

Water Temperature and Climate Change



Climate change as well as direct influences from settlements and agriculture lead to thermic strain on water bodies. Within a mandate from the Federal Office for the Environment (FOEN), EBP establishes a comprehensive overview of related interdependencies and options for Actions.

The topic of water bodies temperature is increasingly gaining importance. On the one hand water temperatures are increasing directly under the influence of climate change. On the other hand the need for irrigation in agriculture is increasing and the use of water bodies for cooling purposes grows. Further, population density increases and hydropower utilisation is expanded. These are all developments with impact on water temperatures.

Against this background several questions must be answered: What evolution of water temperatures is to be expected? What will be the impacts on aquatic ecology and exploitation of water bodies? Is there a need for adaptation of the legal framework or its enforcement? Which need for actions is resulting therefrom?

In a first phase of the project, EBP established a comprehensive overview of all related aspects and interdependencies, identified options for actions and classified those into eight topical fields:

- Monitoring and present state analysis
- Temperature aspects in hydraulic engineering
- Concession practices for water abstractions
- Concession practices for thermal discharges (heat or cold)
- aquatic ecology objectives definition and need for

Client

Swiss Federal Office for the Environment
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Facts

Period	2014 - 2015
Project Country	Switzerland

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knowledge

- strategy adaptation in fishery
- Temperature aspects in drinking water supply / urban water management
- Promotion for the thermal use of lakes

Information acquisition for establishing the comprehensive overview was achieved through literature on the one hand and through interviews with representatives of cantonal authorities and research institutions on the other hand. The gained information has been structured in a DPSIR model (Drivers-Pressures-States-Impacts-Responses). From the model options for actions and possible approaches in the areas of knowledge needs, legislation, enforcement and awareness raising. River waters, groundwater and lakes have been covered separately according to their own specificities.