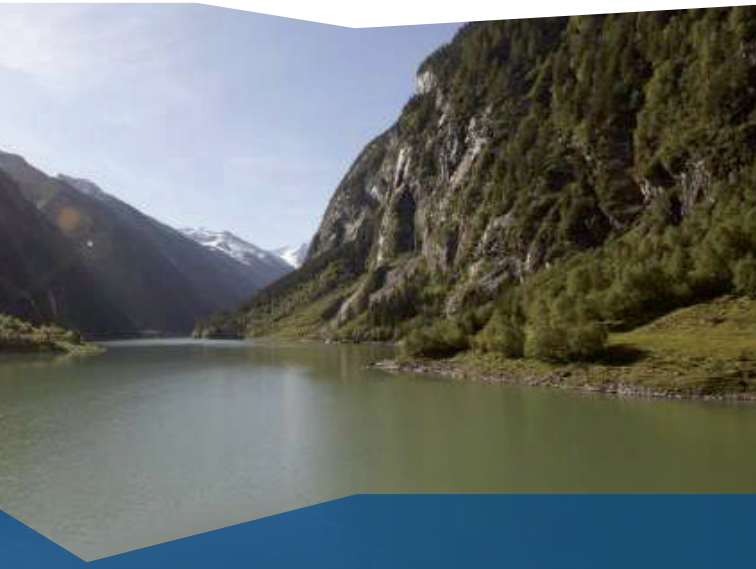
River Ecology and Environment

European Regulations | River Management | Hydropower

ENERGY IS US



vgbe Expert Event

1 and 2 June 2022

Web Conference

vgbe EXPERT EVENT

River Ecology and Environment

European Regulations | River Management | Hydropower

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WEB CONFERENCE

The international event will bring together experts from leading operators, manufacturers and suppliers, authorities, scientists as well as related stakeholders to discuss important issues in the field of ecology and environment in rivers.

Environmental protection and preservation of nature is one of the many important challenges not only for hydropower, but for society as a whole. As one of the most environmentally and climate-friendly forms of energy generation, hydropower plays an important part in the current energy system and that of the future. For this, balancing hydropower and ecology in the best possible way is a key aspect to ensure the further expansion of hydropower, while also maintaining existing plants to meet responsibilities and ameliorate the public perception. Due to the large number of influences on the fish population and the condition of the bodies of water, it is advisable to consider the entire spectrum in terms of impact and cost efficiency.

vgbe energy | Hydro Power

Essen, in March 2022

CEST	WEDNESDAY, 1 JUNE 2022
13:00	Welcome and opening of the expert event *Dr Mario Bachhiesl (vgbe energy | Hydro Power)*
	SESSION 1: European R&I on hydropower
13:30	Goals of European Hydropower R&I Funding *Dr Thomas Schleker (European Commission – DG Research & Innovation)*
14:00	Tapping hidden and sustainable hydropower in Europe: micro hydropower and hydropower modernization *Dr Emanuele Quaranta (European Commission – Joint Research Centre)*
14:30	INADAR – Innovative Approach for Dam Restoration *Tobias Kipp (LEW Wasserkraft GmbH)*
15:00	Break or visit the breakout rooms
	SESSION 2: European framework and regulation in hydropower
15:30	Suggested methods for reporting technical screening criteria for the EU Taxonomy *Atle Harby (SINTEF Energy Research)*
16:00	Experiences with the implementation of the WFD in Finland, Case river Kemijoki *Timo Torvinen (Kemijoki Oy)*
16:30	GEP in high-alpine residual flow stretches and in rivers affected by hydropeaking *Martin Schönberg (VUM Verfahren Umwelt Management GmbH), Franz Greimel (BOKU – University of Natural Resources and Life Sciences, Vienna)*
17:00	Visit the breakout rooms
17:30	Closing of the webinar

CEST	THURSDAY, 2 JUNE 2022
	SESSION 3: Sediment management strategies and approaches for operating with hydropeaking
13:00	DWA guideline on hydropeaking mitigation measures *Dr Michael Müller (IUB Engineering AG)*
13:30	Current challenges and innovative approaches in sediment management at hydropower plants *Dr Christoph Hauer (BOKU – University of Natural Resources and Life Sciences, Vienna)*
	SESSION 4: Lessons learned from fish migration and monitoring systems
14:00	Automatic counting of anguilliform fish on acoustic cameras images *Dr Eric de Olivera (EDF – R&D)*
14:30	Using fish behavioural aspects for efficient fish migration *Franz Geiger (Hycor Ecohydraulic Consulting)*
15:00	Break or visit the breakout rooms
15:30	Enabling fish migration and energy generation – first results of the new fish pass "Fishcon-lock" *Bernhard Mayrhofer (FISHCON GmbH)*
16:00	Evaluation of the silver eel escapement success by telemetry at the basin scale of the River Meuse *Damien Sonny (Profish Technology)*
16:30	Research on ecological connectivity and transfer to design guidelines for German Federal Waterways *Anne Kampker (Federal Waterways Engineering and Research Institute), Dr Nicole Scheifhacken (German Federal Institute of Hydrology)*
17:00	Closing words *Dr Mario Bachhiesl (*vgbe energy | Hydro Power)
17:05	Visit the breakout rooms
17:30	Closing of the webinar

vgbe EXPERT EVENT
RIVER ECOLOGY AND ENVIRONMENT

European Regulations | River Management | Hydropower

THE WEB CONFERENCE CONSISTS OF

- a webinar with 13 lectures and
- breakout rooms after each session with the opportunity to meet the experts.

The international event will bring together experts from leading operators, manufacturers and suppliers, authorities, scientists as well as related stakeholders to discuss important issues in the field of ecology and environment in rivers with session on:

- European R&I on hydropower
- European framework and regulation in hydropower
- Sediment management strategies and approaches for operating with hydropeaking
- Lessons learned from fish migration and monitoring systems

The web conference language is English.

WEB CONFERENCE TICKET

vgbe non-member ..... € 470.-
vgbe members ..... € 370.-
Universities ..... € 200.-

The fees of the ticket are free of VAT.

REGISTRATION

All participants of the web conference are requested to register online on the vgbe website at

https://register.vgbe.energy/32022/

Please note that the registration is binding. We will confirm your registration by sending the invoice. Please mention the company's invoice address with all other necessary data.

The following fees will be retained in the event of cancellation:
- Up to 4 weeks before the start of the event: 50 %
- Within 4 weeks before the start of the event: 100 %

Only written cancellations will be accepted.

DATA PROTECTION NOTICE & GENERAL TERMS

Data protection has a particularly high priority for the management of vgbe energy. For this reason, you can read in detail about our policy on processing your personal data in the course of registration.

More details are available on the vgbe website at https://www.vgbe.energy/en/conditions-of-participation-privacy-policy/

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SCAN ME

Have direct access to the event website: https://t1p.de/eehpp

* vgbe energy has been the new brand identity of VGB PowerTech since September 2021.

LECTURE CONTENT FROM THE SPEAKERS

Welcome and opening of the Expert Event / Current activities of vgbe energy in hydropower

Speaker: Dr Mario Bachhiesl (vgbe energy | Hydro Power)

Potential environmental issues typically associated with hydropower projects depend heavily on the size, type, operating mode and location of the plant and may include management of environmental risks and impacts, watershed management aspects, conversion of aquatic and terrestrial habitats, connectivity and fish entrainment as well as changes in-stream flow including water, sediment and aquatic biota flows. Within the vgbe energy | Hydro Power community a comprehensive and profound experience transfer takes place in committees and events. Based on practical examples participants report on how environmental solutions have been successfully implemented and how are the practical experiences in operation. Experiences and information from the view of experts are offering valuable insights for your own solutions.

SESSION 1: European R&I on Hydropower

Goals of European Hydropower R&I Funding

Speaker: Dr Thomas Schleker (European Commission – DG Research & Innovation)

After an introduction on the status of hydropower in Europe an overview of European hydropower R&I in Horizon Europe will be provided. An outlook on current challenges and opportunities for Hydropower R&I will be given.

Tapping hidden and sustainable hydropower in Europe: micro hydropower and hydropower modernization

Speaker: Dr Emanuele Quaranta (European Commission – Joint Research Centre)

In order to develop hydropower in line with environmental targets, sustainable and environment friendly solutions must be adopted. Within this context, the modernization of the existing hydropower fleet and the exploitation of existing multipurpose structures (e. g. water distribution networks and old mills) can offer a relevant potential, while generating transversal benefits, e.g. new market opportunities, R&D and social attractiveness. In this presentation, this additional potential is discussed and quantified at the European scale.

INADAR - Innovative Approach for Dam Restoration

Speaker: Tobias Kipp (LEW Wasserkraft GmbH)

The banks of most water bodies with dams today are covered with wave breakers made of concrete. They usually do not provide a noteworthy ecological habitat. The INADAR - project successfully demonstrated a new approach for dam restoration by using eco-berms. They make it possible to do the restoration respectively the elevation of the dam requested by the Directive for Flood Risk Management and the improvement of the ecological potential as demanded by the Water Framework Directive (WFD) in one work step.

SESSION 2: European framework and regulation in Hydropower

Suggested methods for reporting technical screening criteria for the EU Taxonomy

Speaker: Atle Harby (SINTEF Energy Research)

The EU Taxonomy gives screening criteria for assessing "Substantial contribution to climate change mitigation". The talk will give some recommendations together with a proposed stepwise method to meet the technical screening criteria. The conclusions are based on principles used by IPCC, international peer-reviewed literature and some considerations from the author. An overview of GHG emissions from hydropower will also be included in the talk.

Experiences with the implementation of the WFD in Finland, Case river Kemijoki

Speaker: Timo Torvinen (Kemijoki Oy)

Experiences of the classification of Heavily Modified Water Bodies in Finland and river Kemijoki in the third river basin management plan for years 2022-27. Identification of potential hydro-morphological mitigation measures and the assessment how much they improve the current status.

GEP in high-alpine residual flow stretches and in rivers affected by hydropeaking

Speakers: Martin Schönberg (VUM Verfahren Umwelt Management GmbH)
Franz Greimel (BOKU – University of Natural Resources and Life Sciences, Vienna)

The aim of the six-year project "ÖkoResch" is to further develop an assessment tool, serving as the basis for defining the Good Ecological Potential in rivers affected by hydropeaking as well as in high alpine residual flow stretches. The basic methodological approaches have already been developed in prior projects. However, more case studies and monitoring data are needed to complement and finalise the existing concepts. For high alpine residual flow stretches, experimental and field studies are conducted.

SESSION 3: Sediment management strategies and approaches for operating with hydropeaking

DWA guideline on hydropeaking mitigation measures

Speaker: Dr Michael Müller (IUB Engineering AG)

Hydropeaking refers to short-term changes in river flow caused by turning on or off hydro-turbines to generate electricity according to variations in the market demand. It modifies hydrology, hydraulic parameters, water quality, river morphology, and ultimately the fluvial ecosystem in the affected river reach. According to EU and Swiss legislation, these effects are to be reduced with suitable, ecologically effective measures. The development of such measure or combination of measures is currently discussed within a working group of DWA.

Current challenges and innovative approaches in sediment management at hydropower plants

Speaker: Dr Christoph Hauer (BOKU – University of Natural Resources and Life Sciences, Vienna)

Sustainable sediment management at hydropower plants is of great importance for both the sustainability in renewable energy production as well as the preservation and restoration of freshwater ecosystems. To overcome the economic, technical and ecological challenges, especially interdisciplinary research is required. As an example from science, a screening tool determining the sediment impact at hydropower sites will be presented.

SESSION 4: Lessons learned from fish migration and monitoring systems

Automatic counting of anguilliform fish on acoustic cameras images

Speakers: Dr Eric de Oliviera (EDF R&D)

To reduce the impact on eel's downstream migration, EDF is conducted a study (in operational conditions) based on turbine operations to enhance the escapement rate. In this context, the fish passage monitoring by acoustic camera in a river sections can help to improve and optimize turbine management, providing knowledge on eel's migration behaviour. Despite their multiple advantages, the analysis of acoustic cameras images is very time consuming and to overcome this limit, an automatic computer vision algorithm has been developed.

Using fish behavioral aspects for efficient fish migration

Speaker: Franz Geiger (Hycor Ecohydraulic Consulting)

The functioning of fish upstream and downstream migration facilities is largely influenced by fish behavioral aspects. The general facility design but also geometric and hydraulic details can be decisive for the efficiency. This is illustrated by a variety of research and monitoring results from fish investigations in laboratory installations and at HPPs. The understanding of fish behavior also enables innovative approaches for more efficient migration and management solutions.

Enabling fish migration and energy generation – first results of the new fish pass "Fishcon-lock"

Speaker: Mayrhofer Bernhard (FISHCON GmbH)

Since 2017 Fishcon developed together with the University of Natural Resources and Life Science Vienna a new fish pass, the Fishcon-lock. Examinations at two pilot installations in Austria show promising results. More than 5,000 fishes of over 30 species used the fish lock for their migration in the testing period. The experience indicates a reliable operation with low maintenance. Furthermore, the Fishcon-lock allows climate-friendly energy generation with low additional costs and has several advantages compared to conventional fish passes.

Evaluation of the silver eel escapement success by telemetry at the basin scale of the River Meuse

Speaker: Damien Sonny (Profish Technology)

The Walloneel project has been started in 2021 and basically consists in catching, tagging and tracking 150 silver eels over 3 years by telemetry along 367 km of river fragmented by 20 dams. While first eels have been detected at the estuary, most of the data are still to come and will hopefully give new insights about migration success and kinetics. The project will help to integrate the impact of the eel protection measures, usually taken at the site scale, into a basin scale view, as normally requested by EU.

Research on ecological connectivity and transfer to design guidelines for German Federal Waterways

Speakers: Anne Kampker (Federal Waterways Engineering and Research Institute)
Dr Nicole Scheifhacken (German Federal Institute of Hydrology)

Fishway construction near hydro power facilities faces challenges: space is often limited in the vicinity of hydropower dams and fishway attraction needs special attention in highly turbulent turbine tailraces. To address these topics, the German Federal Institute of Hydrology and the Federal Waterways Engineering and Research Institute set up research programs. The presentation will give an overview of methods used, ranging from hydraulic modelling to fish tests and introduce results that are currently being prepared as guidelines.