberg 1959; Lindberg & Krasyukova 1987; Ueno 1971; Kido 1988; Pitruk 1990; Shuntov *et al*. 2003; Chernova *et al*. 2004; Parin *et al*. 2014; Dyldin *et al*. 2018b, 2020a). Marine, brackish. Rare. Not fished.

Remarks. On the basis of two specimens in ZIN, Schmidt (1904) recorded this species from Aniva Bay as *L. pulchellus* (non Ayres, 1855). Lindberg & Krasyukov (1987) reported it from the same area as *L. meridionalis* (non Schmidt 1950). Recently these specimens were assigned to the species *L. tessellatus*, following Kido (1988).

Material: ZIN 42392—Mordviniv Bay, Sea of Okhotsk, Sakhalin.

Conservation status: IUCN (Not Evaluated).

Conclusion

According to various studies (Nikolskii 1889; Berg 1949; Voronov 1982; Safronov & Nikiforov 1995, 2003; Nikiforov 2001; Pietsch *et al*. 2012; Nikitin 2012; Labay *et al*. 2015), up to 120 species of freshwater and brackish-water fishes were listed from Sakhalin, including anadromous species. After the latest taxonomic revision by Dyldin & Orlov (2016a, b, 2017a, b), 175 species were found to inhabit coastal and inland waters of Sakhalin (Figure 7).

In the present study, another 54 species are recorded from Sakhalin and the adjacent southern Sea of Okhotsk: *Alopias vulpinus, Triakis scyllium, Rhizoprionodon acutus, Sphyrna zygaena, Squalus suckleyi, Beringraja pulchra, Muraenesox cinereus, Sardinops melanosticta, Engraulis japonicus, Gadus chalcogrammus, Pampus argenteus, P. punctatissimus, Auxis thazard, Scomber japonicus, Trichiurus japonicus, Syngnathus schlegeli, Hippoglossoides dubius, Lobotes surinamensis, Takifugu stictonotus, Oplegnathus fasciatus, Echeneis naucrates, Pagrus major, Ditrema temminckii, Hadropareia middendorffii, Neozoarces pulcher, N. steindachneri, Stichaeus grigorjewi, S. nozawae, S. ochriamkini, Leptoclinus maculatus, Lumpenus sagitta, Opisthocentrus tenuis, O. zonope, Ammodytes japonicus, Sebastes nivosus, S. owstoni, S. taczanowskii, Lepidotrigla microptera, Astrocottus regulus, Gymnocanthus herzensteini, Icelus cataphractus, I. ochotensis, Microcottus sellaris, Myoxocephalus tuberculatus, Porocottus minutus, Freemanichthys thompsoni, Podothecus sturioides, Aspidophoroides bartoni, Tilesina gibbosa, Agonoma-*

lus jordani, A. proboscidalis, Aptocyclus ventricosus, Eumicrotremus schmidti, Liparis tessellatus. this corresponds to an increase in the number of species known from the island by 30%. At the same time, we did not include in the list of Sakhalin ichthyofauna the species *Silurus soldatovi* Nikolskii & Soin, 1948 (Soldatov's catfish), previously recorded from the northwestern part of the island, because this record lacks documentation. Another species that was previously erroneously recorded from Sakhalin is *Glossogobius olivaceus* (Temminck & Schlegel, 1845). In addition, according to a recent study on pufferfishes in Japan by Matsuura (2017), the species previously identified as *Takifugu niphobles* (Jordan & Snyder, 1901) and *T. poecilonotus* (Temminck & Schlegel, 1850) are junior synonyms of *T. alboplumbeus*. Thus, following the latest faunal summary (Dyldin & Orlov 2016a, b, 2017a, b), 172 species were previously recorded from Sakhalin.

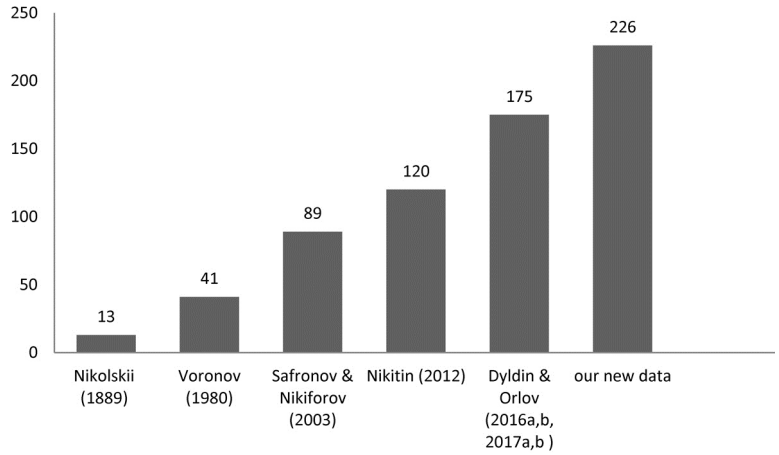

FIGURE 7. The total number of brackish-water and freshwater fish species of Sakhalin, according to various sources and our data

In the present study, we focused on the 160 species that were collected at Sakhalin during the past 200 years, which are stored in various natural history museums (see Table 1). Among these species, a total of 36 are represented by primary types collected from Sakhalin. Some of them were described based on several syntypes from different regions (e.g., from Sakhalin and Japan) without further designation of a lectotype (Table 2).

Representatives of two orders, i.e., Perciformes (100 species, 44.3%) and Cypriniformes (34 species, 15.0%), are most abundant, including more than half (59.3%) of all species of the Sakhalin ichthyofauna. The next three orders, i.e., Pleuronectiformes (19 species, 8.4%), Salmoniformes (14 species, 6.2%) and Gobiiformes (13 species, 5.8%), together comprise 20.4% of the total number of species. Six orders—Carcharhiniformes (4 species), Clupeiformes (4 species), Osmeriformes (6 species), Gadiformes (4 species), Scombriformes (5 species) and Tetraodontiformes (6 species) are represented by 4-6 species each (14.6% of the total species number). The remaining 15 orders are represented by 1-3 species each and comprise slightly more than 5% of the total species number.

Considering the ecological tolerance of species to various salinities in fresh (inland), brackish (coastal) and marine waters of Sakhalin, the following six ecological groups can be distinguished: freshwater (28 species), freshwater and brackish (20 species), marine and brackish (141 species), anadromous (four species), anadromous with landlocked forms (18 species), and amphidromous (15 species) (Figure 8).

The ichthyofauna of Sakhalin includes 141 species (about 62%) of marine origin that may tolerate waters with lower salinity, often entering estuaries and lower reaches of rivers. Only 28 fish species (slightly more than 12%) spend their whole life cycle in freshwater habitats. Three of them, i.e., *Pseudorasbora parva*, *Abbottina rivularis* and *Lefua nikkonis*, are restricted to the southern part of Sakhalin in the Vavai-Chibisan lakes and adjacent waters. These species were unintentionally introduced to Sakhalin, both originating from Japan (Hokkaido and northern Honshu; introduced between 1905–1945), and from the Amur River basin (Russia).

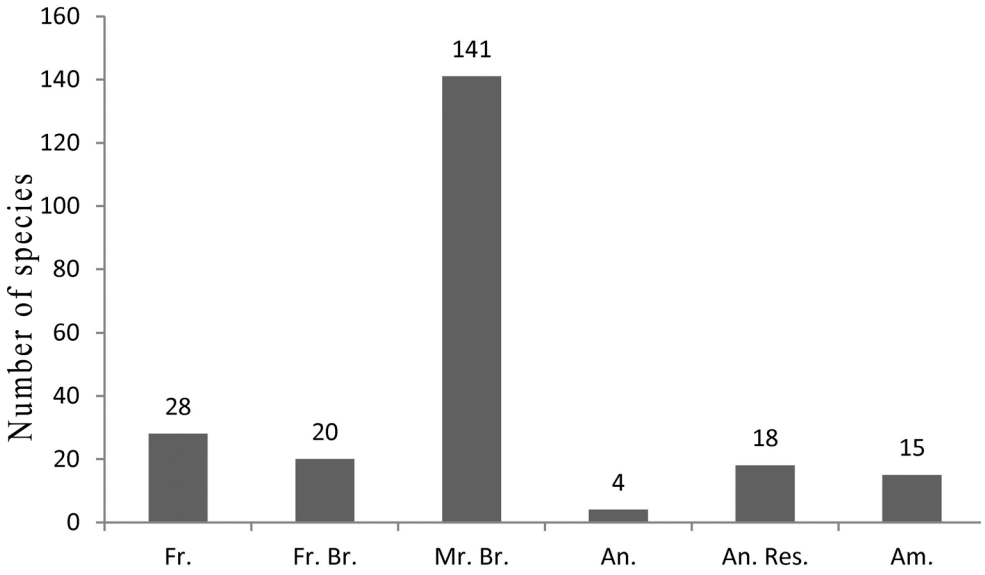

FIGURE 8. Species by habitat. Abbrevations: Fr.—freshwater species, Fr.-Br.—freshwater and brackish species, Mr.-Br.—marine and brackish species, An.—anadromous species, An-Res.—anadromous species with landlocked forms, Am—amphidromous species.

TABLE 2. List of brackish-water and freshwater fish species described from Sakhalin, and their current taxonomic status.

Name in original description	Current status*
1. *Leuciscus sachalinensis* Nikolskii, 1889	*Pseudaspius sachalinensis* (Nikolskii, 1889)
2. *Phoxinus percnurus sachalinensis* Berg, 1907	*Rhynchocypris sachalinensis* (Berg, 1907)
3. *Salvelinus vasiljevae* Safronov & Zvezdov, 2005	*S. vasiljevae* Safronov & Zvezdov, 2005
4. *Hypomesus olidus bergi* Taranetz, 1936	Synonym of *Hypomesus olidus* (Pallas, 1814)
5. *Hypomesus sakhalinus* Hamada, 1957	Synonym of *H. olidus* (Pallas, 1814)
6. *Chloea aino* Schmidt, 1904	Synonym of *Gymnogobius urotaenia* (Hilgendorf, 1879)
7. *Microstomus stelleri* Schmidt, 1904	*Glyptocephalus stelleri* (Schmidt, 1904)
8. *Acanthopsetta nadeshnyi* Schmidt, 1904	*A. nadeshnyi* Schmidt, 1904
9. *Hippoglossoides herzensteini* Schmidt, 1904	*Cleisthenes herzensteini* (Schmidt, 1904)
10. *Hippoglossoides dubius* Schmidt, 1904	*H. dubius* Schmidt, 1904
11. *Limanda asprella* Hubbs, 1915	Synonym of *Limanda aspera* (Pallas, 1814)
12. *Limanda sakhalinensis* Hubbs, 1915	*L. sakhalinensis* Hubbs, 1915
13. *Limanda korigarei* Hubbs, 1915	Synonym of *L. sakhalinensis* Hubbs, 1915
14. *Limanda schrenki* Schmidt, 1904	*Pseudopleuronectes schrenki* (Schmidt, 1904)
15. *Lycenchelys brachyrhynchus* Schmidt, 1904	*Davidijordania brachyrhyncha* (Schmidt, 1904)
16. *Stichaeus ochriamkini* Taranetz, 1935	*S. ochriamkini* Taranetz, 1935
17. *Plectobranchus diaphanocarus* Schmidt, 1904	Synonym of *Leptoclinus maculatus* (Fries, 1837)
18. *Pungitius polyakovi* Shedko, Shedko & Pietsch, 2005	*P. polyakovi* Shedko, Shedko & Pietsch, 2005
19. *Gasterosteus tymensis* Nikolskii, 1889	*Pungitius tymensis* (Nikolskii, 1889)
20. *Cottus amblystomopsis* Schmidt, 1904	*C. amblystomopsis* Schmidt, 1904
21. *Icelus uncinalis crassus* Andriashev, 1937	Synonym of *Icelus ochotensis* Schmidt, 1927
22. *Porocottus nigrescens* Tanaka, 1908	Synonym of *Megalocottus taeniopterus (*Kner, 1868)
23. *Porocottus ijimai* Tanaka, 1908	Synonym of *Megalocottus taeniopterus* (Kner, 1868)

.....continued on the next page

TABLE 2. (continued)

Name in original description	Current status*
24. *Myoxocephalus tuberculatus* Soldatov & Pavlenko, 1922	*M. tuberculatus* Soldatov & Pavlenko, 1922
25. *Porocottus japonicus* Schmidt, 1935	*P. japonicus* Schmidt, 1935
26. *Stelgistrum stejnegeri* Jordan & Gilbert, 1898	*S. stejnegeri* Jordan & Gilbert, 1898
27. *Podothecus accipiter* Jordan & Starks, 1895	Synonym of *Podothecus sturioides* (Guichenot, 1869)
28. *Agonus segaliensis* Tilesius, 1809	*Brachyopsis segaliensis* (Tilesius, 1809)
29. *Agonus rostratus* Tilesius, 1813	Synonym of *Brachyopsis segaliensis* (Tilesius, 1809)
30. *Phalangistes fusiformis* Tilesius, 1814	Synonym of *B. segaliensis* (Tilesius, 1809)
31. *Agonus laevigatus* Tilesius, 1813	Synonym of *B. segaliensis* (Tilesius, 1809)
32. *Agonomalus jordani* Schmidt, 1904	Synonym of *Agonomalus jordani* Jordan & Starks, 1904
33. *Eumicrotremus schmidti* Lindberg & Legeza, 1955	*E. schmidti* Lindberg & Legeza, 1955
34. *Liparis agassizii* Putnam, 1874	*L. agassizii* Putnam, 1874
35. *Liparis kusnetzovi* Taranetz, 1936	*L. kusnetzovi* Taranetz, 1936
36. *Liparis ochotensis* Schmidt, 1904	*L. ochotensis* Schmidt, 1904

Note: *The current status follows Dyldin & Orlov (2017b) and Fricke *et al*. (2021a).

Another group of fishes spend their entire life cycle (including reproduction) in freshwater habitats, but they may enter brackish waters for feeding or foraging migrations. This group includes 20 species (about 9%).

Anadromous species, either with or without landlocked forms, include 22 species (slightly more than 10%). There are 15 amphidromous species (slightly more than 6.5%) which regularly migrate between freshwater and the sea (in both directions), with reproduction and feeding migrations into brackish and freshwater habitats.

Based on the data obtained, it appears that the freshwater and brackish water ichtyofauna of Sakhalin is characterized by an unusually high biodiversity compared with other regions of Russia; it includes more than 31% of the species in the entire territory of Russia (719 native fishes, see Dyldin *et al*. 2020b), or 1.25% of the worldwide freshwater ichthyofauna (18,075 species, see Fricke *et al*. 2021a).

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