Fishfriendly Innovative Technologies for Hydropower

Resultados

Información del proyecto

FIThydro

Identificador del acuerdo de subvención:
727830

Sitio web del proyecto

DOI
10.3030/727830

Proyecto cerrado

Fecha de la firma de la CE
12 Octubre 2016

Fecha de inicio
1 Noviembre 2016

Fecha de finalización
30 Abril 2021

Financiado con arreglo a
SOCIETAL CHALLENGES - Secure, clean and efficient energy

Coste total
€ 7 171 550,16

Aportación de la UE
€ 5 888 423,91

Coordinado por
TECHNISCHE UNIVERSITAET MUENCHEN
Germany

CORDIS proporciona enlaces a los documentos públicos y las publicaciones de los proyectos de los programas marco HORIZONTE.

Los enlaces a los documentos y las publicaciones de los proyectos del Séptimo Programa Marco, así como los enlaces a algunos tipos de resultados específicos, como conjuntos de datos y «software», se obtienen dinámicamente de OpenAIRE.

Resultado final

Documents, reports (23)

Third phase and final progress report
This deliverable will be an internal report on the progress of the project during the final period.

Functional application matrix for identification of potential combinations of improvements measures
A decision matrix for assessing alternative mitigation measures for each identified bottleneck will be developed and included in the guidance handbook of D4.1

Project Management Plan Second Revision
Based on the WBS and Gantt chart developed in D7.1 the revision will check consistency and stage and quality of the implementation of the actions during the second period. If necessary some things will be adapted.

A List of solutions, models, tools and devices, their application range on a regional and overall level, the identified knowledge gaps and the recommendations to fill these
Report and compilation of the test cases issued from the different regions. Identification of the missing data and gaps. Definitions of recommendations region by region.

Guidelines for fish behaviour assessment at HPPs
Set of procedures for assessing behaviour of fish downstream of HPP under hydropeaking regimes, for different European regions and for different habitat conditions

Review of policy requirements & financing instruments
Report on the key legal requirements for environmental improvements to existing and new hydropower projects based on EU and national policies for selected research test cases The report will also review financing instruments and subsidies to fund ecologically compatible hydropower production in selected research test cases

A cost effectiveness matrix for the selected case study rivers and a similar matrix for potential new hydro power schemes of different characteristics
The matrix and tools delivered in D4.1 and D4.2 will be applied to Test Cases and reported in article and reports. A popular-science summary will be made in a Technical Brief.

Press release for dissemination
A press release will inform the public on the progress and actual state of research and results of the project This aims mainly at the general public

Plan for dissemination and exploitation of the project's results

Based on the first results of the intermediate exploitation plan (D6.4) this deliverable will finalise the tasks to prepare the common annotated template for the exploitation plans, and complete one template for each innovative solution developed beyond TRL6 within FIThydro as described in D6.4.

Overview of relevant information on cost/effectiveness in regard implemented and possible measures to maintain or improve sustainability of fish population in the selected case studies

A report and a database with systematic background information from the Test Cases will be made, including cost/effectiveness for each potential measure

General cost figures for relevant solution, methods and tools

A set of cost-effectiveness measures and cost estimates will be provided at different levels for various solutions and combinations.

General strategies to optimize production under given environmental restrictions or measures that influences production schedules

Adapting and running power production planning models with alternative environmental restrictions, documenting the results in peer-reviewed article and report.

Second phase progress report

This deliverable will be an internal report on the progress of the project during the second period.

Intermediate Exploitation plan documents

This deliverable refers to (1) the preparation of a common annotated draft for a template for the exploitation plans, and (2) the draft of one template for each innovative solution developed beyond TRL6 within FIThydro. WP5 partners will prepare the common template and the product developers (i.e. FIThydro partners developing the innovative solutions) will fill it in for their individual solutions with guidance from WP5.

Decision support system integrating technical solutions and guidelines from WP2 and 3, cost-effectiveness from WP4 and social/political aspects from WP5

Because of the potential high levels of impact of hydropower schemes, there is a need to develop a robust decision support system that is easy for developers to use but also maintains a high level of environmental protection. This task will develop such a protocol based on a risk assessment framework.

Stakeholder feedback on tools and products of FIThydro

Report on the conclusions of the 4 regional workshops where stakeholders will be consulted on the planning, implementation and use of technological options for ecologically compatible hydropower production in Year 1. Another report will be

produced on the conclusions of the European workshop with stakeholders to take place in Year 3.

A classification system for methods, tools and measures for improvements measures

Guidance in the format of a handbook describing methods, tools and measures from WP1-3 will be developed

Public acceptance of alternative hydropower solutions

Report on the results of the social acceptance analysis aiming to identify the perceptions and preferences of the wider public vis-à-vis the construction or conversion of hydropower plants in the four case study regions.

Project Management Plan First Revision

Based on the WBS and Gantt chart developed in D71 the revision will check consistency and stage and quality of the implementation of the actions during the first period If necessary some things will be adapted

Enhancing and customizing technical solutions for fish migration

Design guideline for innovative fish guidance structures with horizontal and vertical bars for various size of HPPs and a range of fish species.

Working basis of solutions, models, tools and devices and identification of their application range on a regional and overall level to attain self-sustained fish populations

Report of solutions based on the analysis of the present solutions and the potential solutions. Definition of tools and devices which could be test in the WP3 in collaboration with the providers of the different regions.

Guidelines for mortality modelling

The concept of the Modelling Software Program BioPA will be adapted to European standards and fish species. This will be done mainly with Voith, which is highly involved in this issue.

Metadata overview on fish response to hydropower

Report and compilation of life history traits of European lampreys and fishes relevant to hydropower / hydropower environments. Based on that a referenced table will be developed classifying European fishes and lampreys according to their autecological threats

Websites, patent fillings, videos etc. (2)

A set of general applicable effectiveness measures for solutions, methods and tools implemented to improve fish sustainability in regulated rivers and a cost/effectiveness matrix for a set of combined

solutions, methods and tools

Based on D4.1, D4.2 and D4.3 a web-based tool showing the matrix of combined solutions, methods and tools to achieve improved fish sustainability will be developed

Website

This deliverable fullfills two functions, the internal and the external. It will be used as an internal platform to inform about the very actual status which can not yet be seen as a result on its own. For the external use it will be a platform to spread information about any kind of event related to the project, new publications of the project and general ongoing activities.

Other (12)

Development of a Corporate identity

This task aims to the development of a corporate identity for the project to strengthen the identification of all partners with the group and the aims of the project. On the other hand it shall make the project more visible and therefore support the dissemination and exploitation activities.

Fish Population Hazard Index

This deliverable develops a referenced, index-based assessment scheme for fish hazards at hydropower including an application guideline

Planning and organization of the different board meetings

The different meetings for GA, SC and CSMB have to be organized following the schedule given in chapter 3.2. Each year one GA meeting is taking part in one of the regions, where the region leader will be the main organizer with strong support of the PO.

Risk classification of European lampreys and fish species

Report and compilation of construction- and operation-related impacts from hydropower on fish populations

Cumulative Impact Assessment

To comply with relevant environmental legislation it may be necessary to consider the potential for environmental impact caused by multiple schemes within catchments. This task will provide evidence based guidance on assessment of, and management strategies for, the potential for cumulative effects from hydropower developments.

Publication and press release for exploitation and dissemination

Again a press release will be published containing information for the broader public concerning the project and its results. In addition a publication will be released to enhance the visibility of the projects results in the research community.

Communication & Dissemination Strategy

In strong interaction with D6.4 a strategy will be developed concerning the different ways of communication. This means the communication of the projects aims and results in the best and most effective ways but also intervals to communicate.

Stakeholder event for dissemination

This event is meant to infom the stakeholder about the projects contents and progress. It will also support Subtask 5.2b to get feedback on the public acceptance.

Set-up of a data and file sharing platform

The data and file sharing platform will be used first for the internal exchange between the partners. Later on the data will be made available to the public, following the OA strategy of EU.

Communication Strategy among the partners

A strategy is defined and implemented how to communicate in the most effective way among the partners to ensure a detailed exchange of information but avoid spreading too many information which are useless for special groups of partners. The strategy needs to be implemented for communication between Management, WP Leaders and Partners as well as between the partners directly.

Project Management Plan

This deliverable develops a detailed Gantt chart for the whole project as well as a Work Breakdown Structure (WBS) which includes a schedule for each task, the responsible partners related to each subtasks, related deliverables, and dependencies on other tasks. This includes also planning and organization of the different board meetings.

First phase progress report

This deliverable will be an internal report on the progress of the project during the first period.

Publicaciones

Other (13)

Vijzels en vissen
Autores: Pauwels, I.S., Baeyens, R., Coeck, J. & De Laak, G.
Publicado en: Visionair, Edición Visionair 57; September 2020, 2020, Página(s) 24-27
Editor: Sportvisserij Nederland

SUMMARY REPORT: European Stakeholder Workshop on Fish-Friendly Hydropower, 28 – 29 January 2020, Brussels
Autores: Eleftheria Kampa, Lea Berg & Hany Abo El Wafa
Publicado en: 2020
Editor: Ecologic Institute

The eflows methodology
Autores: A. Harby, L. David
Publicado en: 2nd Regional Stakeholder Workshop – Iberian Peninsula. 20 mars 2018, Lisbon Portugal, 2018
Editor: A. Pinheiro

Solutions for downstream migration
Autores: L. David, I. Albayrak & D. Courret
Publicado en: 2nd Regional Stakeholder Workshop – Iberian Peninsula, 2018
Editor: A. Pinheiro

Sediment transport
Autores: L. David, S. Jarny, I. Albayrak & N. Ruther
Publicado en: First Regional Stakeholder Workshop – France & Belgium, 2018
Editor: L. David & J. Coek

Solutions pour assurer le passage sécuritaire des poissons au niveau des installations hydroélectriques
Autores: P. Sagnes
Publicado en: First Regional Stakeholder Workshop – France & Belgium, 2018
Editor: L. David & J. Coek

1st Regional Stakeholder Workshop – France & Belgium
Autores: M. Dewitte, E. Kampa, J. Coek, L. David
Publicado en: Workshop, 2018
Editor: L. David & J. Coek

Fishfriendly Innovative Technologies for hydropower (FIThydro) Swiss case studies HPP Bannwil & HPP Schiffmühle

Autores: J. Meister, C. Beck, H. Fuchs, I. Albayrak, R. Boes
Publicado en: "7. Workshop des Forums ""Fischschutz und Fischabstieg""", 2018
Editor: Laboratory of Hydraulics, Hydrology and Glaciology (VAW); ETH Zürich
DOI: 10.3929/ethz-b-000259524

Downstream fish guidance systems for large run-of-river hydropower plants
Autores: C. Beck, I. Albayrak, R. Boes
Publicado en: "7. Workshop des Forums ""Fischschutz und Fischabstieg""", 2018
Editor: R. Boes

Downstream fish guidance systems with horizontal bars
Autores: J. Meister, H. Fuchs, I. Albayrak, R. Boes
Publicado en: "7. Workshop des Forums ""Fischschutz und Fischabstieg""", 2018
Editor: Prof. Boes

Policy Brief: Fish-friendly Innovative Technologies for Hydropower: Key outputs from the FIThydro project
Autores: Editors: Eleftheria Kampa (EI) & Lea Berg (TUM) Contributing authors: Ismail Albayrak (ETHZ), Robert Boes (ETHZ), Laurent David (CNRS), Ian Cowx (UHULL), Atle Harby (SER), Mandy Hinzmann (EI), Eleftheria Kampa (EI), Richard Noble (UHULL), Antonio Pinheiro (IST-ID), Peter Rutschmann (TUM), Christian Wolter (FVB.IGB)
Publicado en: 2020
Editor: Ecologic Institute, TUM

Wikiside for miljøkraft
Autores: Atle Abelsen and Bendik Hansen
Publicado en: Energiteknikk (https://energiteknikk.net/), 2020, ISSN 1890-9957
Editor: ElektroMedia AS

FIThydro Market Conditions Brief. Scoping the market for fish-friendly hydropower technologies: recent developments, future expectations
Autores: Hugh McDonald, Gerardo Anzaldua
Publicado en: 2020
Editor: Ecologic Institute

Peer reviewed articles (41)

Evaluating Cost Trade-Offs between Hydropower and Fish Passage Mitigation

Autores: Terese E. Venus, Nicole Smialek, Joachim Pander, Atle Harby, Juergen Geist
Publicado en: Sustainability, Edición 12/20, 2020, Página(s) 8520, ISSN 2071-1050
Editor: MDPI Open Access Publishing
DOI: 10.3390/su12208520

Fishways as Downstream Routes in Small Hydropower Plants: Experiences with a Potamodromous Cyprinid

Autores: Francisco Javier Sanz-Ronda, Juan Francisco Fuentes-Pérez, Ana García-Vega, Francisco Javier Bravo-Córdoba
Publicado en: Water, Edición 13/8, 2021, Página(s) 1041, ISSN 2073-4441
Editor: Multidisciplinary Digital Publishing Institute (MDPI)
DOI: 10.3390/w13081041

Habitat Enhancement Solutions for Iberian Cyprinids Affected by Hydropeaking: Insights from Flume Research

Autores: Maria João Costa, António N. Pinheiro, Isabel Boavida
Publicado en: Sustainability, Edición 11/24, 2019, Página(s) 6998, ISSN 2071-1050
Editor: MDPI Open Access Publishing
DOI: 10.3390/su11246998

Multi-Species Assessment of Injury, Mortality, and Physical Conditions during Downstream Passage through a Large Archimedes Hydrodynamic Screw (Albert Canal, Belgium)

Autores: Ine S. Pauwels, Raf Baeyens, Gert Toming, Matthias Schneider, David Buysse, Johan Coeck, Jeffrey A. Tuhtan
Publicado en: Sustainability, Edición 12/20, 2020, Página(s) 8722, ISSN 2071-1050
Editor: MDPI Open Access Publishing
DOI: 10.3390/su12208722

Habitat Use by Pseudochondrostoma duriense and Squalius carolitertii Downstream of a Small-Scale Hydropower Plant

Autores: Isabel Boavida, Filipa Ambrósio, Maria João Costa, Ana Quaresma, Maria Manuela Portela, António Pinheiro, Francisco Godinho
Publicado en: Water, Edición 12/9, 2020, Página(s) 2522, ISSN 2073-4441
Editor: Multidisciplinary Digital Publishing Institute (MDPI)
DOI: 10.3390/w12092522

Swimming Behavior of Downstream Moving Fish at Innovative Curved-Bar Rack Bypass Systems for Fish Protection at Water Intakes

Autores: Beck, Claudia; Albayrak, Ismail; Meister, Julian; Peter, Armin; Selz, Oliver M.; Leuch, Claudia; Vetsch, David F.; Boes, Robert M.

Publicado en: Water, Edición 12 (11), 2019, Página(s) 3244, ISSN 2073-4441
Editor: Multidisciplinary Digital Publishing Institute (MDPI)
DOI: 10.3390/w12113244

Acoustic positioning in a reflective environment: going beyond point-by-point algorithms
Autores: Jenna Vergeynst, Thomas Vanwyck, Raf Baeyens, Tom De Mulder, Ingmar Nopens, Ans Mouton, Ine Pauwels
Publicado en: Animal Biotelemetry, Edición 8/1, 2020, ISSN 2050-3385
Editor: Animal Biotelemetry
DOI: 10.1186/s40317-020-00203-1

Influence of operation modes and fish behavior on fish passage through turbines
Autores: U Stoltz, F Geiger, J A Tuhtan
Publicado en: IOP Conference Series: Earth and Environmental Science, Edición 774/1, 2021, Página(s) 012125, ISSN 1755-1307
Editor: IOP Publishing Ltd
DOI: 10.1088/1755-1315/774/1/012125

Cover or Velocity: What Triggers Iberian Barbel (Luciobarbus Bocagei) Refuge Selection under Experimental Hydropeaking Conditions?
Autores: Miguel Moreira, Maria João Costa, Jorge Valbuena-Castro, António N. Pinheiro, Isabel Boavida
Publicado en: Water, Edición 12/2, 2020, Página(s) 317, ISSN 2073-4441
Editor: Multidisciplinary Digital Publishing Institute (MDPI)
DOI: 10.3390/w12020317

Shipping canals on the downstream migration route of European eel (Anguilla anguilla): Opportunity or bottleneck?
Autores: Jenna Vergeynst, Ine Pauwels, Raf Baeyens, Ans Mouton, Tom De Mulder, Ingmar Nopens
Publicado en: Ecology of Freshwater Fish, 2020, ISSN 0906-6691
Editor: Blackwell Publishing Inc.
DOI: 10.1111/eff.12565

FIThydro – neue Ansätze und Bewertungen für das Sedimentmanagement als Bestandteil der Betriebsstrategie an Wasserkraftanlagen
Autores: Kordula Schwarzwälder, Hany Abo-El-Wafa und Peter Rutschmann
Publicado en: WASSERWIRTSCHAFT Technik - Forschung - Praxis, Edición 12, 2017, Página(s) 65-68, ISSN 0043-0978
Editor: Vieweg

FITHydro-Projekt untersucht Auswirkungen von Wasserkraft auf die Fließgewässerökologie
Autores: Kordula Schwarzwälder, Hany Abo-El-Wafa und Peter Rutschmann
Publicado en: WASSERWIRTSCHAFT Technik - Forschung - Praxis, Edición

6, 2017, Página(s) 62-63, ISSN 0043-0978
Editor: Vieweg

3D modelling of non-uniform and turbulent flow in vertical slot fishways
Autores: J.F. Fuentes-Pérez, A.T. Silva, J.A. Tuhtan, A. García-Vega, R. Carbonell-Baeza, M. Musall, M. Kruusmaa
Publicado en: Environmental Modelling & Software, Edición 99, 2018, Página(s) 156-169, ISSN 1364-8152
Editor: Elsevier BV
DOI: 10.1016/j.envsoft.2017.09.011

Man-made flows from a fish's perspective: autonomous classification of turbulent fishway flows with field data collected using an artificial lateral line
Autores: Jeffrey Andrew Tuhtan, Juan Francisco Fuentes-Perez, Gert Toming, Matthias Schneider, Richard Schwarzenberger, Martin Schletterer, Maarja Kruusmaa
Publicado en: Bioinspiration & Biomimetics, 2018, ISSN 1748-3182
Editor: Institute of Physics Publishing
DOI: 10.1088/1748-3190/aabc79

Ein Fisch ist kein Punkt: Analyse von Strömungssignaturen in Fischaufstiegsanlagen mit einem Seitenlinien Sensor
Autores: Jeffrey A. Tuhtan, Juan Fran Fuentes-Perez, Gert Toming, Matthias Schneider, Martin Schletterer
Publicado en: WASSERWIRTSCHAFT, Edición 108/2-3, 2018, Página(s) 48-53, ISSN 0043-0978
Editor: Vieweg
DOI: 10.1007/s35147-018-0015-1

Do artificial velocity refuges mitigate the physiological and behavioural consequences of hydropeaking on a freshwater Iberian cyprinid?
Autores: M.J. Costa, I. Boavida, V. Almeida, S.J. Cooke, A. Pinheiro
Publicado en: Ecohydrology, 2018, Página(s) e1983, ISSN 1936-0584
Editor: Wiley Subscription Services
DOI: 10.1002/eco.1983

Influencia de factores ambientales y biométricos en la capacidad de nado del barbo ibérico (Luciobarbus bocagei Steindachner, 1864), un ciprínido potamódromo endémico de la Península Ibérica.
Autores: Ruiz-Legazpi J., Sanz-Ronda F. J., Bravo-Córdoba F. J., Fuentes-Pérez J. F., Castro-Santos T.
Publicado en: Limnetica, Edición 37 (2), 2018, Página(s) 251-265, ISSN 0213-8409

Editor: Associacion Espanola de Limnologia
DOI: 10.23818/limn.37.21

Vertical slot versus submerged notch with bottom orifice: Looking for the best technical fishway type for Mediterranean barbels

Autores: Francisco Javier Bravo-Córdoba, Francisco Javier Sanz-Ronda, Jorge Ruiz-Legazpi, Jorge Valbuena-Castro, Sergio Makrakis
Publicado en: Ecological Engineering, Edición 122, 2018, Página(s) 120-125, ISSN 0925-8574
Editor: Elsevier BV
DOI: 10.1016/j.ecoleng.2018.07.019

Le projet FIThydro : une initiative européenne pour une hydroélectricité durable et respectueuse des poissons

Autores: Manon Dewitte, Laurent David, Eleftheria Kampa, Yohann Coeck
Publicado en: La Houille Blanche, Edición 4, 2018, Página(s) 77-79, ISSN 0018-6368
Editor: Societe Hydrotechnique de France
DOI: 10.1051/lhb/2018045

Field measurements of the attractivity of bypasses for fishfriendly trashrack

Autores: Fatma Lemkecher, Laurent David, Dominique Courret, Ludovic Chatellier
Publicado en: E3S Web of Conferences, Edición 40, 2018, Página(s) 03039, ISSN 2267-1242
Editor: EDP Sciences
DOI: 10.1051/e3sconf/20184003039

Ecologically-based criteria for hydropeaking mitigation: A review

Autores: Miguel Moreira, Daniel S. Hayes, Isabel Boavida, Martin Schletterer, Stefan Schmutz, António Pinheiro
Publicado en: Science of The Total Environment, Edición 657, 2019, Página(s) 1508-1522, ISSN 0048-9697
Editor: Elsevier BV
DOI: 10.1016/j.scitotenv.2018.12.107

Fish under pressure: Examining behavioural responses of Iberian barbel under simulated hydropeaking with instream structures

Autores: M. J. Costa, J. F. Fuentes-Pérez, I. Boavida, J. A. Tuhtan, A. N. Pinheiro
Publicado en: PLOS ONE, Edición 14/1, 2019, Página(s) e0211115, ISSN 1932-6203
Editor: Public Library of Science
DOI: 10.1371/journal.pone.0211115

Protecting efficiently sea-migrating salmon smolts from entering hydropower plant turbines with inclined or oriented low bar spacing racks

Autores: Sylvie Tomanova, Dominique Courret, Alain Alric, Eric De Oliveira, Thierry Lagarrigue, Stéphane Tétard
Publicado en: Ecological Engineering, Edición 122, 2018, Página(s) 143-152, ISSN 0925-8574
Editor: Elsevier BV
DOI: 10.1016/j.ecoleng.2018.07.034

Do We Know Enough to Save European Riverine Fish?—A Systematic Review on Autecological Requirements During Critical Life Stages of 10 Rheophilic Species at Risk

Autores: Nicole Smialek, Joachim Pander, Melanie Mueller, Ruben van Treeck, Christian Wolter, Juergen Geist
Publicado en: Sustainability, Edición 11/18, 2019, Página(s) 5011, ISSN 2071-1050
Editor: MDPI Open Access Publishing
DOI: 10.3390/su11185011

The Contribution of Different Restored Habitats to Fish Diversity and Population Development in a Highly Modified River: A Case Study from the River Günz

Autores: Joachim Pander, Juergen Geist
Publicado en: Water, Edición 10/9, 2018, Página(s) 1202, ISSN 2073-4441
Editor: Multidisciplinary Digital Publishing Institute (MDPI)
DOI: 10.3390/w10091202

The impact of intermediate-head navigation locks on downstream fish passage

Autores: Jenna Vergeynst, Ine Pauwels, Raf Baeyens, Johan Coeck, Ingmar Nopens, Tom De Mulder, Ans Mouton
Publicado en: River Research and Applications, Edición 35/3, 2019, Página(s) 224-235, ISSN 1535-1459
Editor: John Wiley & Sons Inc.
DOI: 10.1002/rra.3403

Fish species sensitivity classification for environmental impact assessment, conservation and restoration planning

Autores: Ruben van Treeck, Jeroen Van Wichelen, Christian Wolter
Publicado en: Science of The Total Environment, 2019, Página(s) 135173, ISSN 0048-9697
Editor: Elsevier BV
DOI: 10.1016/j.scitotenv.2019.135173

Upstream passage of adult sea trout (Salmo trutta) at a low-head weir with an Archimedean screw hydropower turbine and co-located fish pass

Autores: Jamie R. Dodd, Jonathan D. Bolland, Jon Hateley, Ian G. Cowx, Sam E. Walton, Marco E. G. V. Cattaneo, Richard A. A. Noble
Publicado en: Marine and Freshwater Research, Edición 69/12, 2018, Página(s) 1822, ISSN 1323-1650
Editor: Commonwealth Scientific and Industrial Research Organization Publishing
DOI: 10.1071/mf18125

Comment on “Experimental hydraulics on fish-friendly trash-racks: An ecological approach” (M. Szabo-Meszaros, C.U. Navaratnam, J. Aberle, A.T. Silva, T. Forseth, O. Calles, H.-P. Fjeldstad, K. Alfredsen, Ecol. Eng., 113, 2018, 11–20)
Autores: Claudia Beck, Julian Meister, Helge Fuchs, Ismail Albayrak, Robert M. Boes
Publicado en: Ecological Engineering, Edición 130, 2019, Página(s) 196-197, ISSN 0925-8574
Editor: Elsevier BV
DOI: 10.1016/j.ecoleng.2019.02.013

Contribution of Different Elements of Inclined Trash Racks to Head Losses Modeling
Autores: Fatma Lemkecher, Ludovic Chatellier, Dominique Courret, Laurent David
Publicado en: Water, Edición 12/4, 2020, Página(s) 966, ISSN 2073-4441
Editor: Multidisciplinary Digital Publishing Institute (MDPI)
DOI: 10.3390/w12040966

Velocity Fields at Horizontal Bar Racks as Fish Guidance Structures
Autores: Julian Meister, Helge Fuchs, Claudia Beck, Ismail Albayrak, Robert M. Boes
Publicado en: Water, Edición 12/1, 2020, Página(s) 280, ISSN 2073-4441
Editor: Multidisciplinary Digital Publishing Institute (MDPI)
DOI: 10.3390/w12010280

Hydraulic performance of fish guidance structures with curved bars – Part 2: flow fields
Autores: Claudia Beck, Ismail Albayrak, Julian Meister, Robert M. Boes
Publicado en: Journal of Hydraulic Research, 2019, Página(s) 1-12, ISSN 0022-1686
Editor: International Association Of Hydraulic Engineering and Research
DOI: 10.1080/00221686.2019.1671516

Hydraulic performance of fish guidance structures with curved bars – Part 1: head loss assessment
Autores: Claudia Beck, Ismail Albayrak, Julian Meister, Robert M. Boes
Publicado en: Journal of Hydraulic Research, 2019, Página(s) 1-12, ISSN 0022-1686

Editor: International Association Of Hydraulic Engineering and Research
DOI: 10.1080/00221686.2019.1671515

Head Losses of Horizontal Bar Racks as Fish Guidance Structures
Autores: Julian Meister, Helge Fuchs, Claudia Beck, Ismail Albayrak, Robert M. Boes
Publicado en: Water, Edición 12/2, 2020, Página(s) 475, ISSN 2073-4441
Editor: Multidisciplinary Digital Publishing Institute (MDPI)
DOI: 10.3390/w12020475

Experimental study of fish-friendly angled bar racks with horizontal bars
Autores: Fatma Lemkecher, Ludovic Chatellier, Dominique Courret, Laurent David
Publicado en: Journal of Hydraulic Research, 2021, Página(s) 1-12, ISSN 0022-1686
Editor: International Association Of Hydraulic Engineering and Research
DOI: 10.1080/00221686.2021.1903587

New insights into hydropeaking mitigation assessment from a diversion hydropower plant: The GKI project (Tyrol, Austria)
Autores: Miguel Moreira, Martin Schletterer, Ana Quaresma, Isabel Boavida, António Pinheiro
Publicado en: Ecological Engineering, Edición 158, 2020, Página(s) 106035, ISSN 0925-8574
Editor: Elsevier BV
DOI: 10.1016/j.ecoleng.2020.106035

Turning Pools in Stepped Fishways: Biological Assessment via Fish Response and CFD Models
Autores: Francisco Javier Bravo-Córdoba, Juan Francisco Fuentes-Pérez, Jorge Valbuena-Castro, Andrés Martínez de Azagra-Paredes, Francisco Javier Sanz-Ronda
Publicado en: Water, Edición 13/9, 2021, Página(s) 1186, ISSN 2073-4441
Editor: Multidisciplinary Digital Publishing Institute (MDPI)
DOI: 10.3390/w13091186

The public's perception of run-of-the-river hydropower across Europe
Autores: Terese E. Venus, Mandy Hinzmann, Tor Haakon Bakken, Holger Gerdes, Francisco Nunes Godinho, Bendik Hansen, António Pinheiro, Johannes Sauer
Publicado en: Energy Policy, Edición 140, 2020, Página(s) 111422, ISSN 0301-4215
Editor: Pergamon Press Ltd.
DOI: 10.1016/j.enpol.2020.111422

Editorial: Green or red: Challenges for fish and freshwater biodiversity conservation related to hydropower

Autores: Juergen Geist
Publicado en: Aquatic Conservation: Marine and Freshwater Ecosystems, 2021, ISSN 1052-7613
Editor: John Wiley & Sons Inc.
DOI: 10.1002/aqc.3597

Ecohydraulics of river flow alterations and impacts on freshwater fish

Autores: Boavida, Isabel; Díaz-Redondo, Maria; Fuentes-Pérez, Juan F.; Hayes, Daniel S.; Jesus, Joaquim; Moreira, Miguel; Belmar, Oscar; Vila-Martínez, Núria; Palau-Nadal, Antoni; Costa, Maria João
Publicado en: Limnetica, Edición 39(1), 2020, Página(s) 213-232, ISSN 0213-8409
Editor: Associacion Espanola de Limnologia
DOI: 10.23818/limn.39.14

Sneaker, Dweller and Commuter: Evaluating Fish Behavior in Net-Based Monitoring at Hydropower Plants—A Case Study on Brown Trout (Salmo trutta)

Autores: Nicole Smialek, Joachim Pander, Arne Heinrich, Jürgen Geist
Publicado en: Sustainability, Edición 13, 2021, ISSN 2071-1050
Editor: MDPI Open Access Publishing
DOI: 10.3390/su13020669

Conference proceedings (15)

Experimental results and modelling of pressure loss generated by flexible structures placed in a turbulent flow

Autores: T. Larrieu, G. Pineau, D. Calluaud., L. David
Publicado en: Riverflow 2020, 2020
Editor: Riverflow 2020

Le projet FIThydro : comment concilier contraintes environnementales et production hydroélectrique

Autores: Laurent David
Publicado en: 12ième Rencontres France-Hydro électricité, 2020
Editor: France-Hydro électricité

Influence of macro-roughnesses on vertical slot fishways

Autores: A. Ballu, G. Pineau, D. Calluaud, L. David
Publicado en: 7th International Symposium on Hydraulic Structures, 2018
Editor: IAHR
DOI: 10.15142/t39s7q

Fischleitrechen mit horizontalen Stabelementen
Autores: Julian Meister
Publicado en: 19. Treffen junger WissenschaftlerInnen deutschsprachiger Wasserbauinstitute, 2017, Página(s) 37-40
Editor: Mitteilungen des Forschungsinstituts Wasser und Umwelt der Universität Siegen

Downstream Fish Passage Technologies for Medium-To-Large Hydropower Plants: Part II
Autores: Ismail Albayrak, Claudia Beck, Carl R. Kriewitz-Byun, Andreas Doessegger, Robert M. Boes
Publicado en: Hydro Energy & Sustainability Conference (HydroES 2019), Grenoble, France, January 29-30 , 2019, 2019
Editor: SHF (Société Hydrotechnique de France)
DOI: 10.3929/ethz-b-000341761

Horizontal Bar Rack Bypass Systems for Fish Downstream Migration: State of Knowledge, Limitations, and Gaps
Autores: Julian Meister, Helge Fuchs, Ismail Albayrak, Robert M. Boes
Publicado en: 12th International Symposium on Ecohydraulics (ISE 2018), Tokyo, Japan, August 19-24, 2018, 2018
Editor: IAHR
DOI: 10.3929/ethz-b-000305990

Research Overview on Multi-Species Downstream Migration Measures at the Fithydro Test Case HPP Bannwil
Autores: Carl R. Kriewitz-Byun, Jeffrey A. Tuthan, Toming Gert, Ismail Albayrak, Stephan Kammerer, David Floria Vetsch, Armin Peter, Ulli Stoltz, Walter Gabl, Daniel Marbacher
Publicado en: 12th International Symposium on Ecohydraulics (ISE 2018), Tokyo, Japan, August 19-24, 2018, 2018
Editor: IAHR
DOI: 10.3929/ethz-b-000308171

Improved Hydraulic Performance of Fish Guidance Structures with Innovative Bar Design
Autores: Claudia Beck, Ismail Albayrak, Robert M. Boes
Publicado en: 12th International Symposium on Ecohydraulics (ISE 2018), Tokyo, Japan, August 19-24, 2018, 2018
Editor: IAHR
DOI: 10.3929/ethz-b-000289463

Downstream fish passage technologies for SMALL-to-MEDIUM hydropower plants: Part I.
Autores: L. David, F. Lemkecher, L. Chatellier, M. Dewitte, D. Courret, A. Doessegger

Publicado en: HydroES Conference, 2019
Editor: SHF

Bed-Load Diversion with a Vortex Tube System
Autores: Cristina Rachelly, Ismail Albayrak, Robert M. Boes, Volker Weitbrecht
Publicado en: 38th International Association for Hydro-Environmental Engineering and Research World Congress (IAHR 2019), Panama City, Panama, September 1-6, 2019, 2019
Editor: IAHR
DOI: 10.3929/ethz-b-000370865

Downstream fish passage at hydropower plants by means of fish guidance structures
Autores: Ismail Albayrak, Claudia Beck, Julian Meister, Helge Fuchs, Robert M. Boes
Publicado en: Hydro 2018: Progress through Partnerships – Hydropower & Dams, Gdansk, Poland, Edición October 15-17, 2018, 2018, Página(s) paper 14.03
Editor: Aqua~Media International Ltd
DOI: 10.3929/ethz-b-000308117

Hydraulic and fish-biological performance of fish guidance structures with curved bars
Autores: Claudia Beck
Publicado en: 38th International Association for Hydro-Environmental Engineering and Research World Congress (IAHR 2019), Panama City, Panama, Edición September 1-6, 2019, 2019
Editor: IAHR
DOI: 10.3929/ethz-b-000371526

Hydraulics of horizontal bar racks for fish downstream migration
Autores: Julian Meister, Helge Fuchs, Ismail Albayrak, Robert M. Boes
Publicado en: 38th International Association for Hydro-Environmental Engineering and Research World Congress (IAHR 2019), Panama City, Panama, Edición September 1-6, 2019, 2019
Editor: IAHR
DOI: 10.3929/ethz-b-000371033

A framework to identify cost-effective mitigation measures using Bayesian Networks
Autores: Ana Adeva-Bustos, Manon Dewitte, Terese Rutkowski and Atle Harby
Publicado en: 6th biennial Symposium of the International Society for River Science, 2019, Página(s) 182
Editor: 6th biennial Symposium of the International Society for River Science

Airborne Image Velocimetry Measurements at the Hydropower Plant Schiffmühle on Limmat River, Switzerland

Autores: Martin Detert, Liekai Cao, Ismail Albayrak,
Publicado en: the 2nd International Symposium and Exhibition on Hydro-Environment Sensors and Software, HydroSenSoft, Edición 2019, 2019, Página(s) 211-217
Editor: IAHR
DOI: 10.3929/ethz-b-000341626

Non-peer reviewed articles (2)

The EU-Horizon 2020 FIThydo project
Autores: Peter Rutschmann; Hany Abo-El-Wafa
Publicado en: The international Journal on Hydropower and Dams, 2021, ISSN 1352-2523
Editor: Aqua Media International Ltd.

INNOVATIVE SOLUTIONS AND NEW TOOLS FOR FISH-FRIENDLY HYDROPOWER
Autores: ATLE HARBY, LEA BERG AND PETER RUTSCHMANN
Publicado en: Hydrolink, Edición Number 3, 2020, 2020, Página(s) 86-89, ISSN 1388-3445
Editor: IAHR International Association for Hydro-Environment Engineering and Research

Thesis and dissertations (6)

Fish protection and fish guidance at water intakes using innovative curved-bar rack bypass systems
Autores: Clauida Beck
Publicado en: 2020
Editor: ETH Zurich
DOI: 10.3929/ethz-b-000439606

Bewertung des Fischdurchgangs europäischerFischarten durch Turbinen unter Berücksichtigung von Fischbewegung
Autores: Nils Schuhmacher
Publicado en: 2019
Editor: RWTH Aachen

Investigation of the fish passage through Bulb Turbines by means of flow simulation
Autores: Sarah Jäger
Publicado en: Hochschule Ulm, 2018

Editor: Voith

Effects of hydropeaking and refuge configurations on the behaviour of cyprinids in experimental flume conditions
Autores: Costa, Maria João Ferreira Rodrigues
Publicado en: Edición 3, 2019
Editor: ISA

Fish protection and guidance at water intakes with horizontal bar rack bypass systems
Autores: Julian Meister
Publicado en: 2020
Editor: ETH Zurich
DOI: 10.3929/ethz-b-000479090

Étude des grilles de prises d'eau ichtyocompatibles
Autores: Fatma Lemkecher
Publicado en: 2020
Editor: Université de Poitiers

Conjuntos de datos

Conjuntos de datos vía OpenAIRE (2)

Hydraulic data for downstream area of the Altusried hydropower plant
Autores: Kopecki, Ianina; Schneider, Matthias
Publicado en: sje Ecohydraulic Engineering GmbH

Fine-scale fish telemetry at the Altusried hydropower plant
Autores: Pauwels, Ine; Baeyens, Raf; Vergeynst, Jenna; Kopecki, Ianina; Schneider, Matthias; De Maerteleire, Nico; Pieters, Sebastian; Epple, Tobias; Lechner, Thomas; Naumann, Johannes; Pickholtz, Renanel; Pickholtz, Eliezer; Mawer, Rachel; Elings, Jelger; Coeck, Johan
Publicado en: INBO

Software

Software a través de OpenAIRE (2)

Europäischer Fischgefährdungsindex EFHI

Autores: van Treeck, Ruben; Wolter, Christian
Editor: Zenodo
DOI: 10.5281/zenodo.3908136; 10.5281/zenodo.7546515

European Fish Hazard Index

Autores: van Treeck, Ruben; Radinger, Johannes; Noble, Richard; Geiger, Franz; Wolter, Christian
Editor: Zenodo
DOI: 10.5281/zenodo.4071822; 10.5281/zenodo.4249412; 10.5281/zenodo.4046500; 10.5281/zenodo.4275258; 10.5281/zenodo.4250761; 10.5281/zenodo.4061624; 10.5281/zenodo.4428328; 10.5281/zenodo.4322802; 10.5281/zenodo.3908137; 10.5281/zenodo.4428249; 10.5281/zenodo.4686531

Última actualización: 14 Septiembre 2023

Permalink: https://cordis.europa.eu/project/id/727830/results/es