



# Newsletter

# LIFE FOR LASCA

N. 06/2020

In the previous issues you can find all the information relating to the LIFE for LASCA project LIFE16 NAT / SI / 000644 (2017-2021), the target species, the threats and actions undertaken for its conservation, the Natura 2000 sites, the methods and the structures used for breeding in captivity.

The actions taken at an international level for the protection of endangered species demonstrate how fundamental is the protection not only of the species, but also of the habitat.

Among the various pillars of the conservation of species and habitats we can mention:

- Directive 79/409 / EEC relating to the "Conservation of wild birds", also known as the Birds Directive.
- Directive 92/43 / EEC relating to the "Conservation of natural and semi-natural habitats of wild flora and fauna", also known as the Habitat Directive.
- The Ramsar Convention, relating to wetlands of international importance. First true global intergovernmental treaty, concerning the conservation and management of natural ecosystems.
- The Man And the Biosphere MAB Program concerning the sustainable development of human societies in close contact with natural environments in areas with high levels of anthropization.
- The 2030 Agenda and the SDGs or the sustainable development goals approved in 2015 by the United Nations to contribute to global development, promote human well-being and protect the environment.



Ticino Val Grande Verbano MAB Reserve logo

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## ***Freshwater ecosystems: very important, but threatened***

One of the basic resources of life is certainly fresh water. The habitats for the various fish species in the Park are numerous and varied: the main course of the Ticino river, the lateral branches, oxbow lakes and mortises, springs and fountains and irrigation canals. A series of threats have negative repercussions on these habitats and on the species that characterize them:

- pollution caused by wastewater from large urban settlements, industrial activities, farms (especially pig farming), chemicals used for agricultural activities;
- river barriers that block the movements and migrations of fish and modify the natural process of erosion and sedimentation of the river;
- the introduction of alien and invasive species that prey on and compete with native species and, in some cases, threaten their genetic heritage by hybridizing and generating fertile hybrids;
- land consumption;
- the reclamation of wetlands that destroy fundamental habitats for the conservation of endangered species of fauna and flora;
- excavations for the extraction of rock materials that devastate the environment;
- changes to the riverbed resulting from canalizations and deviations of the natural course of the river;
- the irrigation captations and hydraulic regimes that threaten the minimum vital flow of the river (minimum flow rate necessary for the conservation of the ecosystem of the river section downstream of a dam), or the minimum level that must be left for the ecosystem for it to succeed to survive in the best way;
- the rise in temperatures and the unpredictability of precipitation due to climate change.



Ticino River: Porto della Torre dam - Photo Alice Pellegrino



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Torpedo fish, invasive exotic - Photo Mattia Nocciola

## ***Freshwater indicators: chemical, physical and biological***

According to Ispra data, in Italy, 43% of the 7,494 rivers are in "good or high ecological status", while 41% are below the expected quality target and 16% have not yet been classified. As for the lakes, of the 347 bodies of water only 20% are in compliance with European legislation while 41% have not yet been classified.

The monitoring of the quality of the watercourses is carried out with the use of chemical and physical indicators together with biological methods (with the use of bioindicator organisms) which allow to evaluate the quality of the water and the aquatic environment as a whole. An example of bioindicators are the macroinvertebrates (aquatic or benthic) found in all watercourses. These are organisms with a body size greater than one millimeter in length, which carry out at least part of their life cycle in fresh water. Among these there are various animal classes such as Insects, Crustaceans, Hirudinea, Mollusks, Oligochaetes, etc. Their monitoring takes place with standard methods that can be repeated at regular intervals and allows to assess the impact of pollution and other factors in the different areas of the river.

A classification used to evaluate the quality of the waters of rivers and lakes is the Ecological State which combines:

- Elements of biological quality (benthic invertebrate fauna, diatoms i.e. unicellular algae, aquatic macrophytes i.e. aquatic plants, ferns and more, fish fauna);
- Physic-chemical elements supporting the biological elements (LIMeco-ammonia nitrogen, nitric nitrogen, phosphorus and dissolved oxygen);
- Chemical elements supporting biological elements (specific pollutants)
- Hydromorphological elements (fluvial processes and forms).



Aquatic macroinvertebrates - Photo Manuela Vailati



## ***The quality of the Ticino River***

ARPA Lombardia carries out continuous monitoring of water quality. The Ecological Status of the river and its tributaries falling within the same catchment area is expressed according to a scale of values ranging from High, Good, Sufficient, Poor to Bad.

For the Ticino river basin, the latest available report (three-year period 2014-2016) shows a Good Ecological Status in 11 out of 32 water bodies, while for the other 21 the Ecological Status was Sufficient or Poor;

In the entire basin, the state of the Biological Quality Elements (EQB) alone determines the class of the Ecological State in 6 cases out of 32. In the other cases, in addition to the EQB, the class is determined by the state of the supporting chemical elements and the LIMeco indicator. Compared to the qualitative situation of the previous period, there is an improvement for 6 water bodies, 3 of which have reached the GOOD Ecological Status (Solda in Valsolda and Ticino in Abbiategrasso and Pavia). On the other hand, only one body of water suffered deterioration, passing from Sufficient to Poor status (Brabbia in Cazzago Brabbia). An improvement in the quality of the water was therefore found in Ticino. The Ticino Park can boast of being the first Regional Park in Italy and the first River Park in Europe. From its birth in 1974 to today, there have been numerous monitoring and improvement activities of the natural conditions of the river and the natural environment that surrounds it. One of the most important is certainly the one carried out thanks to the LIFE Con.Flu.Po 11 NAT / 11/188 (<https://www.life-conflupo.eu/>) project thanks to which fish passages have been built on various artificial weirs of the Ticino, Po and Tresa rivers, once again allowing seasonal fish migrations for over 500 km from Lake Lugano to the Adriatic Sea.



Main course of the Ticino river in Cerano (PV) - Photo  
Pietro Beretta