Short communication

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Aquatic biological resources in the Middle Ob basin: problems of reproduction

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ABSTRACT. The data of the long-term dynamics of the fish catch and its structure in the territory of the Tomsk region are presented. It is shown that one of the determining reasons for the decrease in fish stocks in the Middle Ob is the violation of the natural hydrological regime of the river due to flow regulation, which leads to a reduction in the area of effective spawning of spring-spawning fish species that form the basis of the region's fish stocks.

Keywords: Western Siberia, Ob, aquatic biological resources, fisheries, introducers

At present, fourteen species of fish are commercial in the Tomsk region (which located in the Middle Ob basin). Nine of them are native species: northern pike *Esox lucius*, ide *Leuciscus idus*, common dace *Leuciscus leuciscus,* roach *Rutilus rutilus*, prussian carp *Carassius gibelio*, crucian carp *Carassius carassius*, european perch *Perca fluviatilis*, burbot *Lota lota*, sterlet *Acipenser ruthenus*. Three species are indigenous semi-anadromous species: nelma *Stenodus nelma*, peled *Coregonus peled*, muksun *Coregonus muksun*. In addition, there are two non-native fish species: common bream *Abramis brama* and pikeperch *Sander lucioperca*. They were acclimatized in the River Ob basin in the 20th century. Besides, another four fish species are potentially commercial, but for various reasons not included in the fishing statistics: siberian sturgeon *Acipenser baerii* (since 1998 it has been listed in the Red Book of the Russian Federation and its legal fishing has ceased); tench *Tinca tinca* (lower number); common carp *Cyprinus carpio* (lower number); bleak *Alburnus alburnus* (recently naturalized alien fish) (Rostovtsev and Interesova, 2015; Romanov et al., 2017).

The main volume of the commercial catch in the Tomsk region was always provided of native spring-spawning fish species. The total share of Acipenseridae and Salmonidae rarely exceeded 10 %. Starting from the 70s of the last century, non-native fish species – bream and pikeperch – began to appear in catches, the number of its was rapidly growing and now they make up slightly less than 20 % of the total fish catch (Fig. 1).

In general, in the multi-year aspect, the volumes of aquatic biological resources catch in the Tomsk region are decreasing. After the construction of the dam of the Novosibirsk hydroelectric station and the beginning of regulation of the level regime of the Ob in the 60s, the volume of fish production began to gradually decline. In the second half of the 90s, according to official figures, the catch dropped to 1,7 – 2,0 thousand tons. Since 2006, there has been a slight increase in catches (Fig. 2).

The most negative impact on the reproduction of aquatic biological resources in the Middle Ob basin is exerted by a low level of spring flood as a result of the regulation of runoff of the river Ob, since the height of the water level rise and the duration of floodplain flooding determine the size of spawning areas, feeding conditions for juvenile fish and, ultimately, the abundance of generations of native spring-spawning phytophilic fish species (Trifonova, 1982; Interesova et al., 2009), which form the basis of the region's fish stocks.

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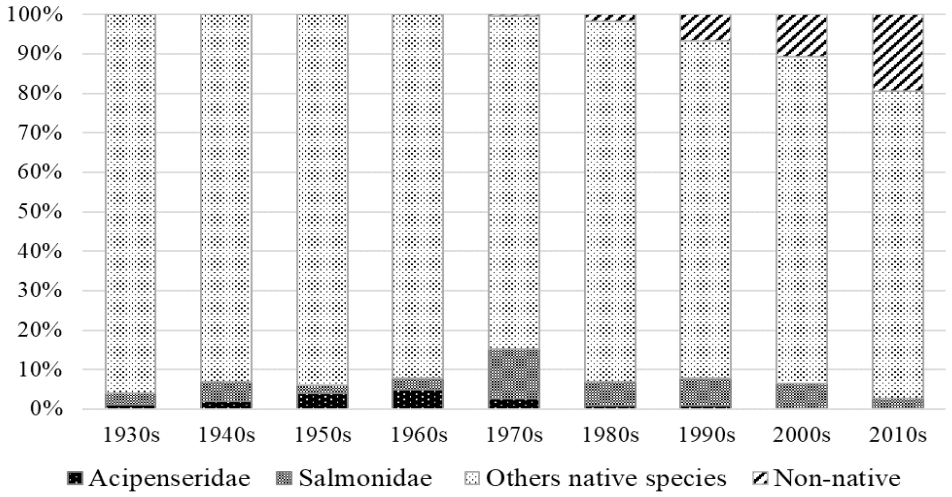

Fig.1. Composition of fish catch in the Tomsk region

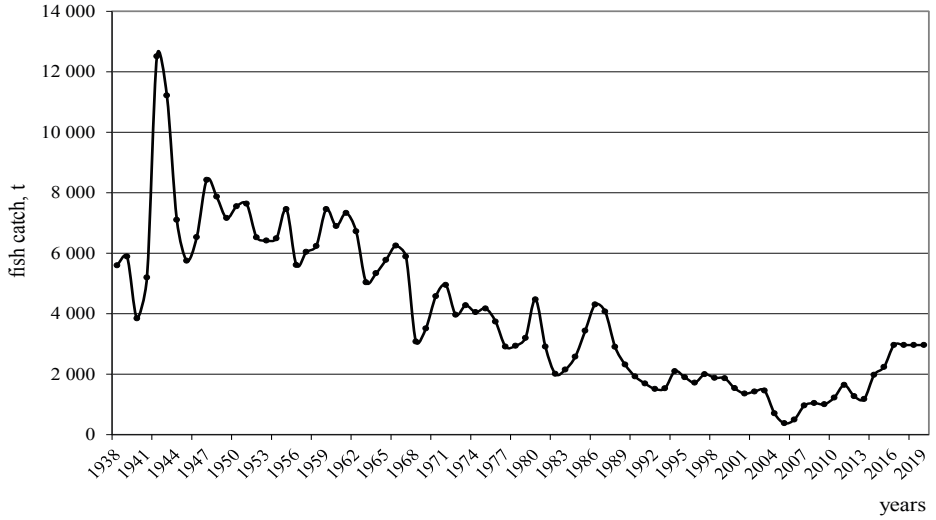

Fig.2. Size of fish catch in the Tomsk region