

From research to management

The DRIMON partners recognise the need for a better understanding between scientists and managers. Within the framework of the project, therefore, several workshops have been held where scientists and managers have met and discussed common problems related to water resources research and management. The principles of the EU Water Framework Directive (WFD) have been used as a basis for these workshops.

Some concrete management advice from the DRIMON Project include:

- Focus on laboratory improvement, in particular accreditation of laboratories for the parameters which are needed in terms of the implementation of the EU WFD.

- Efforts should be done to implement transboundary monitoring, with commonly agreed parameters and frequency of monitoring.
- Sewage treatment facilities need to be upgraded both in tributary rivers and around the large lakes in Balkan.
- The contribution from agriculture of nutrients and pesticides should be better monitored, and abatement measures should be implemented.
- Stakeholder involvement is very important in order to achieve good environmental status in these unique, transboundary freshwater bodies.

Interdisciplinary assessment of water resources management in South Eastern Europe

The DRIMON Project (2006-2009) is an interdisciplinary research project carried out by partners in Albania, Macedonia, Montenegro and Norway. The project is financed by a grant from the Research Council of Norway.

The DRIMON Project ensures exchange of knowledge and experience across borders within both natural and social sciences. The main instrument is the comparison of the nutrient status in lakes and drainage basins, and water resources management challenges in Balkan and Norway. The lakes and catchment areas which have been studied include:

- Lake Prespa, shared between Albania, Macedonia and Greece
- Lake Skadar, shared between Montenegro and Albania
- Lake Vansjø in Eastern Norway

Through a combination of existing data and new measurements, the nutrient and sediment loads to the lakes, as well as the lake trophic status, have been assessed. Stakeholder surveys and workshops have mapped the various sectors in the regions, with a particular focus on agriculture and tourism.

DRIMON PROJECT PARTNERS

- Bioforsk - The Norwegian Institute for Agricultural and Environmental Research (Project Coordinator).
- Agricultural University of Tirana, Albania
- Institute of Agriculture, University of St. Cyril and Methodius, Skopje, Macedonia
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Lake Prespa - eutrophic and under strong pressure of pollutants

The results of the DRIMON Project indicate that Lake Prespa is not achieving "good ecological status" as defined by the EU Water Framework Directive. Some main conclusions include:

- A preliminary environmental goal was set for this lake based on EU intercalibration results for Europe:
- According to this goal, Chlorophyll a levels should not exceed 6.6-8 µg/l in this lake. This goal refers to levels in the euphotic zone during the period April-October.
- The actual level monitored in 2008 is 10.8 µg/l.
- This means that the lake do not achieve good environmental status according to the EU standards, and that measures need to be implemented to reduce nutrient inputs from sewage and agricultural runoff to the lake.
- The lake is in a eutrophic state and have anoxic conditions at about 15 meters depth.
- Comparisons with earlier studies indicate that there may be an increase in nutrient levels in the latter years.
- The water level of the lake has been reported to have dropped 5 meters from the 1980s to 2003.

- If this drop in water level continues there will be less water to dilute the influx of nutrients, and the risk for eutrophication increases.
- The full reason for this drop in water level is not known, but it is likely that climatic variations and water used increasingly for irrigation purposes play important roles.
- Sewage from villages and agricultural runoff are deemed the main polluters of the lake.

Facts on Lake Prespa

- Shared between Albania, Macedonia and Greece
- Located highest of all Balkan lakes at 853 m asl
- Large but shallow lake (274 km² surface area); with lake water level decreasing in the latter years
- The lake has no riverine outlet but flows through karstic groundwater to Lake Ohrid, the oldest lake in Europe.
- Prespa Lake is rich in biodiversity, with 17 fish species and over 260 bird species, incl. colonies of Dalmatian Pelicans.
- Designated as an area of international importance according to the Ramsar Convention.

Lake Skadar/Shkodra - mesotrophic, but under pressure

The results of the DRIMON Project indicates that Lake Skadar is reaching the goal of "Good ecological status" according to the EU Water Framework Directive. However, the lake is under strong pressure from planned developments in the area. These pressures include hydro-power development in the Moraca River as well as water extraction from the lake to serve increasing tourism in the coastal zone.

DRIMON Project results include:

- The environmental goal of this lake has been estimated to a chlorophyll a level of the eutrophic zone (April-October) of about 15-19 µg/l.
- The monitored level in 2008 on the Montenegrin side was about 11-12 µg/l
- This means that the lake can be characterised as having good ecological status.

- However, the good status of the lake is clearly linked to the short hydrological residence time, since nutrient inputs are rather high.
- Sewage treatment and measures to reduce runoff from agriculture should be implemented.

Facts on Lake Skadar/Shkodra

- Shared between Albania and Montenegro,
- Largest lake on the Balkan Peninsula, with a surface area varying between 353 - 500 km².
- Drainage area of about 5,500 km².
- Huge biodiversity, with 271 species of birds and 60 species of fish, of which 15 are endemic.
- The unique ecosystem has resulted in the classification of the lake as a RAMSAR site.
- The Montenegrin Part of the lake was declared a National Park in 1982 and the Albanian part as a Nature Management Reserve in 2006.

