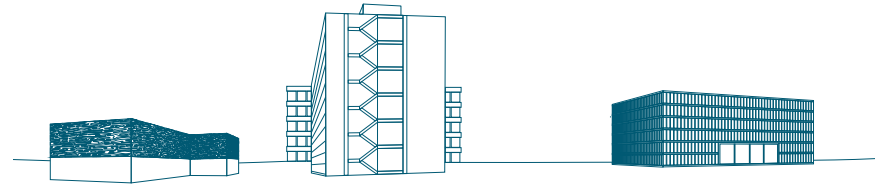
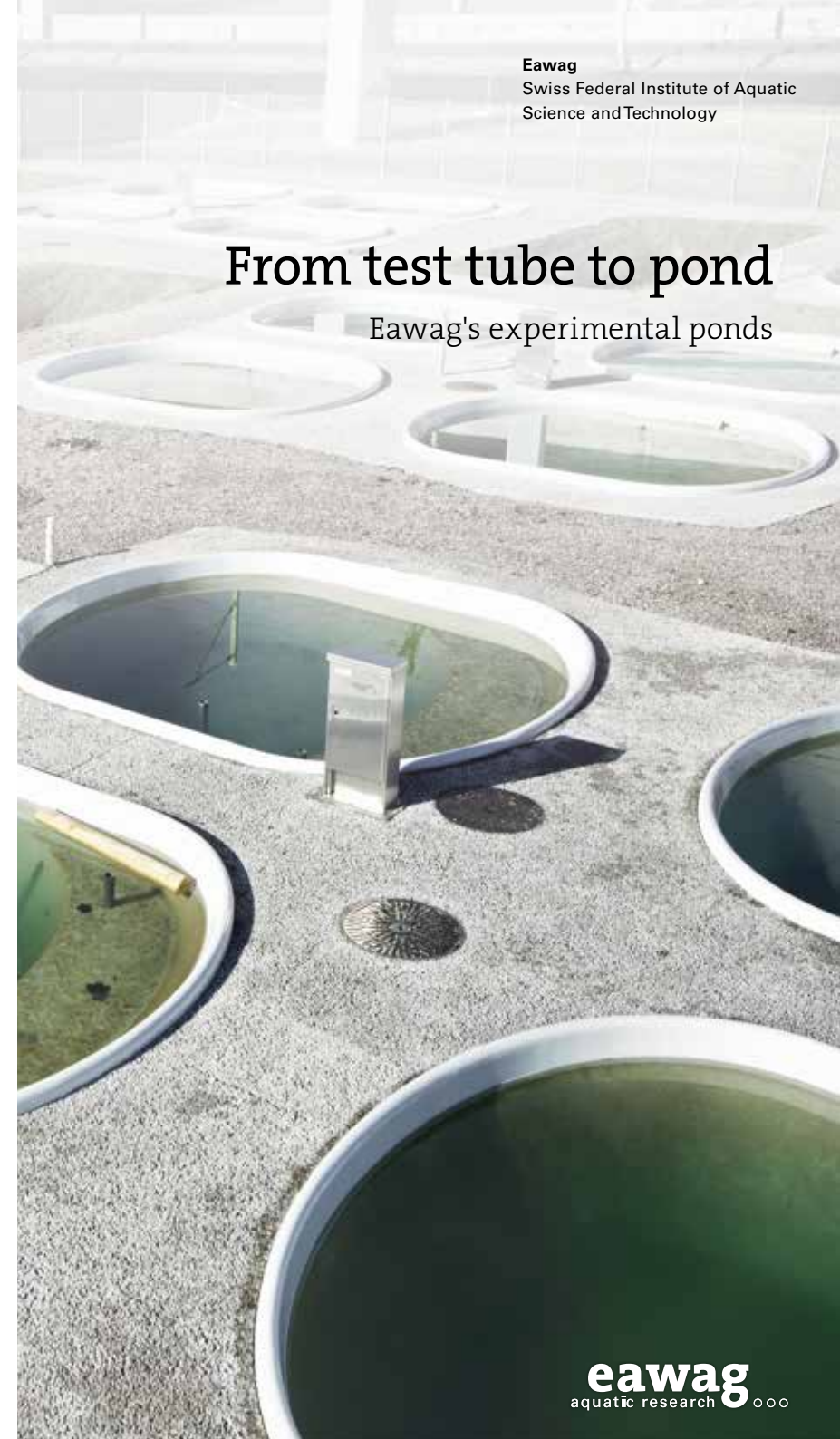


# From test tube to pond

Eawag's experimental ponds



## Eawag – a leading international aquatic research institute

Eawag is a nationally established and internationally networked institute of aquatic science and technology. It engages in research, education and consultancy work. As a national research institute, Eawag ensures that concepts and technologies for the use of water and bodies of water are continuously improved and that ecological, economic and social interests in water are brought into line with one another.

## FAQs

### Are the experiments dangerous?

The animals and plants we have in the ponds are also native to Switzerland. The experiments pose no risk to the environment.

### What organisms are found in the ponds?

These are organisms that are found in the River Glatt catchment and include algae, plankton and fish, among other organisms.

### Where does the water for the ponds come from?

The water is fed in through drinking water pipes on Eawag's premises.

### Where does the water go when an experimental pond is emptied?

The overflow (rainwater) runs into the adjacent soakaways. If a pond is emptied completely, the wastewater flows into the community water treatment plant.

### Why is there a fence around the ponds?

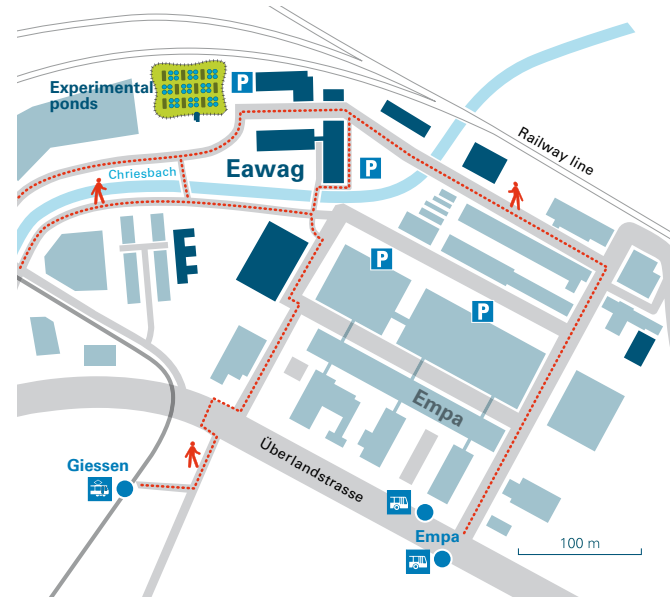
There is a fence around the entire facility to stop people, objects or animals from getting into the ponds. This prevents test results from potentially being distorted.

### Why are there 36 ponds?

Multiple experiments are performed at the same time, enabling statistically relevant conclusions to be drawn.

### What is studied in the ponds?

One of the things that researchers are studying is the impact of a diminished biodiversity on an ecosystem's ability to function. The aim of this experiment is to use the results to derive measures that protect the environment.



Cover photo: Eawag, Peter Penicka





Peter Penicka, Eawag

## Experiments under natural conditions

Findings from basic research in the laboratory are not always 100% transferable to natural bodies of water. Eawag has therefore constructed a number of experimental ponds on its premises close to the Aquatikum experimental hall in Dübendorf. The ponds contain mini-ecosystems which are exposed to natural weather conditions just like real ecosystems. These systems can be influenced and controlled by researchers for experimental purposes, providing answers to questions on biodiversity and how ecosystems function – questions which could not be answered by studying what happens in a test tube.

## Clear results through multiple experiments

In order to draw significant conclusions, the statistical relevance of the results must be ensured. This is why the facility has 36 artificial ponds. This enables multiple experiments to be carried out under identical conditions, thus reducing the risk of random results being generated.



Cornel Flüttsch, Eawag

## The experimental facility

The experimental facility on Eawag's premises in Dübendorf is the size of half a football pitch. It is unique in Europe and there are only a few research facilities like this one worldwide. For security reasons, the facility is surrounded by a fence. This is to prevent people, animals or objects from getting into the ponds and affecting the results. A visitor's platform looks out across all of the ponds and displays information on current experiments.

## The experimental ponds

The ponds are made of fibreglass. They are filled with drinking water taken from the Eawag complex. Split into a shallow and a deep water zone, they are sunk 0.5 and 1.5 metres into the ground respectively. Once an experiment has been completed, the water is released into the sewer system and channelled to the water treatment plant. Any overflow from the ponds runs into special soakaways.

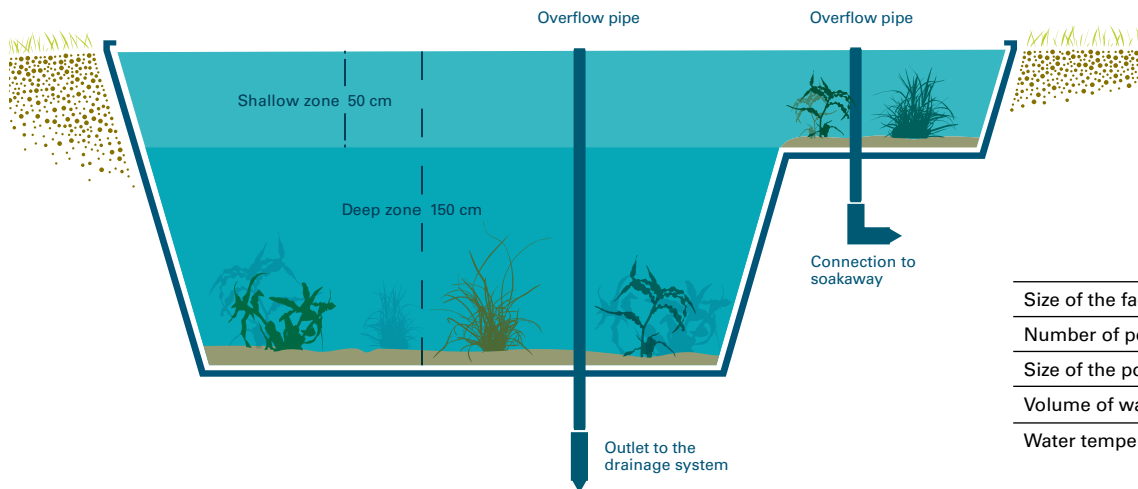


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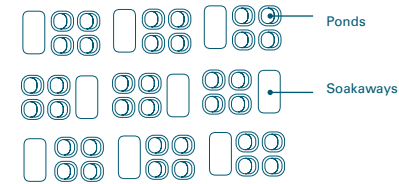
## Protecting nature with our findings

Biodiversity has diminished significantly over the past few decades, not least because of humans' use of, and often damage to, the natural surroundings. Plant and animal species that have disappeared can no longer fulfil their function within the ecosystem. One of the topics which Eawag is researching in its experimental ponds is the effect a reduction in biodiversity has on the functioning of ecosystems. This knowledge enables the damage resulting from the loss of biodiversity to be better estimated, and revitalisation and protection measures to be devised.

Pond diagram

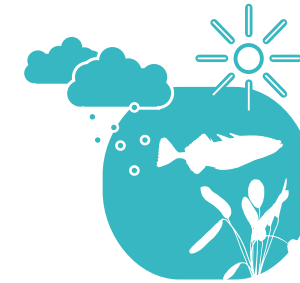


Pond system



Operating data

Size of the facility:	3200 m <sup>2</sup>
Number of ponds:	36
Size of the ponds:	4 x 4 m
Volume of water per pond:	15 m <sup>3</sup>
Water temperature:	Ambient temperature (unheated)

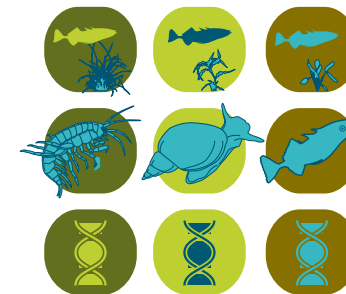


## What are ecosystems?

An ecosystem is described as the entire range of all plants and animals found in a single habitat. Ecosystems interact with weather conditions and the climate and are thus constantly changing.

## What do we understand by biodiversity?

Biodiversity refers to  
**the diversity of ecosystems,**  
**the diversity of organisms,**  
**and the diversity of genes**



within a species. Biodiversity is critical to the life and survival of all species – including humans.