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M.S. Dementiev

**LIST OF SPECIES OF WATER ANIMALS
CENTRAL PART OF THE NORTH CAUCASUS**

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Reviewers:

doctor of biological sciences, professor E.N. Ponomareva (AGPU)

doctor of biological sciences, professor M.P. Ilyukh (SKFU)

doctor of biological sciences, professor M.M. Shakhmurzov (KBAA)

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Specialty of the university: a teacher of biology and chemistry, a biologist, specialization of hydrobiology, candidate of biological (03.00.10 - ichthyology - factory cultivation of fish larvae, VNIIPRH), senior scientific worker (ichthyology), doctor of Agricultural Sciences. (06.02.02 - feeding of farm animals and fodder technology - factory farming of fish larvae, KubSAU), professor (in the department of zoology), professor of the Department of Ecology and Nature Management of the IMIEN SKFU, member of the Ecological Congress of Stavropol, Academician of the Russian Academy of Natural Sciences, Academician of the Russian Ecological Academy, member of the environmental commission of Stavropol, member of the editorial boards of three Russian scientific journals at the VAK level, member of the expert council of the International Association of Scientists, Teachers and Specialists, member of the expert group on the environment of the Open Government of the Russian Federation, Member of the Scientific Council for Agricultural Sciences of the professors' meeting of the Russian Federation, author of 400 publications, 3 patents. E-mail: dement@mail.ru.

FOREWORD

The basis of this work was the materials of thirty years of practical and scientific work (since the 1980 s of the last century) on the reservoirs and fish farms in the region under study. These are personal records, as well as data from research reports of Krasnodar Research Institute of Fish Industry (KrasNIIR), All-Union Scientific Research Institute of Irrigation Fish Culture (VNIIR), Azov Scientific Research Institute of Fisheries (AZNIIRKH), research and production cooperative "Plus" (NPK "Plus") and other organizations. The author was the leader or the responsible executor of these research works.

In addition to this, determinants and many other publications on species biodiversity of the studied region were used. In this connection, it should be noted and expressed great gratitude to the scientists who dedicated their studies to the aquatic animals of the region from Adygea, Kabardino-Balkaria, Kalmykia, Karachay-Cherkessia, Krasnodar and Stavropol region, Rostov region and North Ossetia (fig. 1). Technical possibilities do not allow to give a full list of works of respected colleagues, since their number is huge. But they remotely participate in the study. Without using their materials, both published and written by hand to the author, such a complete list could not be compiled.

The names of species correspond to international practice on the basis of existing databases - World Register of Marine Species (WoRMS), Integrated Taxonomic Information System (ITIS), Fauna Europaea (FaEu), Pan-European Species directories Infrastructure (PESI portal), Wikispecies, ZipcodeZoo and some others.

In cases where the validity of the species was different in international databases and Russian sources, preference was always given to international bases. This is mainly due to the lack of a generally accepted

modern understanding of the species as a systematic unit. In particular, the literature increasingly declares the discovery of new species, the validity of which is recognized essentially only by the authors of these works. Moreover, there are facts when "newly emerged" species are recognized in the international sense as one species. All animals are described in the most simplified systematic sequence with the approach to the traditional. This is due to the fact that modern zoological science offers many new proposals on the systematics of animals, especially their individual groups.

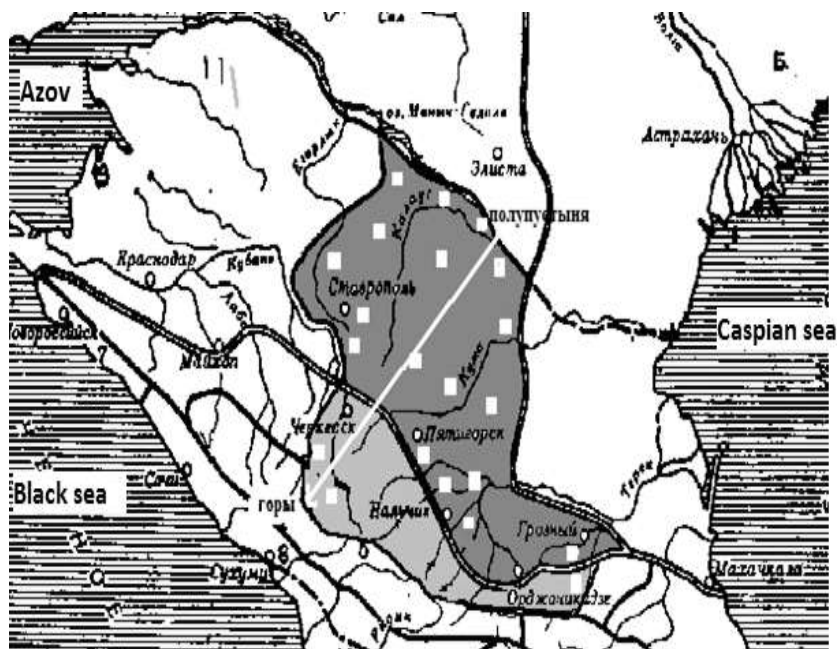


Fig. 1. The central part of the North Caucasus with the main points of observations of the author.

The author does not claim full certainty of the presence of individual species in the studied region. This is due to the assumptions expressed in a

number of sources of information. Sometimes the species was listed according to data from adjacent regions with similar environmental conditions.

In general, this work is designed to fix the species diversity of aquatic animals in the conditions of the rapidly changing ecological situation in the region. Another goal is to prepare a base for an in-depth study of individual groups of aquatic animals by young scientists. This was paid special attention. For example, a list of each group of animals was preceded by a brief description. After the list, the ecological and economic significance of the described animals is indicated.

The author devotes this monograph to A.G. Krylova, V.K. Rascheperin, A.N. Kanidiev, F.D. Mordukhais-Boltovsky, A.F. Karpevich and other senior colleagues, who gave their knowledge and experience to the author.

A huge help in carrying out this work was provided by the periodic publications of the following actual co-authors: Abdurakhmanov G.M, Arzanov Yu.G., Aristov A.A, Baryshnikov G.F, Belik V.P., Belousova G.N., Vasilenko S.V., Golubev N.S., Yemtyl M.Kh., Zaitsev F.A., Zubakin V.A., Ilyukh M.P., Kanyukova E.V., Kornoukhova I.I., Kustov S.Yu., Lvov V.D., Melnikov D.A., Mnatsekanov R.A., Nabozhenko M.V., Narchuk E.P., Neimorovets V.V., Nikishina E.F., Peskova T.Yu., Plotnikov G.K., Priklonsky S.G., Pushkin S.V., Rapoport I.B., Reznik Z.V., Reshetnikov S.I., Reshetnikov Yu.S., Sapetin Ya.V., Skvortsov V.E., Skumatov D.V., Starobogatov Ya.I., Tembotov A.K., Tertyshnikov M.F., Khatuhov A.M., Khokhlov A.N., Chebanov M.S., Cherchesova S.K., Shamshev I.V., Shapovalov M.I., Yakimov A.V. and very many others. The publications of these authors are not listed in the list of information sources for technical reasons.

Subkingdom METAZOA

Under this name all animals are united, except protozoa or unicellular animals (Protozoa). The distinctive features of multicellular animals are as follows. Unlike the simplest animals, multicellular organisms are represented by a complex of cells of various nature, composed of complexes of more or less similar elements or tissues separated by a physiological role. Multicellular animals significantly more than 1.5 million species.

Phylum PORIFERA (SPONGIA)

The sponge badyaga is common in the region, which occurs in a wide variety of water bodies - ponds, rivers and stream lakes. The dimensions of these sponges are relatively small and can reach a height of no more than 0.2 m. In total, up to 15 species of European freshwater sponges are known.

In the region studied, *Spongilla lacustris* Linnaeus, 1758 is the most common. Less common are other sponges: *Ephydatia fluviatilis* Linnaeus, 1759, *E. muelleri* Lieberkühn, 1856, *Eunapius carteri* Bowerbank, 1863 (pаnee *Spongilla carteri* Bowerbank, 1863), *Eu. fragilis* Leidy, 1851 (pаnee *Spongilla fragilis* Leidy, 1851), *Heteromeyenia stepanowii* Dybowsky, 1884 and *Trochospongilla horrida* Weltner, 1893. Together with fish acclimatitis is expected to penetrate other species of sponges, mainly in warm water reservoirs of the thermal power station.

Sponges are filter media, and therefore contribute to the purification of water. They are used for medical and cosmetic purposes. In the region sponges are studied fragmentarily. In general, a promising group of animals for environmental and technological research.

Phylum CNIDARIA (COELENTERATA)

These are the first true multicellular animals (Eumetazoa). They are exclusively aquatic inhabitants. A unique feature of this type of animal is the presence of stinging cells (like nettles) that they use to hunt and protect against predators. In total, up to 10 species of freshwater and brackish-water coelenterata are known in Russia. Since the school days, many people know Hydra, which are common everywhere. Despite the sedentary lifestyle, hydra are capable of slow movement. In our region there are: *Hydra circumcincta* Schulze, 1914. (syn. *H. attenuata*), *H. oligactis* Pallas, 1766, *H. oxycnida* Schulze, 1914, *H. viridissima* Pallas, 1766 (syn. *Chlorohydra viridissima* Pallas, 1766) and *H. vulgaris* Pallas, 1766.

In the future, appearance of other species is possible. For example, for Manych there is a single indication of the appearance of *Protohydra leuckarti* Greeff, 1870.

Not many people know that in our fresh waters there are jellyfish sometimes with polyps. First of all, these are local hydroids. For example, it is brackish-water (*Cordylophora caspia* Pallas 1771) in the river Manych, which has only polyps with attached jellyfish.

Only the meduzoid generation has *Maeotias marginata* Modeer, 1791 (syn. *M. Inexpectata* Ostroumoff, 1896 = *Olindias inexpectata* Ostroumov, 1896).

Less frequent in the northeast of the region is the endemic of the Caspian Sea *Moerisia pallasi* Derzhavin, 1912 (syn. *Caspionema pallasi* Derzhavin, 1912). In places where sturgeon fishes are kept and on wild fish, parasitic *Polypodium hydriforme* Ussov, 1885, is sometimes found.

There were new species, such as *Odessia maeotica f. maeotica* Picard, 1951 (syn. *Moerisia maeotica* Ostroumow, 1896) with jellyfish and

polyps. In our completely fresh water bodies was introduced the Amazonian jellyfish *Craspedacusta sowerbii* Lankester, 1880.

With vessels to the area of the western Manych, the Baltic species - *Garveia franciscana* Torri, 1902 (syn. *Bougainvillia megas* Kinne, 1896) and very likely *Blackfordia virginica* Mayer, 1910, has been acclimatized. In the fouling of the networks at Manych polyps of *Clava multicornis* Forsskal, 1775, were met.

Jellyfish and polyps, mainly, consumers of plankton, and therefore compete for food with fish. Polyps also have some practical importance, like fouling, and therefore the development of methods to combat them is required. This group of animals has been studied fragmentarily, and therefore promising for research.

Phylum PLATHELMINTHES

The body of the flat worm is flattened in the dorsoventral direction. They have no body cavity. The entire space between the internal organs is filled with a loose connective tissue - the parenchyma. They already have developed systems of organs: muscular, digestive, excretory, nervous and sexual.

Class TURBELLARIA

As a rule, these are free-living worms, less often parasitic. Their body is covered with ciliary epithelium. The size of the animals is from microscopic to several centimeters. There are about 100 species in Russia. In the region, several group are celebrated.

Ordo CATENULIDA

Worms are free living, more often microscopic. They feed mainly as predators. They move crawling or swimming. Asexual reproduction in the form of paratomy.

In the region there are species: *Myostenostomum tauricum* Nasonov, 1924, *Rhynchoscolex simplex* Leidy, 1851, *Stenostomum caudatum* Markow, 1904, *S. leucops* Duges, 1828 and *S. unicolor* Schmidt, 1848.

Ordo MACROSTOMIDA

Barely reach a length of 3 - 4 mm. These are voracious predators, eating many small invertebrates, up to hydra. They are characterized by asexual reproduction by transverse division with the formation of a chain of individuals.

In the region there are species: *Macrostomum clavistylum* Beklemischev, 1951, *M. finlandense* Ferguson, 1940, *M. lutheri* Beklemischev, 1927, *M. mosquense* Beklemischev, 1951, *M. rhabdophorum* Beklemischev, 1927, *M. rostratum* Papi, 1959, *M. tuba* Graff, 1882, *M. ventriavum* Pereyaslawzewa, 1892, *M. viride* Beneden, 1870 and *Microstomum lineare* Müller OF, 1773.

Ordo TRICLADIDA

Most often these are large worms. Movement is provided, on the one hand, by serpentine bendings of the body. On the other hand - with the help of wave-like contractions of the muscles of the abdominal side of the body and the work of cilia covering it. The oral cavity is located on the belly. There is a retractable mouth for catching food. Skin and tissues are transparent. Eyes on the back in front. They are capable of self-mutilation and autotomy.

In the region there are species: *Bdellocephala punctata* Pallas, 1774, *Dendrocoelopsis lagonakii* Shumeev, 2008, *Dendrocoelum caucasicum* Porfirieva, 1958, *D. gefoense* sp. nov., *D. ingulensis* Dyganova et Bortkevich, 1983, *D. lacteum* Müller, 1774, *D. mamkaevi* Shumeev, 2008, *D. superficiale* Porfirieva, 1958, *D. sureni* Shumeev, 2008 (cave), *Dugesia gonocephala* Duges, 1830, *D. bakurianica* Porfirieva, 1958, *D. precaucasica* Porfirieva, 1958, *D. taurocaucasica* Livanov, 1951 and *Planaria torva* Müller, 1773.

Ordo RHABDOCOELA

Small animals. There is an intestine in the form of a straight tube. Oral opening lies in the middle of the ventral side of the body. Sometimes closer to the front or back end of it. There are photoreceptors. They tolerate the drying out of water bodies.

In the region there are species: *Castrada perspicua* Fuhrmann, 1894, *Gieysztoria cuspidate* ШМИДТ, 1861, *G. rubra* Fuhrmann, 1894, *Gyratrix hermaphroditus* Ehrenberg, 1831, *Mesostoma ehrenbergii* Focke, 1836, *M. lingua* Abildgaard, 1789, *M. productum* Schmidt, 1848, *Microdalyellia armigera* Schmidt, 1862, *Olisthanella isaevi* Nasonov, 1924, *Placorhynchus octaculeatus* Karling, 1931 and *Strongylostoma cirratum* Beklemishev, 1922.

Ordo PROSERIATA

Small free-living planaria, usually with an elongated body. Most of them are predators. In fresh water are rare. In the region there are only two species: *Otomesostoma auditivum* Du Plessis, 1874 and *Pseudosyrthis fluviatilis* Gieysztor, 1938.

Planaria feed on small invertebrates. Fish planarians do not eat, because in their skin there are poisonous glands. The poisons of freshwater

planaria have not yet been studied, and therefore may be of interest to pharmacology. Also sometimes planarians are of interest for the development of decorative drawings. It is also necessary to note "glass worms" - planarians parasitizing on aquarium fish. In general, the region's turbellarians are recommended for in-depth study.

Class TREMATODA (DIGENEA)

There are about 1000 species in Russia. From the eggs in the water come out the ciliated larvae – miracidia. They penetrate into the first intermediate host, the mollusk, where they become sporocysts. The latter, parthenogenetically reproduce, give a generation of larvae - redia. In the redia, cercariae develop. Upon the exit from the redia cercariae penetrate into the body of the second intermediate host (larvae of aquatic insects, mollusks, fish, amphibians, etc.). There he becomes a metacercary. Sometimes there is no second intermediate owner.

In fish in the studied region, these are the following trematodes: *Acanthostomum imbutiformis* Molin, 1959, *Allocreadium hypophthalmichthydis* Akhmerov, 1960, *A. isoporum* Looss, 1894, *A. markewitschi* Koval, 1949, *A. montanus* Sidorov et Butenko, 1966, *A. transversal* Rud., 1802, *Amurotrema dombrowskajae* Achmerov, 1959. (only a white cupid), *Aphanurus stossichi* Monticelli, 1891 (herring, bullhead, salmon), *Apharyngostrigea cornu* Zeder, 1800, *Aponurus tschugunovi* Issaitschikov, 1928, *A. lagunculus* Looss, 1907, *Asymphylogora demeli* Markowski, 1935, *A. imitans* Muhling, 1898, *A. kubanicum* Issaitschikov, 1923, *A. tincae* Modeer, 1790, *Azygia lucii* Muller, 1776, *Bacciger bacciger* Rudolphi, 1819 (herring), *Bolboforus confuses* Krause, 1914, *Bucephalus polymorphus* Baer 1827, *Bunocotyle cingulata* Odhner, 1928, *Bunodera luciopercae* Mueller, 1776, *Clinostomum complanatum* Rudolphi, 1814,

Cryptoeotyle concave Creplin, 1825, *C. lingua* Creplin, 1825, *Conodiplostomum perlatum* Ciurea, 1911, *Crepidostomum farionis* Müller, 1874, *C. metoecus* Braun, 1900 (salmon), *Galactosomum lacteum* Jagerskiold, 1896, *Deropristis hispida* Rudolphi, 1819 (stellate sturgeon), *Diplostomum commutatum* Diesing, 1850, *D. mergi* Dubois, 1932, *D. paracaudum* Iles, 1959, *D. spathaceum* Rudolphi, 1819, *Haplospalanchnus pachysomus* Eysenhardt, 1829 (mullet), *Hemiurus appendiculatus* Rudolphi, 1802 (herring), *Ichthyocotylurus platycephalus* Creplin, 1825, *I. variegatus* Creplin, 1825, *I. pileatus* Rudolphi, 1802, *I. erraticus* Rudolphi, 1809, *Lecithaster confusus* Odhner, 1905. (herring and goby fish), *Metadena pauli* Vlasenko, 1931 (goby fish), *Nicolla skrjabini* Iwanitzky, 1928, *Opisthorhis felineus* Rivolta, 1884, *Orientocreadium siluri* Bychowski & Dubinina, 1954, *Palaeorchis incognitus* Szidat, 1943, *P. unicus* Szidat, 1943, *Paracoenogonimus ovatus* Katsurada, 1914, *Parasymphylodora markewitschi* Kulakowskaja, 1947, *Paratimonia gobii* Prévôt & Bartoli, 1967, *Phyllodistomum angulatum* Linstow, 1907, *Ph. elongatum* Nybelin, 1926, *Ph. folium* Olfers, 1816, *Ph. pseudofolium* Nybelin, 1926, *Ph. simile* Nybelin, 1926, *Posthodiplostomum euticola* Nordmann, 1832, *P. brevicaudatum* Nordmann, 1832, *Pygidiopsis genata* Looss, 1907, *Pseudopentagramma symmetricum* Chulkova, 1938, *Rhipidocotyle campanula* Dujardin, 1845, *Rh. kovalae* Ivanov, 1967. (only sturgeon), *Sanguinicola armata* Plehn, 1905, *S. intermedia* Ejsmonl, 1925, *S. inermis* Plehn, 1905, *S. skrjabini* Akhmerov, 1960 (only Far Eastern herbivorous fish), *S. volgensis* Rasin, 1929, *Skrjabinopsolus semiarmatus* Molin, 1858, *Sphaerostomum bramae* Muller, 1776, *S. globiporum* Rudolphi, 1802 and *Tylodelphys clavata* Nordmann, 1832.

In the body of amphibians and reptiles in the region, there are at least the following species of trematodes: *Ascarops strongylina* Rudolphi 1819,

Astiotrema monticelli Stossich, 1904, *Brandesia turgida* Brandes, 1888, *Candidotrema loossi* Africa, 1930, *Diplodiscus subclavatus* Goeze 1782, *Encyclometra colubrimurorum* Rudolphi, 1819, *Glypthelmins diana* Belouss, 1958, *Gorgoderia asiatica* Pigulevsky, 1945, *G. cygnoides* Zeder, 1800, *G. loossi* Sinitzin, 1905, *G. microovata* Fuhrmann, 1924, *G. pagenstecheri* Sinitzin, 1905, *G. varsoviensis* Sinitzin, 1905, *Gorgoderina skrjabini* Pigulevsky, 1953, *G. vitelliloba* Olsson, 1876, *Haematoloechus asper* Looss, 1899, *H. variegatus* Rudolphi, 1819, *Halipegus ovocaudatus* Vulpian, 1859, *Haplometra cylindracea* Zeder, 1800, *Holostephanus volgensis* Sudarikov, 1962, *Leptophallus nigrovenosus* Bellingham, 1844, *Macrodera longicollis* Abildgaard, 1788, *Metaleptophallus gracillimus* Luehe, 1909, *Opisthioglyphe ranae* Froelich, 1791, *O. rastellus* Olsson, 1875, *Oswaldocruzia filiformis* Goeze, 1782, *Paralepoderma cloacicola* Luhe, 1909, *Phyllodistomum angulatum* Linstow, 1970, *Plagiorchis molini* Lent et Freitas, 1946, *Pleurogenes claviger* Rudolphi, 1819, *P. intermedius* Issaitchikow, 1926, *Pleurogenoides medians* Olsson, 1876, *P. stromi* Travassos, 1930, *Prosotocus confusus* Looss, 1894, *Skrjabinoeces breviansa* Sudarikov, 1950, *S. similis* Looss, 1899 and *Telorchis assula* Dujardin, 1845.

Quite often the final hosts of trematodes are fish-eating birds, which can be found: *Allopyge skrjabini* Schachtachtinskaja, 1951, *Apatemon fuligulae* Yamaguti, 1933, *A. gracilis* Rudolphi, 1819, *A. minor* Yamaguti, 1933, *Apharyngostrigea cornu* Zeder, 1800, *Apophallus muhlingi* Jagerskiold, 1899, *A. donicus* Skrjabin et Lindtrop, 1919, *Ascocotyle coleostoma* Looss, 1896, *Bilharziella polonica* Kowalewski, 1895, *Bolboforus confuses* Krause, 1914, *Brachylaemus fuscatus* Rud., 1819, *B. mesostomus* Rud., 1803, *Brachylecithum asovi* layman, 1926, *B. laniicola* Layman, 1926, *B. loossi* Layman, 1926, *Catatropis verrucosa* Flolich, 1789, *Cathaemasia hians* Rudolphi, 1809, *Cardiocephaloides longicollis* Rudolphi, 1819, *Clinostomum*

complanatum Rudolphi, 1814, *C. heluans* Braun 1901, *Codonocephalus urnigerus* Rudolphi, 1819, *Conodiplostomum perlatum* Ciurea, 1911, *C. spathula* Creplin, 1829, *Cotylotretus cubanicus* Artfukh, 1958, *Cotylurus cornutus* Rudolphi, 1808, *C. flabelliformis* Faust, 1917, *C. hebraicus* Dubois, 1934, *C. pileatus* Rud., 1802, *C. platycephalus* Szidat, 1928, *Cyathocotyle prussica* Mühling, 1896, *Cyclococlum mutabile* Zeder, 1800, *Cryptocotyle concavum* Creplin, 1825, *C. lingua* Creplin, 1825, *Dendritobilharzia pulverulenta* Braun, 1901, *Diplostomum commutatum* Diesing, 1850, *D. flexicaudum* Cort et Brooks, 1928, *D. gavium* Guberlet, 1922, *D. gobiorum* Shigin, 1965, *D. kronschnepi* Bychowskaja-Pawlowskaja, 1953, *D. mergi* Dubois, 1932, *D. pusillum* Dubois, 1928, *D. spathaceum* Rudolphi, 1819), *Echinochasmus amphibolus* Kotlan, 1922 (syn. *E. botauri* Baer, 1923), *E. beleocephalus* von Linstow, 1893, *E. coaxatus* Dietz, 1909, *E. dietzevi* Issaitschikoff, 1927, *E. euryporus* Looss, 1896, *E. mathevossianae* Schachtachtinskaja, 1958, *E. ruficapensis* Verma, 1935, *E. schigini* Bykhovskaja-Pavlovskaja, 1962, *Echinoparyphium aconiatum* Dietz, 1909, *E. recurvatum* Linstow, 1873, *Echinostoma academica* Skrjabin, 1915, *E. revolutum* Frohlich, 1802, *E. chloropodis* Zeder, 1800, *E. dietzi* Skrjabin, 1923., *E. sarcinum* Dietz, 1909., *Euclinostomum heterostomum* Rudolphi 1809, *Eucootyle cohni* Skrjabin, 1924, *Galactosomum agrachanensis* Saidow, 1954, *Gigantobilharzia acotylea* Odhner, 1910, *Gymnophallus choledochus* Odhner 1900, *Hepatiarius longissimus* Linstow, 1883, *Heterophyes fraternus* Looss, 1902, *Himasthla secunda* Nicoll, 1906, *Hypoderaeum conoideum* Bloch, 1782, *Hyptiasmus oculus* Kossack, 1911, *Hysteromorpha platalea* Dubinina et Dubinin, 1940, *H. triloba* Rudolphi, 1819, *Ichthyocotylurus erraticus* Rudolphi, 1809, *I. pileatus* Rudolphi, 1802, *I. platycephalus* Greplin, 1825, *I. variegatus* Creplin, 1825, *Leucochloridium holostomum* Rud., 1819, *L. macrostomum* Rud., 1802, *L. perturbatum* Pojmanska, 1969, *Leyogonimus*

polyoon Braun, 1902, *Linstowiella viviparae* Linstow, 1877, *Metorchis bilis* Braun, 1790, *M. crassiusculus* Rudolphi, 1809, *M. xanthosomus* Creplin, 1907, *Neivaia cymbium* Diesing, 1850, *Nematostrigea serpens* Nitzsch, 1819, *Neodiplostomum canaliculatum* Nicoll, 1914, *N. spathoides* Dubois, 1937, *Notaulus asiaticus* Skrjabin, 1913, *Notocotylus attenuatus* Rud., 1809, *N. noyeri* Joyeux, 1922, *N. ephemera* Nitzsch, 1817, *N. gibbus* Mehlis, 1846, *N. imbricatus* Looss, 1894, *N. linearis* Rud., 1819, *N. pacifera* Noble, 1933, *N. parviovatus* Yamaguti, 1934, *N. rally* Baylis, 1936, *N. regis* Harwood, 1939, *N. skrjabin* Ablasov, 1953, *Opisthorchis simulans* Looss, 1896, *Orchipedum turkestanicum* Skrjabin, 1913, *Ornithobilharzia canaliculata* Rudolphi, 1819, *O. kowalewskii* Parona et Ariola, 1896, *Ornithodiplostomum ptychocheilus* Faust, 1917, *Pachytrema calculus* Looss, 1907, *P. paniceum* Brinkmann, 1942, *Paramonostomum alveatum* Mehlis, 1846, *P. anatis* Garkavi, 1965, *P. bucephalae* Yamaguti, 1935, *P. elongatum* Yamaguti, 1934, *P. parvum* Stunkard et Dunihue, 1931, *Parorchis gedoelsti* Skrjabin, 1924, *Paryphostomum radiatum* Dujardin, 1845, *Patagifer bilobus* Rudolphi, 1819, *Pegosomum saginatum* Ratz, 1898, *Petasiger exaeretus* Dietz, 1909, *P. megacantha* Kotlan, 1922, *Philophthalmus lucipetus* Rudolphi, 1819, *Ph. oschmarini* Shigin, 1957, *Plagiorchis elegans* Rudolphi, 1802, *P. laricola* Skrjabin, 1924, *P. maculosus* Rudolphi, 1802, *P. marii* Skrjabin, 1920, *P. triangularis* Diesing, 1850, *P. skrjabini* Massino, 1927, *Postharmostomum gallinum* Witenberg, 1923, *Posthodiplostomum cuticola* Nordmann, 1832, *P. brevicaudatum* Nordmann, 1832, *P. impraeputiatum* Dubois, 1934., *Posthovitellum komarovi* Skrjabin, 1948, *Prohyptiasmus robustus* Stossich., 1902, *Prosthogonimus cuneatus* Rudolphi, 1809, *P. lineatus* Rudolphi, 1803, *P. ovatus* Rudolphi, 1803, *Psilochasmus longicirratus* Skrjabin, 1913, *P. skrjabini* Gnedina, 1946, *Psilotrema simillimum* Muhling, 1898, *Pulvinifer macrostomum* Jagerskiold, 1900, *Pygidiopsis genata* Looss 1907, *Renicola*

lari Timon-David, 1933, *R. paraguina* Rajewsky, 1937, *R. secunda* Skrjabin, 1924, *Rossicotrema donicum* Skrjabin et Lindtrop, 1919, *Stephanoprora denticulata* Rudolphi, 1802, *S. polycestus* Dietz, 1909, *Stictodora lari* Yamaguti, 1939, *Stictodora sawakinensis* Looss, 1899, *Strigea infundibuliformis* Dubois 1934, *Strigea falconis* Szidat, 1928, *S. plegadis* Dubinin, 1938, *S. sphaerula* Rudolphi, 1803, *Tamerlania zarudnyi* Skrjabin, 1924, *Tanaisia fedtschenkoi* Skrjabin, 1924, *T. integerriorcha* Saidov, 1954, *T. longivitellata* Strom, 1947, *Trichobilharzia ocellata* La Valette, 1854, *Tylodelphys clavata* Nordmann, 1832, *T. excavata* Rudolphi, 1803 *T. podicipina* Kozicka&Niewiadomska 1960 and *Uroproctepisthium bursicola* Creplin, 1837.

Simultaneously, in birds and mammals you can also find: *Apophallus muhlingi* Jagerskiold, 1898, *Cryptocotyle concavum* Creplin, 1825, *Echinostoma revolutum* Froelich, 1802 (also in humans), *Haplorchis pumilio* Looss, 1896, *Metagonimus yokogawai* Yokogawa, 1911 (also in humans), *Notocotylus noyeri* Joyeux, 1922, *Rossicotrema donicum* Skijabin et Lindtrop, 1919, *Stephanoprora denticulate* Rudolphi, 1802 and *Stictodora sawakinensis* Looss, 1899.

Among the species whose ultimate hosts are mammals, in the region one can find: *Alaria alata* Goeze, 1792, *Brachylecithum rodentini* Agapova, 1955, *Dicrocoelium dendriticum* Rudolphi, 1819, *Echinochasmus perfoliatus* Ratz, 1908, *Echinoparyphium sisjakowi* Skvortzov, 1934, *Echinostoma armigerum* Barker et Irvine, 1915, *E. revolutum* Froelich, 1802, *Fasciola hepatica* Linnaeus, 1758 (also in humans), *Holostephanus desmanae* Sobolev, Maschkov V. et Maschkov, 1940, *Isthmiophora melis* Schrank, 1788, *Ithyogonimus talpae* Goeze, 1782, *Lecithodendrium linstowi* Dollfus, 1931, *L. rysavyi* Dubois, 1960, *L. skrjabini* Matsaberidze, 1963, *Macrotestophyes ondatrae* Varenov, 1963, *Mammoorchipedum isostomum* Rudolphi, 1819,

Metorchis bilis Braun, 1890 (also in humans), *Neoglyphe locellus* Kossack, 1910, *Notocotylus attenuates* Rudolphi, 1809, *N. noyeri* Joyeux, 1922, *Omphalometra desmanae* Sobolev, Mashkov & Mashkov, 1939, *Ophisthorchis felineus* Rivolta, 1884 (also in humans), *Opisthorchis viverrini* Poirier, 1886 (also in humans), *Paracoenogonimus skvorzovi* Petrov, 1950, *Paragonimus kellicotti* Ward, 1908 (also in humans), *Paramphistomum ichikawai* Fukui, 1922, *Pharyngostomum cordatum* Diesing, 1850, *Plagiorchis arvicolae* Schulz et Skvorzov, 1931, *P. elegans* Rudolphi, 1802, *P. koreanus* Ogata, 1938, *P. maculosus* Rudolphi, 1802, *P. muelleri* Tkach et Sharpilo, 1990, *P. muris* Tanabe, 1922, *P. vespertilionis* Müller, 1784, *Prosthodendrium ascidia* van Beneden, 1873, *P. chilostomum* Mehlis, 1831, *P. hurkovaee* Dubois, 1960, *P. longiforme* Bhalerao, 1926, *P. megacotyle* Ogata, 1939, *P. skrjabini* Shaldybin in Skarbilovich, 1948, *Pseudamphistomum truncatum* Rudolphi, 1819, *Psilotrema castoris* Orlov, 1946, *P. marki* Skvortsov, 1934, *P. zibethica* Varenov, 1965, *Quinqueserialis quinqueserialis* Barker and Laughlin, 1911, *Q. wolgaensis* Skvortsov, 1935, *Prosthodendrium ilei* Zdzitowiecki, 1969, *Rubensrema exasperatum* Rudolphi, 1819, *Skrjabinoplagiorchis polonicus* Soltys, 1957, *Stichorchis subtriquetrus* Rudolphi, 1814 and *Symmetricatesticula mordovii* Shaldybin, 1958.

The practical significance of this group of worms is significant, as they are widespread and capable of mass destruction of animals and humans, causing them disease and even death. For example, adult trematodes in humans are parasitized in the liver, pancreas, intestines, lungs, in the blood. Infection occurs usually when ingested larvae of trematodes with water and food. When infected with opisthorchiasis and metanonomosis - through the fish. When the disease paragonimozom - through crabs and freshwater crawfish. When fascioliasis - through water and plants. In schistosomatoses,

parasite larvae penetrate through the skin during bathing. This group of animals requires constant monitoring in connection with the anthropogenic possibilities of the appearance of new species along with migrants from other regions of the world, as well as as a result of climatic changes. Further developments of prevention measures are also relevant at the present time.

Class CESTODA

In the traditional interpretation, the life cycle of the cestodes is the ontogeny of one parasite that changes several hosts. There is always the danger of getting into the body of the host of these parasites from water, food and so on. In total more than 3500 species are known. Anyway, but in the studied region there are references to the following species, including those dangerous for humans: *Bothrimonus fallax* Lühe, 1900, *Bothriocephalus scorpii* Müller, 1776, *Caryophyllaeides fennica* Schneider, 1902, *Caryophyllaeus fimbriceps* Annenkova–Khlopina, 1919, *C. laticeps* Pallas, 1781, *Cysticercus cellulosae* Gmelin, 1790, *Digramma interrupta* Rudolph, 1810, *Diphyllobothrium dendriticum* Nitzsch, 1824, *D. mansonioides* Mueller, 1935, *D. minus* Cholodkowski, 1916, *D. strictum* Neveu-Lemaire, 1936, *Dipylidium caninum* Linnaeus, 1758 (also in humans), *Echinococcus granulosus* Batsch, 1786 (also in humans), *E. multilocularis* Leuckart, 1863, *Fimbriaria fasciolaris* Pallas, 1781, *Hymenolepis diminuta* Rudolph, 1819 (также у человека), *H. nana* Siebold, 1852 (also in humans), *Ligula colymbi* Zeder, 1803, *L. intestinalis* Linnaeus, 1758, *L. pavlovskii* Dubinina, 1959, *Mesocestoides corti* Hoeppli, 1925 (also in humans), *M. ineatus* Goeze, 1782 (также у человека), *M. variabilis* Mueller, 1927 (also in humans), *Moniezia benedeni* Moniez, 1879), *M. expansa* Rudolph, 1810, *Multiceps multiceps* Leske, 1780, *Nematotaenia dispar* Goeze, 1782, *Oihulanus tricuspis* Leuckart, 1865, *Ophiotaeenia europaea* Odening, 1963, *Paradilepis scolecina* Rudolph,

1819, *Proteocephalus gobiorum* Dogiel & Bychowsky, 1939, *P. osculatus* Goeze, 1782, *P. percae* Müller, 1780, *P. subtilis* Najdenova, 1969, *P. torulosus* Batsch, 1786, *Schistocephalus pungitii* Dubinina, 1959, *S. solidus* Müller, 1776, *Silurotaenia siluri* Batsch, 1786, *Taenia cervi* Christiansen, 1931, *T. crassiceps* Zeder 1800, *T. hydatigena* Pallas, 1766, *T. krabbei* Moniez, 1879, *T. ovis* Cobbold, 1869, *T. parenchimatosa* Pushmenkov, 1945, *T. pisiformis* Bloch, 1780, *T. saginata* Goeze, 1782 (also in humans), *T. solium* Linnaeus, 1758 (also in humans also in humans), *T. taeniaeformis* Batsch, 1786, *Triaenophorus meridionalis* Kuperman, 1968 and *T. nodulosus* Pallas, 1781.

The diseases caused by tapeworms are called cestodoz. They are characterized by gastrointestinal disorders, anemia, liver damage, nervous system and other organs and systems. Mass infection of these parasites, in general, is typical for many animals. This group of animals requires constant monitoring. Moreover, the cycles of their development have not been studied for all cestodes, and the connection between the individual stages of their development with water is also not always obvious. It is possible that some of the species represented can also develop in the soil.

Class MONOGENEA

The length usually does not exceed 1 mm, rarely 40-50 mm. About 2,000 species are known in the world. The body is bilaterally symmetrical, flattened, usually elongated (rarely almost rounded). At the posterior end of the body of adult worms, there is an attachment disk - the haptor. In the role of hosts for representatives of most species are fish, less often - amphibians and reptiles. The life cycle includes only one generation, developing without a change of owners. Infection, with rare exceptions, is carried out by a floating ciliary larva - oncomoracidia. In our waters there are at least the following

species: *Ancylo-discoides siluri* Zandt, 1924, *Ancyrocephalus paradoxus* Creplin, 1839, *A. vanbenedeni* Johnston and Tiegs, 1922, *Dactylogyrus anchoratus* Dujardin, 1845, *D. cornu* Linstow, 1878, *D. crucifer* Wagener, 1857, *D. falcatus* Wedl, 1857, *D. fallax* Wagener, 1857, *D. fraternus* Wagener, 1909, *D. intermedius* Wagener, 1909, *D. macrocanthus* Wagener, 1857, *D. minor* Wagener, 1857, *D. nanus* Dogiel et Bychowsky, 1934, *D. parvus* Wagener, 1910, *D. robustus* Malewiczka, 1941, *D. simplicimalleata* Bychowsky, 1931, *D. sphyrna* Linstow, 1878, *D. tuba* Linstow, 1878, *D. vastator* Nybelin, 1924, *D. wunderi* Bychowsky, 1931, *D. zandti* Bychowsky, 1933, *Diclybothrium armatum* Leuckart, 1835, *Diplozoon nipponicum* Goto, 1891, *D. paradoxum* von Nordmann, 1832, *Gyrodactylus arcuatus* Bychowsky, 1933., *G. medius* Kathariner, 1894, *G. parvicopula* Nordmann 1832, *Nitzschia sturionis* Abildgaard, 1794, *Paradiplozoon pavlovskii* Bychowsky & Nagibina, 1959, *Polystoma integerrimum* Frölich, 1791, *Solostamenides mugilis* Vogt, 1879, *Tetraonchus monenteron* Wagener, 1857 and *Thaparocleidus magnus* Bychowsky & Nagibina, 1957.

From a practical point of view, these worms can cause massive loss of fish and other animals, as they feed on mucus, epithelium or (more rarely) the blood of the host. At the person do not parasitize. The species that caused massive diseases of economically important animals were mainly studied. This group of animals requires more detailed and continuous study.

Class ASPIDOGASTREA

Small (2-3 mm) worms, parasitic in mollusks, fish and turtles. A total of up to 80 species are known. A characteristic feature of adult worms is the presence on their ventral side of the body of a complexly arranged attachment disk composed of one or more rows of suckers. The life cycle proceeds without alternation of generations, but with a change of owners. There are

only indications of the possibility of finding two parasitic species in the region: *Aspidogaster limacoides* Diesing, 1834 (in fish) and *A. conchicola* Baer, 1827 (in molluscs).

Little is known about the practical significance of these animals. In our region, these animals have not been studied in practice. And in general this is a little studied group of aquatic animals.

Phylum NEMATHELMINTHES

Round worms are characterized by spindle-shaped or filiform body shape. Some of the representatives of this class are free-living organisms that live in humid land, fresh and marine waters. The other part is typical parasites of animals or plants. Nematodes are represented by a large number of species - over 24 thousand. Distributed widely. Excrete biohelminths, which develop with the participation of intermediate hosts. There are also known geogelminthes that have preserved their connection with the external environment (their eggs or larvae develop in the soil or are amphibious).

Class GASTROTRICHA

Small (0.1 - 1.5 mm), mainly benthic animals. The body is flattened in the dorso-ventral direction, the dorsal surface is convex while the ventral surface is flat. Eyelash located on the ventral surface of the body can be distributed more or less evenly, collected in membranes or cirrham. Freshwater species live in ponds, on the bottom or on leaves of submerged plants. In total about 160 species are known.

The presence of the following species is reliably confirmed in the region: *Aspidiophorus paradoxus* Voigt, 1902, *Chaetonotus larus* Müller, 1773, *Ch. maximus* Ehrenberg, 1831, *Dasydytes ornatus* Voigt, 1909, *D. goniathrix* Gosse, 1851, *Dichaetura capricornia* Metschnikoff, 1865,

Haltidytes festinans Voigt, 1909, *Heterolepidoderma ocellatum* Metschnikoff, 1865, *Lepidodermella squamata* Dujardin, 1841, *Neogosseia antennigera* Gosse, 1851 and *Polymerurus nodicaudus* Voigt, 1901.

According to individual data, there may also be: *Aspidiophorus oculifer* Kisielewski, 1981, *A. ophiodermus* Balsamo, 1983, *A. tetrachaetus* Kisielewski, 1986, *Chaetonotus dentatus* Tretyakova, 1992, *Ch. lancearis* Tretyakova, 1992, *Ch. vechovi* Tretyakova, 1992, *Ch. zelinkai* Grünspan, 1908, *Chitonodytes longisetosus* Metschnikoff, 1865, *Ch. longispinosus* Greuter, 1917, *Haltidytes crassus* Greuter, 1917, *H. saltitans* Stokes, 1888, *Heterolepidoderma gracile* Remane A, 1927, *Heteroxenotrichula pygmaea* Remane, 1934, *Ichthyidium diacanthum* Balsamo & Todaro, 1995, *I. maximum* Greuter, 1917, *I. podura* Müller, 1773, *Lepidodermella spinifera* Tretyakova, 1991, *Neogosseia voighti* Daday, 1905, *Polymerurus rhomboids* Stokes, 1887, *P. serraticaudus* Voigt, 1901, *P. serraticaudus* Voigt, 1901, *Setopus bisetosus* Thompson, 1891, *S. dubius* Voigt, 1909 and *Stylochaeta fusiformis* Voigt, 1909.

Nothing is known about the possible practical significance for a person. In the studied region are poorly known, especially in brackish and saline reservoirs in the Manych region. These animals are promising for in-depth study.

Class NEMATODA

It is very ecologically and morphologically diverse animals. On the one hand, these are well-studied animals. On the other hand, acclimatization, migratory movements of people and other processes make it possible to identify new and new nematodes. For example, free-living nematodes are associated with the aquatic environment in our region, at least the following species: *Achromadora tenax* de Man, 1876, *Acrobelus ciliatus* von Linstow,

1877, *Adoncholaimus aralensis* Filipjev, 1924, *Alaimus primitivus* de Man, 1880, *Aphanolaimus aquaticus* von Daday, 1894, *A. viviparus* Plotnikov, 1901, *Aphelenchoides parietinus* Bastian, 1865, *Aporcelaimellus krygeri* Ditlevsen, 1928, *A. obscurus* Thorne et Swanger, 1936, *A. obtusicaudatus* Bastian, 1865, *Axonolaimus sera* Tchesunov, 1976, *A. spinosus* Bütschli, 1874, *Brevitobrilus stefanskii* Micoletzky, 1925, *Chromadorina bioculata* Schultze in Carus, 1857, *Chromadorita leuckarti* de Man, 1876, *Chronogaster boettgeri* Kischke, 1956, *Ch. typica* de Man, 1921, *Chrysodorus filiformis* Bastian, 1865, *Clarcus papillatus* Bastian, 1865, *Crocodyrlaimus dadayi* Thorne & Swanger, 1936, *Crocodyrlaimus flavomaculatus* Linstow, 1876, *Cryptonchus tristis* Ditlevsen, 1911, *Curviditis curvicaudata* Schneider, 1866, *Cuticularia oxycerca* De Man, 1895, *Daptonema dubium* Bütschli, 1873, *D. osadchikhae* Tchesunov, 1980, *Diplogaster rivalis* Andrassy, 1954, *Dorylaimus crassus* de Man, 1884, *D. helveticus* Steiner, 1919, *D. montanus* Stefanskii, 1923, *D. stagnalis* Dujardin, 1845, *Ecumenicus monohystera* de Man, 1880, *Enoploides fluviatilis* Micoletzky, 1923, *Epitobrilus medius* G. Schneider, 1916, *Ethmolaimus multipapillatus* Paramonov, 1926, *E. pratensis* de Man, 1880, *Eudorylaimus carteri* Bastian, 1865, *Eu. centrocercus* de Man 1880, *Ethmolaimus multipapillatus* Paramonov, 1926, *Eudorylaimus leuckarti* Bütschli, 1873, *Eumonhystera dispar* Bastian, 1865, *Eumonhystera filiformis* Bastian, 1865, *Eu. vulgaris* de Man, 1880, *Eutobrilus grandipapillatus* Brakenhoff, 1914, *Heterocephalobus elongatus* de Man, 1880, *Hirschmanniella behningi* Micoletzky, 1923, *H. gracilis* de Man, 1880, *H. oryzae* Soltwedel, 1889, *Idiodorylaimus robustus* Gagarin, 1985, *Ironus gagarini* Tsalolikhin, 1987, *I. ignavus* Bastian, 1865, *I. longicaudatus* de Man, 1884, *I. tenuicaudatus* de Man, 1876, *Labronema andrassyi* Gagarin, 1992, *Laevides laevis* Thorne, 1939, *Laimydorus pseudostagnalis* Micoletzky, 1927, *Mesodorylaimus bastiani* Bütschli, 1873, *M. hofmaenneri* Menzel in

Hoffmänner & Menzel, 1914, *M. potus* Heyns, 1963, *Microloaimus globiceps* de Man, 1880, *Monhystera lemani* Juget, 1969, *M. paludicola* de Man, 1881, *M. stagnalis* Bastian, 1865, *Monhystrella hastate* Andrassy, 1968, *Mononchoides striatus* Bütschli, 1876, *Mononchus truncates* Bastian, 1865, *Neoactinolaimus dzjubani* Gagarin, 1979, *Neotobrilus longus* Leidy, 1852, *Panagrolaimus hygrophilus* Bassen, 1940, *P. rigidus* Schneider, 1866, *P. subelongatus* Cobb, 1914, *P. macrolaimus* de Man, 1880), *Paramphidelus dolichurus* de Man, 1876, *Paraphanolaimus anisitsi* von Daday, 1905, *P. behningi* Micoletzky, 1923, *Paraplectonema pedunculatum* Hofmänner, 1913, *Paravulvulus hartingii* Thorne, 1974, *Paroigolaimella bernensis* Steiner, 1914, *Plectus cirratus* Bastian, 1865, *P. rhizophilus* de Man, 1880, *P. tenuis* de Man, 1884, *Prodesmodora circulate* Micoletzky, 1925, *Prodorylaimium brigdammense* de Man, 1876, *Prodorylaimus filiarum* Andrassy, 1964, *P. longicaudatoides* Altherr, 1968, *Rhabdolaimus terrestris* de Man, 1880, *Semitobrilus longicaudatus* Stefanski, 1938, *S. pellucidus* Bastian, 1865, *Theristus flevensis* Schuurmans Stekhoven, 1935, *Tobrilus aberrans* Schneider, 1925, *T. gracilis* Bastian, 1865, *T. helveticus* Hofmaenner, 1914, *Tripyla cornuta* Skwarra, 1921, *T. glomerans* Bastian, 1865, *Trischistoma monohystera* de Man, 1880 and *Syringolaimus caspersi* Gerlach, 1951.

Parasitic nematodes are also known in the region. Some of them develop on fish: *Agrachanus scardinii* Molnar, 1966, *Camallanus hypophthalmichthys* Dogiel et Achmerov, 1959, *C. lacustris* Zoega, 1776, *C. truncates* Rud., 1814, *Capillaria brevispicula* Linstow, 1873, *Capillospirura argumentosa* Skrjabina 1966, *C. ovotrichuria* Skrjabin, 1924, *Cucullanus dogieli* Krotas, 1959, *C. sphaerocephalus* Rudolphi, 1809, *Cystoopsis acipenseris* Wagner, 1867, *Desmidocercella numidica* Seurat 1920, *Dichelyne minutus* Rudolphi, 1819, *Goezia ascaroides* Goeze, 1782, *Philometra abdominalis* Nybelin, 1928, *Ph. ovata* Zeder, 1803, *Ph. rischta* Skrjabin,

1923, *Pseudocapillaria tomentosa* Dujardin, 1845, *Raphidascaris acus* Bloch, 1779, *Rhabdochona gnedini* Skrjabin, 1946, *Schulmanela petruschewskii* Schulman, 1948, *Skrjabillanus schigini* Tikhomirova et Rudometova, 1975, *S. tincae* Schigin, 1958 and *Thynnascaris adunca* Rud, 1802.

The development of other parasitic nematodes goes along the food chain, including up to humans. In this list, nematodes, hosts, which are directly associated with water (amphibians, snakes, turtles, waterfowl, water vole, otter, nutria): *Anisakis simplex* Rudolphi, 1809 (also in humans), *Aonchotheca murissylvatici* Diesing, 1851, *A. wioletti* Rukhlyadeva, 1950, *Aspicularis dinniki* Schulz, 1927, *A. tetraptera* Nitzsch, 1821 (also in humans), *Avioserpens mosgovoyi* Suprjaga, 1965, *Camallanus* sp. (several species), *Chevreuxia revoluta* Rud., 1819, *Contraecum microcephalum* Rud., 1819, *C. micropapillatum* Stossich, 1890, *C. spiculigerum* Rudolphi, 1809, *Cosmocerca commutata* Diesing, 1851, *Crenosoma petrowi* Morosov, 1939, *C. vulpis* Dujardin, 1845, *Decorataria decorata* Cram, 1927, *Desportesius brevicaudatus* Dujardin, 1845, *D. Invaginat* Linstow, 1901, *Dioctophyme renale* Goeze, 1782, *Dispharynx nasuta* Rudolphi, 1819, *Echinuria uncinata* Hamann, 1891, *Eustrongylides excisus* Jägerskiöld, 1909, *Eu. mergorum* Rudolphi, 1809, *Eu. tubifex* Nitzsch & Rudolphi, 1819, *Gnathostoma spinigerum* Owen, 1836, *G. neoplasticum* Fibiger & Ditlevsen, 1914, *G. problematicum* Schulz, 1924, *G. pulchrum* Molin, 1857, *Heligmosomoides laevis* Dujardin, 1845, *Heligmosomum borealis* Schulz, 1930, *Neoraiillietnema praeputiale* Skrjabin, 1916, *Oswaldocruzia filiformis* Goeze, 1782, *Oxysomatium brevicaudatum* Zeder, 1800, *Paracuaria adunca* Creplin, 1846), *Philometroides cyprini* Yshii, 1931, *Porrocaecum reticulatum* Linstow, 1899, *Pseudoterranova decipiens* Krabbe, 1978, *Pudica maldonadoi* Artigas and Pacheco 1933, *Rhabdias bufonis* Schrank, 1788, *Rh. fuscovenosus* Railliet, 1899, *Rusguniella elongata* Rud., 1819, *Schistorophus longicornis*

Hemprich and Ehrenberg, 1866, *Skrjabinoclava horrida* Rud., 1819, *Spirocerca lupi* Rudolphi, 1809, *Spiroxis contortus* Rudolphi, 1819, *Streptocara crassicauda* Creplin, 1829, *S. recta* Linstow, 1879, *Strongyloides myopotami* Artigas et Pacheco, 1933, *S. ratti* Sandground, 1925, *Subulura linstowi* Sprehn, 1932, *Syncuaria contorta* Molin, 1858, *Synhimantus sirry* Khalil, 1931, *Syphacia arvicolae* L. Scharpilo, 1973, *S. obvelata* Rud, 1802, *Tetrameres fissispina* Diesing, 1861, *Thominx aerophilus* Creplin, 1839, *Trichinella nativa* Britov & Boev, 1972, *T. spiralis* Owen, 1835, *Trichostrongylus colubriformis* Giles, 1892 (also in humans), *T. probolurus* Railliet, 1896, *Trichuris muris* Schrank. 1788, *T. myocastoris* Enigk, 1933, *T. spalacis* Petrow et Potechina, 1953 and many others, including those completing development in terrestrial animals and presumably present in the region.

The practical importance of nematodes is significant, since they are numerous enough and can develop massively, causing serious diseases and even death of animals. In addition, it is known that there is a large group of nematodes - parasites of aquatic plants. But there is no information on nematodes of parasites of aquatic plants of the studied region at all, but their presence is very likely. Very promising group of animals to study.

Class ACANTHOCEPHALA

Parasitize in the intestines of vertebrates. Body elongated, 10-650 mm long. Proboscis is able to screw into a special vagina, carry hooks and serves to attach to the wall of the intestine of the host. Development with metamorphosis and change of hosts. Intermediate hosts are crustaceans and insects.

A total of about 1100 species of Acanthocephala are described. Up to 330 species have been encountered in Russia. Acanthocephala cause disease -

acanthocephalosis, which can cause even death. In the region, they are studied, mainly, in economically important animals. Below is a list of Acanthocephala parasites in fish, birds and aquatic mammals in the region under study: *Acanthocephaloides incrassatus* Molin, 1858, *A. propinquus* Dujardin, 1845, *Acanthocephalus anguillae* Mueller, 1780, *A. lucii* Mueller, 1776, *A. ranae* Schrank, 1788, *Centrorhynchus aluconis* Muller, 1780, *C. bazeleticus* Kuraschvili, 1955, *C. buteonis* Schrank, 1788, *C. conspectus* Van Cleave and Pratt, 1940, *C. globocaudatus* Zeder, 1800, *C. itatsinis* Fukui, 1929, *C. magnus* Fukui, 1929, *C. spinosus* Kaiser, 1893, *C. teres* Westrumb, 1821, *Corynosoma strumosum* Rudolphi, 1802, *Filicollis anatis* Schrank, 1788, *Leptorhynchoides plagicephalus* Westrumb, 1821, *Macracanthorhynchus catulinus* Kostylew, 1927, *Mediorhynchus armenicus* Petrotschenko, 1953, *M. lagodekhiensis* Kuraschvili, 1955, *M. micracanthus* Rudolphi, 1819, *M. papillosus* Van Cleave, 1916, *Moniliformis moniliformis* Bremser, 1811 (also in humans), *Neoechinorhynchus rutila* Müller, 1780, *Plagiorhynchus asymmetricus* Belopol'skaya, 1983, *P. cylindraceus* Goeze, 1782, *P. spiralis* Rudolphi, 1809, *Polymorphus acutis* Van Cleave & Starrett, 1940, *P. magnus* Skrjabin. 1913, *P. marilis* Van Cleve, 1939, *P. minutus* Goeze, 1782, *P. striatus* Goeze, 1782, *Prosthorhynchus gallinagi* Schachtachtinskaja, 1953, *P. gracilis* Petrotschenko, 1958, *Pseudoacanthocephalus caucasicus* Petrochenko, 1953, *Sphaerirostris lancea* Westrumb, 1821, *S. lanceoides* Petrotschenko, 1949, *S. picae* Rudolphi, 1819 and *Telosentis exiguous* von Linstow, 1901.

With a more complete coverage of these animals inhabiting the region, as well as the introduction of their new species, this list can be substantially changed.

Class NEMATOMORPHA (GORDIACEA)

The popular name of these animals is "live hair" or "horse hair". The popular name of these animals is "live hair" or "horse hair". Color from whitish to dark brown. The length of adults is usually 0.3 - 0.4 m, while their thickness does not exceed 2 - 5 mm.

Previously, there was a popular belief that these animals are introduced into the skin of a person during bathing. In fact, these are specific parasites of insects. They "force" insects to commit "suicide" by jumping into the water, where worms complete development. Adults do not eat. The full development cycle takes about 18 months. Parasitize, most often, in terrestrial insects - orthopterans, ground beetles and others. However, there is a false parasitism in the accidental ingestion of these worms in fish, snails, small crustaceans and even in domestic animals and humans.

Up to 17 species are found on the territory of the former USSR. At least 5 species are found in the study area: *Gordionus senkovi* Malakhov & Spiridonov, 1982, *Gordius aquaticus* Linnaeus, 1758, *Parachordodes pustulosus* Baird, 1853 and *Spinochordodes baeri* Camerano, 1896.

The presence of these worms in the reservoir can be considered a sign of clean and non-polluted water. They have no significant practical significance.

Phylum (Class) ROTIFERA (ROTATORIA)

The main characteristic feature of rotifers is the presence of the so-called rotational apparatus - a mobile ciliary formation at the anterior end of the body, which is used for nutrition and movement. They can occur in plankton, benthos, among vegetation, sand, soil, in leaf litter and even in hollows of trees. Many of them are euryhaline.

The most studied are free-living plankton species. This is due not only to the simplicity of their capture, but also to the study of the nutrition of fish, especially their larvae. In Russia there are about 600 aquatic species. In the studied region, the following species can be classified as plankton rotifers: *Anuraeopsis fissa* Gosse, 1851, *Ascomorpha ecaudis* Perty, 1850, *A. ovalis* Bergendal, 1892, *Asplanchna brightwelli* Gosse, 1850, *A. priodonta* Gosse, 1850., *A. sieboldi* Leydig, 1854, *Asplanchnopus hyalinus* Harring 1913, *A. multiceps* Schrank, 1793, *Brachionus angularis* Gosse, 1851, *B. asplanchnoides* Charin, 1947, *B. bidentatus* Anderson, 1889, *B. budapestinensis* Daday, 1885, *B. calyciflorus* Pallas, 1766, *B. dimidiatus* Bryce, 1931, *B. diveriscornis* Daday, 1883, *B. falcatus* Zacharias, 1898, *B. forficula* Wierzejski, 1891, *B. quadridentatus* Hermann, 1783, *B. leydigii* Coch, 1862, *B. plicatilis* Müller, 1786, *B. urceolaris* Müller, 1773, *Collotheca discophora* Skorikov, 1903, *C. pelagica* Rousselet, 1893, *Colurella adriatica* Ehrenberg, 1831, *Conochiloides coenobasis* Hudson, 1885, *C. dossuarius* Hudson, 1885, *C. coenobasis* Hudson, 1885, *C. dossuarius* Hudson, 1885, *Cyrtonia tuba* Ehrenberg, 1834, *Epiphanes macroura* Barrois & Daday, 1894, *E. senta* Müller, 1773, *Euchlanis dilatata* Ehrenberg, 1832, *Filinia brachiata* Rousselet, 1901, *F. cornuta* Weisse, 1847, *F. longiseta* Ehrenberg, 1834, *F. opoliensis* Zacharias, 1898, *F. terminalis* Plate, 1886, *Gastropus styliifer* Imhof, 1891, *Hexarthra fennica* Levander, 1892, *H. mira* Hudson, 1871, *H. oxyuris* Sernov, 1903, *Kellicottia longispina* Kellicott, 1879, *Keratella cochlearis* Gosse, 1851, *K. quadrata* Müller, 1786, *K. tropica* Apstein, 1907, *Lecane grandis* Murray, 1913, *L. hastata* Murray, 1913, *L. lamellata* Daday, 1893, *L. luna* Müller, 1776, *L. stenroosi* Meissner, 1908, *L. unguitata* Fadeev, 1925, *Lepadella patella* Müller, 1786, *L. rhomboidula* Bryce, 1890, *L. triptera* Ehrenberg, 1830, *Mytilina mucronata* Müller, 1773, *Notholca acuminata* Ehrenberg, 1832, *N. squamula* Müller, 1786, *Notommata aurita*

Muller, 1786, *Platyias patulus* Muller, 1786, *Polyarthra dolichoptera* Idelson, 1925, *P. euryptera* Wierzejski, 1891, *P. longiremis* Carlin, 1943, *P. luminosa* Kutikova, 1962, *P. remata* Skorikov, 1896, *P. vulgaris* Carlin, 1943, *Pompholyx complanata* Gosse, 1851, *P. sulcata* Hudson, 1885, *Synchaeta grandis* Zacharias, 1893, *S. gyrina* Hood, 1887, *S. kitina* Rousselet, 1902, *S. lakowitziana* Lucks, 1930, *S. littoralis* Rousselet, 1902, *S. oblonga* Ehrenberg, 1832, *S. pectinata* Ehrenberg, 1832, *S. stylata* Wierzejski, 1893, *S. tremula* Muller, 1786, *S. vorax* Rousselet, 1902, *Trichocerca capucina* Wierzejski & Zacharias, 1893, *T. heterodactyla* Tschugunoff, 1921, *T. longiseta* Schrank, 1802, *T. pussila* Jennings, 1903, *T. rattus* Müller, 1776, *T. rousseleti* Voigt, 1902, *T. stylata* Gosse, 1851 and *Trichotria pocillum* Müller, 1776.

Hardly accessible rotifers - inhabitants of thickets, silt, coastal sand and other supporting biotopes - have been less studied. In the region under study, one can include: *Adineta vaga* Davis, 1873, *Asplanchnopus dahlgreni* Myers, 1934, *Beauchampia crucigera* Dutrochet, 1812, *Cephalodella auriculata* Müller, 1773, *C. catelina* Müller, 1786, *C. forficula* Ehrenberg, 1832, *C. gracilis* Ehrenberg, 1832, *C. hoodii* Gosse, 1886, *Collotheca coronetta* Cubitt, 1869, *C. mutabilis* Hudson, 1885, *C. ornate* Ehrenberg, 1832, *Colurella colurus* Ehrenberg, 1830, *C. obtuse* Gosse, 1886, *C. sulcate* Stenroos, 1898, *C. uncinata* Muller, 1773, *Dicranophorus forcipatus* Müller, 1786, *D. grandis* Ehrenberg, 1832, *Dipleuchlanis propatula* Gosse, 1886, *Dissotrocha aculeata* Ehrenberg, 1832, *Eosphora ehrenbergi* Weber, 1918, *E. najas* Ehrenberg, 1830, *Epiphanes brachionus* Ehrenberg, 1837, *Euchlanis calpidia* Myers, 1930, *Eu. meneta* Myers, 1930, *Eu. parva* Rousselet, 1892, *Eu. pyriformis* Gosse, 1851, *Eu. triquetra* Ehrenberg, 1838, *Filinia passa* O. F. Muller, 1786, *Floscularia ringens* Linnaeus, 1758, *Gastropus minor* Rousselet, 1892, *Habrotrocha aspera* Bryce, 1892, *H. collaris* Ehrenberg, 1832, *Keratella paludosa* Lucks, 1912, *Lacinularia flosculosa* Müller, 1773,

Lecane arcula Harring, 1914, *L. bifurca* Bryce, 1892, *L. bulla* Gosse, 1851, *L. clara* Bryce, 1892, *L. cornuta* Müller, 1786, *L. crenata* Harring, 1913, *L. curvicornis* Murray, 1913, *L. depressa* Stenroos, 1898, *L. doryssa* Harring, 1914, *L. flexilis* Gosse, 1886, *L. furcata* Murray, 1913, *L. galeata* Bryce, 1892, *L. hamata* Stokes, 1896, *L. hornemanni* Ehrenberg, 1834, *L. ichthyoura* Shephard, 1892, *L. inermis* Bryce, 1892, *L. intrasinuata* Olofsson, 1917, *L. kluchor* Tarnogradsky, 1930, *L. lunaris* Ehrenberg, 1832, *L. nana* Murray, 1913, *L. obtuse* Murray 1776, *L. ohioensis* Herrick 1885, *L. papuana* Murray, 1913, *L. perpusilla* Wiszniewski, 1936, *L. punctate* Murray, 1913, *L. pyriformis* Daday, 1905, *L. quadridentata* Ehrenberg, 1932, *L. sagula* Harring & Myers, 1926, *L. signifera* Jennings, 1896, *L. subtilis* Harring and Myers, 1926, *L. sympoda* Hauer, 1929, *L. tenuiseta* Harring, 1914, *L. unguulate* Gosse 1887, *Lepadella acuminata* Ehrenberg 1834, *L. ehrenbergii* Perty, 1850, *L. ovalis* Müller, 1786, *L. quinquecostata* Lucks, 1912, *Limnias ceratophylli* Schrank, 1803, *L. melicerta* Weisse, 1848, *Lophocharis oxysternon* Gosse, 1851, *L. salpina* Ehrenberg, 1834, *Macrotrachela ehrenbergi* Janson, 1893, *M. musculosa* Milne, 1886, *M. nana* Bryce, 1912, *M. plicata* Bryce, 1892, *Microcodon clavus* Ehrenberg, 1830, *Monommata grandis* Tessin, 1890, *M. longiseta* Muller, 1786, *Mytilina bicarinata* Perty, 1850, *M. trigona* Gosse, 1851, *M. unguipes* Lucks, 1912, *M. ventralis* Ehrenberg, 1832, *M. videns* Levander, 1894, *Notommata collaris* Ehrenberg, 1832, *N. tripus* Ehrenberg, 1838, *Philodina citrina* Ehrenberg, 1832, *P. megalotrocha* Ehrenberg, 1832, *Plationus polyacanthus* Ehrenberg, 1834, *Platytias quadricornis* Ehrenberg, 1832, *Polyarthra minor* Voigt, 1904., *Postclausa hyptopus* Ehrenberg, 1938, *Rhinoglena frontalis* Ehrenberg, 1853, *Rotaria citrine* Ehrenberg, 1838, *Squatinella lamellaris* Müller, 1786, *Testudinella mucronata* Gosse, 1886, *T. patina* Hermann, 1783, *T. reflexa* Gosse, 1887, *Trichocerca bidens* Lucks, 1912, *T. brachyuran* Gosse, 1851, *T. cavia* Gosse, 1886, *T. dixon-nuttalli*

Jennings, 1903, *T. elongate* Gosse, 1886, *T. iernis* Gosse, 1887, *T. porcellus* Gosse, 1851, *T. similis* Wierzejski, 1893, *T. taurocephala* Hauer, 1931, *T. tenuior* Gosse, 1886, *T. tigris* Müller, 1786, *T. collaris* Rousselet, 1896, *T. weberi* Jennings, 1903, *Trichotria tetractis* Ehrenberg, 1830, *Tripleuchlanis plicata* Levander, 1894 and *Volga spinifera* Western, 1894. Naturally, many of these rotifers can also be found in plankton.

Separately, it is necessary to mention the rotifer parasites, commensals and epibionts: *Albertia naidis* Bousfield, 1886 (in the body cavity Nais and Stylaria), *Ascomorphella volvocicola* Plate, 1886 (in the volvox colonies), *Balatro aciliatus* Radkewitsch, 1870 (in the intestine Enchytraeus), *Brachionus rubens* Ehrenberg, 1838 (in plankton and as a commensal on the surface of the body of Cladocera), *B. variabilis* Hempel, 1896 (in plankton and as a commensal on the surface of the body of Cladocera), *Cephalodella gibba* Ehrenberg, 1830 (in plankton and as an epibiont in the gill cavity of crayfish), *C. gigantea* (parasite of crustaceans), *C. volvocicola* Zawadovsky, 1916 (in the volvox colonies), *Embata parasitica* Giglioli 1863 (on gammarus and water donkeys), *Lecane arcuata* Bryce, 1891 (in plankton and as an epibiont on crawfish), *L. closterocerca* Schmarda, 1859 (in plankton and as an epibiont on crawfish), *Proales gigantea* Glascott, 1893 (parasite of mollusks), *P. parasita* Ehrenberg, 1838 (in the volvox colonies), *Rotaria rotatoria* Pallas, 1766. (on crustaceans), *R. tardigrada* Ehrenberg, 1830 (in benthos, as well as on insects and freshwater crabs), *Testudinella clypeata* Muller, 1786 (on water donkeys), *T. elliptica* Ehrenberg, 1834 on water donkeys), *T. truncata* Gosse, 1886 (on water donkeys) и *Lecane closterocerca* Schmarda, 1859 (psammophil and in river crustaceans).

Because of its microscopic nature, rotifers are extremely important for feeding fish larvae. For this reason, work is under way around the world to

develop their industrial breeding. Even the development of technology for growing rotifers in space conditions for long flights is underway.

Phylum NEMERTINI

Most of them are marine benthic animals, but there is also a small number of freshwater species and even living in humid land habitats. A typical nemertine in form of the body resembles a ribbon, sometimes somewhat flattened in the dorsal-ventral direction.

Barentsia benedeni Foettinger, 1887, was encountered in the region of the salty part of Manych. In fresh water bodies on the bordering to the region studied, *Prostoma graecense* Böhmig, 1892, was also noted.

Phylum ANNELIDA

Type includes about 18 thousand species, living in marine and fresh waters and in the soil thickness. The body is annular, with a number of segments from several tens to several hundreds. There are active and passive predators, scavengers and filters.

Class OLIGOCHAETA

Most oligochaetes (more than 3 thousand) are inhabitants of the soil. The largest of them are well known to everyone under the name of earth or earthworms. There are, however, both freshwater and even marine oligochaetes. Most often these animals live on the bottom, on aquatic plants, less often in the water column.

The following species are found in the region, including amphibious and parasitic: *Aeolosoma headleyi* Beddard, 1888, *Ae. niveum* Leidy, 1865, *Ae. quaternarium* Ehrenberg, 1831, *Ae. tenebrarum* Vejdovsky, 1884, *Ae. variegatum* Vejdovsky, 1884, *Amphichaeta leydigi* Tauber, 1879, *A. sannio*

Kallstenius, 1892, *Aporrectodea caliginosa* Savigny 1826, *A. longa* Ude, 1826, *Arcteonais lomondi* Martin, 1907, *Aulodrilus limnobius* Bretscher, 1899, *A. pigueti* Kowalewski, 1914, *A. pluriseta* Piquet 1906, *Aulophorus furcatus* Oken, 1815, *Branchiura sowerbyi* Beddard, 1892, *Branchiobdella parasitica* Henle 1835, *Chaetogaster crystallinus* Vejdovsky 1883, *Ch. diaphanous* Gruithuisen, 1828, *Ch. diastrophus* Gruithuisen, 1828, *Ch. krasnopolskiae* Lastockin, 1937, *Ch. langi* Bretscher, 1896, *Ch. limmaei* Baer, 1827, *Ch. setosus* Svetlov, 1925, *Criodrilus lacuum* Hoffmeister, 1845, *Dendrobaena octaedra* Savigny, 1826, *Dero digitate* Müller, 1774, *D. dorsalis* Ferronière, 1899, *D. obtuse* d'Udekem, 1855, *Eisenia nordenskioldi* Eisen, 1879, *E. spelaea* Rosa, 1901, *Eiseniella tetraedra* Savigny, 1826, *Embolocephalus velutinus* Grube, 1879, *Fridericia bulbosa* Rosa, 1887, *Haemonais waldvogeli* Bretscher, 1900, *Haplotaxis gordioides* Hartman, 1821, *Homochaeta naidina* Bretscher, 1896, *Ilyodrilus templetoni* Southern, 1909, *Isochaetides michaelsoni* Lastokin, 1937, *Limnodrilus claparedianus* Ratzel, 1868, *L. hoffmeisteri* Claparède, 1862, *L. profundicola* Verrill, 1871, *L. udekemianus* Claparède 1862, *L. variegatus* Müller 1774, *Marionina argentea* Michaelson, 1889, *M. riparia* Bretscher, 1899, *Nais alpine* Sperber, 1948, *N. barbata* Müller, 1774, *N. behningi* Michaelson, 1923, *N. bretscheri* Michaelson, 1899, *N. elinguis* Müller, 1774, *N. pseudobtusa* Piquet, 1906, *N. simplex* Piquet, 1906, *N. variabilis* Piquet, 1906, *Ophidonais serpentine* Müller, 1773, *Paranais litoralis* Müller, 1780, *P. simplex* Hrabě, 1936, *Piguetiella blanci* Piquet, 1906, *Potamodrilus fluviatilis* Lastockin, 1935, *Potamothrix bavaricus* Oschmann, 1913, *P. bedoti* Piquet, 1913, *P. caspicus* Lastockin, 1937, *P. grimmi* Hrabě, 1950, *P. hammoniensis* Michaelson, 1901, *P. heuscheri* Bretscher, 1900, *P. moldaviensis* Vejdovský et Mrázek 1902, *P. vejdvovskyi* Hrabě, 1941, *Pristina aequiseta* Bourne, 1891, *P. longiseta* Ehrenberg, 1828, *P. amphibiotica* Lastockin, 1927, *P. bilobata* Bretscher

1903, *P. rosea* Piguet, 1906, *Psammoryctides albicola* Michaelsen, 1901, *P. barbatus* Grube, 1861, *P. deserticola* Grimm, 1877, *P. moravicus* Hrabě, 1934, *Rhyacodrilus coccineus* Vejdovský, 1875, *Rhynchelmis limosella* Hoffmeister, 1843, *Ripistes parasite* Schmidt, 1847, *Slavina appendiculata* Udekem, 1855, *Specaria josinae* Vejdovsky, 1884, *Spirosperma ferox* Eisen, 1879, *Stylaria fossularis* Leidy, 1852, *S. lacustris* Linnaeus, 1767, *Stylodrilus lemani* Grube, 1879, *S. parvus* Hrabě & Cernovítov, 1927, *Tubifex ignotus* Stolc, 1886, *T. nerthus* Michaelsen, 1908, *T. newaensis* Michaelsen, 1903, *T. smirnowi* Lastockin, 1927, *T. tubifex* Müller, 1774, *Uncinais uncinata* Orsted, 1842, *Vejdovskyella comate* Vejdovský, 1884, *V. intermedia* Bretschner, 1896 and *V. macrochaeta* Lastockin, 1921.

In the region they are studied in some detail, since they are of great importance in the nutrition of fish. Particular attention was paid to planktonic and, to some extent, benthic forms. It is necessary to further study this group of animals, especially small benthic species.

Class POLYCHAETA

Currently, this class has more than 10 thousand species. It is interesting that these primitive worms have their own language for communication. They release into the water special chemicals (pheromones) with various smells that attract individuals of the opposite sex, signal danger or deter enemies. The vast majority of species are inhabitants of marine waters. Very few polychaetes have adapted to live in fresh and brackish water reservoirs, including in the studied region. These are the following species: *Ficopomatus enigmaticus* Fauvel, 1923, *Hediste diversicolor* Müller, 1776 (before *Nereis diversicolor* Muller, 1776), *Hypania invalida* Grube, 1860, *Hypaniola kowalewskii* Grimm in Annenkova, 1927, *Leiochone leiopygos*

Grube, 1860 and *Manayunkia caspica* Annenkova, 1929. Most of them are detritophages that can extract organic matter from the ground, eating it.

From a practical point of view, these worms constitute a significant share in the nutrition of some fish, especially sturgeons. The appearance of new species is also expected as a result of the continued acclimatization of other species of polychaete worms.

Class HIRUDINEA

Most leeches live in fresh water. Some species have mastered land and marine biotopes. In the world about 500 species of leeches are known, in Russia - 62 species. There are predators among the leeches, but most often they feed on the blood of various animals, including humans, and therefore are not very popular among the people.

In the studied waterway, they are widely represented (more than 20 species). These are: *Alboglossiphonia heteroclite* Linnaeus, 1761, *Archaeobdella esmonti* Grimm, 1876, *Batracobdella paludosa* Carena, 1824, *Caspiobdella caspica* Selensky, 1915, *C. fadejewi* Epshtein, 1961, *Erpobdella lineata* O.F. Muller, 1774, *E. nigricollis* Brandes, 1899, *E. octoculata* Linnaeus, 1758, *Fadejewobdella guingueannulata* Lukin, 1929, *Glossiphonia complanata* Linnaeus, 1758, *Haementeria costata* O.F. Müller, 1846, *Haemopsis sanguisuga* Linnaeus, 1758, *Helobdella stagnalis* Linnaeus, 1758, *Hemiclepsis marginata* O.F. Muller, 1744, *Hirudo medicinalis* Linnaeus, 1758 (Red Book of Kalmykia, Adygea, Krasnodar Territory), *Piscicola fasciata* Kollar, 1842, *P. geometra* Linnaeus, 1761, *P. respirans* Troschel, 1850 and *Protoclepsis tessulata* Muller, 1774.

Also, due to accidental acclimatization by a person, according to certain data, it is possible to meet with other species: *Caspiobdella tuberculata* Epshtein, 1966, *Dina stschegolewi* Lukin et Epstein, 1960,

Erpobdella testacea Savigny, 1820, *Glossiphonia concolor* Apathy 1888, *G. verrucata* Müller, 1844, *Herpobdella monostriata* Gedroyc, 1916, *Limnatis nilotica* Savigny, 1822, *Trocheta bykowskii* Gedroyc, 1913 and even amphibia *Trocheta subviridis* Dutrochet, 1817.

Treatment with leeches (hirudotherapy) has been widely used since ancient times. Used for the treatment of leeches are grown on special plants for the sake of sterility and are used only once. In general, the number of leeches in the region is low, and their species diversity is established in sufficient detail.

Phylum MOLLUSCA

Assessment of the total number of species of mollusks according to different sources of information is from 100 to 200 thousand. In Russia there are about 3000 species. Mollusks have mastered almost all habitats: marine and freshwater reservoirs, soil, land-air environment. Some mollusks have become temporary or permanent parasites of other animals. Other mollusks are important for humans. They serve as food, they are used for technical purposes, pearls are extracted from them.

Class GASTROPODA

The most numerous class in the Mollusca type (up to 80% of the species). The majority of gastropods are characterized by the presence of a solid turbo-spiral shell. Another typical sign of gastropods is that most of them have lost bilateral symmetry.

From the point of view of the description of species diversity, this group of animals is very complex due to the constant and numerous re-writings, the presence of many synonyms. In our case, only those species whose name is confirmed in international databases are listed. In this regard,

some of the species accepted only in Russian-language sources from the list below are excluded.

More or less reliable in the region is recognized the presence of the following species (without caves): *Acroloxus caucasicus* Kruglov et Starobogatov, 1991, *A. lacustris* Linnaeus, 1758, *A. oblongus* Lightfoot, 1786, *Aenigmomphiscola europaea* Kruglov & Starobogatov, 1981, *Ae. uvalievae* Kruglov & Starobogatov, 1981, *Ancylus benoitianus* Bourguignat, 1862, *A. capuloides* Porro, 1838, *A. fluviatilis* Müller, 1774, *A. gibbosus* Bourguignat, 1853, *A. jani* Bourguignat, 1853, *Anisus leucostoma* Millet, 1813, *A. septemgyratus* Rossmässler, 1835, *A. spirorbis* Linnaeus, 1758, *A. strauchianus* Clessin, 1886, *A. vortex* Linnaeus, 1758, *Aplexa ataxiaca* Fagot, 1883, *A. hypnorum* Linnaeus, 1758, *Armiger bielzi* Kimakowicz, 1884, *Bathymphalus contortus* Linnaeus, 1758, *Bithynia boissieri* Küster, 1852, *B. leachii* Sheppard, 1823, *B. tentaculata* Linnaeus, 1758, *Caspia gmelinii* Clessin & W. Dybowski, 1887, *C. knipowitchi* Makarov, 1938, *C. makarovi* Golikov & Starobogatov, 1966, *Caspiohydrobia convexa* Logvinenko et Starobogatov, 1966, *C. eichwaldiana* Golikov et Starobogatov, 1966, *Cincinna chersonica* Chernogorenko et Starobogatov, 1987, *Digyrcidum bourguignati* Paladilhe, 1869, *Euxinipyrgula azovica* Golikov et Starobogatov, 1966, *Eu. milachevitchi* Golikov et Starobogatov, 1966, *Galba truncatula* Müller, 1774, *Gyraulus albus* Müller, 1774, *G. crista* Linnaeus, 1758, *G. ehrenbergi* Beck, 1837, *G. gredleri* Gredler, 1860, *G. laevis* Alder, 1837, *Haitia acuta* Draparnaud, 1805, *Hippeutis complanatus* Linnaeus, 1758, *Hydrobia acuta* Draparnaud, 1805, *H. grimmi* Clessin, 1888, *H. mabiliei* Bourguignat, 1876, *Lithoglyphus fuscus* C. Pfeiffer, 1828, *L. naticoides* C. Pfeiffer, 1828, *Lymnaea badia* Küster, 1862, *L. blautneri* Shuttleworth, 1862, *L. danubialis* Schrank, 1803, *L. doriana* Bourguignat, 1862, *L. euphratica* Mousson, 1874, *L. fulva* Ziegler, 1862, *L. glabra* Müller, 1774, *L.*

glutinosa Mueller, 1774, *L. goupili* Moquin-Tandon, 1856, *L. gueretiniana* Servain, 1881, *L. hartmanni* Studer, 1820, *L. oblonga* Puton, 1847, *L. pachyta* Westerlund, 1890, *L. stagnalis* Linnaeus, 1758, *L. subangulata* Nevill, 1878, *L. thiesseae* Clessin, 1879, *L. vulnerata* Küster, 1862, *Myxas glutinosa* Müller, 1774, *Paraelona fausseki* Beriozkina et Starobogatov, 1995, *P. milachevitchi* Beriozkina et Starobogatov in Anistratenko et Stadnichenko, 1995, *Physa fontinalis* Linnaeus, 1758, *Physella acuta* Draparnaud, 1805, *Planorbarius corneus* Linnaeus, 1758, *Planorbis carinatus* O. F. Muller, 1774, *P. intermixtus* Mousson, 1874, *P. kubanicus* Soldatenko & Starobogatov, 1998, *P. philippianus* Monterosato, 1902, *P. planorbis* Linnaeus, 1758, *P. sieversi* Mousson, 1873, *Pseudopaludinella cissana* Radoman, 1973, *P. leneumicra* Bourguignat, 1876, *Radix auricularia* Linnaeus, 1758, *R. balthica* Linnaeus, 1758, *R. lagotis* Schrank, 1803, *R. peregra* Müller, 1774, *Segmentina caucasica* Kruglov et Soldatenko, 1997, *S. distinguenda* Gredler, 1859, *S. malkae* Kruglov et Soldatenko, 1997, *S. molytes* Westerlund, 1885, *S. nitida* O. F. Muller, 1774, *S. oelandica* Westerlund, 1885, *S. servaini* Bourguignat in Servain, 1881, *Stagnicola palustris* Muller, 1774, *Thalassobia rausiana* Radoman, 1974, *Theodoxus astrachanicus* Linnaeus, 1758, *Th. fluviatilis* Linnaeus, 1758, *Th. pallasi* Lindholm, 1924, *Th. sarmaticus* Lindholm, 1901, *Th. subthermalis* Bourguignat in Issel, 1865, *Turricaspia astrachanica* Pirogov, 1971, *T. bogensis* Dubois in Küster, 1852, *T. boltovskoji* Golikov, A.N. & Y.I. Starobogatov, 1966, *T. lincta* Milashevich, 1908, *T. martensii* Clessin & W. Dybowski in W. Dybowski, 1888, *T. sajenkovae* Logvinenko & Starobogatov, 1968, *T. spica* Eichwald, 1855, *T. triton* Eichwald, 1838), *T. variabilis* Eichwald, 1838, *T. vinogradovi* Logvinenko & Y.I. Starobogatov, 1968, *Valvata cristata* O. F. Muller, 1774, *V. piscinalis* O. F. Muller, 1774, V.

pulchella Studer, 1820, *Viviparus ater* Linnaeus, 1758, *V. contectus* Millet, 1813 and *V. viviparous* Linnaeus, 1758.

Many freshwater snails are very popular among aquarists, as they are an ornament of the aquarium. This leads to accidental acclimatization of new species of mollusks, for example, in warm water reservoirs.

In nature, mollusks are an important component of the nutrition of many fish and birds. Continuous monitoring of species diversity is required due to the fact that many of them are intermediate hosts of many dangerous parasites. However, determining the species diversity of mollusks remains a challenge.

Class BIVALVIA

These are sedentary mollusks, whose body is flattened from the sides and enclosed in a shell of two parts. These parts are attached to each other on one side by a flexible ligament. Their connection is also provided by teeth located on each part of the shell and constituting the lock. Most representatives of this class have lamellar gills (ktenidia), which perform not only a respiratory function, but also the role of filters.

The systematics of these animals is also very complex, possibly due to the intensive development of Russian "neo-systematism" lately. In Russia there are more than 1000 freshwater and saltwater species. Considering the predominantly international nomenclature of species, the fauna of the two-folded mollusks in the region is presumably represented by the following species: *Adacna colorata* Eichwald, 1829, *A. glabra* Ostroumoff, 1905, *A. laeviuscula* Eichwald, 1829, *Amesoda draparnaldii* Clessin, 1873, *Anodonta anatine* Linnaeus, 1758, *A. cygnea* Linnaeus, 1758, *A. falcate* Drouët, 1879, *A. piscinalis* Nilsson, 1823, *A. stagnalis* Gmelin, 1791, *A. zellensis* Gmelin, 1791, *Batavusiana crassa* Philipsson, 1788, *Cardium casertanum* Poli, 1791,

Cerastoderma glaucum Bruguière, 1789, *Cingulipisidium khurdinensis* Pirogov & Starobogatov in Stadnichenko, 1984, *Colletopterum anatinum* Linnaeus 1758, *C. cyreum* Drouet 1881, *C. depressum* Bourguignat, 1881, *C. piscinale* Nilsson, 1822, *C. ponderosum* Pfeiffer, 1825, *C. subcirculare* Clessin, 1873, *Corbicula fluminea* Müller, 1774, *Crassiana crassa* Philipsson, 1788, *C. musiva* Spengler, 1793, *Cyclas boettgeriana* Servain, 1882, *C. rivicola* Leach in Lamarck, 1818, *Cyclocalyx lapponicus* Clessin, 1873, *C. solidus* Clessin in Westerlund, 1873, *Hypanis vitrea* Eichwald, 1829 (Red Book of Kalmykia), *Dreissena polymorpha* Pallas, 1771, *Monodacna caspia* Eichwald, 1829, *Pisidium amnicum* O. F. Muller, 1774, *P. annandalei* Prashad, 1925, *P. casertanum* Poli, 1791, *P. henslowanum* Sheppard, 1823, *P. hispanicum* Clessin, 1879, *P. ibericum* Clessin, 183, *P. milium* Held, 1836, *P. moitessierianum* Paladilhe, 1866, *P. nitidum* Jenins, 1832, *P. obtusale* Lamarck, 1818, *P. parvulum* Westerlund, 1873, *P. personatum* Malm, 1855, *P. pulchellum* Jenyns, 1832, *P. subtruncatum* Malm, 1855, *P. supinum* A. Schmidt, 1851, *P. tenuilineatum* Stelfox, 1918, *P. tetragonum* Normand, 1854, *P. torquatum* Stelfox, 1918, *Pseudanodonta elongate* Hollandre, 1836, *Sinanodonta woodiana* Lea, 1834, *Sphaerium asiaticum* von Martens, 1864, *S. corneum* Linnaeus, 1758, *S. lacustre* O. F. Muller, 1774, *S. ovale* Ferussac, 1807, *S. rivicola* Lamarck, 1818, *S. solidum* Normand, 1844, *Unio crassus* Retzius, 1783, *U. pictorum* Linnaeus, 1758, *U. stevenianus* Drouët, 1881 and *U. tumidus* Philipson, 1788.

In some reservoirs, especially in the Novotroitsk Reservoir, bivalve molluscs have developed excessively, which, for example, hinders the operation of the local GRES. Meanwhile, earlier these animals were widely used in feed production, as well as for making small crafts (buttons, pendants, talismans, etc.). This group of animals requires constant monitoring.

Phylum ARTHROPODA

The main feature of representatives of this group of animal organisms is the presence of an external skeleton formed by a partially sclerotized chitinous cuticle and a heteronomously segmented body with paired articulate limbs (at least at some stages of the life cycle). The role of arthropods in nature is very significant. They inhabit almost all habitats and affect them. Arthropods serve as food for animals, pollinate plants, transfer infectious diseases and damage agricultural crops. Some representatives (bees, silkworms) are kind of pets.

Class ARACHNIDA

In the modern fauna they are represented almost exclusively by terrestrial forms. However, by origin they are water arthropods, originally inhabiting the sea. Some of these animals remained aquatic or migrated into the water again.

Ordo ARANEAE

The body of spiders is divided into two parts: the cephalothorax (Latin prosoma, or cephalothorax consisting of a durable material - chitin) and the abdomen. From insects of spiders distinguish the presence of 4 pairs of limbs. All spiders are predators, they feed mainly on insects. In all there are about 42 thousand species. In our waters there is only one fully aquatic spider - *Argyroneta aquatic* Clerck, 1758.

However, it is necessary to note also the species inhabiting the shores and temporarily visiting water bodies: *Arctosa leopardus* Sundevall, 1833, *Dolomedes fimbriatus* Clerck, 1757, *Larinioides cornutus* Clerck, 1757, *Pachygnatha clercki* Sundevall, 1823, *Pardosa agricola* Thorell, 1856, *P. paludicola* Clerck, 1757, *P. plumipes* Thorell, 1875, *P. riparia* C. L. Koch,

1833, *Pirata hygrophilus* Thorell, 1872, *P. knorri* Scopoli, 1763, *P. piscatorius* Clerck, 1758, *Sitticus caricis* Westring, 1861 and *Tetragnatha extensa* Linnaeus, 1758.

From a practical point of view, it is necessary to note only their danger to humans, since bites, for example, spider - silver are very sensitive. Very interesting group for research.

Ordo ACARI

This is one of the most noticeable inhabitants of water bodies (about 5 thousand species) because of its bright coloration, which strikes with its diversity. This is one of the most noticeable inhabitants of water bodies (about 5 thousand species) because of its bright coloration, which strikes with its diversity. There are colors: red (predominant), blue-green, orange, yellow, brown, etc. This is an example of a warning coloration, as these mites are not only predators, but also poisonous.

Water mites have a bag-shaped non-segmented, more or less round body. The mouth is stretched into the "beak", adapted for sucking. Legs with 6 parts and 2 claws.

In our reservoirs there are: *Arrenurus bicuspidator* Berlese, 1885, *A. cuspidifer* Piersig 1894, *A. globator* Muller, 1776, *A. octagonus* Halbert, 1906, *Atractides gibberipalpis* Piers, 1898, *A. nodipalpis* Thor, 1899, *A. spinipes* Koch, 1837, *A. subasper* Koenike, 1902, *Eylais hamata* Koenike, 1897, *E. infundibulifera* Koenike, 1897, *E. rimosa* Piersig 1899, *E. tullgreni* S. Thor, 1899, *Hydrachna cruenta* Muller, 1776, *H. geographica* O. F. Muller, 1776, *H. globosa* De Geer, 1778, *H. goldfeldi* Thor, 1916, *H. skorikowi* Piersig, 1899, *Hydryphantes dispar* Schaub, 1888, *H. koenikei* Maglio, 1906, *H. octoporus* Koenike, 1896, *H. placationis* Thon, 1899, *H. ruber* Geer, 1778, *Hygrobatas calliger* Piersig, 1896, *H. diversiporus*

Sokolow, 1927, *H. fluviatilis* Ström, 1768, , *H. fluviatilis* Ström, 1768, *H. longipalpis* Hermann, 1804, *H. norvegicus* Thor, 1897, *H. trigonicus* Koenike, 1895, *Kongsbergia materna* Thor, 1899, *Lebertia affinis* Sokolow, 1927, *L. balcarica* Sokolow, 1940, *L. glabra* Thor, 1897, *L. insignis* Neuman, 1880, *L. komareki* Thor, 1914, *L. minutipalpis* K. H. Viets, 1920, *L. rivulorum* K. H. Viets, 1933, *L. schechteli* Thor, 1913, *L. tuberosa* Thor, 1914, *Limnesia koenikei* Piersig 1894, *L. maculata* O.F.Muller, 1776, *L. undulata* Muller, 1776, *Limnohalacarus wackeri* Walter, 1914, *Neumania deltooides* Piersig, 1894, *N. papillosa* Soar., 1902, *N. spinipes* Muller, 1776, *N. vernalis* Müller 1776, *Panisopsis thori* Walter 1907, *Piona carnea* Koch, 1836, *P. clavicornis* Müller, 1776, *P. coccinea* Koch, 1836, *P. conglobata* Koch, 1836, *P. discrepans* Koenike, 1895, *P. longipalpis* Krendowski, 1878, *P. nodata* Müller, 1776, *P. obturbans* Piersig, 1896, *P. pusilla* Neuman, 1875, *P. uncata* Cook, 1960, *P. variabilis* Koch, 1836, *Pionopsis lutescens* Herrmann, 1804, *Protzia cabardinica* Sokolow, 1940, *P. caucasica* Sokolow, 1937, *P. elongata* Sokolow, 1927, *Sperchon clupeiifer* Piersig, 1896, *S. compactilis* Koenike, 1911, *S. denticulatus* Koenike, 1895, *S. glandulosus* Koenicke, 1886., *S. plumifer* Thor, 1902, *S. setiger* Thor, 1898, *S. tarnogradskii* Sokolow, 1927, *Sperchonopsis verrucosa* Protz, 1896, *Tiphys ensifer* Koenike, 1895, *T. ornatus* Koch, 1836, *T. torris* Muller, 1776 and *Unionicola crassipes* Muller, 1776.

Also you can find 2 species of mites from the group of marine (Halacaridae): *Limnohalacarus wackeri* Walter, 1914 and *Porohalacarus alpinus* Thor, 1910.

It should be noted and hydrophilic species of ticks (Oribatida): *Heterozetes palustris* Willmann, 1917, *Hydrozetes lemnae* Coggi, 1899, *H. thienemanni* Strenzke, 1943, *Limnozetes ciliates* Schrank, 1803, *L. rugosus* Sellnick 1923, *Malaconothrus mollisetosus* Hammen 1952, *Trimalaconothrus*

glaber Michael, 1888, *T. novus* Sellnick, 1921 and *Zetomimus furcatus* Pearce et Warburton, 1906.

From a practical point of view, water mites are noted as parasites of insects (larvae) and active predators, incl. as pests in fish farming. In general, the study of aquatic mites is mainly associated with fish farming. In this regard, their further study is quite promising.

Class INSECTA-ENTOGNATHA

These animals are 1-5 mm in size. There is a relatively small number of species. They are usually characterized by an insignificant amount, softness and tenderness of the covers, associated with habitation in a humid environment and often with the ability to skin breathing, and in many, and the development of the abdominal motor appendages. It dwells mainly in soil in all regions of the Earth. But there are hydrophilic species. On the surface of the water, animals can bounce, repelling even from the surface water film, since their body is not wetted by water. It is curious that when jumping a tree-leg, it remains exactly at the place where it jumps, does not slip, even jumping on a smooth glass.

In our reservoirs you can find: *Ballistura schoetti* Dalla Törre, 1895, *Desoria fennica* Reuter, 1895, *Entomobrya nivalis* Linne, 1758 (in wet moss and snow), *Isotoma viridis* Bourlet, 1895, *Isotomurus alticolus* Carl, 1946 (in wet moss), *I. palustris* Müller, 1776, *Pachytoma crassicauda* Tullberg, 1871, *Podura aquatica* Linnaeus, 1758 (the most common in the region), *Sminthurides aquaticus* Bourlet, 1842, and also, perhaps *Arrhopalites principalis* Stach, 1945, *Hypogastrura gisini* Strenzke, 1954, *Isotoma riparia* Nicolet, 1842, *Mesaphorura italica* Rusek, 1971, *M. sylvatica* Rusek, 1971, *Sminthurides malmgreni* Tullberg, 1876, *S. pseudassimilis* Stach, 1956 and and *S. schoetti* Axelson, 1903 (in wet moss).

From a practical point of view, these animals are interesting as biological indicators, and also as a permanent object of feeding of carp fish larvae.

Class INSECTA – ECTOGNATHA

The body of insects is covered with a chitinized cuticle that forms an exoskeleton. The body consists of three parts: the head, chest and abdomen. In many groups of insects, the second and third segments of the breast carry a pair of wings. The legs are three pairs, and they are attached to the thoracic area. In the world, according to some assumptions, they are up to 3 - 5 million. In Russia, the number of their species is estimated at around 250 thousand. The importance of insects in nature is enormous, as they take part in various biological processes - pollination of flowering plants, soil formation, decomposition of plant litter, destruction of corpses and excrement of other animals, etc. Insects themselves serve as food for birds, amphibians, insectivorous animals, etc. It is well known that some insects carry causative agents of serious diseases. Among the herbivorous forms are many pests of agricultural plants and species. Among the herbivorous forms are many pests of agricultural plants and trees. Some insect species serve as raw materials for industry or food for humans. In general, aquatic insects are the least known group among others, and therefore their study is very promising.

Ordo PLECOPTERA

A widely distributed detachment of amphibious insects with incomplete transformation. The life span of the winged insect stage is short - just a few days or weeks. The most prolonged period of life (from one year to five years) is spent in the eggs and larvae. The larvae of these insects live mainly in mountain streams with pure, cold, oxygenated water. At the end of

the body of the larvae, there are only 2 tail filaments, provided with short bristles. 53 species are noted in Russia.

Within the studied region there are: *Agnatina senilis* Klapálek, 1921, *Amphinemura mirabilis* Martynov, 1928, *A. trialetica* Zhiltz., 1957, *Brachyptera transcaucasica* Zhiltz., 1956, *Bulgaroperla mirabilis caucasica* Zhiltzova, 1973, *Capnia arensi* Zhiltzova, 1964, *C. nigra* Pictet, 1833, *C. tuberculata* Zhiltzova, 1964, *Capnopsis schilleri* Rostock, 1892, *Chloroperla zhiltzovae* Zwick, 1967, *Filchneria balcarica* Balin., 1950, *Isoperla bithynica* Kempny, 1908, *Leuctra collaris* Martynov, 1928, *L. delamellata* Zhiltzova, 1960, *L. dispinata* Balin., 1950, *L. dissimilis* Zhiltzova, 1960, *L. furcatella* Martynov, 1928, *L. fusca* Linnaeus, 1758, *L. hippopus* Kempny, 1899, *L. martynovi* Zhiltzova, 1960, *L. meyi* Braasch, 1981, *L. minuta* Zhiltzova, 1960, *L. sanainica* Zhiltzova, 1960, *L. simplex* Zhiltzova, 1960, *L. tarnogradskii* Martynov 1928, *L. torrenticola* Zhiltzova, 1960, *L. uncinata* Martynov 1928, *L. zangezurica* Zhiltzova, 1960, *Nemoura brevipennis* Martynov, 1928, *N. cinerea* Retzius, 1783, *N. elegantula* Martynov, 1928, *N. martynovia* Ciaassen, 1936, *N. monae* Joost, 1977, *Paragnetina transoxonica* Klapálek, 1921, *Perla caucasica* Guerin-Meneville, 1838, *P. pallida* Guerin-Meneville, 1838, *Perlodes microcephala* Pictet, 1833, *Plesioperla sakartvella* Zhiltzova, 1956, *Pontoperla katherinae* Balinsky, 1950, *P. teberdinica* Balinsky, 1950, *Protonemura aculeate* Theischinger, 1976, *P. alticola* Zhiltz., 1958, *P. bacurianica* Zhiltzova, 1957, *P. bifida* Martynov, 1928, *P. brevistyla* Ris, 1902, *P. capitata* Martynov, 1928, *P. dilatata* Martynov, 1928, *P. gladifera* Balin., 1950, *P. microstyla* Martynov 1928, *P. oreas* Martynov 1928, *P. spinulata* Martynov 1928, *P. teberdensis* Zhiltzova, 1958, *P. triangulate* Martynov 1928, *P. vernalis* Zhiltzova, 1958, *P. viridis* Balinsky, 1950, *Siphonoperla hajastanica* Pictet, 1841, *Taeniopteryx caucasica* Zhiltzova, 1981 and *T. nebulosi* Linnaeus, 1758.

The larvae of these insects compose a competition in the nutrition of juvenile fish and simultaneously enter into the spectra of their nutrition. At the larval stage they are most sensitive to any type of contamination and therefore are successfully used as biological indicators. Mostly insects of mountainous areas have been studied, and therefore, it is necessary to study steppe species.

Ordo ODONATA

Group of predatory, well-flying insects. Notable animals, with a movable head, large eyes, short bristle-like antennae, four transparent wings with a dense network of veins and an elongated slender abdomen. Not everyone knows that a significant part of their life dragonflies spend in the water, where their larval development passes. Adult dragonflies feed on insects, grabbing prey on the fly. They destroy mosquitoes, midges and other harmful insects.

A total of 150 species of dragonflies are found on the territory of Russia, of which in the region under study one can meet: *Aeshna affinis* Vander Linden, 1820, *Ae. cyanea* Muller, 1764, *Ae. grandis* Linnaeus, 1758, *Ae. isoceles* Müller, 1767, *Ae. juncea* Linnaeus, 1758, *Ae. mixta* Latreille, 1805, *Ae. serrata* Hagen, 1856, *Ae. viridis* Eversmann, 1836, *Anaciaschna isosceles* Muller 1764 (Red Book of Kabardino-Balkaria), *Anax imperator* Leach, 1815 (Red Book of the Russian Federation, Stavropol Territory of Karachaevo-Cherkessia, Kabardino-Balkaria, Adygea, Rostov Region, Krasnodar and Stavropol Territories, Kalmykia), *A. parthenope* Sélus, 1839, *B. pretense* Muller, 1764, *Calaeschina microstigma* Selys, 1883, *Calopteryx intermedia* Selys, 1887, *C. splendens* Harris, 1782, *C. virgo* Linnaeus, 1758, *Chalcolestes parvidens* Artobolevski, 1929, *C. viridis* Vander Linden, 1825, *Coenagrion armatum* Charpentier, 1840, *C. hastulatum* Charpentier, 1825, *C. lunulatum* Charpentier, 1840, *C. ornatum* Selys, 1850, *C. puella* Linnaeus,

1758, *C. pulchellum* Vander Linden, 1825 (Red Book of Kabardino-Balkaria), *C. scitulum* Rambur, 1842 (Red Book of Kabardino-Balkaria), *C. syriacum* Morton, 1924, *Cordulegaster boltonii* Donovan, 1807, *C. insignis* Schneider, 1845, *Cordulia aenea* Linnaeus, 1758, *Crocothemis erythraea* Brullé, 1832 (The Red Book of the Rostov Region), *Enallagma cyathigerum* Charpentier, 1840, *Epitheca bimaculata* Charpentier, 1825, *Erythromma najas* Hanseemann, 1823, *E. viridulum* Charpentier, 1840, *Gomphus flavipes* Charpentier, 1825 (Red Book of Kabardino-Balkaria), *G. vulgatissimus* Linnaeus, 1758 (Red Book of Kabardino-Balkaria), *Hemianax ephippiger* Burmeister, 1839, *Ischnura elegans* Van der Linden, 1820, *I. fontaineae* Morton 1905, *I. pumilio* Charpentier, 1825, *I. senegalensis* Rambur 1842, *Lestes barbarus* Fabricius, 1798 (Red Book of Kabardino-Balkaria), *L. dryas* Kirby, 1890 (Red Book of Kabardino-Balkaria), *L. macrostigma* Eversmann, 1836, *L. sponsa* Hanseemann, 1823, *L. virens* Charpentier, 1825, *Leucorrhinia caudalis* Charpentier, 1840, *L. dubia* Vander Linden, 1825, *L. pectoralis* Charpentier, 1825, *L. rubicunda* Linnaeus, 1758, *Libellula quadrimaculata* Linnaeus, 1758 (Red Book of Kabardino-Balkaria, Rostov Region), *L. depressa* Linnaeus, 1758 (Red Book of Karaechevo-Circassia, Kabardino-Balkaria), *L. fulva* Muller, 1764 (Red Book of Kabardino-Balkaria), *Libellula depressa* Linnaeus, 1758, *L. quadrimaculata* Linnaeus, 1758, *Lindenia tetraphylla* Vander Linden, 1825, *Nehalennia speciosa* Charpentier, 1840, *Onychogomphus assimilis* Schneider, 1845, *O. flexuosus* Schneider, 1845, *O. forcipatus* Linnaeus, 1758, *O. lefebvreii* Rambur, 1842, *Ophiogomphus cecilia* Fourcroy, 1785, *Orthetrum anceps* Schneider 1845, *O. brunneum* Fonscolombe, 1837, *O. cancellatum* Linnaeus, 1758, *O. coerulescens* Fabricius, 1798, *O. sabina* Drury, 1770, *Pantala flavescens* Fabricius 1798, *Platynemis dealbata* Selys in Selys and Hagen, 1850, *P. pennipes* Pallas, 1771, *Pyrrhosoma nymphula* Sulzer, 1776, *Selysiotthemis nigra* Vander

Linden, 1825, *Somatochlora flavomaculata* Vander Linden, 1825, *S. metallica* Vander Linden, 1825, *Sympecma fusca* Vander Linden, 1820, *S. gobica* Förster, 1900, *S. paedisca* Brauer, 1882, *Sympetrum decoloratum* Selys, 1884, *S. depressiusculum* Selys, 1841, *S. flaveolum* Linnaeus, 1758, *S. fonscolombii* Selys, 1840, *S. meridionale* Selys, 1841, *S. pedemontanum* Allioni, 1776, *S. sanguineum* Muller, 1764, *S. striolatum* Charpentier, 1840, *S. tibiale* Ris 1897, *S. vulgatum* Linnaeus, 1758, *Stylurus flavipes* Charpentier, 1825 (Red Book of the Rostov Region) and *Tetrix tenuicornis* Sahlberg, 1891.

May spread pinnamonosis - a dangerous disease of domestic birds. Large larvae of winged dragonflies are able to eat fry in fish farms, than do great harm. On the other hand, larvae of dragonflies eagerly eat benthic fishes. This group of insects in the species ratio in the region has been studied in sufficient detail.

Ordo EPHEMEROPTERA

The characteristic features of Ephemeroptera larvae are three (rarely two) thin long tail filaments at the end of the abdomen. There are two pairs of wings with rich venation, with the rear pair always shorter than the first, or reduced. Adults Ephemeroptera live from several hours to several days and do not eat. Departure from the water Ephemeroptera is often of a massive nature, while it is possible to observe the swarming of insects, during which a meeting of the sexes occurs. The flight of these insects consists of monotonously repeated combinations of movements. Quickly waving their wings, they soar up, and then stop and thanks to a large surface of the wings and long tail threads, planning, descend down. This "dance" is characteristic of Ephemeroptera during the breeding season.

Within the studied region there are: *Acentrella inexpectata* Tshernova, 1928, *Baetis baksan* Soldán, 1977, *B. braaschi* Zimmermann,

1980, *B. buceratus* Eaton, 1870, *B. digitatus* Bengtsson, 1912, *B. gadeai* Pictet, 1843, *B. gracilis* Bogoescu et Tabacaru 1957, *B. ilex* Jacob, 1978, *B. lutheri* Müller-Liebenau, 1967, *B. muticus* Linnaeus 1758, *B. niger* Linnaeus, 1761, *B. rhodani* Pictet, 1843, *B. vardarensis caucasicus* Zimmerman, 1981, *B. vernus* Curtis, 1834, *Caenis horaria* Linnaeus, 1758, *C. macrura* Stephens, 1835, *Choroterpes picteti* Eaton, 1871, *Cloeon dipterum* Linnaeus, 1761, *C. inscriptum* Bengtsson, 1940, *Ecdyonurus aurantiacus* Burmeister 1839, *E. ornatipennis* Tshernova, 1938, *E. venosus* Fabricius, 1775, *Electrogena lateralis* Curtis 1834, *E. squamata* Braasch, 1978, *E. zimmermanni* Sowa, 1984, *Epeorus alpestris* Braasch, 1979, *E. assimilis* Eaton, 1885, *E. caucasicus* Tshernova, 1938, *E. magnus* Braasch, 1978, *E. nigripilosus* Sinitshenkova 1976, *E. sinitshenkovae* Braasch & Zimmermann, 1979, *E. soldani* Nguyen & Bae, 2004, *E. zaitsevi* Tshernova, 1981, *E. znojkoii* Thomas & Dia 1982, *Filchneria balcarica* Balinsky, 1950, *Habroleptoides caucasica* Tshernova, 1931, *H. confuse* Sartori & Jacob, 1986, *Habrophlebia fusca* Curtis, 1834, *Heptagenia coeruleans* Rostock, 1878, *H. flava* Rostock, 1878, *H. samochai* Demoulin, 1973, *H. sulphurea* Müller, 1776, *Oligoneuriella tskhomelidzei* Sowa & Zosidze 1973, *Palingenia fuliginosa* Boeber in Georgi, 1802, *P. longicauda* Olivier, 1791, *P. sublongicauda* Olivier, 1791, *Procloeon unguiculatum* Tshernova, 1941, *Rhithrogena alpestris* Eaton, 1885, *Rh. caucasica* Braasch, 1979, *Rh. decolorata* Sinitshenkova, 1973, *Rh. expectata* Braasch, 1979, *Rh. iridina* Kolenati, 1839, *Rh. joostiana* Sowa, 1976, *Rh. klausnitzeriana* Braasch, 1979, *Rh. laciniosa* Sinitsh., 1979, *Rh. lucida* Braasch, 1979, *Rh. potamalis* Braasch, 1979, *Rh. stackelbergi* Sinitshenkova 1973, *Rh. teberdensis* Kluge 2004, *Rh. umbrosa* Braasch, 1979, *Rh. zhiltzovae* Sinitshenkova, 1979, *Serratella ignita* Poda, 1761, *S. maculocaudata* Kluge 2004, *Siphonurus lacustris* Eaton, 1870 and *Torleya major* Klapálek, 1905.

In some cases, the flight of these insects is so massive that the insect corpses clog the water supply networks. On the other hand, the larvae of these insects are of great importance in the nutrition of many fish. The biodiversity of Ephemeroptera has been studied in detail in the region.

Ordo HETEROPTERA

Hemeroptera, represent the largest detachment of insects with incomplete transformation. Currently, over 30,000 species of bedbug are known, spread throughout the globe. The name Hemeroptera was obtained due to the peculiar structure of the front wings, which differ sharply from the rear ones, having the form of transparent membranes with a small number of veins. The fore wings are turned into elytra, heterogeneous in the degree of their chitinization. The main part of the elytra consists of solid chitin, while the apical part is membranous and veins on it are clearly visible. The main sign of these insects is the mouth of a piercing-sucking type. Some of these insects live in water or on water. The latter are due to the fact that their feet are not wetted with water, and therefore they can run freely on its surface, for example a water skater.

In the region you can find: *Aphelocheirus aestivalis* Fabricius, 1794, *Aquarius paludum* Fabricius, 1794, *Arctocorisa carinata* Sahlberg, 1819, *Callicorixa gebleri* Fieber, 1848, *C. praeusta* Fieber, 1848, *C. product* Reuter, 1880, *Corixa affinis* Leach, 1817, *C. dentipes* Thomson, 1869, *C. jakowleffi* Horvath, 1879, *C. panzer* Fieber, 1848, *C. punctate* Illiger, 1807, *Cymatia coleoptrata* Fabricius, 1777, *C. rogenhoferi* Fieber, 1848, *Gerris argentatus* Schummel, 1832, *G. asper* Fieber, 1860, *G. caucasicus* Kanyukova, 1982, *G. costae* Herrich-Schäffer, 1850, *G. lacustris* Linnaeus, 1758, *G. lateralis* Schummel 1833, *G. odontogaster* Zetterstedt, 1828, *G. thoracicus* Schummel, 1832, *Glaenocorisa propinqua* Fieber, 1860, *Hebrus montanus* Kolenati,

1857, *H. pilipes* Kanyukova, 1997, *H. ruficeps* Thomson, 1871, *Heliocorixa vermiculata* Puton, 1874, *Hesperocorixa linnaei* Fieber, 1848, *H. parallela* Fieber, 1860, *H. sahlbergi* Fieber, 1848), *Hydrometra gracilentata* Horváth, 1899, *H. stagnorum* Linnaeus 1758, *Ilyocoris cimicoides* Linnaeus, 1758, *Limnoporus rufoscutellatus* Latreille, 1807, *Mesovelgia furcate* Mulsant & Rey, 1852, *M. thermalis* Horvath, 1915, *Micronecta griseola* Horváth, 1899, *M. poweri* Douglas & Scott, 1869, *M. pusilla* Horváth, 1895, *Microvelia reticulata* Burmeister, 1835, *Nepa cinerea* Linnaeus, 1758, *Notonecta glauca* Linnaeus, 1758, *N. lutea* Müller, 1776, *N. reuteri* Hungerford, 1928, *N. viridis* Delcourt, 1909, *Ochterus marginatus* Latreille, 1804, *Paracorixa caspica* Horvath, 1878, *P. concinna* Fieber, 1848, *Plea minutissima* Leach, 1817, *Ranatra linearis* Linnaeus, 1758, *R. unicolor* Scott, 1874 (Red Book of Adygea), *Sigara assimilis* Fieber, 1848, *S. daghestanica* Jansson, 1983, *S. distincta* Fieber, 1848, *S. fallen* Fieber, 1848, *S. iactans* Jansson, 1983, *S. lateralis* Leach, 1817, *S. nigrolineata* Fieber, 1848, *S. scotti* Douglas & Scott, 1868, *S. semistriata* Fieber, 1848, *S. striata* Linnaeus, 1758, *Velia affinis* Kolenati, 1856 and *V. saulii* Tamanini, 1947.

Water bedbug occupy an ecological niche of small predators in water bodies. Bites of predatory Hemeroptera can be very painful. In addition, bedbugs can inflict a certain harm on fish farms, attacking fish juveniles. In connection with easy accessibility are studied in detail.

Ordo MEGALOPTERA

This small number of species (a few dozen species in total) includes insects of large or medium size with 4 reticulate wings. Usually the larvae of these insects run along the bottom of water bodies. In the studied region, you can meet representatives of only one genus of this group: *Sialis abchasica*

Vshivkova, 1985, *S. fuliginosa* Pictet, 1836, *S. klingstedti* Vshivkova, 1985 and *S. zhiltzovae* Vshivkova, 1985.

The practical importance of this group of insects is small, since they do not create large concentrations, and therefore do not do much harm to fish farms. In general, the study of the species diversity of this group of insects in the region is quite promising.

Ordo NEUROPTERA

This is a detachment of free-living terrestrial insects with complete transformation. Adult animals have a body up to 10 mm and a wingspan of up to 30 mm. This relatively small group - 6 thousand species. Neuroptera have an elongated body with a soft surface. 2 pairs of wings of these insects are covered with a dense network of veins. The color of Neuroptera is tender green or brown, often with bright golden eyes. These are predominantly predatory insects.

A small part of these insects live in water in a larval state. These dark larvae have very long, sharp mouth parts, which pierce the cells of the sponges, sucking out their contents. The larvae then appear on the surface of the body of the sponge, then hide in the cavity of its body, never rising to the surface of the water. Pupation of these insects occurs outside the water, on the shore, at the end of wintering.

Within the studied region, the following species associated with water can be found: *Osmylus elegantissimus* Kozhanchikov, 1951, *O. fulvicephalus* Scopoli, 1763, *O. multiguttatus* McLachlan, 1870 and *Sisyra terminalis* Curtis, 1854. They have no significant practical significance, they have not been studied sufficiently.

Ordo COLEOPTERA

Many beetles are closely related to water as a habitat. Beetles are found in fresh and brackish water reservoirs of all species (including underground ones). Most prefer small, shallow or weakly flowing reservoirs with abundant vegetation, among which adults and larvae (or only larvae) most often focus.

In Russia there are about 700 species of water beetles. In the studied territory, you can find the following water and coastal beetles: *Acilius sulcatus* Linnaeus, 1758, *Agabus amoenus* Solsky, 1874, *A. biguttatus* Olivier, 1795, *A. bipustulatus* Linnaeus, 1767, *A. caraboides* Sharp, 1882, *A. congener* Thunberg, 1794, *A. conspersus* Marsham, 1802, *A. dilatatus* Brullé, 1832, *A. faldermanni* Zaitzev, 1927, *A. fulvaster* Zaitzev, 1906, *A. glacialis* Hochhuth, 1846, *A. guttatus* Paykull, 1798, *A. labiatus* Brahm, 1790, *A. lineatus* Gebler, 1848, *A. melanarius* Aube, 1837, *A. nebulosus* Forster, 1771, *A. paludosus* Fabricius, 1801, *A. pseudoclypealis* Scholz, 1933, *A. sturmii* Gyllenhal, 1808, *A. undulates* Schrank, 1776, *A. unguicularis* C.G. Thomson, 1867, *A. zimmermanni* Scholz, 1920, *Anacaena limbata* Fabricius, 1792, *A. lutescens* Stephens, 1829, *Augyles flavidus* Rossi, 1794, *A. hispidulus* Kiesenwetter, 1843 (beaches and shallows), *A. sericans* Kiesenwetter, 1843, *Aulonogyrus concinnus* Klug, 1834, *Berosus frontifoveatus* Kuwert, 1888, *B. fulvus* Kuwert, 1888, *B. luridus* Linnaeus, 1761, *B. signaticollis* Charpentier, 1825, *B. spinosus* Steven, 1878, *Bidessus alienus* Zimmermann, 1919, *B. nasutus* Sharp, 1887, *B. pusillus* Lea, 1899, *B. unistriatus* Goeze, 1777, *Cercyon convexiusculus* Stephens 1829, *C. bifenestratus* Kuster, 1851, *C. granarius* Erichson, 1837, *Chaetarthria seminulum* Herbst, 1797, 1775, *Colymbetes fuscus* Linnaeus, 1758, *C. semenowi* Jakovlev, 1896, *C. striatus* Linnaeus, 1758, *Copelatus haemorrhoidalis* Fabricius, 1787, *Cybister lateralimarginalis* De Geer, 1774, *Cyphon coarctatus* Paykull, 1799, *Cyphon buceros* Nyholm,

1950, *C. konsbergensis* Munster, 1924 *C. laevipennis*, *C. padi* Linnaeus, 1758), *C. palustris* Thomson, 1855, *C. pubescens* Fabricius, 1792, *C. variabilis* Thunberg, 1785, *Donacia aequidorsis* Jacobson, 1894, *D. aquatica* Linnaeus, 1758, *D. crassipes* Fabricius, 1775, *D. impressa* Paykull, 1800, *D. versicolorea* Brahm, 1790, *Dryops auriculatus* Geoffroy, 1785, *D. lutulentus* Erichson, 1847, *D. rufipes* Krynicki, 1832), *D. similis* Bollow, 1936, *Dryops viennensis* Laporte, 1840, *Dytiscus circumcinctus* Fabricius, 1801, *D. circumflexus* Fabricius, 1801, *D. dimidiatus* Bergsträsser, 1778, *D. lapponicus* Gyllenhal, 1808, *D. marginalis* Linnaeus, 1758, *D. persicus* Wehncke, 1876, *D. thianschanicus* Gschwendtner, 1923, *Elmis maugetii* Latreille, 1802, *E. rietscheli* Steffan, 1958, *Enochrus affinis* Thunberg, 1794, *E. bicolor* Fabricius, 1792, *E. coarctatus* Gredler, 1863, *E. fuscipennis* Thomson, 1844, *E. melanocephalus* Olivier, 1792, *E. ochropterus* Marsham, 1802, *E. quadripunctatus* Herbst, 1797, *E. testaceus* Fabricius, 1801, *Eretes sticticus* Linnaeus 1767, *Esolus angustatus* Müller, 1821, *Graphoderus austriacus* Sturm, 1834, *G. cinereus* Linnaeus, 1758, *G. zonatus* Hoppe, 1795, *Graptodytes bilineatus* Sturm, 1835, *G. granularis* Linnaeus, 1767, *G. pictus* Fabricius, 1787, *Gyrinus caspius* Menetries, 1832, *G. colymbus* Erichson, 1837, *G. dejeani* Brulle, 1832, *G. distinctus* Aubé, 1838, *G. marinus* Gyllenhal, 1808, *G. minutus* Fabricius, 1798, *G. natator* Linnaeus, 1758, *G. paykulli* G. Ochs, 1927, *G. substriatus* Stephens, 1829, *G. suffriani* Scriba, 1855, *Haliplus confinis* Stephens, 1828, *H. flavicollis* Sturm, 1834, *H. fluviatilis* Aubé, 1836, *H. fulvus* Fabricius, 1801, *H. furcatus* Seidlitz, 1887, *H. heydeni* Wehncke, 1875, *H. lineatocollis* Marsham, 1802, *H. lineolatus* Mannerheim, 1844, *H. maculatus* Motschulsky, 1860, *H. obliquus* Fabricius, 1787, *H. ruficollis* DeGeer, 1774, *H. variegatus* Sturm, 1834, *H. wehnckeii* Gerhardt, 1877, *Helichus hintoni* Bollow, 1940, *H. solskyi* Zaitzev, 1908, *H. substriatus* Müller, 1806, *Helochares lividus* Forster, 1771, *H. obscurus* O.F.

Müller, 1776, *Helophorus aequalis* C.G. Thomson, 1868, *H. alternans* Genÿ, 1836, *H. angustatus* Motschulsky, 1860, *H. aquaticus* Linnaeus, 1758, *H. brevipalpis* Bedel, 1881, *H. discrepans* Rey, 1885, *H. flavipes* Fabricius, 1792, *H. granularis* Linnaeus, 1760), *H. griseus* Herbst, 1793, *H. lapponicus* Thomson, 1853, *H. longitarsis* Wollaston, 1864, *H. micans* Faldermann, 1835, *H. minutus* Fabricius, 1775, *H. montenegrinus* Kuwert, 1885, *H. nanus* Sturm, 1836, *H. nubilis* Fabricius, 1777, *H. obscurus* Mulsant, 1844, *H. similis* Kuwert, 1887, *H. syriacus* Kuwert, 1885, *Hydaticus continentalis* J. Balfour-Browne, 1944, *H. grammicus* Germar, 1827, *H. schelkovnikovi* Zaitzev, 1913, *H. seminiger* De Geer, 1774, *H. transversalis* Pontoppidan, 1763, *Hydraena caucasica* Kuwert, 1888, *H. dentipalpis* Reitter, 1888, *H. krasnodarensis* Jäch et Diaz, 2006, *H. pontica* Janssens, 1963, *H. prokini* Jäch et Diaz, 2006, *H. pulchella* Germar, 1824, *H. riparia* Kugelann, 1794, *H. solodovnikovi* Jäch et Diaz, 2006, *Hydrobius fuscipes* Linnaeus, 1758, *Hydrochara affinis* Sharp, 1873, *H. caraboides* Linnaeus, 1758, *H. dichroma* Fairmaire, 1829, *H. flavipes* Steven, 1808), *Hydrochus crenatus* Fabricius, 1792, *H. elongatus* Schaller, 1783, *H. flavipennis* Küster, 1852, *H. nodulifer* Reitter, 1897, *H. roberti* Shatrovskiy, 1993, *Hydroglyphus geminus* Fabricius, 1792, *H. signatellus* Klug, 1834, *Hydrophilus aterrimus* Eschscholtz, 1822, *H. piceus* Linnaeus, 1758, *Hydroporus angustatus* Sturm, 1835, *H. discretus* Fairmaire & Brisout, 1859, *H. erythrocephalus* Linnaeus, 1758, *H. jacobsoni* Zaitzev, 1927, *H. kozlovskii* Zaitzev, 1927, *H. marginatus* Duftschmid, 1805, *H. memnonius* Nicolai, 1822, *H. palustris* Linnaeus, 1760, *H. planus* Fabricius, 1781, *H. pubescens* Gyllenhal, 1808, *H. tessellatus* Drapiez, 1819, *Hydrovatus cuspidatus* Kunze, 1818, *Hygrotus confluens* Fabricius, 1787, *H. corpulentus* Schaum, 1864, *H. enneagrammus* Ahrens, 1833, *H. flaviventris* Motschulsky, 1860, *H. impressopunctatus* Schaller, 1783, *H. inaequalis* Fabricius, 1777, *H. marklini* Gyllenhal, 1813, *H. parallelogrammus* Ahrens,

1812, *H. polonicus* Aube, 1842, *H. versicolor* Schaller, 1783, *Hyphydrus ovatus* Linnaeus, 1760, *Ilybius adygeanus* Petrov, Shapovalov et Fery, 2010, *I. ater* De Geer, 1774, *I. chalconotus* Panzer, 1796, *I. cinctus* Sharp, 1882, *I. fenestratus* Fabricius, 1781, *I. fuliginosus* Fabricius, 1792, *I. montanus* Stephens 1828, *I. neglectus* Erichson, 1837, *I. quadriguttatus* Boisduval & Lacordaire, 1835, *I. satunini* Zaitzev, 1913, *I. subaeneus* Erichson, 1837, *I. subtilis* Erichson, 1837, *I. vittiger* Gyllenhal, 1827, *Laccobius albipes* Kuwert, 1890, *L. alternus* Motschulsky, 1855, *L. bipunctatus* Fabricius, 1775, *L. decorus* Gyllenhal, 1827, *L. gracilis* Motschulsky, 1855, *L. hindukuschi* Chiesa, 1966, *L. minutus* Linnaeus, 1758), *L. obscuratus* Rottenberg 1874, *L. simulatrix* Orchymont, 1932, *L. sinuatus* Motsch., 1849, *L. striatulus* Fabricius, 1801), *L. syriacus* Guillebeau, 1896, *Laccophilus hyalinus* De Geer, 1774, *L. minutus* Linnaeus, 1758, *L. poecilus* Klug, 1834, *Limnebius nitidus* Marsham, 1802, *L. papposus* Mulsant, 1844, *L. parvulus* Herbst 1797, *Limnius volckmari* Panzer, 1793, *Limnoxenus niger* Gmelin, 1790, *Macrolea appendiculata* Panzer, 1794, *M. mutica* Fabricius, 1792, *Nebrioporus airumilus* Kolenati, 1845, *N. depressus* Fabricius, 1775, *N. steppensis* Motschulsky, 1860, *N. suavis* Sharp, 1882, *Noterus clavicornis* De Geer, 1774, *N. crassicornis* Müller, 1776, *Ochthebius angusi* Jäch, 1994, *O. delyi* Hebauer, 1990, *O. exculptus* Germar, 1824, *O. fausti* Sharp, 1887, *O. gibbosus* Germar, 1824, *O. impressus* Marsham, 1802, *O. marinus* Paykull, 1798, *O. meridionalis* Rey, 1885, *O. minimus* Fabricius, 1892, *O. peisonis* Ganglbauer, 1901, *O. remotus* Reitter, 1885, *O. subaeneus*, *O. viridis* Peyron, 1858, *Orectochilus villosus* Müller, 1776, *Oreodytes alpinus* Paykull, 1798, *O. davisii* Curtis, 1831, *Paracymus aeneus* Germar, 1824, *Parahelichus angulicollis* Reitter, 1887, *Peltodytes caesus* Duftschmid, 1805, *Platambus lunulatus* Fischer von Waldheim, 1829 (Red Book of Adygea), *P. maculatus* Linnaeus, 1758, *Potamophilus acuminatus* Fabricius, 1792, *Pomatinus*

substriatus Müller, 1806, *Porhydrus lineatus* Fabricius, 1775, *P. obliquesignatus* Bielz, 1852, *Potamophilus acuminatus* Fabricius, 1792, *Praehelichus asiaticus* Motschulsky, 1845, *P. solskyi* Zaitzev, 1908, *Prehelichus longus* Solsky in Fedschenko, 1876, *P. solskyi* Zaitzev, 1908, *Rhantus bistratus* Bergstraesser, 1778, *Rh. frontalis* Mars., 1802, *Rh. notaticollis* Aube, 1837, *Rh. suturalis* W.S. MacLeay, 1825, *Riolus subviolaceus* Müller, 1817, *R. syriacus* Allard, 1869, *Scarodytes halensis* Fabricius 1787, *Scirtes hemisphaericus* Linnaeus, 1767, *S. orbicularis* Panzer, 1793, *Spercheus emarginatus* Schaller, 1783, *Stenelmis consobrina* Dufour, 1835, *Stictotarsus griseostriatus* De Geer, 1774 and *Tanysphyrus lemnae* Paykull, 1792.

In most cases, water beetle are predators. In high-altitude reservoirs, the beetles, in general, are on the top of the food chain. However, among them there are herbivorous species that feed on aquatic plants. The group is very promising for further study.

Ordo HYMENOPTERA

The distinguishing features of this detachment can be attributed to the fact that of the two pairs of wings the hind ones are smaller than the forelegs, wings with a rare network of veins, rarely without veins (there are also wingless forms). The most famous are ants, wasps, bees. Among them there are representatives whose larvae parasitize aquatic animals, mainly in dragonfly eggs.

In this connection, one can point to the presence of some specific species in the region under study, to some extent, presumably. Скопее всего это: *Ademon decrescens* Nees, 1811, *Agriotypus armatus* Curtis, 1832, *Aprostocetus citripes* Thomson, 1878, *A. natans* Kostjukov & Fursov, 1987, *A. zerovae* Kostjukov & Fursov, 1987, *Chaenusa conjungens* Nees von

Esenbeck 1811, *Hygroplitis rugulosus* Nees, 1834, *H. russatus* Haliday, 1834, *Mestocharis bimacularis* Dalman, 1820, *Opius caesus* Haliday, 1837 and *Tetrastichus rimskykorsakovi* Kostjukov et Fursov, 1987. In general, the species composition of aquatic Hymenoptera has very little studied.

Ordo TRICHOPTERA

Insects with complete transformation, with exceptionally aquatic larvae. Widely distributed on all continents, except Antarctica. Adult insects resemble small, faintly colored night butterflies, but their body and especially the front wings are covered with hairs (rather than scales, as in butterflies). In some species, females even descend under the water for oviposition. The larvae of Trichoptera secrete silk with the help of glands, which are opened by a common duct on the lower lip. The spider web is used to build networks for catching prey and shelter.

In the studied region, at least, you can find the following species: *Agapetus oblongatus* Martynov, 1913, *Agraylea multipunctata* Curtis 1834, *A. sexmaculata* Curtis, 1834, *Agrypnia obsoleta* Hagen, 1864, *A. pagetana* Curtis, 1835, *A. varia* Fabricius, 1793, *Allotrichia pallicornis* Eaton, 1873, *Anabolia brevipennis* Curtis, 1834, *A. furcate* Brauer, 1857, *A. laevis* Zetterstedt, 1840, *Apatania stigmatella* Zetterstedt, 1840, *A. subtilis* Martynov, 1909, *Asynarchus zhiltzovae* Kumanski, 1981, *Badukiella prohibita* Mey in Mey & Mueller, 1979, *B. subnigra* Olah, 1985, *Brachycentrus subnubilus* Curtis, 1834, *Ceraclea annulicornis* Stephens, 1836, *C. fulva* Rambur, 1842, *C. nigronevosa* Retzius, 1783, *C. senilis* Burmeister, 1839, *Cheumatopsyche lepida* Pictet, 1834, *Cyrnus crenaticornis* Kolenati, 1859, *C. flavidus* McLachlan, 1864, *C. trimaculatus* Curtis, 1834, *Colpotaulius incisus* Curtis, 1834, *Dinarthrum chaldyrence* Martynov, 1909, *D. longiplicatum* Martynov, 1913, *D. mesoplicatum* Martynov, 1913,

Dolophilodes ornatus Ulmer, 1909, *Drusus amanaus* Mey & Mueller, 1979, *D. caucasicus* Ulmer, 1907, *D. simplex* Martynov, 1927, *Ecnomus tenellus* Rambur, 1842, *Glossosoma capitatum* Martynov, 1913, *G. tunceliensis* Sipahiler, 1987, *G. unguiculatum* Martynov, 1925, *Goerodes batumicus* Martynov, 1913, *Grammotaulius nigropunctatus* Retzius, 1783, *G. nitidus* Muller, 1764, *Halesus digitatus* von Paula Schrank, 1781, *H. tessellatus* Rambur, 1842, *Holocentropus picicornis* Stephens, 1836, *H. stagnalis* Albarda, 1874, *Hydropsyche acuta* Martynov, 1909, *H. angustipennis* Curtis, 1834, *H. bulgaromanorum* Malicky, 1977, *H. contubernalis* McLachlan, 1865, *H. exocellata* Dufour, 1841, *H. instabilis* Curtis, 1834, *H. modesta* Navas, 1925, *H. ornatula* McLachlan, 1878, *H. pellucidula* Curtis, 1834, *H. sciligna* Malicky, 1977, *Hydroptila angulata* Mosely, 1922, *H. angustata* Mosely, 1939, *H. dampfi* Ulmer, 1929, *H. forcipata* Eaton, 1873., *H. pulchricornis* Pictet, 1834, *H. sparsa* Curtis, 1834, *H. taurica* Martynov, 1934, *H. tineoides* Dalman, 1819, *H. vectis* Curtis, 1834, *Ironoquia dubia* Stephens, 1837, *Kelgena kelensis* Martynov, 1926, *K. minima* Mey, 1979, *Lasiocephala basalis* Kolenati, 1848, *Leptocerus tineiformis* Curtis, 1834, *Linnephilus affinis* Curtis, 1834, *L. auricular* Curtis, 1834, *L. binotatus* Curtis, 1834, *L. decipiens* Kolenati, 1848, *L. extricates* McLachlan, 1816, *L. flavicornis* Fabricius, 1787, *L. fuscinervis* Zetterstedt, 1840, *L. griseus* Linnaeus, 1758, *L. hirsutus* Pictet, 1834, *L. lunatus* Curtis, 1834, *L. microdentatus* Martynov, 1913, *L. peculiaris* McLachlan, 1875, *L. politus* McLachlan, 1865, *L. rhombicus* Linnaeus, 1758, *L. sparsus* Curtis, 1834, *L. stigma* Curtis, 1834, *L. vittatus* Fabricius, 1798, *Lithax incanus* Hagen, 1859, *Lype phaeopa* Stephens, 1836, *Micrasema anatolicum* Botosaneanu, 1974, *M. bifoliatum* Martynov, 1925, *Molanna angustata* Curtis, 1834, *Mystacides azureus* Linnaeus, 1761, *M. longicornis* Linnaeus, 1758, *M. niger* Linnaeus, 1758, *Neureclipsis bimaculata* Linnaeus, 1758, *Notidobia ciliaris* Linnaeus,

1761, *N. forsteri* Malicky, 1974, *Oecetis furva* Rambur, 1842, *Oe. intima* McLachlan, 1877, *Oe. lacustris* Linnaeus, 1758, *Oe. notata* Rambur, 1842, *Oe. ochracea* Curtis, 1825, *Orthotrichia costalis* Curtis, 1834, *Oxyethira falcata* Morton, 1893, *O. mirabilis* Morton, 1904, *Parasetodes respersellus* Rambur, 1842, *Philopotamus tenuis* Martynov 1913, *Phryganea bipunctata* Retzius, 1783, *Ph. grandis* Linnaeus, 1758, *Plectrocnemia latissima* Martynov 1913, *Polycentropus auriculatus* Martynov, 1926, *P. flavomaculatus* Pictet, 1834, *Potamophylax latipennis* Curtis, 1834, *P. luctuosus* Piller & Mitterpacher, 1783, *Ptilocolepus colchicus* Martynov, 1913, *P. dilatatus* Martynov, 1913, *Rhyacophila abchasica* Martynov, 1934, *Rh. armeniaca* Guerin-Meneville, 1843, *Rh. bacurianica* Lepn., 1946, *Rh. cupressorum* Martynov, 1913, *Rh. fasciata* Hagen, 1859, *Rh. forcipulata* Martynov, 1926, *Rh. nubile* Zetterstedt, 1840, *Rh. obliterate* Zetterstedt, 1840, *Rh. subovata* Martynov, 1913, *Schizopelex cachetica* Martynov, 1913, *Sericostoma grusiense* Martynov, 1913, *Setodes punctatus* Fabricius, 1793, *S. viridis* Fourcroy, 1785, *Silo proximus* Martynov, 1913, *Stactobia caspersi* Ulmer, 1950, *Stenophylax alex* Mey & Mueller, 1980, *S. nycterobius* McLachlan, 1875, *S. permistus* McLachlan, 1895, *S. solotarewi* Martynov, 1913, *Thremma anomalum* MacLachlan, 1876, *Tinodes difficilis* Martynov, 1927, *T. sanctus* Martynov, 1913, *T. valvatus* Martynov, 1913, *Triaenodes bicolor* Curtis, 1834, *T. internus* McLachlan, 1875, *T. kawraiskii* Martynov, 1909, *T. reuteri* McLachlan, 1880, *Tricholeiochiton fagesii* Guinard, 1879, *Wormaldia joosti* Kumanski, 1980, *W. khourmai* Schmid, 1959 and *W. subnigra* McLachlan, 1865.

In general, Trichoptera actively purifies water, while serving as an essential food additive for fish and water birds. The specific composition of Trichoptera of a particular reservoir may be indicative for determining its characteristics. Mountainous species are more studied in the region.

Ordo LEPIDOPTERA

A detachment of insects with complete transformation. Their most characteristic feature is the presence of a dense cover of chitinous scales (flattened hairs). In this detachment there are more than 150 thousand species, including up to 9 thousand in the territory of Russia. The majority of the population believes that butterflies are terrestrial animals. However, among them there are species that develop and even live mostly in water - butterfly of fire. Most of these species are found in our region.

It: *Acentria ephemerella* Denis & Schiffermuller, 1775 (on pondweed, elodea, hare, hornwort), *Cataclysta lemnata* Linnaeus, 1758 (on the duckweed), *Elophila nymphaeata* Linnaeus, 1758 (on the water-lily), *E. rivulalis* Duponchel, 1834, *Kasania arundinalis* Eversmann, 1842, *Nymphula stagnata* Donovan, and *Parapoynx stratiotata* Linnaeus, 1758. These species are subject to further detailed study.

Ordo DIPTERA

This is the most widespread in the water environment of a detachment of insects. Their larvae are found on the sea coasts and in all species of inland water bodies of all landscape zones - flowing and standing, cold and warm, slightly and strongly mineralized, clean and heavily soiled. They inhabit all parts of the reservoirs, starting from the moist soil of the coast, aquatic plants and surface water film down to depths of several hundred meters. Many species of this group are carriers of dangerous diseases. Of these diseases, malaria alone causes about two million deaths per year.

Subordo NEMATOCERA

Antennae of representatives of this suborder consist of more or less equally developed, as a rule, thin elongated segments. In fact, the common

name of all these insects in Russian is mosquitoes. Relatively long antennae distinguish them from the representatives of another suborder - the short-haired (Brachycera), the terminal segments of the antennae which are reduced to a small seta (aristos).

In fact, this is the most numerous group of aquatic insects in the region under study: *Ablabesmyia monilis* Linnaeus, 1758, *Acamptocladius submontanus* Edwards, 1932, *Acricotopus lucens* Zetterstedt, 1850, *Aedes aegypti* Linnaeus, 1762, *Ae. cinereus* Meigen, 1818, *Ae. cretinus* Edwards 1921, *Ae. vexans* Meigen, 1830, *Alluaudomyia quadripunctata* Goetghebuer, 1934, *A. splendida* Tokunaga, 1963, *Anatopynia plumipes* Fries, 1823, *Anopheles algeriensis* Theobald, 1903, *A. atroparvus* Van Thiel, 1923, *A. claviger* Meigen, 1804, *A. hyrcanus* Pallas, 1771, *A. maculipennis* Meigen, 1818, *A. messeae* Falleroni, 1926, *A. plumbeus* Stephens 1828, *A. superpictus* Grassi, 1899, *Antocha alpigena* Mik, 1883, *A. vitripennis* Meigen, 1830, *Baeotendipes noctivagus* Kieffer, 1911, *Benthalia carbonaria* Meigen, 1804, *Bezzia albicornis* Meigen 1818, *B. annulipes* Meigen, 1830, *B. bicolor* Meigen, 1904, *B. circumdata* Staeger, 1839, *B. flavicornis* Staeger, 1839, *B. kuhetiensis* Remm, 1967, *B. nigrita* Clastrier, 1962, *B. nobilis* Winnertz, 1852, *B. xanthogaster* Coquillett, 1901, *Boreoheptagyia legeri* Goetghebuer, 1933, *Brillia modesta* Meigen, 1830, *Camptocladius stercorarius* De Geer, 1776, *Ceratopogon magniforceps* Kieffer, 1925, *Chaoborus crystallinus* De Geer, 1776, *Ch. flavicans* Meigen, 1830, *Ch. pallidus* Fabricius, 1781, *Cheilotrichia cinerascens* Meigen, 1804, *Chernovskiiia macrocera* Saether, 1977, *Ch. orbicus* ownes, 1945, *Chironomus alpestris* Goetghebuer, 1934, *Ch. annularius* Meigen, 1804, *Ch. anthracinus* Zetterstedt, 1860, *Ch. aprilinus* Meigen, 1818, *Ch. balatonicus* Devai, Wulker, Scholl, 1983, *Ch. bernensis* Klotzli, 1973, *Ch. cingulatus* Meigen, 1830, *Ch. commutatus* Keyl, 1960, *Ch. curabilis* Beljanina, Loginova, Sigareva, 1990, *Ch. entis* Shobanov, 1989, *Ch.*

heterodentatus Konstantinov, 1956, *Ch. lacunarius* Wulker & Klotzi, 1973, *Ch. luridus* Strenzke, 1959, *Ch. melanescens* Keyl, 1961, *Ch. melanotus* Keyl, 1961, *Ch. muratensis* Ryser, Scholl & Wuelker, 1983, *Ch. nuditarsis* Keyl, 1962, *Ch. nudiventris* Ryser, Scholl, Wiilker, 1983, *Ch. obtusidens* Goetghebuer, 1921, *Ch. pallidivittatus* Malloch, 1915, *Ch. parathummi* Keyl, 1961, *Ch. piger* Strenzke, 1959, *Ch. plumosus* Linnaeus, 1758, *Ch. pseudothummi* Strenzke, 1956, *Ch. riparius* Meigen, 1804, *Ch. tentans* Fabricius, 1805, *Ch. uliginosus* Keyl, 1960, *Ch. usenicus* Loginova et Beljjanina, 1994, *Cladopelma virescens* Meigen, 1818, *Clinohelea unimaculata* Macquart, 1826, *Clinotanypus nervosus* Meigen, 1818, *Clunio marinus* Haliday, 1855, *Coquillettidia richiardii* Ficalbi, 1889, *Corynoneura celeripes* Winnertz, 1852, *Corynoneura scutellata* Winnertz, 1846, *Cricotopus algarum* Kieffer, 1911, *C. bicinctus* Meigen, 1818, *C. caducus* Hirvenoja, 1973, *C. fuscus* Kieffer, 1909, *C. intersectus* Staeger, 1839, *C. ornatus* Meigen, 1818, *C. salinophilus* Zinchenko, Makarchenko et Makarchenko, 2009, *C. sylvestris* Fabricius, 1794, *C. tibialis* Meigen, 1804, *Crypteria linnophiloides* Bergroth, 1913, *Cryptochironomus albofasciatus* Staeger, 1839, *C. defectus* Kieffer, 1913, *C. obreptans* Walker, 1856, *C. psittacinus* Meigen, 1830, *C. redekei* Kruseman, 1933, *C. rostratus* Kieffer, 1921, *C. supplicans* Meigen, 1830, *C. ussouriensis* Goetghebuer, 1933, *Culex hortensis* Ficalbi, 1889, *C. mimeticus* Noe, 1899, *C. modestus* Ficalbi, 1889, *C. pipiens* Linnaeus, 1758, *C. theileri* Theobald, 1903, *C. territans* Walker, 1856, *Culicoides achrayi* Kettle & Lawson, 1955, *C. albicans* Winnertz, 1852, *C. bulbostylus* Khalaf, 1961, *C. circumscriptus* Kieffer, 1918, *C. clintoni* Boorman, 1984, *C. comosioculatus* Tokunaga, 1956, *C. deltas* Edwards, 1939, *C. desertorum* Gutsevich, 1959, *C. fagineus* Edwards, 1939, *C. fascipennis* Staeger, 1839, *C. festivipennis* Kieffer, 1914, *C. furcillatus* Callot, Kremer and Paradis, 1962, *C. gejjelensis* Dzhafarov, 1964, *C.*

heliophilus Edwards, 1921, *C. helveticus* Callot, Kremer et Deduit, 1962, *C. homochrous* Remm, 1968, *C. ibericus* Dzhafarov, 1963, *C. longicollis* Glukhova, 1971, *C. manchuriensis* Tokunaga, 1941, *C. maritimus* Kieffer, 1924, *C. minutissimus* Zetterstedt, 1855, *C. newsteadi* Austen, 1921, *C. nubeculosus* Meigen, 1830, *C. pallidicornis* Kieffer, 1919, *C. parroti* Kieffer, 1922, *C. pictipennis* Staeger, 1839, *C. pulicaris* Linnaeus, 1758, *C. punctatus* Meigen, 1804, *C. puncticollis* Becker, 1903, *C. reconditus* Campbell et Pelham-Clinton, 1960, *C. riethi* Kieffer, 1914, *C. saevus* Kieffer, 1922, *C. salinarius* Kieffer, 1914, *C. scoticus* Downes & Kettle, 1952, *C. shaklawensis* Khalaf, 1957, *C. simulator* Edwards, 1939, *C. stigma* Meigen, 1818, *C. subfasciipennis* Kieffer, 1919, *C. subneglectus* Vimmer 1932, *C. vexans* Staeger, 1839, *C. zhogolevi* Remm, 1968, *Culiseta alaskaensis* Ludlow, 1906, *C. annulata* Schrank, 1776, *C. fumipennis* Stephens, 1825, *C. longiareolata* Macquart, 1838, *C. morsitans* Theobald, 1901, *C. ochroptera* Peus, 1935, *Cylindrotoma distinctissima* Meigen, 1818, *Dactylolabis aberrans* Savchenko, 1963, *Dasyhelea flaviventris* Goetghebuer, 1910, *D. modesta* Winnertz, 1852, *D. pallidiventris* Goetghebuer, 1931, *Demicryptochironomus vulneratus* Zetterstedt, 1838, *Diamesa bertrami* Edwards, 1935, *D. insignipes* Kieffer, 1908, *D. kasymovi* Kownacki & Kownacka, 1973, *D. latitarsis* Goetghebuer, 1921, *D. lavillei* Serra-Tosio, 1969, *D. longipes* Goetghebuer, 1941, *D. martae* Kownacki & Kownacka, 1980, *D. modesta* Serra-Tosio, 1967, *D. vaillanti* Serra-Tosio, 1972, *Dicranomyia caledonica* Edwards, 1926, *D. didyma* Meigen 1804, *D. fusca* Meigen, 1804, *D. mitis* Meigen, 1830, *D. modesta* Meigen, 1818, *D. transsilvanica* Lackschewitz, 1928, *D. tristis* Schummel, 1829, *D. ventralis* Schummel, 1829, *Dicranota bimaculata* Schummel, 1829, *D. candelisequa* Stary, 1981, *D. subtilis* Loew, 1871, *Dicrotendipes lobiger* Kieffer, 1921, *D. nervosus* Staeger, 1839, *D. pulsus* Walker, 1856, *Dixa frizzi* Contini, 1965, *Dixella obscura* Loew, 1849,

Ellipteroides lateralis Macquart, 1835, *Eloeophila maculata* Meigen, 1804, *E. submarmorata* Verrall, 1887, *Endochironomus albipennis* Meigen, 1830, *E. tendens* Fabricius, 1775, *Eukiefferiella quadridentata* Tshernovskij, 1949, *Euphyllidorea lineola* Meigen, 1804, *Fleuria lacustris* Kieffer, 1924, *Forcipomyia velox* Winnertz, 1852, *Glyptotendipes barbipes* Staeger, 1839, *G. cauliginellus* Kieffer, 1913, *G. glaucus* Meigen, 1818, *G. paripes* Edwards, 1929, *Gonomyia lucidula* de Meijere, 1920, *Harnischia curtilamellata* Malloch, 1915, *Hexatoma fuscipennis* Curtis, 1836, *Hoplolabis vicina* Tonnoir 1920, *Hydrobaenus pilipes* Malloch, 1915, *Ilisia maculata* Meigen, 1804, *Lauterborniella agrayloides* Kieffer, 1911, *Leptoconops bezzii* Noè, 1905, *L. bidentatus* Gutsevich, 1960, *L. borealis* Gutsevich, 1945, *L. camelorum* Kieffer, 1921, *Limnophila schranki* Oosterbroek, 1992, *Limnophyes minimus* Meigen, 1818, *Lipiniella araenicola* Shilova, 1961, *Macropelopia adaucta* Kieffer & Kieffer, 1916, *M. nebulosa* Meigen, 1804, *Mallochohelea inermis* Kieffer, 1909, *M. setigera* Loew 1864, *Metriocnemus hirticollis* Staeger 1839, *Micropsectra recurvata* Goetghebuer, 1928, *Microtendipes pedellus* De Geer, 1776, *Mochlonyx fuliginosus* Felt, 1905, *Molophilus griseus* Meigen, 1804, *Monodiamesa bathyphila* Kieffer, 1918, *Nanocladius dichromus* Kieffer, 1906, *Natarsia punctata* Meigen, 1804, *Nilobezzia formosa* Loew, 1869, *Ochlerotatus behningi* Martini, 1926, *O. cantans* Meigen, 1818, *O. caspius* Pallas, 1771, *O. cataphylla* Dyar, 1916, *O. communis* De Geer, 1776, *O. cyprius* Ludlow, 1919, *O. detritus* Haliday, 1833, *O. diantaeus* Howard, Dyar & Knab, 1912, *O. excrucians* Walker, 1856, *O. flavescens* Müller, 1764, *O. geniculatus* Olivier, 1791, *O. leucomelas* Meigen, 1804, *O. pulcritarsis* Rondani, 1872, *O. pullatus* Coquillett, 1904, *O. punctor* Kirby, 1837, *O. riparius* Dyar & Knab, 1907, *O. sticticus* Meigen, 1838, *O. subdiversus* Martini, 1926, *Odontomesa fulva* Kieffer, 1919, *Orthocladius rivicola* Kieffer, 1911, *O. rivulorum* Kieffer, 1909, *O.*

thienemanni Kieffer & Thienemann, 1906, *Palpomyia flavipes* Meigen, 1804, *P. lineata* Meigen, 1804, *P. schmidti* Goetghebuer, 1934, *P. spinipes* Panzer, 1806, *P. tibialis* Meigen, 1818, *Parachironomus biannulatus* Staeger, 1839, *P. gracilior* Kieffer, 1918, *P. kuzini* Shilova, 1969, *P. vitiosus* Goetghebuer, 1921, *Paracladius conversus* Walker, 1856, *Paradelphomyia senilis* Haliday, 1833, *Parakiefferiella triquetra* Pankratova, 1970, *Paratanytarsus austriacus* Kieffer, 1924, *P. dissimilis* Johannsen, 1905, *Paratendipes nudisquama* Edwards, 1929, *Pedicia occulta* Meigen, 1830, *P. zernyi* Lackschewitz, 1940, *Phaenopsectra flavipes* Meigen, 1818, *Phalacrocerca replicata* Linnaeus, 1758, *Phylidorea ferruginea* Meigen, 1818, *Pilaria discicollis* Meigen, 1818, *P. fuscipennis* Meigen, 1818, *Polypedilum acifer* Townes, 1945, *P. bicrenatum* Hirvenoja, 1962, *P. convictum* Walker, 1856, *P. exsectum* Kieffer, 1916, *P. nubeculosum* Meigen, 1804, *P. pedestre* Meigen, 1830, *P. scalaenum* Schrank 1803, *P. sordens* Wulp, 1874, *Potthastia gaedii* Meigen, 1838, *P. longimanus* Kieffer, 1922, *Prionocera pubescens* Loew, 1844, *P. turcica* Fabricius, 1787, *Probezzia seminigra* Panzer, 1798, *Procladius choreus* Meigen, 1804, *P. ferrugineus* Kieffer, 1918, *P. imicola* Kieffer, 1922, *Prodiamesa olivacea* Meigen, 1818, *Prosimulium gigas* Rubtsov, 1956, *P. rachiliense* Djafarov, 1954, *Psectrocladius barbimanus* Edwards, 1929, *P. psilopterus* Kieffer, 1906, *P. simulans* Johannsen, 1937, *P. sordidellus* Zetterstedt, 1838, *P. ventricosus* Kieffer, 1925, *Pseudolimnophila lucorum* Meigen, 1818, *Psychoda phajaenoides* Linnaeus, 1758, *Ptychoptera minuta* Tonnoir, 1919, *P. contaminata* Linnaeus, 1758, *P. scutellaris* Meigen, 1818, *Robackia demejerei* Kruseman, 1933, *Simulium adornatum* Rubtsov 1956, *S. alizadei* Djafarov, 1954, *S. angustifurca* Rubtsov, 1956, *S. angustipes* Edwards, 1915, *S. angustitarse* Lundström, 1911, *S. aureum* Fries, 1824, *S. bertrandi* Grenier et Dorier, 1959, *S. bezzii* Corti, 1914, *S. bukovskii* Rubtsov, 1956, *S. corpulentum* Rubtsov, 1956, *S. cryophilum* Rubtsov, 1959, *S.*

dahestanicum Rubtsov, 1962, *S. elatum* Rubtsov, 1955, *S. equinum* Linnaeus, 1758, *S. erythrocephalum* De Geer, 1776, *S. fontanum* Terteryan, 1952, *S. fontium* Rubtsov, 1955, *S. gomphocorne* Rubtsov, 1964, *S. kiritshenkoi* Rubtsov, 1940, *S. krymense* Rubtsov, 1956, *S. lineatum* Meigen, 1804, *S. longipalpe* Beltjukova, 1955, *S. maculatum* Meigen, 1804, *S. maritimum* Rubtsov, 1956, *S. monticola* Friederichs, 1920, *S. monticoloides* Rubtsov, 1956, *S. montium* Rubtsov, 1947, *S. morsitans* Edwards, 1915, *S. noelleri* Friederichs, 1920, *S. polare* Rubtsov, 1940, *S. promorsitans* Rubzov, 1956, *S. pseudequinum* Seguy, 1921, *S. rubtzovi* Smart, 1945, *S. schamili* Rubtsov, 1964, *S. shevtshenkovae* Rubtsov, 1965, *S. silvaticum* Rubtsov, 1962, *S. simulans* Rubtsov, 1956, *S. subtile* Rubtsov, 1956, *S. tarnogradskii* Rubzov, 1940, *S. tuberosum* Lundstrom, 1911, *S. variegatum* Meigen, 1818, *S. vernum* Macquart, 1826, *S. vulgare* Rubtsov, 1935, *Sphaeromyias pictus* Meigen, 1818, *Symplecta hybrida* Meigen, 1804, *S. pilipes* Fabricius, 1787, *Synendotendipes impar* Walker 1856, *Synorthocladus semivirens* Keiffer, 1909, *Tanytus kraatzii* Kieffer, 1912, *Tanytarsus sylvaticus* van der Wulp, 1859, *Thaumalea testacea* Ruthe, 1831, *Thienemannimyia geijskesi* Goetghebuer, 1934, *Th. lentiginosa* Fries, 1823, *Tipula benesignata* Mannheims, 1954, *T. caesia* Schummel, 1833, *T. couckeii* Tonnoir, 1921, *T. fulvipennis* De Geer, 1776, *T. lateralis* Meigen, 1804, *T. lucifera* Savchenko, 1954, *T. luteipennis* Meigen, 1830, *T. marginella* Theowald, 1980, *T. mellea* Schummel, 1833, *T. montium* Egger, 1863, *T. obscuriventris* Strobl, 1900, *T. oleracea* Linnaeus, 1758, *T. paludosa* Meigen, 1830, *T. pruinosa* Wiedemann, 1817, *T. saginata* Bergroth, 1891, *T. stigmatella* Schummel, 1833, *T. subaurita* Savchenko, 1964, *T. subcunctans* Alexander, 1921, *T. subsignata* Lackschewitz, 1933, *T. theowaldi* Savchenko, 1964, *T. unca* Wiedemann, 1817, *T. variicornis* Schummel, 1833, *Tricyphona immaculata* Meigen, 1804, *Uranotaenia unguiculata* Edwards 1913, *Xenochironomus xenolabis* Kieffer, 1916 and

Zalutschia mucronata Brundin, 1949, as well as unidentified representatives of families Dixidae, Psychodidae and Thaumaleidae.

Some of these insects not only bother the person with their bites, but also are responsible for very dangerous diseases. First of all, it is malaria - *Plasmodium vivax* (three-day), *P. falciparum* (tropical) and *P. malariae* (four-day). They also suffer viral infections (yellow fever, West Nile, Dengue and others). They can also infect humans with tularemia, filarias and other dangerous beginnings. Simuliidae, in general, can tear a person apart, leaving only bones. At least in Siberia such cases have occurred. In general, the intrasystematic position of this group of insects still needs to be clarified. The study of these insects is given increased attention.

Subordo BRACHYCERA

Their characteristic feature are shortened antennae. Outwardly, these are typical flies with a compact short body and wide powerful wings. Their antennas consist of 3 segments, but the last one can retain traces of additional dissection. With the aquatic environment, in one way or another, imago and larvae of many families of flies are associated.

In our region, one can meet, with some assumptions of the following flies in one way or another connected with water: *Anepsiomyia flaviventris* Meigen, 1824, *Anticheta analis* Meigen, 1830, *Argyra argentina* Meigen, 1824, *A. diaphana* Fabricius, 1775, *A. grata* Loew, 1857, *A. ilonae* Gosseries, 1989, *A. leucocephala* Scopoli, 1769, *A. skuffjini* Negrobov, 1965, *Atherix ibis* Fabricius, 1798, *Atrichops crassipes* Meigen, 1820, *Atylotus flavoguttatus* Szilady, 1915, *A. fulvus* Meigen, 1804, *A. loewianus* Villeneuve, 1920, *A. quadrifarius* Loew, 1874, *A. rusticus* Linnaeus, 1761, *Campsicnemus curvipes* Fallen, 1823, *C. filipes* Loew, 1859, *C. lumbatus* Loew, 1857, *C. magius* Loew, 1845, *C. picticornis* Zetterstedt, 1843, *C. pumilio* Zetterstedt, 1843, *C.*

simplicissimus Strobl, 1906, *C. umbripennis* Loew, 1856, *Chelifera flavella* Zetterstedt, 1838, *Ch. precabunda* Collin, 1961, *Chrysogaster cemiteriorum* Linnaeus, 1758, *Ch. coemiteriorum* Linnaeus, 1758, *Ch. solstitialis* Fallen 1817, *Chrysops caecutiens* Linnaeus 1758, *Ch. italicus* Meigen 1804, *Chrysotus alpicola* Strobl 1893, *Ch. cilipes* Meigen 1824, *Ch. cupreus* Macquart 1827, *Ch. femoratus* Zetterstedt 1843, *Ch. gramineus* Fallen 1823, *Ch. laesus* Wiedemann 1817, *Ch. neglectus* Wiedemann 1817, *Ch. obscuripes* Zetterstedt 1838, *Ch. pennatus* Lichtwardt 1902, *Ch. pulchellus* Kowarz 1874, *Ch. suavis* Loew 1857, *Clinocera appendiculata* Zetterstedt, 1838, *C. schumanni* Joost, 1981, *C. stagnalis* Haliday, 1833, *Coenosia dubiosa* Hennig 1961, *C. intermedia* Fallen 1825, *C. nigridigita* Rondani 1866, *C. pumila* Fallen 1825, *C. pygmaea* Zetterstedt 1845, *C. rhaensis* Hennig 1961, *C. testacea* Robineau-Desvoidy 1830, *C. tigrina* Fabricius 1775, *C. verralli* Collin 1953, *Dichaeta caudata* Fallen, 1813, *Dictya umbrarum* Linnaeus, 1758, *Discomyza incurva* Fallen, 1823., *Dolichocephala irrorata* Fallen, 1816, *Dolichopus agilis* Meigen, 1824, *D. brevipennis* Meigen, 1824, *D. campestris* Meigen, 1824, *D. cilifemoratus* Macquart, 1827, *D. ciscaucasicus* Stackelberg, 1927, *D. claviger* Stannius, 1831, *D. clavipes* Haliday, 1832, *D. diadema* Haliday, 1832, *D. griseipennis* Stannius, 1831, *D. hilaris* Loew, 1862, *D. jaxarticus* Stackelberg, 1927, *D. latilimbatus* Macquart, 1827, *D. lepidus* Stæger, 1842, *D. linearis* Meigen, 1824, *D. lineatocornis* Zetterstedt, 1843, *D. litorellus* Zetterstedt, 1852, *D. longicornis* Stannius, 1831, *D. nitidus* Fallen, 1823, *D. nubilus* Meigen, 1824, *D. pennatus* Meigen, 1824, *D. picipes* Meigen, 1824, *D. plumipes* Scopoli, 1763, *D. plumitarsis* Fallen, 1823, *D. popularis* Wiedemann, 1817, *D. sabinus* Haliday, 1838, *D. simplex* Meigen, 1824, *D. ungulatus* Linnaeus, 1758, *D. urbanus* Meigen, 1824, *D. wahlbergi* Zetterstedt, 1843, *D. zernyi* Parent, 1927, *Elgiva cucularia* Linnaeus, 1767, *Ephydra afghanica* Dahl, 1961, *E. attica* Becker, 1896, *E. glauca* Meigen,

1830, *E. macellaria* Egger, 1862, *E. murina* Wirth, 1975, *E. pseudomurina* Krivosheina, 1983, *E. riparia* Fallén, 1813, *Eristalis alpina* Panzer, 1798, *E. arbustorum* Linnaeus, 1758, *E. interrupta* Poda, 1761, *E. lineata* Harris 1776, *E. pertinax* Scopoli, 1763, *E. pratorum* Meigen, 1822, *E. rupium* Fabricius, 1805, *E. tenax* Linnaeus, 1758, *E. vitripennis* Strobl, 1893, *Haematopota scutellata* Olsufjev Moucha et Chvala, 1964, *Halmopota insignis* Becker, 1926, *Helophilus continuus* Loew, 1854, *H. parallelus* Harris, 1776, *H. pendulus* Linnaeus, 1758, *H. trivittatus* Fabricius, 1805, *Hemerodromia illiesi* Joost, 1980, *Hercostomus caucasicus* Stackelberg, 1934, *H. chaerophylli* Meigen, 1824, *H. chetifer* Walker, 1849, *H. chrysozygos* Wiedemann, 1817, *H. convergens* Loew, 1857, *H. fugax* Loew, 1857, *H. fuscipennis* Meigen, 1824, *H. gavarniae* Parent, 1928, *H. longiventris* Loew, 1857, *H. nigriplantis* Stannius, 1831, *H. parvilamellatus* Macquart, 1827, *H. sahlbergi* Zetterstedt, 1838, *Hybomitra acuminata* Loew, 1858, *H. caucasica* Enderlein, 1925, *H. ciureai* Seguy, 1937, *H. distinguenda* Verrall, 1909, *H. erberi* Brauer, 1880, *H. expollicata* Pandelle, 1883, *H. morgani* Surcouf, 1912, *H. muehlfeldi* Brauer, 1880, *H. peculiaris* Szilady, 1914, *H. sareptana* Szilady, 1914, *Hydrophorus balticus* Meigen, 1824, *H. praecox* Lehmann, 1822, *H. viridis* Meigen, 1824, *Ilione rossica* Mayer, 1953, *I. murcestanica* Hendel, 1903, *Linnellia quadrata* Fallen, 1813, *L. stenhammari* Zetterstedt, 1846, *Limnia unguicornis* Scopoli, 1763 (bogs), *Limnophora exuta* Kowarz, 1893, *L. riparia* Fallen, 1824, *Lispocephala alma* Meigen, 1826, *Nemorius vitripennis* Meigen, 1820, *Nemotelus aerosus* Gimmerthal, 1847, *N. anchora* Loew, 1846, *N. argentifer* Loew, 1846, *N. bipunctatus* Loew, 1846, *N. brachystomus* Loew, 1846, *N. brevirostris* Meigen, 1822, *N. jakowlewi* Pleske in Lindner, 1937, *N. nigrinus* Fallen, 1817, *N. obscuripes* Loew, 1871, *N. pantherinus* Linnaeus, 1758, *N. signatus* Frivaldsky, in Schiner 1855, *N. uliginosus* Linnaeus, 1767, *Neoascia obliqua* Coe, 1940, *N. dispar* Meigen, 1822, *N.*

interrupta Meigen, 1822, *N. pavlovskii* Stackelberg, 1955, *N. podagrica* Fabricius, 1775, *N. tenur* Harris, 1780, *Notiphila nigricornis* Stenhammar, 1844, *Ochthera mantis* De Geer, 1776, *Odontomyia angulata* Panzer, 1798, *O. annulata* Meigen, 1822 (in the wood of sunken trees), *O. argentata* Fabricius, 1794, (in the wood of sunken trees), *O. cephalonica* Strobl, 1898, *O. discolor* Loew, 1846, *O. hydroleon* Linnaeus, 1758, *O. microleon* Linnaeus, 1758, *O. ornata* Meigen, 1822, *O. tigrina* Fabricius, 1775, *O. viridula* Fabricius, 1775, *Orthoneura brevicornis* Giesbrecht, 1891, *Oxycera analis* Wiedemann in Meigen, 1822, *O. leonina* Panzer, 1798, *O. locuples* Loew, 1857, *O. meigenii* Staeger, 1844 (in flowing water on rocks), *O. pardalina* Meigen, 1822, *O. trilineata* Linnaeus, 1767 (bogs), *Pangonia tigris* Bigot, 1880, *Pangonius pyritosus* Loew, 1859, *Parydra coarctata* Latreille, 1802, *Rhaphium appendiculatum* Zetterstedt, 1849, *Rh. brevicorne* Curtis, 1835, *Rh. caliginosum* Zetterstedt, 1843, *Rh. commune* Meigen, 1824, *Rh. crassipes* Meigen, 1824, *Rh. discigerum* Stenhammar, 1851, *Rh. lanceolatum* Loew, 1850, *Rh. laticorne* Fallen, 1823, *Rh. penicillatum* Loew, 1850, *Rh. suave* Loew, 1859, *Riponnensia splendens* Meigen, 1822, *Scatella paludum* Meigen, 1830, *S. stagnalis* Fallen, 1813, *Sciapus contristans* Wiedemann, 1817, *S. polozhentsevi* Negrobov, 1977, *Sepedon spehegea* Fabricius, 1775, *S. spinipes* Scopoli, 1763, *Setacera aurata* Stenhammar, 1844, *Silvius latifrons* Olsufjev, 1937, *S. zaitzevi* Olsufjev, 1941, *Spaziphora hydromyzina* Fallen, 1819, *Stratiomys cenisia* Meigen, 1822, *S. chamaeleon* Linnaeus, 1758, *S. equestris* Meigen, 1835, *S. longicornis* Scopoli, 1763, *S. singularior* Harris, 1776, *Sybistroma discipes* Germar, 1817, *Sympycnus aeneicoxa* Meigen, 1824, *S. desoutteri* Parent, 1925, *S. simplicipes* Becker, 1908, *Syntormon fuscipes* von Roser, 1840, *S. metathesis* Loew, 1850, *S. monile* Haliday, 1851, *S. pallipes* Fabricius, 1794, *S. pumilum* Meigen, 1824, *S. subinermis* Loew, 1869, *S. submonile* Negrobov, 1975, *Tabanus armenicus* Szilady, 1926, *T.*

autumnalis Linnaeus, 1761, *T. bovinus* Linnaeus, 1758, *T. cordiger* Meigen, 1820, *T. hauseri* Olsufjev, 1967, *T. indrae* Hauser, 1939, *T. leleani* Austen, 1920, *T. regularis* Jaenicke, 1866, *T. rupium* Brauer, 1880, *T. spectabilis* Loew, 1858, *T. subparadoxus* Olsufjev, 1941, *T. unifasciatus* Loew, 1858, *Teichomyza fusca* Macquart, 1835, *Teuchophorus bipilosus* Becker, 1908, *T. calcaratus* Macquart, 1827, *T. monacanthus* Loew, 1859, *T. spinigerellus* Zetterstedt, 1843, *Theriopectes tricolor* Zeller, 1842, *Wiedemannia beckeri* Mik, 1889, *W. braueri* Mik, 1880, *W. caucasica* Joost, 1981, *W. chvalai* Joost, 1981, *W. fallaciosa* Loew, 1873, *W. klausnitzeri* Joost, 1981, *W. pseudovaillanti* Joost, 1981, *W. vaillanti* Joost, 1981, *W. zetterstedti* Fallén, 1826), *Xanthochlorus fulvus* Negrobov, 1978, *X. luridus* Negrobov, 1978, *X. ornatus* Haliday, 1832 and *X. tenellus* Wiedemann, 1817.

Flies are also capable of biting a person, and therefore infecting him with numerous diseases. Especially dangerous are the flies, which at the time of bloodsucking carry the causative agent of anthrax, tularemia, poliomyelitis and other serious diseases. On the other hand among the flies there are many pollinators of flowering plants. In the region these insects are studied actively.

Class CRUSTACEA

Primarily inhabitants of fresh and sea waters. Crustaceans differ from other arthropods in the presence of two pairs of cephalic antennae, which are usually sensory organs (sometimes also serve for movement, in parasites for attachment to the host). The systematics of this group of animals is controversial, and therefore their representation is possible only in the variant version.

Subclassis BRANCHIOPODA

Branchiopoda are considered the most primitive representatives of the entire class of crustaceans. Their head does not fuse with the thoracic

segments. Thoracic legs are leaf-shaped, slightly chitinized, and serve simultaneously for movement, breathing, and directing food to the mouth. With their swings, only one current of water is created, which is used both for movement, and for feeding, and for breathing. Branchiopoda live mainly in fresh water. Most of these animals serve as food for fish. On the other hand, mixing water, these cancers reduce the survival rate of juvenile fish.

Ordo ANASTRACA

These are elegant translucent crayfish, smoothly moving in the water with the ventral side up. Most often they can be found in puddles, potholes and other ephemeral reservoirs, where they prefer fresh or salt water.

In the studied region there are: *Artemia salina* Linnaeus, 1758 (hypersaline lakes), *Branchinecta ferox* Milne-Edwards, 1840, *Branchinectella media* Schmankevitsch, 1873, *Branchipus schaefferi* Fischer, 1834, *Chirocephalus diaphanus* Prévost, 1820, *Ch. horribilis* S. Smirnov, 1948, *Ch. skorikowi* Daday, 1912, *Drepanosurus birostratus* Fischer, 1851, *Streptocephalus torvicornis* Waga, 1842 и *Tanymastix stagnalis* Linnaeus, 1758.

It is well known that the eggs of these animals remain viable for many decades. This allows you to collect them, and then at the right time to cultivate and feed the fish larvae and not only in aquariums, but also on an industrial scale. Thus, these animals are used all over the world to organize large-scale and profitable business. All the necessary technologies for collection, storage and cultivation, for example, *A. salina* are developed.

Ordo PHYLLOPODA

Phyllopoda are close to Anastraca and differ from them primarily by the presence of carapace and a large number of paired thoracic extremities.

Leaf-like limbs serve simultaneously for swimming, breathing and forcing food to the mouth.

Subordo NOTOSTRACA

A small group of freshwater crustaceans. They have different sizes ranging from 2 - 3 to 10 - 12 cm. Almost the whole body is covered with a wide shield (hence the name), in front of which lies a pair of close complex (facet) eyes and an unpaired simple eye. Have at least 40 pairs of leaf-shaped pectoral legs. They live in shallow temporary (ephemeral) fresh water reservoirs, where they do not have natural enemies. In their ecological niche, they are at the top of the food pyramid. In the region, there are only 2 species: *Lepidurus apus* Linnaeus, 1758 и *Triops cancriformis* Bosc, 1801.

Subordo CONCHOSTRACA

In small, sometimes drying up reservoirs live crustaceans, less noticeable and not reaching as large a size as other crayfish. They are usually painted in brownish, pinkish or greenish tones. Their entire body is covered with a bivalvous chitinous shell, which in most species has concentric growth bands somewhat resembling rings on shells of bivalve mollusks.

This group is represented by the following species: *Cyzicus tetracerus* Krynichi, 1830, *Eocyclus orientalis* Daday, 1914, *E. propinquus* Sars, 1901, *E. tadei* Ocioszynska-Wolska, 1937, *Eoleptestheria ticinensis* Balsamo-Crivelli, 1859, *Leptestheria dahalacensis* Rüppel, 1837 и *Limnadia lenticularis* Linnaeus, 1761.

These animals must be attributed to the pests of hatchery farms, as during their massive development, water pollution occurs. Especially in this is seen *Leptestheria dahalacensis*. Effective methods to combat this phenomenon has not yet been developed. On the other hand, these animals are of great

interest for developing technology for the production of live feeds for juvenile fish in connection with their unpretentiousness.

Ordo CLADOCERA

Small, more often planktonic crustaceans, one of the most numerous and diverse detachments of the class. Currently, there are about 400 species of marine and freshwater Cladocera. The most well-known representatives of the detachment are freshwater planktonic crustaceans of the genus *Daphnia* (*Daphnia*), sometimes called "water fleas".

With a high probability in the region this group of animals is represented by the following species: *Acroperus harpae* Baird, 1834, *Alona affinis* Leydig, 1860, *A. costata* Sars, 1862, *A. guttata* Sars, 1862, *A. intermedia* Sars, 1862., *A. quadrangularis* Müller, 1785, *A. rectangula* Sars, 1861, *Alonella excisa* Fischer, 1854, *A. exigua* Lilljeborg, 1853, *A. nana* Baird, 1843, *Anchistropus emarginatus* Sars, 1862, *Bosmina coregoni* Baird, 1857, *B. longirostris* Müller, 1785, *B. longispina* Leydig, 1860, *Bosminopsis deitersi* Richard, 1895, *Bunops serricaudata* Daday, 1888, *Bythotrephes longimanus* Leydig, 1860, *Camptocercus rectirostris* Schoedler, 1862, *Cercopagis pengoi* Ostroumov, 1891, *C. socialis* Grimm, 1877, *Ceriodaphnia affinis* Lilljeborg, 190, *C. cornuta* Sars, 1885., *C. dubia* Richard, 1894, *C. laticaudata* Müller, 1867, *C. megalops* Sars, 1862, *C. megops* Sars, 1862, *C. pulchella* Sars, 1862, *C. quadrangula* Müller, 1785, *C. reticulata* Jurine, 1820, *C. rotunda* Sars, 1862, *C. setosa* Matile, 1890, *Chydorus gibbus* Sars, 1890, *Ch. latus* Sars, 1862, *Ch. ovalis* Kurz, 1875, *Ch. piger* Sars, 1862, *Ch. sphaericus* Müller, 1776, *Cornigerius arvidi* Mordukhai-Boltovskoi, 1967, *C. bicornis* Zernov, 1901, *C. maeoticus* Pengo, 1879, *Daphnia atkinsoni* Baird, 1859, *D. carinata* King, 1852, *D. cucullata* Sars, 1862, *D. galeata* Sars, 1864, *D. hyaline* Leydig, 1860, *D. longispina* Müller, 1776, *D. lumholtzi* Sars, 1885,

D. magna Straus, 1820, *D. obtuse* Kurz, 1875, *D. pulex* Leydig, 1860, *D. pulicaria* Forbes, 1893, *D. similis* Claus, 1876, *Diaphanosoma brachyurum* Lievin, 1848, *D. chankensis* Ueno, 1939, *D. dubium* Manuilova, 1964, *D. mongolianum* Ueno, 1939, *Dunhevedia crassa* King, 1853, *Eurycercus lamellatus* Müller, 1776, *Graptoleberis testudinaria* Fischer, 1848, *Ilyocryptus acutifrons* Sars, 1862, *I. agilis* Kurz, 1878, *I. sordidus* Liévin, 1848, *Kurzia latissimi* Kurz, 1875, *Leydigia acanthocercoides* Fischer, 1854, *L. leydigi* Schoedler, 1863, *Macrothrix dadayi* Behning, 1941, *M. hirsuticornis* Norman & Brady, 1867, *M. laticornis* Jurine, 1820, *M. rosea* Jurine, 1820, *Megafenestra aurita* Fischer, 1849, *Moina brachiate* Jurine, 1820, *M. macrocopa* Straus, 1820, *M. microphthalma* Sars, 1903, *M. micrura* Kurz, 1874, *M. rectirostris* Leydig, 1860, *Monospilus dispar* Sars, 1861, *Oxyurella tenuicaudis* Sars, 1862, *Peracantha truncata* Muller, 1785), *Pleuroxus aduncus* Jurine, 1820, *P. striatus* Schodler, 1858, *P. trigonellus* Müller, 1776, *P. uncinatus* Baird, 1850, *Podonevadne trigona* Sars, 1897, *Polyphemus pediculus* Linnaeus, 1758, *Pseudochydorus globosus* Baird, 1843, *Rhynchotalona rostrate* Koch, 1841, *Scapholeberis aurita* Fischer, 1849, *S. kingi* Sars, 1888, *S. mucronata* Müller, 1785, *Sida crystallina* Muller, 1776, *Simocephalus congener* Koch, 1841, *S. exspinosus* De Geer, 1778, *S. lusaticus* Herr, 1917, *S. mixtus* Sars, 1903, *S. serrulatus* Koch, 1841, *S. vetulus* Müller 1776 и *Streblocerus serricaudatus* Fischer, 1849.

These crayfish represent a food base for many species of fish. At the hatcheries there is a mass breeding of daphnia for fattening fish. In some cases, daphnia is eaten by a person. It is also possible to use them in space flights. The study of these crustaceans outside the limits of fish-breeding reservoirs is not so sufficient.

Ordo COPEPODA

Most groups of copepods (up to 80%) are ectoparasites of invertebrates and vertebrates. In our continental waters, on the contrary, most copepods are free-living. Representatives of Calanoida (calanoid) and Cyclopoida (cyclops) are the most important component of zooplankton. Species Harpacticoida (harpacticides) - common representatives of benthos and interstitial fauna, less common in plankton. The first two groups of copepods are well studied, as they either attack the eggs and larvae of fish, or the fish themselves eat them.

In our region there are: *Acanthocyclops kieferi* Chappuis, 1925, *A. venustus* Norman & Scott, T., 1906, *A. vernalis* Fischer, 1853, *Acanthodiptomus denticornis* Wierzejski, 1887, *Apocyclops dengizicus* Lepeshkin, 1900, *Arctodiptomus acutilobatus* Sars, 1903, *A. acutulus* Brian, 1927, *A. bacillifer* Koelbel, 1885, *A. dentifer* Smirnov, 1928, *A. dudichi* Kiefer, 1932, *A. fischeri* Rylov, 1918, *A. lobulifer* Rylov, 1927, *A. pectinicornis* Wierzejski, 1887, *A. salinus* Daday, 1885, *A. similis* Baird, 1859, *A. wierzejskii* Richard, 1888, *Bryocamptus minutus* Claus, 1863, *B. tarnogradskyi* Borutsky, 1934, *B. vej dovskyi* Mrázek, 1893, *Bryocamptus (Rheocamptus) aquaeductus* Borutsky, 1934, *B. (Rh.) spinulosus* Borutsky, 1934, *B. (Rh.) zschokkei* Schmeil, 1893, *Calanipeda aquae-dulcis* Kritsch, 1873, *Canthocamptus staphylinus* Jurine, 1820, *Caspicyclops mirabilis* Monchenko, 1986, *Cletocamptus confluens* Schmeil, 1894, *C. retrogressus* Schmankevitch, 1875, *Colpocyclops dulcis* Monchenko, 1977, *C. longispinosus* Monchenko, 1974, *Criptocyclops bicolor* Sars, 1863, *C. varicans* Sars, 1863, *Cyclops strenuous* Fischer, 1851, *C. vicinus* Uljanin, 1875, *Diacyclops bicuspidatus* Claus, 1857, *D. bisetosus* Rehberg, 1880, *Diptomus castor* Jurine, 1820, *Ectinosoma melaniceps* Boeck, 1865, *Ectocyclops rubescens* Brady, 1904, *E. macruroides* Lilljeborg, 1901,

Eucyclops macrurus Sars, 1863, *Eu. orthostylis* Lindberg, 1952, *Eu serrulatus* Fischer, 1851, *Eu. persistens* Monchenko, 1978, *Epactophanes richardi* Mrázek, 1893, *Eudiaptomus arnoldi* Siewerth, 1928, *Eu. gracilis* Sars, 1863, *Eu. graciloides* Lilljeborg, 1888, *Eu. siewerthi* Smirnov, 1936, *Eu. transylvanicus* Daday, 1890, *Eu. vulgaris* Schmeil, 1896, *Eu. zachariasi* Poppe, 1886, *Eurytemora affinis* Poppe, 1880, *Eu. grimmi* Sars, 1897, *Eu. lacustris* Poppe, 1887, *Eu. velox* Lilljeborg, 1853, *Gigantodiptomus amblyodon* Marenzeller, 1873, *G. superbus* Schmeil, 1895, *Halectinosoma abrau* Krichagin, 1877, *Halicyclops cryptus* Monchenko, 1979, *H. validus* Monchenko, 1974, *Harpacticus uniremis* Kroyer, 1842, *Hemidiaptomus ignatovi* Sars, 1903, *H. rylovi* Charin, 1928, *H. tarnogradskii* Rylov, 1926, *Hetercope appendiculata* Sars, 1863, *H. borealis* Fischer, 1851, *H. caspia* Sars, 1863, *H. saliens* Lilljeborg, 1863, *Heterolaophonte uncinata* Czerniawski, 1868, *Leptocaris brevicornis* Douwe, 1904, *Limnocalanus macrurus* Sars, 1863, *Limnocletodes behningi* Borutsky, 1926, *Macrocyclops albidus* Jurine, 1820, *M. fuscus* Jurine, 1820, *Maraenobiotus brucei* Richard, 1898, *M. insignipes* Lilljeborg, 1902, *Megacyclops gigas* Claus, 1857, *M. viridis* Jurine, 1820, *M. leuckarti* Claus, 1857, *M. gracilis* Lilljeborg, 1853, *M. minutus* Lowndes, 1934, *Mesochra lilljeborgi* Boeck, 1864, *M. pygmaea* Claus, 1863, *Mesocyclops vermifer* Lindberg, 1935, *Metadiaptomus asiaticus* Uljanin, 1875, *Microarthridion littorale* Poppe, 1881, *Mixodiaptomus incrassatus* Sars, 1903, *M. kupelwieseri* Brehm, 1907, *M. laciniatus* Lilljeborg in Guerne & Richard, 1889, *M. tatricus* Wierzejski, 1883, *M. theeli* Lilljeborg in Guerne & Richard, 1889, *Moraria mrazeki* Scott, 1893, *Nannopus palustris* Brady, 1880, *Neolovenula alluaudi* Guerne and Richard, 1890, *Nitocrella hibernica* Brady, 1880, *N. lacustris* Schmankevitch, 1875, *Nitokra typica* Boeck, 1865, *Occidodiptomus behningi* Smirnov, 1940, *O. brehmi* Mann, 1940, *O. dischensis* Brehm, 1938, *Onychocamptus mohammed* Blanchard &

Richard, 1891, *Paracyclops affinis* Sars, 1863, *P. dilatatus* Lindberg, 1952, *P. fimbriatus* Fischer, 1853, *P. imminutus* Kiefer, 1929, *P. poppei* Rehberg, 1880, *Pesceus schmeili* Mrázek, 1893, *Phyllognathopus coecus* Maupas, 1892, *Ph. paludosus* Mrázek, 1893, *Sinodiaptomus sarsi* Rylov, 1923, *Speocyclops demetiensis* Scourfield, 1932, *S. tauricus* Borutsky, 1965, *Thermocyclops crassus* Fischer, 1853, *Th. dybowskii* Landé, 1890, *Th. oithonoides* Sars, 1863, *Th. rylovi* Smirnov, 1928, *Th. vermifer* Lindberg, 1935, *Tisbe furcata* Baird, 1837 и *Tropocyclops prasinus* Fischer, 1860.

Species diversity of parasitic copepods in our waters is much less. Authentically in the region you can find: *Achtheres percarum* Nordmann, 1832, *Caligus lacustris* Steenstrup & Lütken, 1861, *Clavellisa emarginata* Kroyer, 1837, *Dichelesthium oblongum* Abildgaard, 1794, *Ergasilus auritus* Markewitsch, 1940, *E. briani* Markewitsch, 1932, *E. sieboldin* Nordmann 1832, *Lamproglana pulchella* Nordmann, 1832, *Lernaea cyprinacea* Linnaeus, 1758, *Paraergasilus rylovi* Markevich, 1937, *Pseudotracheiastes stellatus* Mayor, 1824, *P. stellifer* Kollar, 1835, *Sinergasilus polycolpus* Markevich, 1940, *Thersitina gasterostei* Pagenstecher, 1861, *Tracheiastes maculatus* Kollar, 1836 и *T. polycolpus* Nordmann, 1832.

Many copepods serve as food for juvenile fish. On the other hand, some of these crustaceans eat eggs and fish larvae. Effective methods to control these pests have not been developed. The study of this group is not always reliable in connection with the complexity of species identification.

Ordo RANCHIURA

Often on the surface of the body of fish you can find relatively large (3 - 8 mm) very flat crustaceans attached to the skin of the fish with suckers. They eagerly suck the blood of fish. Unlike copepods, they can not be considered permanent parasites. Saturated, the carp-eaters leave the fish and

swim away with great speed. These are *Argulus foliaceus* Linnaeus, 1758 and *A. japonicus* Thiele, 1900 - one of the most dangerous parasites, damaging to fish farms. Species composition of karpodov is controlled by veterinary services.

Subordo OSTRACODA

A sub-class has one unit with the same name. Small (no more than 1 - 2 mm) crustaceans with non-segmented body, mostly compressed from sides, dressed with a two-folded shell. They feed mainly on animals, especially the bodies of water animals.

At a minimum, in our reservoirs you can meet: *Bentocypris curvifurcata* Klie, 1923, *Candona candida* Müller, 1776, *C. elegans* Bronstein, 1928, *C. neglecta* Sars, 1887, *C. schwejeri* Sars, 1887, *C. weltneri* Hartwig, 1899, *Cyclocypris laevis* Müller, 1776, *C. ovum* Jurine, 1820, *Cypretta dubiosa* Daday, 1901, *Cypria ophtalmica* Jurine, 1820, *C. reptans* Brohnstein, 1928, *Cyprideis littoralis* Brady, 1870, *Cypridopsis aculeata* Costa, 1847, *C. hartwigi* Müller, 1900, *C. vidua* Müller, 1776, *Cypris bispinosa* Lucas, 1849, *C. pubera* Müller, 1776, *Cyprois marginata* Straus, 1821, *Darwinula stevensoni* Brady & Robertson, 1870, *Dolerocypris fasciata* Müller, 1776, *D. sinensis* Sars, 1903, *Eucypris inflata* Sars, 1903, *Eu. pigra* Fisher, 1851, *Eu. virens* Jurine, 1820, *Fabaeformiscandona balatonica* Daday, 1894, *F. holzkampfi* Hartwig, 1900, *Herpetocypris chevreuxi* Sars, 1896, *H. reptans* Baird, 1835, *Heterocypris incongruens* Ramdohr, 1808, *H. rotundatus* Bronstein, 1928, *H. salina* Brady, 1868, *Hungarocypris madaraszi* Örley, 1886, *Ilyocypris bradyi* Sars, 1890, *I. gibba* Ramdohr, 1808, *Ilyodromus olivaceus* Brad & Norman, 1889, *Leptocythere lopatica* Schornikov, 1925, *L. quinquetuberculata* Schweier, 1949, *L. relicta* Schornikov, 1922, *L. striatocostata* Schweyer, 1949, *Limnocythere inopinata*

Baird, 1843, *Loxoconcha pontica* Klie, 1937, *Notodromas monacha* Müller, 1776, *Potamocypris arcuata* Sars, 1903, *P. fallax* Fox, 1967, *P. steueri* Klie, 1935, *P. villosa* Jurine, 1820, *P. zschokkei* Kaufmann, 1900, *Pseudocandona albicans* Brady, 1864, *P. compressa* Koch, 1838, *Stenocypris fischeri* Lilljeborg. 1883, *Strandesia vavrai* Martens & Savatentalinton, 2011, *Tonnacypris lutaria* Koch, 1838, *Trajancypris clavata* Baird, 1838, as well as several types not listed in international databases - *Candona stummeri* Daday, 190, *Eucypris serrata* Müller, 1990, *Herpetocypris fontinalis* Martens & Savatentalinton, 2011, *Ilyocypris divisa* Klie, 1926, *Leptocythere gracilloides* Schornikov, 1973, *L. longa* Negadaev, 1955. и *L. reticulata* Šornikov, 1973.

In general, the practical ecological significance of this group of animals has not yet been determined. Perhaps the least studied group of crustaceans in our region.

Subclassis MALACOSTRACA

The main features of the subclass species are a constant number of thoracic and abdominal segments, as well as the presence of the abdominal extremities. The breast consists of 8, and the abdomen consists of 6 or 7 segments and ends with a telson. They are distributed extremely widely: they inhabit a wide variety of water bodies and have partially adapted to live on land.

Ordo MYSIDA

In appearance, the mysids resemble small shrimps. Their body is elongated in length, the eyes are stalked, the head and chest are covered with cylindrical carapace, the abdomen is thin and ends with a tail fan consisting of a lamellar telson, at the edges of which are flat, two-branched uropods. Like shrimp, they swim at the bottom or in the water column.

In the region you can find: *Diamysis bahirensis* Sars, 1877, *D. pengoi* Czerniavsky, 1882, *Hemimysis anomala* Sars, 1907, *Katamysis warpachowskyi* Sars, 1893, *Limnomysis benedeni* Czerniavsky, 1882, *Mesopodopsis slabberi* Van Beneden, 1861, *Paramysis baeri* Czerniavsky, 1883, *P. intermedia* Czerniavsky, 1882, *P. lacustris* Czerniavsky, 1882 and *P. ullskyi* Czerniavsky, 1882.

This group of animals is very important in the nutrition of fish, especially especially on the bottom of water bodies. In this regard, they are actively acclimatized in the south of Russia, and therefore their species composition will still change.

Ordo CUMACEA

Small organisms, proportions of the body resembling tadpoles: the covered cephalothorax and thoracic region are enlarged and contrast with the thinner belly ending with the tail fork. The body length of adults of most species does not exceed 10 mm. Mainly marine organisms that are rare in brackish and fresh waters.

In our region there are: *Caspiocuma campylaspoides* Sars, 1897, *Pseudocuma cercaroides* Sars, 1894, *Pterocuma graciloides* Sars, 1894, *P. pectinatum* Sowinsky, 1893, *P. rostrata* Sars, 1894, *P. sowinskyi* Sars, 1894, *Schizorhynchus bilamellatus* Sars, 1894, *Sch. eudorelloides* Sars, 1894, *Sch. knipowitchi* Derzhavin, 1912, *Sch. scabriusculus* Sars, 1894 и *Volgocuma telmatophora* Derzhavin, 1912.

This group of animals is very important in feeding fish, especially the bottom. In this regard, they are actively acclimatized in the south of Russia, and therefore their species composition will continue to increase. In general, the study of this group of animals occurs regularly. consistently and actively.

Ordo (Subordo) SYNCARIDA

At a considerable distance from the sea in vast areas of land, especially where there are deposits of limestone, under a relatively thin layer of soil, groundwaters circulate. They impregnate rocks, flow through narrow spaces between particles of soil, fill wells and form ponds in the depths of calcareous caves. In these waters there is also a peculiar population, including some crustaceans. Microscopic dimensions (usually up to 2 mm), a thin worm-like body and short limbs allow these crustaceans to wade through narrow underground passages and crawl between the soil particles. Together with the groundwater, they penetrate wells, cave reservoirs, and sometimes into the bottom layers of the water of large lakes and live in such conditions, if the temperature of the water is low enough. In the region, they have not been studied at all, but it has been established that *Bathynella natans* Vejdovsky 1882 or some species close to it are present. In general, karst waters by hydrobiologists have not been studied in practice.

Ordo THERMOSBAENACEA

The conditions for the existence of a few known species of Thermosbaenacea are very diverse. Most of them live in hot thermal springs, fresh and brackish water, in ponds and lakes, which have an underground connection with the ocean or the sea. Known representatives of the detachment live only in underground waters. Because of their troglotic lifestyle, these crustaceans are completely devoid of visible pigments and are blind. In the region, according to ecological conditions, these crustaceans are most likely to be present. Given the abundance of well-known groundwater in the region (the KavMinvod area), the hydrobiological study of these waters is very promising. Specific biodiversity of these species is not established in the

region. At the same time, their presence in underground reservoirs has already been confirmed.

Ordo ISOPODA

In the coastal part of freshwater reservoirs, especially in the springs, so-called water donkeys are found. They hide in thickets of aquatic plants, floating leaves of aquatic plants, under rocks, in thickets of sedge. In reservoirs with clear and transparent water, they drop to four to five meters. Can live in a heavily polluted water body. Their body is flattened. Carapace is absent. The head fuses with one anterior thoracic segment. On the sides of the head are sedentary eyes with four facets. Due to the large degree of isolation of water bodies, it can be assumed that their species diversity should be large. However, in our region you can find only a few types: *Asellus aquaticus* Linnaeus, 1758, *A. monticola* Birstein, 1932, *Jaera sarsi* Valkanov, 1936 and *Proasellus infirmus* Birstein, 1936.

Meanwhile, in the world catalog of the World Register of Marine Species, the number of species of these animals exceeds several thousand species, which indicates a significant lack of knowledge of this group of crustaceans.

Ordo AMPHIPODA

The largest number of their species lives in the sea, where they inhabit all the depths and live both on the bottom and in the water column. In the fresh waters, the species diversity of Amphipoda is much smaller. По строению бокоплавов во многом сходны с Isopoda, однако тело их часто бывает сжато с боков, а не сверху вниз как у равноногих. However, among amphipods there are species with flattened in the dorsal-ventral

direction, as well as with a cylindrical body. The taxonomy of these crustaceans is not complete, mainly due to permanent renaming.

Therefore, the list of species of the region is largely presented as alleged: *Akerogammarus knipowitschi* Derzhavin & Pjatakova, 1967, *A. subnudus* Sars, 1896, *Amathillina cristata* Sars, 1894, *Axelboeckia spinosa* Sars, 1894, *Chaetogammarus warpachowskyi* Sars, 1897, *Chelicorophium chelicorne* Sars, 1895, *Ch. curvispinum* Sars, 1895, *Ch. maeoticum* Sowinsky, 1898, *Ch. robustum* Sars, 1895, *Ch. sowinskyi* Martynov, 1924, *Compactogammarus compactus* Sars, 1895, *Dikerogammarus fluviatilis* Martynov, 1919, *D. haemobaphes* Eichwald, 1841, *D. villosus* Sowinsky, 1894, *Echinogammarus ischnus* Stebbing, 1899, *E. warpachowskyi* Sars, 1894, *Euxinia maeoticus* Sowinsky, 1894, *Eu. sarsi* Sowinsky, 1898, *Eu. weidemanni* Sars, 1896, *Gammarus balcanicus* Schäferna, 1922, *G. crispus* Martynov, 1932, *G. insensibilis* Stock, 1966, *G. kischineffensis* Schellenberg, 1937, *Gmelina aestuarica* Carausu, 1943, *G. costata* Sars, 1894, *Iphigenella acanthopoda* Sars, 1896, *I. shablensis* Carausu, 1943, *Kuzmelina kusnezovi* Sowinsky, 1894, *Niphargogammarus intermedius* Carausu, 1943, *Niphargoides corpulentus* Sars, 1895, *N. spinicaudatus* Carausu, 1943 (Red Book of Kalmykia), *Niphargus ablaskiri* Birstein, 1940, *N. aquilex* Sket, 1959, *Obesogammarus crassus* Sars, 1896, *O. obesus* Sars, 1894, *Orchestia cavimana* Heller, 1865, *Pandorites podoceroideus* Sars, 1895, *Paraniphargoides motasi* Carausu, 1943, *Pontogammarus abbreviatus* Sars, 1894, *P. aestuarius* Derzhavin, 1924, *P. borceae* Carausu, 1943, *P. robustoides* Sars, 1894, *Stenogammarus carausui* Derzhavin et Pjatakowa, 1962, *S. compressus* Sars, 1894, *S. macrurus* Sars, 1894, *Yogmelina cocolita* Karaman & Barnard, 1979, *Y. pusilla* Sars, 1896 and *Zernovia volgensis* Derzhavin, 1948.

From a practical point of view, these crustaceans are an important component of fish nutrition. In connection with the unpretentiousness in nutrition can serve as a prospective culture for mass cultivation. Species diversity of amphipods requires more careful study.

Ordo DECAPODA

These are the most famous crustaceans, widely represented in the seas. In the rivers of the foothills in the studied region in the lowlands, occasionally one can meet a freshwater crab - *Potamon potamios* Olivier, 1804, but according to other data *P. tauricum* Czerniawsky, 1884 (Red Book of Adygea).

In the north, in brackish waters, you can also find the Black Sea herb shrimp (*Palaemon adspersus* Rathke, 1837). There is also information about the presence of shrimp in the cave waters, but nothing is known about their species. However, the most common is long-linged cancer (*Astacus leptodactylus* Eschsch, 1823). In the east and north of the territory can be found (*Astacus pachypus* Rathke, 1837), and in fish farms and (*Astacus astacus* Linnaeus, 1758). The encountered "blue" cancers are just mutations of ordinary crayfish.

From a practical point of view, these crustaceans are important as food for fish and birds, as well as humans. It is known about attempts to acclimatize shrimp from other regions of the world.

Phylum TARDIGRADA

These are microscopic invertebrates, close to arthropods. Their name often sounds like a small water bear. The body of Tardigrada has a size of 0.1 - 1.5 mm, translucent, of four segments and the head. The body is provided with 4 pairs of short and thick legs with 4 to 8 long bristle-like claws at the

end. Moving small water bear is really very slow - at a rate of only 2 - 3 mm per minute. They spread passively - wind, water, various animals. Virtually all small water bear to some extent are aquatic animals. Most of them are extremophiles. They feed on slow-moving fluids of plants and algae on which they live. Some species eat small animals - rotifers, nematodes and others. In Russia there are about 120 species. In the region under study, it is possible to note, at a minimum, the following Tardigrada, more or less connected with water: *Dactylobiotus dispar* Murray, 1907, *Diphascon pingue* Marcus, 1936, *D. prorsirostre* Thulin, 1928, *D. scoticum* Murray, 1905, *Echiniscus baius* Marcus, 1928, *Hypsibius convergens* Urbanowicz, 1925, *H. dujardini* Doyère, 1840, *Isohypsibius austriacus* Iharos, 1966, *I. gilvus* Biserov 1986, *I. jakieli* Dastyh, 1984, *I. marcellinoi* Binda & Pilato, 1971, *I. tuberculatus* Plate, 1888, *Macrobotus allani* Murray, 1913, *M. altitudinalis* Biserov, 1997/98, *M. ascensionis* Richters, 1908, *M. echinogenitus* Richters 1904., *M. harmsworthi* Murray, 1907, *M. personatus* Biserov, 1990, *M. walteri* Biserov, 1997/98, *Milnesium tardigradum* Doyère, 1840, *Ramazzottius caucasicus* Biserov, 1997/98, *R. oberhaeuseri* Doyère, 1840 and *R. subanomalous* Biserov, 1985.

But in general, we should expect a much larger variety of these animals, because because of their microscopic nature in practice they are not seen in standard freshwater hydrobiological studies.

Phylum ECTOPROCTA (BRYOZOA)

These are colonial animals that occur in the water in the form of various forms of tangles and outgrowths on rocks, stilts, water plants and various objects falling into the water. These outgrowths have a very unattractive appearance and are often brown-brown in color. They do not detect any visible movement during a cursory examination. In Russia there are about 50 freshwater and brackish species.

In the region there are at least the following types of freshwater and brackish bryozoans, as fouling agents of various objects immersed in water: *Bowerbankia gracilis* Leidy, 1855. *Conopeum seurati* Canu, 1928, *Cristatella mucedo* Cuvier, 1798, *Electra crustulenta* Borg, 1931, *Fredericella australiensis* Goddard, 1909, *F. indica* Annandale, 1909, *F. sultana* Blumenbach, 1779, *Hislopia placoides* Korotnev, 1901, *Hyalinella punctate* Hancock, 1850, *Internectella bulgarica* Gruncharova, 1971, *Lophopodella carteri* Hyatt, 1866, *Paludicella articulate* Ehrenberg, 1831, *Pectinatella magnifica* Allman, 1856, *Plumatella casmiana* Oka, 1907, *P. emarginata* Allman, 1844, *P. fruticose* Allmann, 1844, *P. fungosa* Pallas, 1768, *P. repens* Linnaeus, 1758, *Schizomavella auriculata* Hassall, 1842, *Sch. linearis* Hassall, 1841, *Urnatella gracilis* Leidy, 1851, *Victorella muelleri* Kraepelin, 1887 and *V. pavida* Saville-Kent, 1870. Birches are fed by microorganisms, including diatoms; in turn, serve as food for fish and other animals. Are important as a cover material for underwater objects. In general, we should expect a greater diversity of this group of animals, which, in general, little studied in Russia.

Phylum CHORDATA

A group of secondary animals, for which the presence of the mesodermal axial skeleton in the form of a chord is characteristic, which in the higher forms is replaced by the spine. The structure and function of the nervous system type of chordates occupies the highest place among animals.

Subphylum VERTEBRATA (CRANIATA)

Usually, modern vertebrates are divided into 7 classes: cyclostomes (lampreys and myxins), cartilaginous fishes, bony fishes, amphibians, reptiles, birds and mammals. The first four classes are attributed to the lower

vertebrates (anamnies), the last three to the higher vertebrates (amniotes). Fauna of vertebrates has 40 - 45 thousand species. Active movements provide the ability of vertebrates to change habitats, depending on changes in living conditions and needs at different stages of their life cycle.

Classis CYCLOSTOMATA

The only surviving representatives of the freshwater group Petromyzontiformes are represented in the region by very rare species: *Caspiomyzon wagneri* Kessler, 1870 (Red Book of the Stavropol Territory, Kalmykia) and *Eudontomyzon mariae* Berg, 1931 (Red Book of Russia, Adygea, Rostov Region, Stavropol and Krasnodar Territories). Both species are listed in the Red Book of the Russian Federation.

Classis ACTINOPTERYGII

The vast majority of known modern fish species (over 20,000 or about 95%) are Actinopterygii. They, as a rule, have a bony spine, and only a few retain a chord or its remains. In total, more than 300 species are associated with dwelling in fresh waters in Russia. Many species of fish are coveted food objects for the population.

Superclassis CHONDROSTEI

Modern Chondrostei sometimes reach a length of up to 9 meters (beluga). Body spindle-shaped. Can be covered with bone, ganoid scales, five rows of bone bugs or naked. There is rostrum, lower mouth. The tail is heterocercal. To this group of fish are the most valuable in the food relation sturgeon fishes - endemics of the Ponto-Caspian.

The fate of this group of fish in the region is tragic - most of them are only listed in descriptions, including in the Red Books of and region. In

particular, as a result of the construction of dams, sturgeons ceased to enter the region for reproduction, namely: *Acipenser gueldenstaedtii* Brandt & Ratzeburg, 1833 (Red book of Adygea, Krasnodar Territory), *A. nudiventris* Lovetski, 1928 (Red Book of the Russian Federation, Krasnodar Territory, Kalmykia), *Huso huso* Linnaeus, 1758 (Red Book of Russia, Adygea, Rostov Region, Krasnodar and Stavropol Territories) and earlier the most numerous in the Kuban *A. stellatus* Pallas, 1771 (Red Book of Adygea, Rostov Region, Krasnodar Region). On the verge of extinction *A. ruthenus* Linnaeus, 1758 (Red Book of the Russian Federation, Rostov Region, Krasnodar and Stavropol Territories). Some replacement of aboriginal sturgeon in the region is the production of sturgeon from Siberia - *A. baerii* Brandt, 1869 (Red Book of the Russian Federation), as well as artificial hybrid forms of sturgeon. Basically, this bester is a hybrid of beluga and starle.

From the biological point of view, the acclimatization of freshwater American sturgeon fish was successful - *Polyodon spathula* Walbaum, 1792. However, the high availability of this fish for poachers does not allow achieving final practical results. If the paddlefish is still present in the region, then only in specialized fish farms. There is also a biological rationale for the introduction into the region of the Chinese analogue *Psephurus gladius* Martens, 1862.

Subclassis NEOPTERYGII

They usually have a well-ossified skeleton, including a pronounced bone spine. They differ in ctenoid or cycloid scales, homocercal caudal fin with equal upper and lower lobes, removal of the anal opening from the ventral fins, as well as in the number of unpaired fin rays corresponding to the number of their skeletal supports.

The presented description of these fish is far from complete, because in many reservoirs, especially warm water aquarium fish of many species are found. The diversity of freshwater aquarium fish in the region has not been studied, but they are noted by many researchers.

Ordo ANGUILLIFORMES

Fish with a recognizable worm-shaped body, with elongated and merged dorsal and caudal fins without rigid rays, devoid of pelvic fins and scales. After the completion of the irrigation regulation of the rivers *Anguilla anguilla* Linnaeus, 1758 (Red Book of the Rostov Region, Krasnodar Region) ceased to penetrate the region.

However, a meeting with this fish is possible, since in some farms it was imported as "glass" larvae of eels. Given the long-term residence in fresh water (up to 10 years), as well as the ability of this fish to move far beyond the wet land, they can migrate from fish farms and, accordingly, can be caught in catches. There was also an attempt to grow *A. rostrata* LeSueur, 1817, which also could get into natural water bodies.

Ordo CLUPEIFORMES

No species of this group of fish has scales on the head, some species do not have scales at all. Lateral line - short or missing, and teeth - unusually small. Basically it is sea fish, but there are also freshwater fish.

In brackish reservoirs, *Clupeonella cultriventris* Nordmann, 1840, is found in the region as three species-subspecies: *Clupeonella cultriventris sultriventris* Nordmann, 1840, *Clupeonella delicatula caspia* Svetovidov, 1941 (syn. *Clupeonella caspia* Svetovidov, 1941), *Clupea cultriventris* var. *tscharchalensis* Borodin, 1896 (syn. *Clupeonella tscharchalensis* Borodin, 1896).

Other poorly discernible species of herring can pass through the locks of dams in the northwest of the region and from the Terek in the east: *Alosa caspia* Eichwald, 1838, *A. immaculate* Bennett, 1835, *A. tanaica* Grimm, 1901 (Red Book of the Stavropol Territory, Rostov Region) and *A. volgensis*. 1913 (Red Book of Kalmykia).

Ordo CYPRINIFORMES

Fish with teeth are located on the pharyngeal bones, often with antennae and without a fat fin. The body, as a rule, is covered with scales. The swim bladder is divided into two or more divisions. Many carp-like species are of great commercial importance, they are bred in fish farm.

Family CYPRINIDAE

Perhaps the most famous fish of this family is *Cyprinus carpio* Linnaeus, 1758. Its domesticated form (over 2 thousand years old) is called carp. According to the type of scales, four forms of carp are distinguished: scaly, mirror-like, mirror-line, leathery. In recent years, Japanese carp koi, which have an individual multicolored coloring, are becoming increasingly widespread.

Very close to the carp group of the crucian. In the studied region are represented everywhere, but locally: *Carassius gibelio* Bloch, 1782 and *C. carassius* Linnaeus, 1758 (Red Book of the Rostov Region).

In recent years, large crustaceans of scarlet color of the disputed systemic situation have appeared in the region. This is a Chinese crucian or commercial goldfish – *C. auratus* Linnaeus, 1758. They are not only caught for food, but also used for keeping in large aquariums, fountains and swimming pools.

To this group of fish can be attributed (according to the peculiarities of preparation) *Tinca tinca* Linnaeus, 1758 (Red Book of Kabardino-Balkaria) - a rare inhabitant of standing waters. Despite the complexity of cooking, this fish should be attributed to the delicacy.

Large commercial importance in the region is carp fish, which have the form of bream. This is, first of all, an ordinary bream - *Abramis brama* Linnaeus, 1758 with a subspecies: *A. b. orientalis* Berg 1949. Less commonly, in reservoirs, there are *Ballerus ballerus* Linnaeus, 1758 and *B. sapa* Pallas, 1814 (Red Book of the Rostov Region, Krasnodar Region). But the most desirable in its taste is *Blicca bjoerkna* Linnaeus, 1758.

A typical carp form has, well known to fishermen since childhood, the common *Rutilus rutilus* Linnaeus, 1758. This controversial polymorphic species is most likely present in the region in the form of subspecies (ecological forms): 1. *R. r. fluviatilis* Jakowlew, 1873 (tuvodnaya). 2. *R. r. heckeli* Nordmann, 1840 (*R. heckelii* Nordmann, 1840) (from the Sea of Azov). Also can meet – *R. caspicus* Jakovlev, 1870 (from the Caspian Sea).

Close relatives of the roach are also delicate fish – *R. frisii* Nordmann, 1840 (Red Book of the Russian Federation, Rostov Region, Krasnodar and Stavropol Territories), which occurs, most often, together with a subspecies, *Leuciscus frisii* var. *kutum* Kamensky, 1901 (syn. *R. f. kutum* Kamensky 1901) (Red Book of the Russian Federation, Rostov Region, Kalmykia, Stavropol Territory).

Ordinarily in the region also *Scardinius erythrophthalmus* Linnaeus, 1758 (Red Book of Kabardino-Balkaria). This is a relatively large fish, but of low value in food. Probably this is the record among our fish for helminth infection.

Externally somewhat similar to roach (delicacy because of their fat content) in the region are found (in the form of subspecies):

1. *Vimba vimba persa* Pallas, 1814 (Red Book of Kalmykia).
2. *V. V. tenella* Nordmann, 1840 (Red Book of Adygea, Krasnodar Territory).
3. *V. V. vimba* Linnaeus, 1758.

Delicatessen fish also include: *Alburnus mento* Heckel, 1836 (Red Book of Karachay-Cherkessia, Adygea), probably present as subspecies of *Chalcalburnus chalcoides mento* Gueldenstaedt, 1772 (Red Book of the Russian Federation, Rostov Region, Krasnodar and Stavropol Territories) and *A. chalcoides* Gueldenstaedt, 1772.

Small carp fishes are common throughout the region - *Alburnoides bipunctatus* Bloch, 1782 (Red Book of the Russian Federation) in the form of two controversial species: *A. b. rossicus* Berg, 1924 (Red Book of the Rostov Region, Krasnodar Territory) and *A. b. r. natio kubanicus* Berg, 1932) and *A. gmelini* Bogutskaya et Coad, 2009.

Also in the surface layers of water are found: Also in the surface layers of water are found: *Leucaspis delineatus* Heckel, 1843 (Red Book of Kabardino-Balkaria), *Petroleuciscus borysthenicus* Kessler, 1859 (syn. *Leuciscus borysthenicus* Kessler, 1859) (Red Book of the Rostov Region, Krasnodar Territory), *L. leuciscus* Linnaeus, 1758 (Red Book of the Rostov Region, Krasnodar Territory), *L. danilewskii* Kessler, 1877 (Red Book of the Rostov Region), *S. aphipsi* Aleksandrov, 1927 (syn. *L. aphipsi* Aleksandrov, 1927) (Red Book of Karachay-Cherkessia) и *Squalius cephalus* Linnaeus, 1758 (syn. *L. cephalus* Linnaeus, 1758) (Red Book of the Krasnodar Territory)..

Their closest relative *L. idus* Linnaeus, 1758) is quite large, but belongs to the very rare fish of the region. Its pond form is called an orpha.

Less often in the region there are delicious fishes: *Chondrostoma kubanicum* Berg, 1914 (Red Book of the Stavropol Territory, Karachay-

Cherkessia), *Ch. oxyrhynchum* Kessler, 1877 (Red Book of Kabardino-Balkaria, Stavropol Territory) и *Ch. variabile* Jakovlev, 1870 (Red Book of the Rostov Region, Kalmykia).

It should be noted and other carp fish, requiring a separate mention. For example, this is *Aspius aspius* Linnaeus, 1758 (Red Book of the Krasnodar Territory) - the only truly carnivorous carp fish.

Capoeta capoeta Gueldenstaedt, 1773, once the universe in the Sengeleev reservoir has not yet manifested itself. This may be due to the biology of this fish and the long-standing ban on fishing in this pond. It is possible that acclimatization was not successful.

And, on the contrary, the Amur Chechebok *Pseudorasbora parva* Temminck et Schlegel, 1846 appeared in the region and continues to settle as a result of self-acclimatization.

Also, the small fish *Rhodeus amarus* Bloch, 1782 (syn. *Rh. sericeus* Pallas, 1776) is an independent acclimatizer. It is interesting in that it lays eggs in the mantle cavity of mollusks.

A special saber-like shape is found in *Pelecus cultratus* Linnaeus, 1758. Initially, marine fish has now reached the foothills of the Caucasus.

The bright and multicolored *Phoxinus phoxinus* Linnaeus, 1758 (Red Book of the Krasnodar Territory) and Coloxian *Phoxinus colchicus* Berg, 1910, are very beautiful. The presence of the latter species in the region is questioned.

Since childhood, many minnows are known. In recent years, the efforts of scientists of taxonomists have significantly increased their diversity and reached 9 units in the region, but so far disputed species-subspecies: *Gobio gobio* Linnaeus, 1758, *G. g. brevicirris* Fowler, 1976 (syn. *G. brevicirris* Fowler, 1976), *G. g. holurus* Fowler, 1976 (syn. 1. *G. g.*

lepidolaemus Kessler, 1872, syn. 2. *G. holurus* Fowler, 1976) и *G. kubanicus* Vasil'eva, Vasil'ev and Kuga, 2004.

The number of species of the genus *Romanogobio* Bănărescu, 1961, also increased. These are: *R. albipinnatus* Lukasz, 1933 (Red Book of the Rostov Region), *R. ciscaucasicus* Berg, 1932 (Red Book of Kabardino-Balkaria), *R. parvus* Naseka et Freyhof, 2004, *R. pentatrichus* Naseka et Bogutskaya, 1998 (Red Book of the Krasnodar Territory) and *R. tanaiticus* Naseka, 2001.

A special group is the barbel, as depending on the habitat, they can reach various sizes - from 10-20 cm to a meter length. However, large barbel musters are very rare. In the region the following types can occur: *Barbus ciscaucasicus* Kessler, 1877, *B. kubanicus* Berg, 1912, and extremely rare (possibly already extinct) – *B. brachycephalus caspius* Berg, 1914 (Red Book of Kalmykia) and *Luciobarbus capito* Gueldenstaedt, 1773 (syn. *B. capito* Gueldenstaedt, 1773) (Red Book of Kabardino-Balkaria, Stavropol Territory). It should be noted that the roe of barbel is poisonous.

Soviet fish farmers achieved special successes in the acclimatization of the Far Eastern carp fish complex: *Aristichthys nobilis* Richardson, 1845 and *Hypophthalmichthys molitrix* Valenciennes, 1844). These fish filters have filled the planktonic ecological niche that was previously used by non-target fish.

A significant meliorative role is played by the Far Eastern *Ctenopharyngodon idella* Valenciennes, 1844, *Mylopharyngodon piceus* Richardson, 1846 (Red Data Book of the Russian Federation). The first species is herbivorous, able to consume macrophytes, and therefore is an ameliorator of water bodies. The second species specializes in eating mollusks, and therefore, for example, Novotroitskoe reservoir, providing water of the same name, can clean them.

They also appeared with the Far Eastern fish *Pseudorasbora parva* Temminck et Schlegel, 1846. Its trophic role has not yet been evaluated. Also, the fate of her survival in the future is not known.

Family CATOSTOMIDAE

They do not have a mustache. The body is covered with scales. Delicatessen fish. By origin they are inhabitants of North America. The local population does not distinguish them from carp. About their successful acclimatization can be judged only from the information about the meeting fishermen of orange caviar inherent in these fish. The following species were introduced into the reservoirs of the region: *Ictiobus cyprinellus* Valenciennes, 1844, *I. bubalus* Rafinesque, 1818 and *I. niger* Rafinesque, 1819. Their presence in the region now requires confirmation.

Family COBITIDAE

Body elongate, compressed laterally or fusiform. The body is covered with shallow scales or bare. Lower mouth. Antennae around the mouth 6 - 12. Despite active work using the latest methods, the systematics of this group of fish is not yet complete. Most likely in the region in our time or in the future can be found up to 8 species: *Cobitis (Sabanejewia) aurata* De Filippi, 1863 = *S. aurata* De Filippi, 1863, close to the first (conspecific) *S. caucasica* Berg, 1906 (Red Book of the Russian Federation, Kabardino-Balkaria, Stavropol Territory), *C. melanoleuca* Nichols, 1925, *C. rossomeridionalis* Vasil'eva et Vasil'ev, 1998, *C. taenia* Linnaeus, 1758, *C. tanaitica* Bacescu et Maier, 1969, *S. baltica* Witkowski, 1994, *S. cf. bulgarica* Naseca 2009 and *S. kubanica* Vasil'eva et Vasil'ev, 1988 = *S. aurata kubanica* Vasil'eva et Vasil'ev, 1988. The systematic separation of Cobitidae is not yet completed, and therefore is controversial.

Very interesting is also *Misgurnus fossilis* Linnaeus, 1758 (Red Book of the Rostov Region), which is able to squeak, breathe air, sleep when the reservoir dries. The loaches are used in laboratory culture, for bait, soup cooking.

Family BALITORIDAE

Benthic freshwater fishes. The mouth is surrounded by three or four pairs of antennae. The body of some species is strongly flattened from top to bottom, covered with small scales. In the region there are: *Barbatula barbatula* Linnaeus, 1758 (Red Book of Adygea, Krasnodar Territory), probably also in the form of a subspecies: *Nemachilus barbatulus caucasicus* Berg, 1899 (syn. *B. b. caucasicus* Berg, 1899) and *B. (Oxynoemacheilus) merga* Krynicki, 1840.

They do not have any economic value, but they are sometimes used as food or as bait when catching predatory fish. Balitoridae is the food of many predatory fish.

Ordo SILURIFORMES

Devoid of real fishes scales, usually with antennae and fatty fin. The tail is usually much longer than the trunk and is compressed laterally. On the head is a pair of maxillary tendrils and one or two pairs of mandibular ones. They swim at the bottom of the reservoirs. Obligatory predators, feeding mainly on fish. Earlier in the region lived only one representative of the detachment - *Silurus glanis* Linnaeus, 1758 (Red Book of Kabardino-Balkaria).

However, at the end of the twentieth century, *Ictalurus punctatus* Rafinesque, 1818, *Ameiurus nebulosus* Le Sueur, 1819 and *A. melas* Rafinesque, 1820 were brought to the region for cultivation.

One of them, most likely the first one, accidentally got into Egorlyk reservoirs, where he self-acclimatized. The remaining species are the objects of growing on the region's thermal power farms.

Ordo ESOCIFORMES

Freshwater fish without fatty fin, having a dorsal fin on the back of the body. Esociformes are distinguished by a large head with a strongly elongated and flattened snout. In the region, one species is *Esox lucius* Linnaeus, 1758 (Red Book of Kabardino-Balkaria). This delicacy fish is considered useful for men's health.

Ordo SALMONIFORMES

Medium-sized and large freshwater and migratory fish, laying eggs in fresh water. Many of them have a fat fin. Salmonids are the most valuable in terms of food. In this regard, most of them, one way or another, are used for fish breeding purposes. These fish are often imported from other places, acclimatized, create hybrid forms.

Perhaps, therefore, many works are devoted to their taxonomy, but the final order has not been reached. The matter is complicated by the fact that many salmon vary in size and shape depending on their habitat, age, etc. In addition, often the type or place of fishing is a commercial secret.

Summarizing the material that is available, it can be concluded that in the natural waters and fish farms in the region the following species were once found, inhabited or imported in the future.

In particular, *Parasalmo mykiss* Walbaum, 1792 = *Oncorhynchus mykiss* Walbaum, 1792 (Red Data Book of the Russian Federation) is most likely represented in two controversial subspecies, and more likely in the form of transitional ecological forms through the processes of smoltification:

1. *Parasalmo mykiss irideus* Walbaum, 1792 (syn. *Salmo gairdnerii* Richardson, 1836 (migratory fish from the sea).

2. *Parasalmo mykiss irideus* Walbaum, 1792 - rainbow trout (freshwater form). Breeds: Donaldson, Kamloops and others. Often this fish is represented in various sources as *S. iredea* Gibbons, 1855, and as a synonym of *S. gairdnerii* Richardson, 1836 or even as *S. mykiss gairdnerii* Richardson, 1836.

The same can be said of the sea-going trout – *S. trutta* Linnaeus, 1758 (Red Book of the Russian Federation, Krasnodar Region, Ingushetia), which is present in four discussion subspecies-species (Red Book of the Russian Federation), which may possibly fall into the sea as smolt brook trout:

1. *S. caspius* Kessler, 1877 (syn. *S. trutta caspius* Kessler, 1870) (Red Book of Kabardino-Balkaria, Stavropol Territory).

2. *S. t. ciscaucasicus* Dorofeeva, 1967 (syn. *Salmo ciscaucasicus* Dorofeeva, 1967) (Red Book of Kalmykia).

3. *S. labrax* Pallas, 1814 (syn. *Salmo trutta labrax* Pallas, 1811) (Red Book of the Stavropol Territory).

4. *S. ezenami* Berg, 1948 (syn. *Salmo trutta ezenami* Berg, 1948).

It is believed that the fish (*S. labrax* Pallas, 1814), remaining in mountain reservoirs, almost does not grow - *S. t. morpha fario* Linnaeus, 1758 or *S. l. morpha fario* Pallas, 1811 (Red Book of Kabardino-Balkaria, Adygea, Krasnodar Region, Ingushetia). In mountain lakes, it grows somewhat more - for example, *S. ezenami* Berg, 1948).

The matter is complicated by the intensive importation of American gold trout and their hybrids (according to American designations):

1. *Oncorhynchus mykiss aguabonita* Jordan, 1893.

2. *Oncorhynchus mykiss chrysogaster* Needham and Gard, 1964.

3. *Oncorhynchus mykiss whitei* Evermann, 1906 and others.

It is known that attempts have also been made to re-acclimatize *Stenodus leucichthys* Guldenstadt, 1772 (Red Data Book of the Russian Federation), as well as the acclimatization of *Hucho taimen*, Pallas, 1773 (Red Book of the Russian Federation) and *Oncorhynchus gorbuscha* Walbaum, 1792. The results of their acclimatization are unknown.

Ordo GADIFORMES

The different sizes and lifestyle of fish having front located abdominal fins, as well as pectoral fins with spiny rays. There is one unpaired antenna on the chin. A pair of antennae on the upper jaw. In the region, the presence of the freshwater cod species - *Lota lota* Linnaeus, 1758 (Red Book of the Rostov Region, Kalmykia) is quite controversial. Only two fish were caught in different years in the lower reaches of the Yegorlyk River. Perhaps this is due to the fact that this fish can be caught only in winter, and in the region winter fishing is not popular.

Ordo MUGILIFORMES

Typically, marine fish torpedo-shaped body. Dorsal fins widely spaced, pushed back. Usually they have no pronounced lateral line. Caviar floating, shallow. In recent decades, large-scale works on the acclimatization of the Far Eastern *Liza haematocheilus* Temminck and Schlegel, 1845 (syn. *Mugil soiuy* Basilewsky, 1855) to the Azov and Caspian Seas have been carried out in the North Caucasus. This fish was caught in the salt lake Manych-Gudilo, the northernmost point of the region.

Ordo CYPRINODONTIFORMES

Small, mostly freshwater brightly colored fish. There is no lateral line. There are teeth on the jaws. These are typical tropical fish, feeding mainly on larvae of malarial mosquitoes. For this, these fish even put a monument for merit in the fight against malaria. To combat malaria in the region, *Gambusia affinis* Baird et Girard, 1853 and *G. holbrooki* Girard, 1859 were acclimatized. By now, there is a need to re-acclimatize these fish.

An alternative can be the acclimatization of the Chinese medaka or ricefish *Oryzias sinensis* Chen, Uwa et Chu, 1989 (syn. *Oryzias latipes* Temminck et Schlegel, 1846). After the beginning of work on the acclimatization of herbivorous fish in the North Caucasus, since 1974, information has appeared on the self-acclimatization of this fish in the region.

In general, representatives of this group of fish belong to the usual aquarium fish, and therefore they often take root in the warm waters of many thermal power stations after their release there by the population. Temporarily there are many species, but already permanent in warm water bodies were *Poecilia reticulata* Peters, 1859 and many other aquarium fish.

Ordo ATHERINIFORMES

Pisces of an elongated body shape, with widely spaced two dorsal fins, the first of which is formed by flexible rays. In the Black and Azov Seas, *Atherina boyeri* Risso, 1810 is common. In the region, this fish may be present as a subspecies – *A. presbyter* var. *pontica* Eichwald, 1831 (syn. *A. b. pontica* Eichwald, 1838). There is evidence that this fish entered the region with fish acclimatized to the salt part of Lake Manych-Gudilo. Interestingly, this fish spawns directly on the beach.

Ordo SYNGNATHIFORMES

Small fish with posterior pelvic fins, notable for elongated tube-shaped snout, at the end of which the toothless mouth is located. There is a shell of bone plates. In most species, the males wears caviar in a special "bag for caviar" - a closed chamber located on the underside of the body in the tail section. Previously, mostly marine inhabitants have now spread widely throughout the region, reaching the foothills of the Greater Caucasus.

Their systematic definition is rather difficult, but the presence of at least two types is clearly established: *Nerophis ophidion* Linnaeus, 1758, *Syngnathus abaster* Risso, 1827 (syn. *S. nigrolineatus* Eichwald, 1831) and the Caspian species-subspecie – *S. caspius* Eichwald, 1931, (syn. *S. n. caspius* Eichwald, 1931). There are indications that fish-needles have already penetrated the mountainous part of the region.

Ordo GASTEROSTEIFORMES

Small sizes of fish with rear ventral fins, which have a single spiny ray. These fish have a tubular form of snout. They live usually among underwater vegetation. Planktophages. These fish are interesting because, like birds, they build nests. The region is dominated by *Pungitius platygaster* Kessler, 1859 (Red Book of Kabardino-Balkaria). Very rarely occurs *Gasterosteus aculeatus* Linnaeus, 1758.

Ordo PLEURONECTIFORMES

Benthic fishes with extended dorsal and anal fins. They have a body compressed laterally. Eyes are located on one side of the body. *Platichthys flesus* Linnaeus, 1758 occasionally occurs in the lower reaches of Egorlyk. According to some reports, attempts were made to introduce *Pleuronectes*

maeoticus Pallas, 1814 into Manych reservoir. The effectiveness of this event is not known.

Ordo PERCIFORMES

In these fish, the anal fin contains 1 to 3 spines. Dorsal fin consists of two parts: prickly and soft, which in some species are connected, in others are isolated. On the jaws setiform teeth, among which some species have fangs. Scales ctenoid. This, in general, is the most common inhabitants of the region.

Family PERCIDAE

Most often, fishermen encounter *Perca fluviatilis* Linnaeus, 1758. Desirable prey are *Sander lucioperca* Linnaeus, 1758, (syn. *Stizostedion lucioperca* Linnaeus) and a recent invader from the Volga – *S. volgensis* Gmelin, 1789 (syn. *S. volgense* Gmelin, 1788) (Red Book of the Russian Federation).

Less common are the kings of fish soup - *Gymnocephalus acerina* Gueldenstaedt, 1774 (endemic) and *G. cernuus* Linnaeus, 1758. Occasionally in the north of the region, their close relative is noted - *Percarina maeotica* Kuznetsov, 1888.

Family ELIOTRIDIDAE

Very similar to our bull-calves - a view from the far east, very gluttonous and already appeared in the north of the region *Perccottus glenii* Dybowski, 1877. His appearance is due to aquarists, who released him somewhere in Moscow. Since then, it has spread across the European part of Russia. Currently, the finding of this species is confirmed only by verbal declarations of amateur fishermen. Perhaps this is an erroneous opinion, since this species looks like a bull-calf.

Family MORONIDAE

In Western countries, these fish are valued for their high nutritional quality. Body elongated, covered with small ctenoid scales. Dorsal fins two. In the first eight - ten spiny rays, in the second one spiny and ten - thirteen soft branched rays. The anal fin has three spiny rays and nine to twelve soft rays. On the gill cover there are two thorns. It is assumed that the following fish have already been introduced into the region: *Dicentrarchus labrax* Linnaeus, 1758, *Morone chrysops* Rafinesque, 1820 и *M. saxatilis* Walbaum, 1792. The latter species is indicated as a successful acclimatized in the Azov Sea and the lower reaches of the Don.

Family CENTRARCHIDAE

Centrarchidae have a high, but flat body. The length in the adult state is 0.1-0.3 m. Dorsal fin has 3-13 spiny rays in front, anal from 3 to 9. Adult fish lead a predatory lifestyle, consuming any commensurate food. The most famous is *Micropterus salmoides* La Cepede, 1802 (or according to other sources *M. dolomieu* La Cepède, 1802 which was acclimatized to the Abrau-Durso lake. From there, it was exported, including to the Yegorlyk reservoirs. Documentary evidence of its final acclimatization in Central Ciscaucasia is not available.

There are also perch (sunny): *Lepomis gibbosus* Linnaeus, 1758 and, possibly, *L. cyanellus* Rafinesque, 1819 and *L. auritus* Linnaeus, 1758, which fish farmers do not distinguish.

Family PERCICHTHYIDAE

In the most recent years it has become fashionable to import into fish farms of rich people and organizations of various exotic fish for the region. Their belonging to certain species can only be established from the words of

the owners when viewed from afar. In their hands do not give out the principle. With some degree of certainty, the following fish can be mentioned. These are: *Macquaria colonorum* Günther, 1863 (syn. *Percalates colonorum* Günther 1863).

The Far Eastern perch *Siniperca chua-tsi* Basilevsky, 1855 (Red Book of the Russian Federation) penetrated the region and is already recognized by fishermen in the northern regions of the region.

Family CICHLIDAE

Dorsal fin one, long. Caudal fin rounded or straight. On each side of the snout, these fish have only one nasal opening, whereas the vast majority of bony fishes have two. Most species have two lateral lines, the upper and lower. Tilapia have an interesting biological feature - after spawning the males collect caviar in their mouth and for a long time (up to a month) "incubate" caviar in their mouth.

In gastronomy, tilapia and other cichlids are very popular due to the delicate taste of white meat with a high protein content and low fat content. For these reasons, cichlids in the world are a very common object for aquaculture. In Russia it is not yet popular, but in the region it is occasionally grown. The problem is that fish farmers do not distinguish between separate species, and therefore their species diversity can be imagined only on the basis of a list of large cichlids imported into our country at different times for aquaculture purposes. In natural reservoirs, they are occasionally found in the warm zones of the GRES, but there is no real possibility of a species definition due to a tight protection zone.

Most likely the following species were imported to the region: *Oreochromis mossambicus* Peters, 1852, *O. niloticus* Linnaeus 1758, *O. urolepis* Norman, 1922, *Cichla ocellaris* Bloch and Schneider, 1801,

Onockramis anreus Stemdacbaer, 1864, *Sarotherodon melanotheron* Riippel, 1852, *Tilapia guineensis* Bleeker, 1862, *T. hornorum* Trewavas 1966, *T. mariae* Boulenger, 1899, *T. zillii* Gervais 1848. There are data on the acclimatization of the following species of fish: *Aequidens pulcher* Gill, 1858 and *A. coeruleopunctatus* Kner et Steindachner, 1863.

Ordo Gobiiformes

They have a body covered with scales (up to 0,4 m), compressed behind, a large wide head, large, closely spaced eyes. There are two dorsal fins - one of them usually with bony rays. Below there is a sucker, arising from the fusion of the pelvic fins. In the region this group is represented quite widely. However, their numbers and diversity are variable. Discontinuities of areals are often observed.

First of all, it is necessary to note the smallest, but numerous fishes of the region: *Caspiosoma caspium* Kessler, 1877 (Red Book of the Rostov Region), *Knipowitschia caucasica* Berg, 1916 and *K. longecaudata* Kessler, 1877.

Common bulls are of medium size: *Benthophilus baeri* Kessler, 1877, *B. durrelli* Boidyrev et Bogutskaya, 2004, *B. macrocephalus* Pallas, 1787, *B. magistri* Iljin, 1927 and *B. stellatus* Sauvage, 1874.

Relatively large bulls are found on the plain to low mountains, but are often mosaic. These are the following bull-calves: *Mesogobius batrachocephalus* Pallas, 1814, *Neogobius (Apollonia) melanostomus* Pallas, 1814, *N. (Babka) gymnotrachelus* Kessler, 1857, *N. (Ponticola) constructor* Nordmann, 1840 (Red Book of Kabardino-Balkaria), *N. (P.) rhodioni* Vasil'eva et Vasil, 1996 (Red Book of Krasnodar Region), *N. (P.) syrman* Nordmann, 1840, *Proterorhinus marmoratus* Pallas (Red Book of Kabardino-

Balkaria, Rostov Region), 1814, *P. nasalis* De Filippi, 1863, *Zosterisessor ophiocephalus* Pallas, 1814 and the most common *N. fluviatilis* Pallas, 1814.

Small goby is food for predatory fish. Large goby, by contrast, serve as a desirable object of the fishery. Many goby actively move to the region and therefore require constant monitoring. In the south of Russia these fish are awarded a monument.

Ordo CHARACIFORMES

The body of these fish is most often high, ovoid in shape, strongly compressed laterally. The head is big enough. Large eyes in young fish decrease with age. Mouth very large, armed with sharp teeth. It is predominantly the fish of the tropical part of America and, in part, Africa. In Russia, previously these fish were imported exclusively for aquarium maintenance.

However, in recent years they have been found in the most diverse reservoirs of Russia. In the region so far, two finds have been noted (species are not defined) - in the Novotroitsk water basin and Lake Mokraj Bujvola. In the first of them there are sections of water with a temperature of about 40 ° C, even in winter. This means that, theoretically, there are conditions for the reproduction of these fish, that is, the potential for accidental acclimatization of these fish in the region. At least, it can be the following carnivorous species imported into Russia: *Rooseveltiella nattereri* Kner, 1858, *Serrasalmus elongatus* Kner, 1860, *S. hollandi* Eigenmann, 1915, *S. nattereri* Kner, 1860, *S. ternetzi* Steindachner, 1908, *Catoprion mento* Cuvier, 1819, *Colossoma bidens* Spix et Agassiz, 1829, *Metynnis luna* Cope, 1878, *M. hypsauchen* Müller et Troschel, 1844 и *Myleus rubripinnis* Müller et Troschel, 1844. It is not excluded the appearance of other species of fish from aquariums.

Ordo Scorpaeniformes

The usual size of this fish is 0.1 m. Very rarely catch in the north of the region is *Gottus gobio* Linnaeus, 1758 (Red Book of the Russian Federation) of the family Cottidae Bonaparte, 1831. He has a spindle-shaped body, a large, wide head. Smooth skin without scales. Its ventral fins are located on the chest below. Fish are often confused with bull-tsutikom. The species is demanding for water quality, it needs a high concentration of oxygen and rather low water temperature. Lives on the stone bottom of the rivers.

Classis AMPHIBIA

The class of vertebrates of four-legged animals includes up to 7 thousand modern species, which makes this class relatively small. In Russia there are only 28 species. Even fewer of them in the studied region - 14.

Ordo CAUDATA

All these amphibians are characterized by having an elongated body passing into a well developed tail. The front legs have from 3 to 4, the rear legs - from 2 to 5 fingers. The vast majority of species of these amphibians constantly live in water.

From the Caudata detachment in the region there are: *Lissotriton vulgaris* Linnaeus, 1758 (Red Book of the Rostov Region, Ingushetia), *Triturus karelimi* Strauch, 1970 (Red Book of Adygea, Krasnodar Territory), the caucasian subspecies *T. vulgaris lantzi* Wolterstorff, 1914 (Red Book of Karachay-Cherkessia, Kabardino-Balkaria, Adygea, Krasnodar Territory) and also *Ommatotriton (Triturus) vittatus* Gray, 1835 = *T. vittatus ophryticus* Gray, 1835 (Red Book of Karachay-Cherkessia, Adygea, Krasnodar Territory). All of them are listed in the Red Book of the Russian Federation.

Ordo ANURA

The body is short, the neck is not expressed, there is no tail. The paired extremities are well developed, with the hind limbs two or three times as large as the forelegs and serve for characteristic movement by jumping.

The region inhabits the *Bombina bombina* Linnaeus, 1761 (red Book of Adygea, Kalmykia) - a bright poisonous frog. It has a size from 0.03 to 0.06 m.

Here also lives *Hyla arborea* Linnaeus, 1758. (Red Book of the Stavropol Territory, Ingushetia). It is a small frog with suckers for living on trees.

In river valleys in reservoirs with soft ground one can find *Pelobates fuscus* Laurenti, 1768 (Red Book of Kabardino-Balkaria, Adygea, Krasnodar Territory, Ingushetia).

Pelodytes caucasicus Boulenger, 1896 (Red Book of the Russian Federation, Karachay-Cherkessia, Kabardino-Balkaria, Adygea), is found in small reservoirs and creeks of small streams of the mountainous part of the studied region (Red Book of the Russian Federation, Karachay-Cherkessia, Kabardino-Balkaria, Adygea).

The usual for the region are *Bufo verrucosissimus* Pallas, 1814 (Red Book of the Russian Federation, Karachay-Cherkessia, Adygea, Krasnodar Territory) and *B. viridis* Laurenti, 1768.

However, *Rana arvalis* Nilsson, 1842 (Red Book of the Rostov region), *R. macrocnemis* Boulenger, 1885 (Red Book of Adygea, Krasnodar region) and *R. ridibunda* Pallas, 1771, reach the greatest diversity and number.

Within the large hatcheries sporadically there are random (technological) migrants: *R. esculenta* Linnaeus, 1758 and *R. lessonae* Camerano, 1882.

Classis REPTILIA

Class (according to traditional classification), predominantly terrestrial vertebrate animals, including modern turtles, crocodiles, lizards and snakes, and once dinosaurs. In the world about 9,400 species of reptiles are known, of which there are just over 70 species inhabiting Russia.

Only two species of aquatic turtles can be noted on the studied territory: *Emys orbicularis* Linnaeus, 1758 (Red Book of Adygea, Krasnodar region) and, possibly, *Mauremys caspica* Gmelin, 1774.

The life of the snakes is also associated with water: *Natrix natrix* Linnaeus, 1758 and water *N. tessellata* Laurenti, 1768. *N. megaloccephala* Orlov & Tuniyev, 1986 (Red Book of Adygea, Krasnodar region) also occurs.

The life of the following snakes is also associated with water: *Natrix natrix* Linnaeus, 1758 and water *N. tessellata* Laurenti, 1768. There is also *N. megaloccephala* Orlov & Tuniyev, 1986 (Red Book of Adygea, Krasnodar region).

Likes to eat fish, inhabiting the region, *Elaphe dione* Pallas, 1773. In its diet includes small mammals (the main type of food in many parts of the range), birds, snakes, amphibians, fish and insects.

In the water, the author of the work was bitten in the water by the steppe viper *Pelias renardi* Shristoph, 1861 (Red Book of the Rostov region, Kalmykia), which also hunts in the aquatic environment.

Classis AVES

The class of warm-blooded egg-laying vertebrates, whose representatives are characterized by the fact that their body is covered with feathers and the forelimbs are modified into flight organs - wings. The structure of the body of birds is adapted to flight. Almost all birds, one way or

another, are related to water, which is drunk from open sources. In the studied region, you can meet quite a lot of constantly living birds, on migration or wintering, connected directly with the reservoirs. There is also a connection between non-aquatic birds due to their feeding, for example, with the eating of insects developing in water.

Ordo GRESSORES

These birds are characterized by large size, long legs, a long neck and a long, usually strong beak of various shapes. Often the beak is straight and sharp, conical, sometimes it bends slightly upward, in some species it is curved downwards, sometimes broad and massive, and, finally, it can be widened at the end in the form of a spatula.

The most common herons in the region are: *Ardea cinerea* Linnaeus, 1758, *A. purpurea* Linnaeus, 1766, *Ardeola ralloides* Scopoli, 1769 (Red Book of Adygea, Rostov region, Kalmykia, Ingushetia), *Bubulcus ibis* Linnaeus, 1758 (Red Book of the Russian Federation, Kabardino-Balkaria, Kalmykia), *Egretta alba* Linnaeus, 1758 (Red Book of Ingushetia), *E. garzetta* Linnaeus, 1766 (Red Book of Karachay-Cherkessia, Ingushetia) and *Nycticorax nycticorax* Linnaeus, 1758 (Red Book of Karachay-Cherkessia).

To the same group also include: *Botaurus stellaris* Linnaeus, 1758 and *Ixobrychus minutus* Linnaeus, 1766. They live in ponds with standing water or with a weak current, overgrown with reeds and cane.

Platalea leucorodia Linnaeus, 1758 (Red Book of the Russian Federation, the Rostov region, Krasnodar and Stavropol territories, Kalmykia) is unique, with its beak criss-crossed in the form of a spatula.

In *Plegadis falcinellus* Linnaeus, 1766 (Red Book of the Russian Federation, Karachay-Cherkessia, Kabardino-Balkaria, Adygea, Rostov

region, Krasnodar and Stavropol territories, Kalmykia), on the contrary, the beak is sharp, bent downwards.

There is a report that in the region under study there may be a rare *Ciconia nigra* Linnaeus, 1758 (Red Book of the Russian Federation, the Stavropol and Krasnodar Territories, Karachay-Cherkessia, Kabardino-Balkaria, Adygea, Rostov Region, Kalmykia, Ingushetia).

There is also *C. ciconia* Linnaeus, 1758 (Red Book of the Stavropol and Krasnodar Territories, Karachaevo-Cherkessia, Rostov Region). The stork's favorite food is frogs, toads, snakes and vipers, as well as large grasshoppers and locusts.

Ordo PASSERIFORMES

Directly in the water a lot of time is spent by *Cinclus cinclus* Borkhausen, 1797. It feeds on water insects and crustaceans, which it collects in the shallows, between the stones under the water. The main feature of this bird is the ability to swim and dive well. Raising his wings and deftly maneuvering in the stream of water - the bird "runs" along the bottom. Underwater, this bird can remain up to 50 seconds, moving during this time to 20 meters.

Shore or coastal swallow *Riparia riparia* Linnaeus, 1758 is able to catch food objects that are on the water surface. It lives along steep banks of rivers with a fairly soft ground.

Ordo GAVIAE

These are real waterfowl, well adapted to the aquatic environment. Plumage at them dense, reliably protects a body from cooling in water. These birds perfectly swim and dive. They spend their whole lives on the water, visiting the dry land only during the nesting period. In the region, one

northern species sometimes winters - *Gavia arctica* Linnaeus, 1758. (Red Book of the Russian Federation, Karachaevo-Cherkessia, Rostov Region, Krasnodar Region).

Ordo ANSERIFORMES

In this detachment there are birds of large and medium size. The largest representatives of the detachment are swans, reaching a mass of 15 kg. The smallest is european teal, which has a mass of about 200 - 300 g. As a rule, the Anseriformes have a large body and a comparatively small head, located on a long neck.

A significant variety is represented by river ducks: *Anas acuta* Linnaeus, 1758, *A. angustirostris* Menetries, 1832 (Red Book of the Russian Federation, Kabardino-Balkaria, Kalmykia, Stavropol Territory), *A. clypeata* Linnaeus, 1758, *A. crecca* Linnaeus, 1758, *A. penelope* Linnaeus, 1758, *A. platyrhynchos* Linnaeus, 1758, *A. querquedula* Linnaeus, 1758, *A. strepera* Linnaeus, 1758 (Red Book of the Rostov Region), *Mergellus albellus* Linnaeus, 1758, *Mergus merganser* Linnaeus, 1758 and *M. serrator* Linnaeus, 1758.

The large ducks are very strong: *Tadorna tadorna* Linnaeus, 1758, and especially *T. ferruginea* Pallas, 1764 (Red Book of Krachaevo-Cherkessia, Krasnodar Territory, Ingushetia), which can drive a fox out of the burrow.

Due to the blue color of her nose, her appearance *Oxyura leucocephala* Scopoli, 1769 (Red Book of the Russian Federation, Rostov region, Krasnodar and Stavropol territories, Kalmykia) is interesting.

There are also geese: *Anser albifrons* Scopoli, 1769, *A. anser* Linnaeus, 1758, *A. erythropus* Linnaeus, 1758 (Red Book of the Russian Federation, Kabardino-Balkaria, Rostov region, Kalmykia, Stavropol

Territory) and *A. fabalis* Latham, 1787. In the water, you can also meet domesticated birds from anseriformes - ducks and geese of various breeds.

From other Anseriformes it is also necessary to note: *Aythya ferina* Linnaeus, 1758, *A. fuligula* Linnaeus, 1758, *A. marila* Linnaeus, 1761, *A. nyroca* Gldenstdt, 1770 (Red Book of the Russian Federation, Rostov Region, Krasnodar and Stavropol Territories, Kalmykia, Ingushetia) and *Netta rufina* Pallas, 1773. Also found: *Branta bernicla* Linnaeus, 1758, *Bucephala clangula* Linnaeus, 1758 and *Rufibrenta ruficollis* Pallas, 1769 (Red Book of the Russian Federation, Kabardino-Balkaria, Rostov region, Krasnodar and Stavropol territories, Kalmykia, Ingushetia).

Swans always attract attention: *Cygnus bewickii* Yarrell, 1830 (Red Book of the Russian Federation, Rostov Region, Kalmykia, Stavropol Territory), *C. cygnus* Linnaeus, 1758 (Red Book of Ingushetia) and *S. olor* Gmelin, 1789 (Red Book of Ingushetia).

Less common are ducks with a narrow elongated beak: *Mergellus albellus* Linnaeus, 1758, *Mergus merganser* Linnaeus, 1758 and *M. serrator* Linnaeus, 1758.

Ordo GRUIFORMES

Different in appearance and way of life, birds, whose sizes vary from 0.2 m to almost 2 m. Most of them are terrestrial animals, but there are species associated with water in one way or another. First of all, it is near-water (more often marshy) *Grus grus* Linnaeus, 1758 (Red Book of the Stavropol and Krasnodar Territories, Adygea, Rostov Region, Kalmykia), and *G. leucogeranus* Pallas, 1773 (Red Book of the Russian Federation).

There are also small birds, which can be designated as a group of "aquatic hens", which are able to move along the aquatic vegetation. The most notable of these is *Fulica atra* Linnaeus, 1758. Very beautiful are *Gallinula*

chloropus Linnaeus, 1758 and *Porphyrio porphyrio* Linnaeus, 1758 (Red Book of the Russian Federation, Kalmykia, Stavropol Territory).

Less noticeable are the birds that live in the thickets: *Porzana parva* Scopoli, 1769, *P. porzana* Linnaeus, 1758 and *P. pusilla* Pallas, 1776. Less common is a bird that feeds on aquatic animals *Crex crex* Linnaeus, 1758 (Red Book of the Stavropol Territory). It is also possible to meet with *Rallus aquaticus* Linnaeus, 1758.

Ordo PELICANIFORMES

As a rule, they live near water bodies and feed on fish. All four fingers are connected by a single membrane, facilitating swimming. Widespread wings are also typical. For the species of the pelican order, the formation of large colonies is typical.

In the north of the region studied, there are sometimes two species of pelicans: *Pelecanus crispus* Bruch, 1832 (Red Book of the Russian Federation, Rostov Region, Krasnodar and Stavropol Territories, Kalmykia) and *P. onocrotalus* Linnaeus, 1758 (Red Book of the Russian Federation, Rostov Region, Kalmykia, Stavropol Territory). Because of the light skeleton and the air-bubble layer under the skin, they can not dive, so the main food, fish, is extracted directly at the surface of the water.

More noticeable in the region are cormorants: *Phalacrocorax carbo* Linnaeus, 1758 and *Ph. pygmaeus* Pallas, 1773 (Red Book of the Russian Federation, Kabardino-Balkaria, Rostov Region, Krasnodar and Stavropol Territories, Kalmykia, Ingushetia). These birds cause great damage to fish farms. Regulation of their numbers is not possible because small cormorant, previously absent in the region, is listed in the Red Book of the Russian Federation and the Stavropol Territory.

Ordo PODICIPEDIFORMES

Their paws do not have swimming membranes. Instead, in these waterfowl, each finger has a leathery lobe. These birds are excellent swimmers and divers. It is interesting that these birds are accepted to swim, as well as to dive and even fly with chicks on their backs.

The following species of these birds are found in the region: *Podiceps auritus* Linnaeus, 1758, *P. cristatus* Linnaeus, 1758, *P. griseigena* Boddaert, 1783, *P. nigricollis* Brehm, 1831 and *P. ruficollis* Pallas, 1764 (Red Book of Karachay-Cherkessia, Ingushetia).

Ordo CORACIIFORMES

Birds of small size with a bright color, with a straight pointed beak and a short tail. They live near the ponds. The basis of nutrition is fish, crustaceans, aquatic insects. In the region there is occasionally a kingfisher common *Alcedo atthis* Linnaeus, 1758 (Red Book of Krachaevo-Circassia). Sitting at his observation post (elevation), the kingfisher looks out for its prey in the water. When the victim falls in the field of view, the kingfisher rushes into the water, slightly sinks and snatches the fish. It is interesting that the nesting of these birds occurs in the mink, on the banks of rivers.

Ordo CHARADRIIFORMES

One of the largest detachments of birds associated with water. In recent years, representatives of this detachment have significantly expanded their presence and numbers due to large-scale irrigation works.

The smallest in the detachment - zuyki: *Charadrius alexandrinus* Linnaeus, 1758 (Red Book of the Rostov region, Krasnodar and Stavropol territories, Kalmykia), *Ch. asiaticus* Pallas, 1773 (Red Book of the Russian Federation, Kalmykia, Stavropol Territory) and *Ch. dubius* Scopoli, 1786

(Red Book of the Stavropol Territory, Karachay-Cherkessia, Adygea). Most of them have a large head, a short beak, legs thin, long wings. You can see them mainly on the banks of rivers - in shallow water.

In the region you can also meet terns, the closest relatives of seagulls. All terns fly fine, live along the shores of the seas and fresh waters, feed on fish and other aquatic animals that they catch, rushing at them from above. Among other birds near water bodies, the following terns can be found: *Chlidonias leucoptera* Tenuninck, 1815, *Ch. hybrid* Tenuninck, 1815, *Ch. nigra* Linnaeus, 1758, *Gelochelidon nilotica* Gmelin, 1789 (Red Book of the Stavropol Territory), *Sterna albifrons* Pallas, 1764 (Red Book of the Russian Federation, Rostov Region, Krasnodar and Stavropol Territories, Kalmykia), *S. hirundo* Linnaeus, 1758 and the largest tern *Hydroprogne tschegrava* Lepechin, 1770 (Red Book of the Russian Federation, the Rostov region, Krasnodar and Stavropol Territories, Kalmykia).

Quite noticeable and are usually different types of birds, united under the common name of waders: *Haematopus ostralegus* Linnaeus, 1758 (Red Book of the Russian Federation, Karachayevo-Cherkessia, Kabardino-Balkaria, Rostov region, Krasnodar and Stavropol regions, Kalmykia, Ingushetia), *Himantopus himantopus* Linnaeus, 1758 (Red Book of the Russian Federation, Adygeya, the Rostov region, Krasnodar and Stavropol regions, Kalmykia, Ingushetia), *Tringa hypoleucos* Linnaeus, 1758, *T. ochropus* Linnaeus, 1758, *T. stagnatilis* Bechstein, 1803 (Red Book of the Rostov region), *T. tetanus* Linnaeus, 1758 and *Recurvirostra avosetta* Linnaeus, 1758 (Red Book of the Russian Federation, Rostov Region, Krasnodarskogo and Stavropol Territories, Kalmykia).

On the coasts and in the humid biotopes live representatives of snipe birds: *Gallinago delicata* Ord, 1825, *Lymnocyptes minima* Brunn, 1766, *Numenius arquata* Linnaeus, 1758 (Red Book of the Russian Federation,

Karachay-Cherkessia, Rostov region, Krasnodar and Stavropol territories, Kalmykia), *Numenius phaeopus* Linnaeus, 1758 (Red Book of the Rostov Region) and *N. tenuirostris* Vieillot, 1817 (Red Book of the Rostov Region, Stavropol Territory). These birds are coveted hunting trophies.

And, finally, the largest and most prominent representatives of this order are gull birds: *Larus argentatus* Pontoppidan, 1763, *L. ichthyaetus* Pallas, 1773 (Red Book of the Russian Federation, Krachaevo-Circassia, Kabardino-Balkaria, Adygea, Rostov Region, Krasnodar and Stavropol Territories, Kalmykia), *L. melanocephalus* Temminck, 1820 (Red Book of the Krasnodar Territory), *L. ridibundus* Linnaeus, 1766 and *L. genei* Breme, 1839 (Red Book of the Stavropol and Krasnodar Territories).

Ordo STRIGIFORMES

Asio flammeus Pontoppidan, 1763 (red book of Adygea, Kalmykia, Stavropol Territory) is a bird with short ear beams of feathers consisting of only 3-4 feathers. On top of rust color with dark and whitish longitudinal spots, from below - lighter with simple dark brown stem spots. Lives in open landscapes, avoiding forests. It nests in low, humid places, usually along the outskirts of bogs. Food for these birds are small rodents, marsh and water birds, insects, as well as fish.

Quite often, both adult birds and chicks, in order to scare off the enemy, take an awesome position - they spread their wings and bend over. Then they seem several times larger and frighten small predators.

Ordo FALCONIFORMES

The muscles of the paws and breasts are very developed, the head is large and round. The neck is short and strong. Eyes and nostrils are large. These birds are known for their excellent eyesight. Paws short, strong, with

long fingers, topped with sharp claws. These small but notable birds are present in the region and among them there are species specializing in nutrition, including fish.

This, for example, *Circus aeruginosus* Linnaeus, 1758. Eagles also eat fish: *Haliaeetus albicilla* Linnaeus, 1758 (Red Book of the Russian Federation, Adygea, Kalmykia) and *H. leucoryphus* Pallas, 1771 (Red Book of the Russian Federation, Stavropol Territory).

A migratory, rare, sometimes common winter bird and a randomly wintering osprey *Pandion haliaetus* Linnaeus, 1758 (Red Book of the Russian Federation, Karachaevo-Cherkessia, Adygea, Rostov Region, Krasnodar and Stavropol Territories, Kalmykia, Ingushetia) - differs in that its diet, almost entirely from fish.

Ordo PHOERICOPTERI

Rhoenicopterus roseus Pallas, 1811 (Red Book of the Russian Federation, Kabardino-Balkaria, Stavropol Territory) has thin long legs, a flexible neck and feathers, the color of which varies from white to red. Their special distinctive feature is a massive bowed down beak, through which they filter food from water or silt. Unlike most other birds, the movable part of the beak is not the lower part, but the upper part. Pink or red coloring of the feathers of flamingos is given by the coloring substances lipochromes, which the birds receive together with food. Usually there is no pink coloring of flamingos in the region.

Classis MAMMALIA

Vertebrate animals, the main distinctive feature of which is the feeding of cubs with milk. In terms of size and appearance, mammals are very diverse. Their body is clearly divided into a head, neck, trunk, two pairs of

limbs and a tail. Most of these animals are terrestrial, but some species are closely related to the aquatic environment. Some of them are present in the region under study.

It is possible that the most common mammal is muskrat or musk rat *Ondatra zibethicus* Linnaeus, 1766 from a detachment of rodents. This semi-aquatic rodent native to North America is acclimatized in Eurasia, including in Russia. From an economic point of view, they are actively mined for the production of fur products. They represent a great danger for meliorative structures, as they damage them.

In general, it is similar to muskrat, but much larger - nutria, or Koipu, or marsh beaver - *Myocastor coypus* Molina, 1782. Favorite habitats are ponds with little flowing or standing water: marshy banks of rivers, marshes with rich coastal and aquatic vegetation. Forests avoid, in the mountains does not rise above 1200 m above sea level. Most of this species is cultivated, but partially fell into the natural environment.

Near these species lives a water vole or (European) water rat *Arvicola terrestris* Linnaeus, 1758 - an amphibian mammal of the hamster family. Water vole often lives along the banks of rivers, lakes, ponds and other water bodies, but often it can be found far from the water - in meadows, orchards, fields and even in fruit gardens. Especially often it moves to more dry areas during high water.

In the region also meets *Neomys schelkovnikovi* Satunin 1913. She lives in the river valleys, choosing the banks of small rivers and streams with clear water and a rapid current. He leads a solitary life, reacts aggressively to the approach of strangers. Saliva is poisonous - bites paralyze the victim. As a result of this, warehouses of living, but immobilized animals are created in burrows. Has no economic value.

In recent years, as a result of irrigation construction, conditions have been created for the migration of new species. One of them in the north of the region is very rarely caught by *Desmana moschata* Linnaeus, 1758 (Red Book of Russia) - a mammal from the order Soricomorpha. Earlier this species in Russia was noted only in the north far beyond the region studied. However, in 2010, 2 pelts of this animal were found in traps for the muskrat. The most favorable habitat for this animal is closed floodplain reservoirs with an area of a water mirror of 0.1-0.5 hectares and a depth of 1.3-5.0 m, with areas of low but dry steep banks with aquatic vegetation and the proximity of the floodplain forest.

It is very rare in the region to find predatory river otter *Lutra lutra* Linnaeus, 1758 (Red Book of the Russian Federation, Krachaevo-Circassia, Kabardino-Balkaria, Adygea, Rostov region, Kalmykia, North Ossetia-Alania, Stavropol Territory). It is believed that this is the Caucasian subspecies of *Lutra lutra meridionalis* Ognev, 1931. The otter leads a semi-aquatic life, swims and dives. It dwells mainly in forest rivers, rich in fish, less often - in lakes and ponds. Prefers rivers with whirlpools and ice-free winter. The inlets of her home open under water.

The presence of the European mink *Mustela lutreola* Linnaeus, 1761 (Red Book of the Russian Federation, Krachaevo-Circassia, Kabardino-Balkaria, Adygea, Rostov region, Krasnodar and Stavropol territories, Kalmykia) is problematic in the region. It inhabits small rivers and streams. It feeds on amphibians, small fish, water rodents, insects.

It is believed that this species has already disappeared in the region and was replaced by the *Neovison vison* Schreber, 1777. Outwardly this animal resembles the European mink, differing only in somewhat larger sizes (body length - up to 0.5 m, weight - up to 2 kg, tail length - up to 0.25 m,

swimming membrane less developed). The fur is the same, but only the lower lip is colored white, the upper one is the same color as the head.

In the region lives a reed cat *Felis chaus* Gldenstaedt, 1776 (Red Book of the Russian Federation, Kalmykia, North Ossetia-Alania). It is sometimes called a swamp trot. He is a predator of wetlands with an abundance of thickets of reeds, cattails and shrubs, but he is afraid of open places. He climbs very rarely and reluctantly on trees. Its main prey are waterfowl, as well as small mammals such as ground squirrels, hares, and even children of wild boars. Unlike almost all other representatives of felines, he is not at all afraid of water. He swims well.

In general, the water bodies of the studied region are not used sufficiently, especially with regard to coastal and aquatic vegetation. In this regard, for the purpose of acclimatization and agricultural use of reservoirs in the North Caucasus, biological justifications have been prepared for the importation of several species of American herbivorous semi-aquatic species.

It is capybara or cappuccino (*Hydrochoerus capybara* Linnaeus, 1766) is a herbivorous semi-aquatic mammal. The body of an adult animal reaches a length of 1-1.35 m, a height at the withers of 0.5-0.6 m. The weight of males is 34-63 kg, females - 36-65.5 kg. Capybari are social animals living in groups of 10-20 individuals. The fact of the appearance of a group of these animals in the region has already been confirmed.

Dasyprocta azarae Lichtenstein, 1823 - also a promising semi-aquatic rodent from South America. Body length 0.5 m, tail length about 0.15 m. Thus, the total length is about 0.65 m. Rodent weight is 3-4 kg. Fur from a greenish-brown to a greenish-black color with specks from light brown to chestnut color. The front part of the body is colored yellowish or yellow-brown in color. The agouti have ears. The animal has a rounded body shape, and the head looks like the head of guinea pigs. On the front paws there are

five fingers, on the back - three. These rodents feed on seeds, nuts, fruits, roots and other plant material. The animals swim well, but they can not dive for prey. The importation of these animals has already been prepared and is in the process of execution.

Biological substantiation is also prepared for the rodent *Cuniculus paca* Linnaeus, 1766. This animal has a length of 0.7 to 0.8 m, a height of 0.3 to 0.5 m and a weight of 6 to 12 kg. She has coarse wool without undercoat, from top to black to dark brown, and from below from white to yellowish. On the body on the sides from three to five bands of white spots. They live in the forests near the reservoirs. When they are in danger, they run away to them, where they remain for a long time submerged in water for up to half an hour. They are herbivores. The delivery is already prepared and is in the process of execution.

CONCLUSION

In general, a review of aquatic multicellular animals, can not be considered complete. First of all, it is connected with insufficient knowledge of the majority of groups, especially invertebrate animals of the region.

In addition, this is due to the hydrological association of water resources from various water systems in the south of Russia - Kuban, the Terek, the Don and the Volga. In Central Ciscaucasia is the center of this hydrological association. In particular, due to the construction of canals, water from the Kuban and Terek flows into the Don basin, which in turn is connected to the lower Volga. Naturally, not all animals can move against the flow of rivers or overcome dams. On the other hand, inter-farm transport, water intakes with water transfer to areas above dams, fish farmers' activities and other opportunities contribute to the resettlement of new animals for the region.

The formation of new biodiversity is also due to climate change, water quality, the appearance of thermal pollution and a number of other reasons. In addition, biological justifications have been prepared for acclimatization in the region of more than 100 animals, including aquatic species. Thus, in the coming decades, the biodiversity of aquatic animals in the region will change significantly.

The author of the paper will be sincerely grateful to colleagues for further work on the list of aquatic multicellular animals in the region, especially with regard to the critical refinement of the lists of individual groups, as well as the development of regional identifiers, including illustrated.

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