ALIEN INVASION

(second project on Avigliana Lakes)

2N

Rita Levi Montalcini Rosta

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Complaint of the WWF Italy: 62% of the fish in our rivers and lakes has alien origin, as fishes of more than two meters and pipefish introduced in the Po. And there is no shortage of amphibians and crustaceans. Only 43% of the rivers and 20% of the lakes are in a "good ecological condition"

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Expansions and recessions have been part of the earth's history, but they have always been extremely slow. Thus, local habitats and species have always been able to prepare themselves gradually.

However, now we create very quickly, unconsciously, the conditions for the breeding of new species

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AVIGLIANA LAKES

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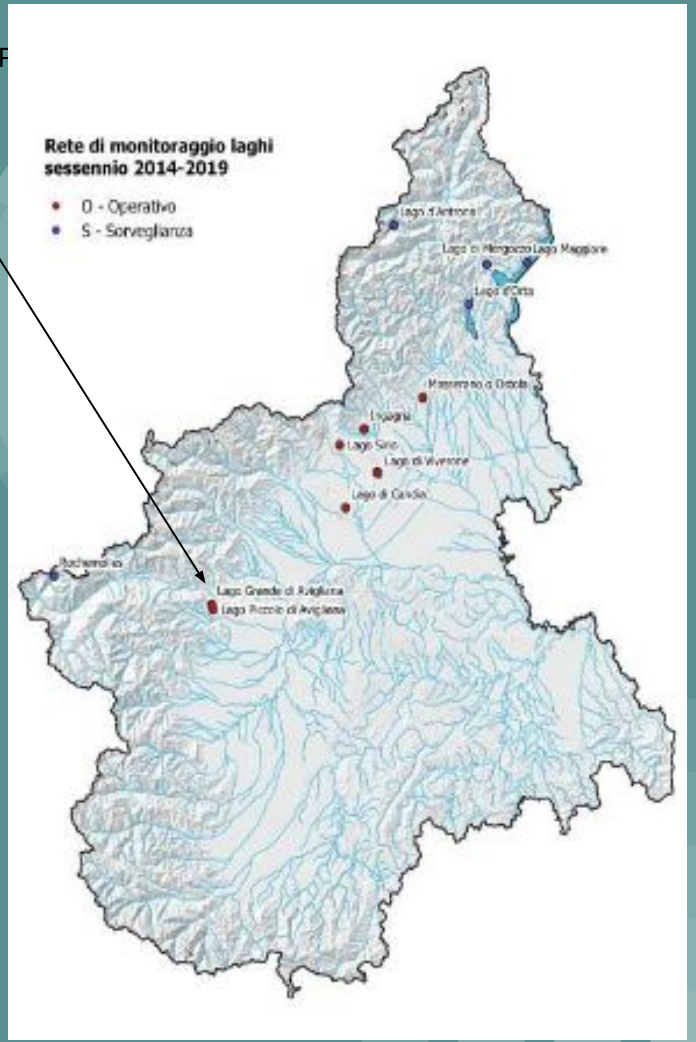
Avigliana Lakes Position

Two lakes with a great naturalistic importance are located in Avigliana, in the lower Val di Susa, near Turin.

These lakes have glacial origin



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The site has such regional importance for its waterfowl, especially for species that nest here, to be identified as a Special Protection Area. 54 species have been reported in the area.

View of the lakes

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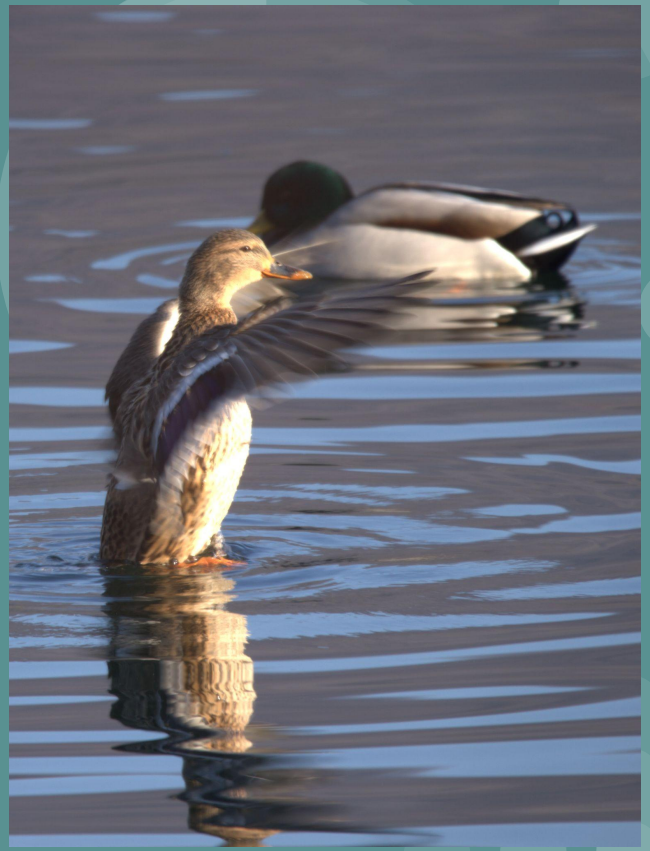
Besides the most common species in Piedmont, in the lakes nest some pairs of greater grebe, especially in the marsh area. During the winter there are mallards, hawksbills, black herons and cormorants.

Mallards



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Great Grebe

Coot

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Cormorant

Seagull

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More than 20 species of mammals have been reported, including 2 protected.

Wetlands are of particular interest because amphibians breed there.

The fish fauna is of limited interest.

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INSPIRATION PROJECTS

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The program “Mussel Watch” based on the use of the mussels to detect over 150 inorganic and organic pollutants, from 1986 it supervises all the coastal areas and the big lakes of North America.

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We have taken inspiration from the project named RIS-ORTA although it was born in Lake Orta

We’ve tried to do a simulation using Lake Avigliana’s information.

Let’s have a look about the data analysed.

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“Ente Parco Laghi di Avigliana” supports our work.

Last year we’ve already worked with them for temperature monitoring, using infos from satellitars’ images, too.

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DREISSENA POLYMORPHA

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The zebra mussel is a small shellfish named for the striped pattern of its shell. However, color patterns can vary to the point of having only dark or light colored shells with no stripes. This mussel is typically found attached to objects, surfaces, or other mussels by threads extending from underneath the shells. Although similar in appearance to the quagga mussel (*Dreissena bugensis*), the two species can be distinguished by their shell morphology.

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When placed on a surface, zebra mussels are stable on their flattened underside while quagga mussels, lacking a flat underside, will fall over. When both zebra and quagga mussels occur in the same area, differentiation can be difficult due to the phenotypic plasticity seen in quagga mussels, and thus genetic identification is necessary at times.

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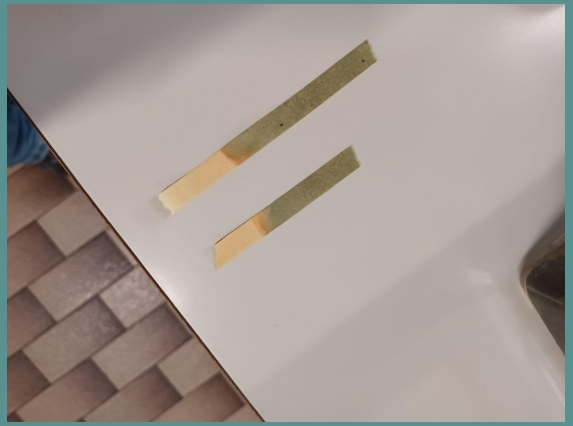
OUR TEST AND TEST RESULTS

PH Measurement

We used a litmus paper, that changes colour based on the acidity, of the substance. Its scale goes from 1 to 14.

1 means that the substance is very acidic, 6/7 means it is neutral and at 13/14 means it is basic.
We analyzed the water of Lake Avigliana with a pH of 7,5 / 8



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Presence of nitrite

Materials: use water catcher, a test tube, Griess reagent, a dropper, a glass and a syringe. We have dropped 20 ml of water in a test-tube plus 1 ml of the reagent and let it rest for 10 minutes.

A slight presence of nitrites is found in the sample.

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Presence of ammonia

We proceed with the Nessler’s reactive.

We pour 5 ml of water in a test tube,

In another test tube we introduce 3 ml of reagent with a syringe containing a sodium hydrate tablet and we sake it to make it dissolve; then we add three drops of the second test tube to the first one. In the water of our sample we don’t see ammonia.

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In mid-November we effectuated our first analysis, the second one at the end of December and the last one some days ago.

The analysis we carried out in December, January and February have been made with lake’s water kept in an aquarium in the presence of zebra mussels, with some plants.

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Date	November	January	February
pH	7,5/8	8	7,5
Ammonia	Absent	Absent	Absent
Nitrites	Low presence	Low presence	Absent

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CONCLUSIONS

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We have seen that zebra mussels are truly an alien species but that they can still have a positive influence on cleaning the lake. And they can help us in this mission.

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THANK YOU FOR THE ATTENTION

The 2 N class
(Leonardo Nurisso, Rebecca Lungu, Leonardo Cavaliere, Eleonora Presti, Mattia Cibrario, Michela Remino, Pietro Cattarossi, Cecilia Carlone, Matteo Fasolo, Alessia Zappavigna, Samuele Mastantuono, Sonia Miraglia, Alessandro Carpani, Alessandra Gheorghiu, Simone Aragno).

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