

Desilting of Lake Inkwil



Although part of a natural preserve and classified as an archeological heritage, the small, idyllic Swiss lake known as the Inkwilersee (lake Inkwil) is at risk of transitioning into marshland. The natural process of lake succession is accelerated by the inflow of nutrients and sediments from surrounding settlements and agriculture. In an effort to decelerate this process, the Canton of Solothurn Environmental Protection Agency commissioned EBP to oversee the planning and execution of a project to remove excess silt from the lake.

The Inkwilersee is a small, natural lake on the Swiss Plateau. Around half of the lake is located in the Canton of Bern, the other half in the Canton of Solothurn, where it is classified as a natural preservation site. Unfortunately, the entire lake is threatened by accelerated processes of siltation and already exhibits poor water quality. A proposal for securing the long-term viability of the lake was drafted in 2011. One of the three main measures outlined in the proposal is to remove 15,000 m³ of silt, the equivalent of about 50 years input, from the lake. After the proposal's implementation had been delayed on account of various complicating factors, EBP was commissioned to oversee the planning and execution of the silt removal.

Diverse specifications . . .

Given that large-scale removal of silt from a natural body of water entails a massive intervention in the natural ecosystem, this demanding project cannot be considered a routine operation. Indeed, the EBP team had to comply with a wide range of requirements during the project's life span. Necessary

Client

Canton of Solothurn Environmental
Protection Agency

Facts

Period	2017 - 2019
Project Country	Switzerland
Water lily removal	600 tons wet weight
Removed silt	15,000 m ³ wet
Project costs	Approx. CHF 1.5 million

Contact persons

Christina Dübendorfer
christina.duebendorfer@ebp.ch

Tino Reinecke
tino.reinecke@ebp.ch

steps included finalizing plans whilst consulting with both cantons Bern and Solothurn, defining special protective measures, and securing two intervention permits. For instance, both archeological sites within the lake and along the shoreline as well as the pitfalls of environmental disturbances needed to be taken into consideration. In addition, provision had to be made for proper silt drainage next to the lake so as not to violate the relevant soil-protection regulations. Moreover, since the silt was to be used as agricultural fertilizer, silt quality needed to be monitored throughout the project.

. . . to be met for an extraordinary project

To prepare for the silt removal operation and ensure compliance with environmental specifications, EBP was charged with coordinating various measures. These included removing water lilies by means of a mowing boat, taking measurements of and sampling the lake bed, and deploying two teams of scuba divers specifically for examining sensitive, submarine archeological features and resettling mussels in the area. Upon completion of these protective measures, a dredge was then deployed to break apart the water lily rhizomes and vacuum the silt. The silt was subsequently pumped from the previously installed drainage site into large geotextile bags, also known as geotubes, for further drainage and filtering.



Filled geotubes at the drainage site

The scope of our assignment included project coordination, provision of support to project management, completion of all planning, approval and tendering procedures, site management, and overseeing the acceptance procedures.

Suction dredger in operation