Category: Fish fauna - species
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River lamprey
Lampetra fluviatlis, Linnaeus, 1758

Species description

River lamprey is a species belonging to the lampreys family Petromyzontidae. It has a cylindrical, elongated body with laterally flattened caudal part and a small conical head with a disc-shaped sucker (Photo 1). River lamprey has a third eye situated near the nostril. Two dorsal fins relocate closer to each other during breeding period.

River lamprey has a variable coloration of the body. It can be yellow-brown or dark brown with a golden or metallic tint. Lower parts of the ventral side are white. Adult individuals can reach lenght up to 450 mm with average weight of 100-150 g. Sexual dimorphism is noticeable only during the spawning. The dorsal fin of female lampreys is thickened and pseudoanal fin appears. Males develop a small tubular ovipositor in the genital pore.

Photo.1 River lamprey collected at the Pasłęka River site in 2016 (photo by T. Kuczyński, Maritime Institute in Gdańsk)

River lamprey is on the list of animals being under partial protection in Poland (Regulation of the Minister of the Environment of 6 October 2014 on the protection of animals species, Journal of Laws 2014, item 1348). It is also a species of the European Community interest and therefore it is listed in the Annex II of the Habitat Directive (Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora).

Biology

River lamprey is an anadromous fish that migrates from the sea into the river to spawn. It prefers brackish water with salinity up to 22. Its migration takes place in two stages. In Poland, the autumn run begins in October and November and the spring run begins in March. Spawning of spring runners occurs almost immediately after finding a suitable spawning ground and includes lampreys that began migration in the autumn. After leaving the brackish water, lampreys stop feeding. The exhausting journey of lampreys is made easier by the sucker, which allows them to attach themselves to large stones and rest during the day. Migrations of river lampreys take place at night and a total distance between the spawning ground and the sea doesn't exceed 250-300 km (Raczyński 2012).

Spawning takes place in flocks. A suitable place is found in shallow parts of the river with a stony bottom. The female moves larger stones with the sucker creating a hole that she and the male enter. The male attaches itself to the female with the sucker and the spawning begins. The multi-spawning takes place a while later and the couple of lampreys bury the nest by agitating the water with their bodies' movements. Up to 50 individuals can use the same nest (Hagelin and Steffner 1958). After four weeks at most from the laying and fertilization of eggs, lampreys die. Most likely the cause of death are energy shortages, caused by significant and irreversible anatomical and physiological body changes. The female river lamprey can lay 27-45 thousand of eggs but large amount is eaten by gungeons Gobio sp., spined loaches Cobitis taenia and stone loaches Barbatula barbatula (Raczyński 2012). Larvae of river lamprey are so different from adult individuals that for over 100 years they have been considered as a separate species called Ammocoetes. Eyes of the larvae are hidden under the skin. Larvae spend their life buried in silt and tunnels. Instead of a sucker they have two fleshy lips that rise above the water surface to catch food. Larval stage lasts about 4 years. In the last year of the larval stage they leave the shelter and search for another type of food. At the end of the fourth year of their life the larvae starts its metamorphosis into the macrophthalmia phase. This phase lasts several months and eyes and the sucker are developed. Most often metamorphosis occurs in late spring and lampreys start their migration towards the sea. During the migration they are in danger of attacks from predatory fish and birds. After reaching the brackish water lampreys reach maturity and become parasites. At night they attach to fish by the sucker and feed on their flesh and body fluids (Raczyński 2012).

Habitat

Habitat preferences of river lamprey depend on the development stage of the species. Adult individuals inhabit coastal waters or estuaries, after reaching the sea, for two seasons. According to Raczyński (2003), each river can have its own typical population of river lamprey. Spawning takes place in the part of river with fast-flowing water, where the water level is low and the water is well oxygenated. The phenomenon of borrowing the spawning grounds of salmonids by the river lamprey

has been observed in the watershed of the Ina River (Raczyński 2012). The larvae prefer less dynamic parts of the river and the sediments being a mixture of sand, clay and silt, in which they burrow themselves.

Distribution

In Poland, river lamprey populations are observed in the following rivers and reservoirs: Drwęca River, Wda River, Wierzyca River, mouth of Vistula River, Vistula Lagoon, Pasłęka River, Łupawa River, Radew River, Grabowa River, Wieprza River, Parsęta River, lower basin of Odra River and the Szczecin Lagoon (Witkowski 2010).

River lamprey is monitored, within the framework of the project ”Pilot monitoring studies of marine habitats and protected species in 2015-2018”, at 10 sites:

- Rzeka Pasłęka,
- Rzeka Bauda,
- Rzeka Wierzyca,
- Rzeka Reda,
- Rzeka Chełst,
- Rzeka Łeba,
- Rzeka Wieprza/Grabowa,
- Rzeka Rega,
- Rzeka Wołczenica,
- Rzeka Ina/Krąpiel.

References

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