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## CURRENT STATE OF ICHTHYOFAUNA IN RIVER TOM BASIN

The article addresses changes in the fauna of the river Tom basin in the last 90 years, starting from the last century's second decade in this work data on areas of distribution, certain size, weight and reproductive characteristics are shown. The authors discuss disappearance of *pydschjan* and *tugun* from the area. As a result of planned acclimatization efforts in the river Ob, at least 5 species were introduced to river Tom's ichthyofauna. While in the dawn of research, salmonidae fishes were dominant species, in the present time, the basin is heavily populated by cyprinidae and percidae.

**Key words:** river Tom, ichthyofauna, introduced species, changes in fish population, distribution of species.

River Tom historically has an important role in reproduction of valuable species of fish. According to the research that dates back to the beginning and mid last century, Tom was considered a water body of salmon type, inhabited by twenty nine different species [1, 2]. Eight of these species were part of the valuable salmonidae family. Taimen, lenok, tugun, Arctic whitefish and grayling were permanent residents at that time. Analysis of bone fossils obtained from the places where ancient settlements in the areas of town Kolarovo on river Tom were located, showed that even broad white fish was present in the diet of the local population [3]. At the present time, however, broad white fish can be found only in the lower end of the Ob river basin. Valuable semianadromous species, such as sturgeon, nelma, puksun and peled also found favorable conditions for reproduction. River Tom spawning grounds produced around 1.250 tons of muksun, and 250 tons of peled in river Ob basin, which constituted about 25 % of muksun resource and 10 % of peled resource of the whole Ob river basin [4]. At the present time, two of these species have disappeared, a few others will also be gone in the nearest future.

Human activity, changes in hydrological conditions and often unwarranted acclimatization activity, resulted in significant changes in the composition of species (Table). Bream, bleak, carp, verkhovka and zander became one of the most numerous species among all introduced and invasive species. Such new to river Tom species, as nine-spined stickleback and Amur sleeper found a comfortable natural habitat in Tom river basin.

At the present time, in the waters of Tom river basin more than 30 different species of fish can be found. However, they are not evenly distributed throughout the basin. The lower and upper ends of the river have a particularly distinctive composition of fish. While the upper Tom, according to varied sources, contains around 20 – 24 species [3, 6], fish population of the lower end of the river is comprised of a bigger number of species due to the presence of semianadromous corigonidae and acipenseridae. Some of the species that can be encountered anywhere in Tom river are Si-

berian dace, bleak, Siberian brook lamprey, Silver Prussian carp, the Common carp, Siberian gudgeon, verkhovka, ide, common minnow, Siberian spiny loach, Siberian stone loach, northern pike, grayling, burbot, sculpin, ruffe and river perch. Other species, such as taimen, lenok and nelma, are either rare or their natural habitat is limited to certain areas of the basin.

Anthropogenic stress that Tom river is experiencing at the present time, without a doubt, the most important factor that affects fish populations, particularly, those of valuable marketable kinds. Large metropolitan areas, such as the cities of Mezhdurechensk, Novokuznetsk, Kemerovo, Yurga, Tomsk, and many others are located on its banks and have a significant impact on the ecological condition of the river. Once blooming commercial fishing activity in Kemerovo and Tomsk oblasts gradually diminished in the the second half of last century as a result of excessive and unsustainable overfishing.

*Lethenteron camtschaticum* (Tilesius, 1811) (= *Petromyzon japonicus* Martens, 1868) – Arctic lamprey. More research is needed to understand the status of Arctic lamprey in the river Tom basin. M. D. Ruzskiy [1] considered these species to be common to the river Tom fauna, A. N. Gundrizer [3] and on the other hand, referred it to the rare species of the lower Tom.

*Lethenteron kessleri* (Anikin, 1905) – Siberian brook lamprey. Molecular genetic analysis showed significant similarities between Siberian brook lamprey and Asiatic brook lemprey [7]. Therefore, status of the species is currently not clear. Further research is needed to understand better the status of these species.

*Acipenser baerii* (Brandt, 1869) – Siberian sturgeon. These species have historically used the middle and lower stretches of the river Tom for fattening and possibly for spawning. Several sexually mature surgoons were recorded in Kemerovo oblast [8]. During spring and summer high waters, the youth of sturgeon (3+ ... 10+ years of age) can be found in the mouth of the river and its tributaries Labaznaya and Ishtan [9]. In 2005, two Siberian sturgeons of up to 1 kg in weight and under 5 years of age were documented. They were caught in the river north of the city of Tomsk. As the

Species composition of river Tom ichthyofauna at different points of history

	Species/subspecies	I	II	III	IV
1	<i>Lethenteron camtschaticum</i> – Arctic (northern, Pacific river) lamprey	+	+	+	+?
2	<i>Lethenteron kessleri</i> – Siberian brook lamprey	+	+	+	+
3	<i>Acipenser baerii</i> – Siberian sturgeon	+	+	+	+
4	<i>Acipenser ruthenus</i> – sterlet sturgeon	+	+	+	+
5	<i>Abramis brama</i> – the Common bream	–	–	+	+
6	<i>Alburnus alburnus</i> – bleak	–	–	–	+
7	<i>Carassius carassius</i> – Crucian carp	+	+	+	+
8	<i>Carassius gibelio</i> – Silver Prussian carp	+	+	+	+
9	<i>Cyprinus carpio</i> – the Common carp	–	–	+	+
10	<i>Gobio gobio cynocephalus</i> – Siberian gudgeon	+	+	+	+
11	<i>Leucaspis delineatus</i> – verkhovka	–	–	+	+
12	<i>Leuciscus idus</i> – ide	+	+	+	+
13	<i>Leuciscus leuciscus baicalensis</i> – Siberian dace	+	+	+	+
14	<i>Phoxinus czekanowskii</i> – Chekanovski's minnow	+	+	–	?
15	<i>Phoxinus percnurus</i> – lake minnow	+	+	+	+
16	<i>Phoxinus phoxinus</i> – common minnow	+	+	+	+
17	<i>Rutilus rutilus lacustris</i> – Siberian roach	+	+	+	+
18	<i>Tinca tinca</i> – tench	+	+	+	+
19	<i>Cobitis melanoleuca</i> – Siberian spiny loach	+	+	+	+
20	<i>Barbatula toni</i> – Siberian stone loach	+	+	+	+
21	<i>Esox lucius</i> – northern pike	+	+	+	+
22	<i>Coregonus lavaretus pidschian</i> – pydschjan	+	+	–	–
23	<i>Coregonus muksun</i> – muksun	+	+	+	+
24	<i>Coregonus peled</i> – Northern whitefish/peled	+	+	+	+
25	<i>Coregonus tugun</i> – tugun	+	+	–	–
26	<i>Stenodus leucichthys nelma</i> – Siberian white salmon/nelma	+	+	+	+
27	<i>Thymallus nikolskyi</i> – Nikolskyi grayling	+	+	+	+
28	<i>Brachymystax tumensis</i> – blunt-nosed lenok	+	+	+	+
29	<i>Hucho taimen</i> – Siberian taimen	+	+	+	+
30	<i>Parasalmo mykiss</i> – Kamchatka steelhead	–	–	–	+?
31	<i>Lota lota</i> – burbot	+	+	+	+
32	<i>Pungitius pungitius</i> – nine-spined stickleback	–	–	+	+
33	<i>Cottus altaicus</i> – spotted sculpin	+	+	+	+
34	<i>Cottus sibiricus</i> – Siberian sculpin	+	+	+	+
35	<i>Gymnocephalus cernuus</i> – ruffe	+	+	+	+
36	<i>Perca fluviatilis</i> – river perch.	+	+	+	+
37	<i>Sander lucioperca</i> – sander/zander	–	–	+	+
38	<i>Perccottus glenii</i> – Amur sleeper	–	–	–	+
39	<i>Channa argus</i> (Cantor, 1842) – Northern snakehead	–	–	–	?

Explanation of the data used in the table:

I are based on research by M. D. Ruzskoy [1]; II are based on research by B. G. Ioganzen [5]; III are based on research by A. N. Gundrizer [3]; IV are our data. “+” means the species is present; “+?” means the species is present in some areas or is rare; “–” means the species is not present; “?” means no data on the species is available.

waters become low, sturgeon goes back to the Ob river.

*Acipenser ruthenus* (Linnaeus, 1758) – Sterlet sturgeon. These species is rare to river Tom basin. In the past, sterlet was found even in close proximity to the city of Novokuznetsk [1]. At present, sterlet comes to Tom river for spawning near the village of Kozulino. Some youth goes even father up the stream, and reaches the city of Kemerovo [8]. The majority of the youth comes to the mouth of river Tom for fattening [9].

*Abramis brama* (Linnaeus, 1758) – The Common bream. Introduced species. It can be found almost anywhere in the river Tom [3]. There is no record of it being present south of Novokuznetsk [6]. It was introduced to the Lower Tom in the mid 60s and had no value for commercial fishing at that time. Since then, its numbers have significantly increased [10] and it has become the main marketable fish in this region. It currently makes up 56 % of the total number of fish caught in this part of the river. Species of 107–325 millimeters in length, 28–800 grams in weight and of 8 years of age and under have been recorded in the area.

*Alburnus alburnus* (Linnaeus, 1758) – Bleak. In reference to the river Tom basin it is considered an accidental invasive species and was first caught in the beginning of the 1990s. In the end of 1990s it became widely spread and has had a significant presence in the river since then. It can be found in the river's tributaries and its stream channel. Some of the biggest species found in the Lower Tom measured at 142 mm longs and weighed 38 g. These species were at least 6 years of age and older and their individual absolute fertility was 5.870 fish eggs [11].

*Carassius carassius* (Linnaeus, 1758) – Crucian carp. It can be found almost anywhere in the basin of Tom [1, 3]. Because of a poorly defined flood plain and in some parts even absence thereof in the middle and the upper course of the river, the number of this species is very low and in some parts it was never observed.

*Carassius gibelio* (Bloch, 1782) – Silver Prussian Carp. It inhabits the whole basis of the river Tom. It's mainly found in channels. It can be rarely found in river's stream channel [1]. Its share in catches in the Upper Tom is not significant [6]. Silver Prussian carp in lake Varyukhino of the lower Tom does not exceed 223 mm in length at the age of 4 years [12]. Based on the year 2001 data, the carp from the lower Tom was somewhat bigger in size and measured at 288 mm in length and weighed up to 811 g.

*Cyprinus carpio* (Linnaeus, 1758) – The Common carp. Has introduced into the lakes and ponds. It invaded the river Tom from Novosibirskoye water reservoir, where most of the acclimatization work was performed. In 1940 carp was also introduced to the lake Bolshoy

Birchikul, basin of the river Chulym [13]. At the present time, the Common carp is widely spread in the natural waters throughout the river Tom basin.

*Gobio gobio cynocephalus* (Dybowski, 1869) – Siberian gudgeon. Does not have a high marketable value in river Tom. Siberian gudgeon is primarily a target of sport and leisure fishing. It can be found anywhere in the river Tom, primarily in water bodies with circulating water and clear sandy bottom. Based on the data from 2004–2009, in tributaries and the stream channel of the Lower Tom basin, Siberian gudgeon can reach up to 154 mm in length and 61 g in weight with maximum age of 7 years. Its individual absolute fertility does not exceed 12.000 fish eggs.

*Leucaspis delineatus* (Heckel, 1843) – Verkhovka. Verkhovka is considered accidentally introduced species. It was first found the summer of 1962 in the ponds of Oyashinski Carp Fishpond of Moshkovsky district of Novosibirskaya oblast, where it was introduced along with carp from fish ponds of Bryanskaya oblast [14]. From there, according to Heckel, Verkhovka was introduced by accident along with the target species into numerous fish farms, including those of Kemerovskaya oblast. With spring water fluctuation of carp ponds Verkhovka penetrated the basin of the river Ob including its tributaries river Tom, Chulym and others. At the present time, Verkhovka inhabits the stream channel and tributary zone of river Tom basin [6, 10, 15]. It prefers small rivers with slow water circulation, flood plain waters with silt and sandy bottom. In 2004 in lake Savinskoye of the Lower Tom, the maximum length of the species documented was 65 mm, they weighed 3 grams and were no more than 5 years of age.

*Leuciscus idus* (Linnaeus, 1758) – ide. Ide is a valuable marketable species. It's widely spread across the whole river Tom basin. In the Upper Tom ide is rarely found. It's rare to the tributaries of Tom, it mostly inhabits its stream channel area [1, 6, 10]. Ide's share in all catches of the Lower Tom is no more than 5 %, and it makes up to more than 14 % of the region's biomass.

*Leuciscus leuciscus baicalensis* (Dybowski, 1874) – Siberian dace. It's widely spread across the whole basin of the river Tom [1]. It dominates catches by comprising 56.3 % of catches in the Upper Tom river [6], and up to 91 % in the Lower Tom [10]. According to the data from 2004–2008, in the Lower Tom, predominant biological characteristics of Siberian dace were as follows: body length – 131–207 mm, weight – 40–163 g. The species documented were up to 9 years of age with an individual absolute fertility of 1.534–15.572 fish eggs.

*Phoxinus (Rhynchocypris) czekanowskii* Dybowski, 1869 – Chekanovski's minnow. These species are mentioned in the lists of both M. D. Ruzskiy [1], and B. G. Ioganzen [5]. A. N. Gundrizer [3] mentioned only two species of minnow: lake minnow and min-

now, the latter is most probably common minnow. Chekanovski's minnow was not mentioned by any of these researchers. We believe that the fact itself that Chekanovski's minnow is present in the Tom river basin need to be further investigated.

*Rhynchocypris (Phoxinus, Eupallasella) percnurus* (Pallas, 1814) – Lake minnow. According to the data from 1998–2007, these species are present in big quantities in smaller lakes, located in the flood plain of the Lower Tom basin. It can be found in the lake Peschanoye, the lake Sennaya Kurya, the lake Kalamatskoye, the lake Kopanoye, the lake Boyarskoye, the lake Toyanovo and others.

*Phoxinus phoxinus* (Linnaeus, 1758) – Common minnow. It's common to tributaries of Tom, nevertheless, it's rare to the river Tom itself. Common minnow prefers rivers with sandy and rocky bottom [1]. In some tributaries, such as Mras-su, it can go up the stream as far as the river head [16]. In such tributaries of the Lower Tom, as river Ushayka, Basandayka, Tugoyakovka and some others, common minnow at some point in the past constituted 15–80 % of all fish caught. According to our data from 1989, species of common minnow are most commonly 35–50 mm in length, with 82 mm as a maximum, and weigh on average 1.5–2.7 grams and 6.8 g as a maximum.

*Rutilus rutilus lacustris* (Pallas, 1814) – Siberian roach. It is common to the river Tom and its tributaries alike. Siberian roach is also found in the flood plain lakes and the river Tom's former river beds. Their share in the catches in different sections of Tom varies. In the Upper Tom, Siberian roach constitutes up to 23 % of all fish caught in the area, in Mras-su – up to 13 %, and up to 14 % in river Kondoma [6]. In the Lower Tom, according to the data from 2001–2002 Siberian roach makes up 7 % of all fish fauna and 3–6 % of the biomass [10]. Siberian roach can reach a maximum of 262 mm in length and 400 g in weight with the age of 9 years and up. Their individual absolute fertility is 13.267 eggs.

*Tinca tinca* (Linnaeus, 1758) – tench. These species are present in all sections of Tom river basin, however, it's scanty. M. D. Ruzskiy was the first to mention the presence of tench in the Upper Tom, namely in the mouth of the river Kondoma, the backwaters and waters bodies surrounding the city of Novokuznetsk [1]. In the Lower Tom, it is considered common to numerous flood plain lakes, such as the lake Chernoye, the lake Sennaya Kurya, the lake Sattyskino and others. At maximum tench can reach the length of 300 mm and weigh up to 660 g at the age of 6 years of age or older [17].

*Cobitis melanoleuca* (Nichols, 1925) – Siberian spiny loach. It is one of the rare and scanty species of the river Tom basin [1]. Siberian spiny loach primarily inhabits the tributaries and small rivers with sandy and clay bottom. In the Lower Tom basin, in rivers Ushay-



ka, Kurlechka, Tugoyakovka, and Basandayka Siberian spiny loach reaches the length of 144 mm and the weight of 16 g [18].

*Barbatula toni* (Dybowski, 1869) – Siberian stone loach. It's non marketable species. Siberian stone loach can be found across the whole basin. It prefers well circulated water and rocky and sandy bottom [1, 6]. In the Lower Tom it inhabits the Ushayka river, the Basandayka river, the Tugoyakovka river and other tributaries of the Tom. Species of 87 mm in length and 8 g in weight are rather common. The largest Siberian stone loach of 140 mm in length and 28 g in weight can be found in river Kurlechka, a left tributary of the Lower Tom [18].

*Esox lucius* (Linnaeus, 1758) – Northern pike. Freshwater type. Northern pike, although scanty, it can be found throughout the whole basin of river Tom [1, 3, 6]. Along with ide and carp, Northern pike constitutes no more than 2.3 % of all caught fish in the Upper Tom [6]. According to the data from 2001–2002, Northern pike does not exceed 12–18 % of the biomass [10]. In the Lower Tom, based on data of 1980 specimens of body length from 165 to 760 mm were recorded with body weight of 40 to 3.980 g. In 2003–2009, the majority of catches contained smaller specimens with body length of 230–265 mm and the weight of 75–180 g at the age of 4 years and older.

*Coregonus lavaretus pidschian* (Gmelin, 1789) – Pydschjan. Already in the beginning of last century it was among rare species. At that time, it inhabited the section of Tom starting from its mouth and up to the city of Novokuznetsk and it was even found further up in the river Kondoma [1]. Apparently, in the middle of the last century these species became rare and almost became extinct as a result of acclimatization processes, overfishing and industrial activity of humans.

*Coregonus muksun* (Pallas, 1814) – Muksun. Natural habitat of this valuable representative of the Coriginidae is limited to the lower section of the river, where its spawning grounds are located. M. D. Ruzskiy [1] referred muksun to the rare species of river Tom. Pollution of the river and extensive poaching during spawning migration have made a significant impact on muksun's population. One of the most noticeable migration of muksun was observed in 2003, a few specimens were recorded near the boarder of Kemorovskaya oblast.

*Coregonus peled* (Gmelin, 1789) – The Peled. Peled's status in river Tom is almost the same as that of muksun. There are not a lot of spawning grounds that peled comes to, therefore only small quantities of peled can be found in Tom in the end of the summer and slightly more in the fall. The water quality in Tom has somewhat improved since the 1990s, which has had a positive impact on the quantities, and migration of peled can now be observed every summer. Anadromous

peled can be found as far up as the city of Kemerovo, village of Elikaevo, and Berezovsky Well [8].

*Coregonus tugun* (Pallas, 1814) – Tugun. In the past, there was a unique local population of tugun in the rivers Tom and Chulyum, which was classified as a subspecies. In the river Ob, tugun inhabited only some tributaries of the Lower Ob. The river Tom was densely populated with tugun, and specimens of tugun were found as low as the city of Novokuznetsk and further up the stream [1]. Pollution and overfishing caused tugun to join the list of endangered species. It was last observed in river Tom's first tributary Poros, where it has not been seen in decades.

*Stenodus leucichthys nelma* (Pallas, 1773) – Siberian white salmon/nelma. In the past, semianadromous nelma used to come to river Tom for spawning. Moreover, nelma reached such upper tributaries of Tom, as river Kondoma and river Mras-su. Newly hatched nelma stayed in Tom to fatten and then migrated to river Ob. In their food have been recorded mollusks [19]. At the present time, the numbers of nelma in the river Tom is very small. In Kemerovskaya oblast it is included in the Red List of extinct and endangered species. Reasons for diminishing population of nelma are the same – extremely unfavorable ecological situation and unsustainable fishing.

*Thymallus nikolskyi* (Kaschenko, 1899) – Nikolskyi grayling (= *Thymallus arcticus* (Pallas, 1776) – Siberian grayling). Our research in the past demonstrated [20], that fauna of grayling in the Upper and Lower Ob is not identical. Grayling from the upper Ob, Ob's tributaries, and Yenisey's South Siberian grayling substantially differ in meristic characteristics from the grayling of Lower Ob basin and Middle and Lower Yenisey. At the same time, there are noticeable similarities between the grayling of Ob and Yenisey. Nikolskyi grayling has a significantly lower scales count of around 80 in the lateral line, a somewhat different pattern and shape of the dorsal fin, which significantly differentiates it from the Lower Ob grayling. N. F. Kashenko [21] described Nikolskui grayling from this area. We believe, there is substantial evidence in support of making Nikolskyi grayling a stand alone species. Nikolskyi grayling can be found almost anywhere in Tom, particularly in its tributaries. Only in the fall this grayling, can be caught in the mouth of the river. Mountain rivers have the biggest quantities of grayling, and even there they fall prey to leisure fishing.

*Brachymystax tumensis* (Mori, 1930) – Blunt-nosed lenok. In the past, it was only found in the upper part of the river Tom stream channel and in the Upper Tom tributaries [1]. In the basin of river Mras-su, specimens of up to 3 kilograms in weight and more were recorded [16]. At the present time, it is included in the Red List of extinct and endangered species of Kem-

erovskaya oblast. In Kusbass, it can still be found in river Mras-su and other rivers flowing from Kuznetsky Alatau [8].

*Hucho taimen* (Pallas, 1773) – Taimen. It is the largest salmon of river Tom basin. Natural habitat of taimen is, in large, the same as that of lenok, however, it was also found in the tributaries of the Middle Tom. Taimen was recorded in many parts of Tom, even in its mouth. If M. D. Ruzsky [1] in his manuscripts mentioned 2 pound species of taimen caught in proximity of the city of Tomsk, at present, taimen of this size can not be found any longer. In the Lower Tom, only taimen that completed spawning and usually in the fall can be caught. It is included in the Red List of extinct and endangered species of Tomsk oblast.

*Parasalmo mykiss* (Walbaum, 1792) – Kamchatka steelhead. It was first brought to Kemerovskaya oblast from Leningradskaya oblast in 1967, and later on in 1978. Kemerovsky rybhos, and fish farms of the Belovskaya and Tomusinskaya Hydro Electric Stations bred Kamchatka steelhead back then [8]. According to this author, Kamchatka steelhead was caught in Tom in the area of Tomusinskaya Hydro Electric Station in the fall of 2007. A school of Kamchatka steelhead youth of 15–20 cm long was caught in a net in the area of Krapivinsky district.

*Lota lota* (Linnaeus, 1758) – Burbot. It can be found throughout the whole the Tom river basin, both in its mouth and its tributaries [1, 3]. In the Upper Tom, the basin of river Mras-su, burbot had a significant role for commercial fishing. Most specimens were of 300–600 mm long and weighed 450–1.200 g. Some specimens weighed up to 8 kg [16].

*Pungitius pungitius* (Linnaeus, 1758) – Nine-spined stickleback. It's widely spread in the basin of Tom [3]. In the Lower Tom, particularly in its tributaries Kirgyszka, Ushayka, Basandayka and others, these species were rather numerous. Based on the data from 1989–1990, nine-spined stickleback made up 39–75 % of the fish community in various sections of river Ushayka. At present, it's more rare. Sexually mature fish is 41–59 mm in length and weigh 1.0–3.6 g. Those who has not reached maturity measure at 26–30 mm and weigh 0.2–0.3 g. Nine-spined sticklehead's lifespan is known to be on average 6 years.

*Cottus altaicus* (Kaschenko, 1899) – Spotted sculpin (= *Cottus* cf. *poecilopus* Heckel, 1840). The first assumption of reference Spotted sculpin from Siberian waters taking into account audit of group *Cottus* cf. *poecilopus* belongs to N. G. Bogutskaya and A. M. Naseka [22]. In the past, spotted sculpin from the rivers of Altai Mountains was described as a sub-species by N. F. Kashchenko [21]. Most recently, a species status of spotted sculpin was established [23]. In the river Tom basin, it can be found primarily in clean rivers. Spotted sculpin prefers upper sections of the river

and its tributaries [1]. In the Lower Tom, one 2 year old specimen was recorded, which was caught in river Tugoyakovka, 3 kilometers higher from the stream channel of the river. It measured at 57 mm long, and weighed 4 g.

*Cottus sibiricus* (Warpachowski, 1889) – Siberian sculpin. It can be found anywhere in Tom [1], however, Siberian sculpin prefers tributaries with fast moving water and a rocky bottom. In the stream channel area of the lower Tom it usually measures at 70–115 mm long. In the tributaries, such as river Ushayka, specimens of 108 mm in length and 21 g in weight can be found.

*Gymnocephalus cernuus* (Linnaeus, 1758) – Ruffe. Ruffe is considered common to the river Tom, its tributaries, and its flood plain lakes [1]. In the stream channel area it makes up 1.4 % of all fish caught. In its tributaries, it makes up 9–12 % of all catches [6]. In the Lower Tom, based on data from 2001–2002, specimens of Ruffe measured at 80–170 mm and weighed 9–91 g at 2–9 years of age and an individual absolute fertility of 1.860 to 11.573 fish eggs can be found.

*Perca fluviatilis* (Linnaeus, 1758) – River perch. River Perch is common to the river Tom basin [1]. It's one of the main targets of leisure fishing. In the Upper Tom, river perch makes up 17.4 % of all fish caught [6], its share in catches is somewhat lower in the Lower Tom, namely, 4 % of all fish caught in the area and 3 % of the biomass [10]. According to the data from 2001–2002, river perch can, at maximum, reach 185 mm in length and 113 g in weight at the age of 5.

*Sander lucioperca* (Linnaeus, 1758) – Zander. Zander was introduced into Novosibirskoye water reservoir in the end of 1950s. Later on, it was successfully introduced throughout the whole basin of river Ob. Already in the beginning of the 1980s, zander was considered a rather numerous species [9, 24]. Zander has not been found near the city of Novokuznetsk or upper the stream from it [6].

*Perccottus glenii* (Dybowski, 1877) – Amur sleeper. Amur sleeper is a species, which was accidentally introduced to the basin. It is believed to have penetrated the waters of Ob – Irtysh basin in the end of the 1970s – beginning of the 1980s. In the end of the 1980s, Amur sleeper was first recorded in a pond in one of the suburbs of Kemerovo [25]. Based on the data from 2006–2009, in the lower Tom water bodies, Amur sleeper measure at 182 mm and weighed 98 g at the age of 8 years.

*Channa argus* (Cantor, 1842) – Northern snakehead. This species was introduced in the 1980s to one of the cooling ponds of Westerns Siberian Thermoelectric Plant [8, 13] and is currently a target of leisure fishing. The only factor that contributes to the well-being of Northern snakehead is elevated temperature of the water in this pond. Further distribution of Northern snakehead in the wild of river Tom basin is unlikely.

## References

1. Ruzskiy M. D. Fish of river Tom // Izv. Inst. Issledov. Sibiri. Tomsk, 1920. № 2. С. 29–40 [in Russian].
2. Bashmakova A. Y. Changes in species composition of river Tom in the area of Tomskiy Ribzavod // Tr. Barabinsk. Dept. VNIOPH. 1949. T. 3. P. 109–113 [in Russian].
3. Gundrizer A. N. Impact of industrial activity on fish stock of river Tom basin // Ecology of the Industrial City (Educational Brochure). Tomsk: Publishing House of Tomsk University, 1992. P. 37–43 [in Russian].
4. Ioganzen B. G. Brief ichthyological and fishing description of northern area of Tomskaya oblast // Uch. Zap. Tomsk University. 1946. № 4. P. 10–14 [in Russian].
5. Ioganzen B. G. Fish resources of Tomskaya oblast and culture of their exploration // TSU. Ser. Biologicheskaya. 1951. V. 115. P. 9–40 [in Russian].
6. Vizer A. M. Species structure of the fish population in the Upper Tom // Biological Aspects of Rational Use and Protection of Water Bodies of Siberia. Tomsk: Publishing House Lito-print, 2007. P. 26–29 [in Russian].
7. Yamazaki Y., Yokoyama R., Nishida M., Goto A. Taxonomy and molecular phylogeny of *Lethenteron* lampreys in eastern Eurasia // J. of Fish Biology. 2006. V. 68 (Suppl. B). P. 251–269.
8. Skalon N. V. Fish of Kemerovskaya Oblast. Kemerovo: OOO «Skif» «Kuzbass», 2009. P. 112 [in Russian].
9. Yurakova T. V., Popkova A. M., Khlopova E. N. Contemporary state of fish stock in Lower Tom // Biological Foundations of Fishing Industry in Western Siberia. Novosibirsk: Nauka, 1983. P. 164–167 [in Russian].
10. Petlina A. P., Yurakova T. V., Sharopina I. B. Fish community and its domineering complex in the Lower Tom // Environment and Ecology of Siberia, Far East and the Arctic. Publication of 2<sup>nd</sup> International Conference. Tomsk, 2003. V. 2. P. 44–45 [in Russian].
11. Petlina A. P., Verbovskaya A. A. First data on bleak in the Lower Tom basin // Contemporary State of Fish Industry in Siberia. Novosibirsk, 2006. P. 36–37 [in Russian].
12. Krivoshekov G. M. Carp of Western Siberia // Tr. Barabinsk. Dept. VNIORH. Novosibirsk, 1953. V. 6. Issue. 2. P. 71–124 [in Russian].
13. Buzmakov G. T., Polyakov A. D. Fish of Kuzbass. Kemerovo: Publishing House of KemGSHI, 2002. P. 32 [in Russian].
14. Krivoshekov G. M. Verkhovka of Western Siberia (preliminary report) // Water Bodies of Siberia and Perspectives of its Usage. Tomsk: Publishing House of Tomsk University, 1973. P. 86–87 [in Russian].
15. Petlina A. P., Yurakova T. V. Fish population and its state in the Lower Tom basin // Fundamental Problems of Research and Usage of Water and Water Resources. Irkutsk, 2005. P. 310–312 [in Russian].
16. Tulpanov M. A. Fish of river Mras-su basin // Uch. zap. of Tomsk University, 1964. V. 49. P. 149–157 [in Russian].
17. Monich I. K. Reproduction and growth of tench in Western Siberia // Tr. of Tomsk University. 1953. V. 125. P. 91–106 [in Russian].
18. Petlina A. P., Yurakova T. V. Rare and scanty species of fish in the Lower Tom basin // Population Ecology of Animals. Tomsk, 2006. P. 505–507 [in Russian].
19. Dolgin V. N. Fresh-water molluscs in food of fishes of Siberia // Tomsk State Pedagogical University Bulletin. 2009. Issue 6(84). P. 117–120 [in Russian].
20. Romanov V. I. On status of Western Siberian subspecies of Arctic Grayling (*Thymallus arcticus arcticus*): Analysis of select meristic characteristics // Ichthyological and Cross-Disciplinary Research of Inland Water Bodies in the Beginning of the 21<sup>st</sup> Century (Dedicated to 80th Anniversary of Professor L. A. Kuderskiy). Saint-Petersburg: Publication FGNU “GosNIORH” & “KMK Scientific Press Ltd”, 2007. P. 436–452 [in Russian].
21. Kashchenko N. F. Results of Zoological Expedition to Altai in 1898. Vertebrates. Tomsk: Tomsk University, 1899. P. 158 [in Russian].
22. Bogutskaya N. G., Naseka A. M. Catalog with Nomenclatural and Taxonomic Commentary on Jawless Fish and Fish of Freshwater and Salt Water Bodies of Russia. M.: «KMK Scientific Press Ltd», 2004. P. 389 [in Russian].
23. Sideleva V. G., Goto A. Species status and revision of the group's three species *Cottus poecilopus* (Cottidae) Eurasia // Voprosy Ikhtiologii. 2009. V. 49. № 5. P. 617–631 [in Russian].
24. Zhuravlev O. B., Konovalova O. S. Ichthyofauna of the Middle Tom // Biological foundations of fishing industry in Western Siberia. Novosibirsk: Nauka, 1983. P. 162–164 [in Russian].
25. Skalon N. V., Gagina T. N., Kolosov M. Y. New classification of species of water and new water animals of Kemerovskaya oblast and problems of preserving biodiversity // Obsky vestnik. Barnaul, 1997. № 1. P. 45–49 [in Russian].

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### **СОВРЕМЕННОЕ СОСТОЯНИЕ ИХТИОФАУНЫ БАСЕЙНА РЕКИ ТОМИ**

Приводятся данные по изменению видового состава ихтиофауны бассейна Томи за более чем 90-летний период, начиная с середины второго десятилетия прошлого века, а также по распространению, некоторым размерно-возрастным показателям и воспроизводительной способности рыб. Отмечено исчезновение из состава ихтиофауны сига-пыжьяна и тугуна. В результате плановых акклиматизационных мероприятий, проводимых в бассейне Оби и случайных вселенцев ихтиофауна р. Томи пополнилась, по крайней мере, шестью видами. Если в первые годы исследований основу ихтиофауны составляли лососевидные рыбы, то в современный период доминирующими видами в ихтиофауне этого бассейна стали представители карповых и окуневых рыб.

**Ключевые слова:** *р. Томь, ихтиофауна, акклиматизанты, изменение состава, распределение рыб.*

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