

The Luga River has a huge potential for more successful development of wild salmon. The water quality in the river is still relatively good, there are no major dams, which could obstruct the passage of salmon. Most spawning and nursery sites can be restored at low financial cost from the side of the state. However, there are of problems and threats the solution of which requires immediate attention.

The main problems and threats:

- The greatest threat to the preservation of the Luga salmon population is poaching. Legislative framework for bringing poachers to justice is far from perfect, and fisheries authorities are unable to control the river throughout the spawning run of salmon due to lack of personnel and technical means.

- Intensive construction of port facilities in the area of Luga Bay and associated dredging have led to disruption of natural habitats of the Luga salmon. During their migration into the sea the smolts are forced to change the traditional, i.e. optimal for population, migration routes, whereas the sound of working machines scares the breeders coming to spawn.

- Poor condition of some spawning grounds does not allow full use of the potential of the river for natural reproduction of salmon.

- Lack of environmental education among the local communities leads to the fact that a large percentage of the juvenile wild salmon and hatchery grown fish released in the rapids in the city of Kingissepp get caught by recreational fishermen with a rod without understanding this fish value.

International importance

Since the wild salmon population in the Luga River is the only one remained in the Russian part of the Baltic Sea, its fate is of concern to all countries of the Baltic region. According to the Baltic Sea Action Plan of HELCOM the Luga River is the key river for the Russian contribution to the restoration and conservation of populations of salmon. Currently the HELCOM project «Support for the development of management plan for the Luga River salmon population» is being carried out. The main objective of the project is to promote the implementation of the recommendations of the HELCOM Action Plan to restore the wild salmon population and recreate its natural habitat in the Luga River and its confluents. But no international projects will be able to change the situation without engaging the local communities in environmental activities providing their understanding that natural wealth can become an inexhaustible resource for the successful development of the region.

Recommendations:

- Improvement of the legal framework and organization of effective conservation should be the first step towards the protection of wild salmon from poachers.

- Compliance with evidence-based recommendations to limit any construction in Luga Bay during spring migration of juveniles and spawning run peaks of breeders will help to reduce the negative anthropogenic impact.

- It is necessary to clear the main river bed especially in the area of Kingiseppskie rapids of obstructions, trash and debris that hinder or completely stop the migration of fish.

- To increase the efficiency of wild salmon spawning the natural spawning and nursery sites of the river should be restored, and, possibly, artificial spawning hillocks should be arranged.

- Local communities should be involved in protection and restoration activities on the river and should get interested in preserving their fish stocks.

- It is important to provide education for local communities in order to increase awareness on the specifics of the Luga salmon development and the necessity of its protection.

Coalition Clean Baltic

FOR PROTECTION OF THE BALTIC SEA ENVIRONMENT

Luga wild salmon a resource for the region

The Luga River's potential as
a salmon river is used by only
15-20%.



Coalition Clean Baltic, CCB
Östra Ågatan 53
SE-753 22 Uppsala, Sweden
Phone +46-18-71 11 55 or 71 11 70
Fax +46-18-71 11 75
www.ccb.se
secretariat@ccb.se



Green World
Leningradskaja str. 48, office 46
Sosnovy Bor, Leningrad Region,
188540, Russia
Phone/fax +7 (813) 69 72 991
www.greenworld.org.ru

Atlantic salmon (Latin: *Salmo salar*), also called - the noble salmon or the Baltic salmon is one of the most valuable fish species of the Baltic Sea. Currently there are only three populations of this fish in Russia that live in rivers Neva, Narva and Luga, but only in the Luga River natural reproduction of wild salmon still occurs, while the populations of the Neva and Narva rivers are supported solely through hatchery reproduction.



Why necessary to save?

The necessity to maintain the population of genetically unique wild Luga salmon is caused by significant reduction in their numbers in recent years. The main reasons are poaching and habitat degradation. Scientists estimate that each year only about 500 individuals of wild salmon and about 1000-1200 hatchery grown breeders return to the Luga River for spawning. If the population of wild salmon continues to decline at the same rate as today, it may extinct in the coming years!

Spawning grounds and their status

The most important spawning and nursery grounds of salmon are located in the main river-bed of the Luga in Sabskie, Storonskie and Kingiseppskie rapids. The total area of these sites is about 700,000 m². Spawning grounds in Sabskie and Storonskie rapids are in satisfactory condition and are used for spawning by salmon breeders almost in full, while the Kingiseppskie rapids – only for one third. The Kingisepp city's vicinity led to contamination of a significant



Kingiseppskie rapids, photo: Dmitry Sendek

part of the rapids. Stones and gravel in the rapids are covered with aquatic vegetation. The bottom of the spawning substrates is contaminated with household waste and metal, which makes it unsuitable for spawning. Nevertheless, the area of all suitable spawning sites is not less than 400,000-450,000 m². This can support a salmon population numbering at least 20,000-30,000 breeders in the Luga River, i.e. 40-50 times larger than now. This potential should be used for development of the region.

The Luga River (Finnish: *Laukaanjoki*) is the longest salmon river in the Baltic Sea basin. The river originates from Tesovskie swamps in the Novgorod region and flows into Luga Bay of the Gulf of Finland. Its length is 353 km, drainage area is 13,630 km² and its average width is 20-30 m, reaching 100 m at rapids.



Some historical facts

From times immemorial, the salmon was the main commercial fish in the Luga River. The importance of salmon for local communities was so great that in 1781 its image was immortalized on the arms of the town of Luga. There is a picture of salmon on the modern coat of arms, as well as on the 10 ruble coin issued in 2012 and dedicated to the cities of military glory.



The Luga hatchery has been working on wild salmon reproduction since 1989. Each year the hatchery releases tens of thousands of juvenile salmon. However, the percentage of hatchery grown breeders returning to spawn does not exceed 2-3%. The main reason for such a low ratio is poaching, along with the lower viability of these juvenile compared with the individuals of the same age from the wild population. Under such circumstances the hatchery activity becomes inefficient and unprofitable

Salmon development cycle

Salmon – is a migrating fish species, so its life cycle is divided into freshwater and marine periods. Adult salmon enters the Luga River from May to October. But recently fishermen revealed two peaks: so-called “spring” and “autumn” migrations. In spring mostly large individuals of wild salmon enter the river. The breeders migrating in autumn are characterized by considerably smaller size, with a substantial portion of these fish represented by hatchery grown salmon.

Spawning occurs in late autumn in rapids of the Luga River. Female salmon spawns eggs in shallow waters with pebble bottom. Once the eggs are fertilized by males they lie in gravels in so-called spawning hillocks, well washed with water throughout the winter. During this time, the embryos are developing inside the eggs.

In early spring larvae appear from the eggs – they are small translucent fish with big eyes and a yolk sac on the abdomen; this sac contains nutrient supply essential for the larvae development. Larvae remain under the protection of pebbles for about 12 weeks since strong river flow is fatal for them.

In summer, when the yolk sac disappears completely, the larvae turn into a fir needle-sized fries. Salmon fries disperse over large areas of rapids and river bars searching for food. Gradually they grow up to 4-8 cm and acquire specific variegation. This stage of development is called parr stage. Salmon juveniles live in the Luga River typically for 2-3 years.

Then the migration of young salmon to the sea takes place, and it is accompanied by the process of smoltification. This is a biochemical and physiological transformation of an organism followed by silver plating of scales.

Having descended from the river, some salmon moves to the sea to feed, and the majority (70%) remains in Luga Bay in order to continue their journey into the open sea about a year later. Typical migration routes of the Luga salmon are usually limited to the Gulf of Finland and the central Baltic Sea. However, studies involving fish tagging showed that salmon is able to travel long distances up to the Danish Straits.

Interesting fact

The biggest salmon was caught in 1934 (22.8 kg). In the same year, a salmon weighing 21 kg and reaching 1.25 m length was caught. Currently, an average length of sexually mature salmon is 67 cm and weight is about 5 kg.



photo: <http://www.adfg.alaska.gov/>



photo: <http://www.seymoursalmon.com>



photo: Margarita Barabanova

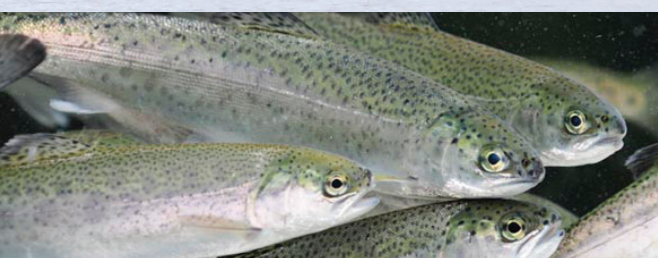


photo: <http://www.seymoursalmon.com>

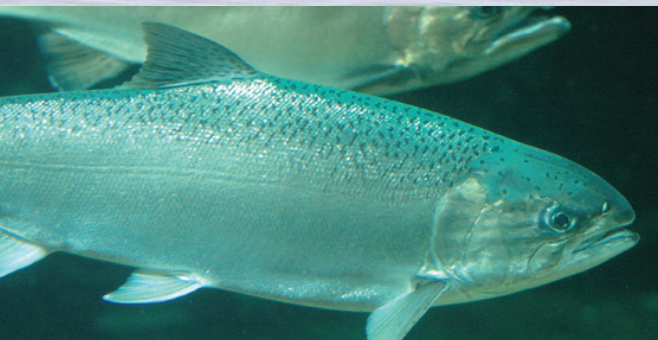


photo: <http://www.seymoursalmon.com>