

## Experience of the federal government in implementing projects on phosphorus

Victor Kessler

*Federal Office for Agriculture, Bern, Switzerland*

For the last ten years the federal government has been providing contributions to support the phosphorous projects for Lakes Sempach, Baldegg and Hallwil according to Article 62a of the Water Protection Act. Two federal agencies involved - the Federal Office for the Environment (FOEN) and the Federal Office for Agriculture (FOAG) - now find the overall results to be positive. The lakes are doing much better. The experience shows that the strategy chosen and the measures taken were right. To continue the projects and to organise the best possible measures the federal government has to find answers to various research questions arising from the change in the quality of the water of the lakes.

The three lakes are now in much better condition. Lake Sempach has 21mg /m<sup>3</sup> P and Lake Baldegg has 26 mg/m<sup>3</sup> P. In the early 1980s the level of P in Lake Baldegg was still above 500 mg/m<sup>3</sup>.

At the beginning of the 1980s, phosphates were banned in laundry detergents and P was removed in sewage treatment plants, which brought about a marked reduction in P inputs. Since 1982, measures have also been introduced within the lakes (aeration and assisted circulation) and, starting in 1998, projects have been implemented in the catchment areas of the lakes, according to Art. 62a of the Water Protection Act.

In the areas of the project, there is financial compensation for measures to reduce runoff, leaching and enrichment of P, which go beyond the requirements of the ordinance on direct payments. In addition to reduced P discharges, which must be lower than the needs of the cultures, direct seeding, wider buffer strips, non-fertilised areas and structural measures are all required. In addition, innovative projects are promoted when there is a reduction in the number of animals on the land.

The agriculture department is responsible for implementation. A six-year contract between the Federal Office for Agriculture and the cantonal specialised services guarantees payment of a federal contribution (50 to 80% of the costs). There is no compensation from the federal government for preliminary investigations and additional studies on the catchment areas, inflows, outflows and the lakes.

In the course of implementation, the legal framework was supplemented by the federal government and by the canton. In September 2002, under pressure from the federal government, the cantonal ordinance on phosphorus was brought into force, linking the number of farm animals to care for the soil. This actually fixed the number of animals. At the beginning of 2008, an 80% reduction of P fertilisation on land of types D and E became mandatory at the federal level. This measure, which was initially subsidised, can no longer receive compensation in future projects or in extensions of contracts.

Although there has been a decrease in algal-available P, the amount of particle bound P has risen. The source of this is currently under investigation. It is thought that this is attributable to P from land used for agriculture and from the beds of inflowing rivers and streams.

After the intermediate target of <30mg P /m<sup>3</sup> was achieved surprisingly quickly, the target of the next phase of the project is to reach the ultimate objective of 20 mg/m<sup>3</sup>. To

organise targeted measures, some questions have to be clarified by research. The focus is on the causes of the increase in particle bound P and on the contribution towards reduction made by individual measures.

The projects for the Swiss Midland Lakes have now progressed to the home stretch. The federal government, the canton and farmers are all making a big contribution. In the future it will be a matter of promoting structural measures, in order to ensure the quality of lake water and the habitat with its unique landscapes in the long term. To do this it will be helpful to have collaboration between those involved in water protection, agriculture, spatial planning and politics.