



HydroES 2016

Hydropower & Environmental Sustainability

Hosted by INP ENSE³, Grenoble

16 & 17 march 2016

PROGRAM (29022016)

Hydropower is an important source of renewable energy for electrical production in Europe and throughout the world. Being flexible and allowing energy storage, it also facilitates the development of intermittent energy in electricity systems.

The major challenge of hydropower is to reconcile its development with environmental and societal needs. This means maintaining a balance between the different ways water is used and the preservation of biodiversity, while contributing to sustainable river development. Reliable and efficient hydropower facilities that protect the environment can improve hydropower performance, as well as its environmental acceptability.

The International Hydropower Association (IHA) has, for example, developed a “hydropower sustainability assessment protocol” that has been implemented in several countries. The environment is at the center of all new hydropower projects and the rehabilitation of existing facilities.

Nearly fifteen years after the launch of the European Water Framework Directive, and at a time when climate change and the energy transition are the focus of debate, this symposium aims to make an assessment of how environmental aspects are being accounted for in projects for the development or renovation of hydropower installations in various countries.

Partners:



Day 1 - March 16th

9h00 : 9h30 Registration

9h30 : 10h00

- **Welcome:** ENSE³, Anne Catherine FAVRE, Chair of International relations
- **Opening:** Daniel LOUDIERE, Chairman of SHF, P.L. VIOLLET, Chair of SHF Scientific & Technical Committee and Didier ROULT (CNR)

10h00 : 10h30 Invited lecture, Pierre SAGNES, ONEMA (F)

Hydropower and good health of aquatic ecosystems : from current to future innovative solutions

10h30 : 12h05 Session 1 (part 1): Socio Environmental Integration of Hydropower facilities

Chair: Philippe Dupont (ONEMA)

Invited lecture: Socio-environmental integration of hydropower facility, Atle HARBY, SINTEF CEDRAN (Norway)

10 years of licensing run of river hydropower schemes in Scotland : an appraisal, Ellen WILLMOTT, Richard GOSLING, Simon PATTULLO, SEPA (GB)

From a "hydraulic" water management to a "balanced" one: the Durance River case, Laure SANTONI, EDF R & D (F)

Assessing environmental impacts of hydropower on Norwegian regulated lakes in a context of balancing the future European energy demand, Julie CHARMASSON, Antti ELORTANTA, Ingeborg P. HELLAND, SINTEF/NINA (Norway)

11h45 : 12h05 Open Discussion

12h05 : 12h30 Poster presentations (part 1)

12h30 : 14h00 Lunch

14h00 : 15h15 Session 1 (part 2): Socio Environmental Integration of Hydropower facilities

Chair: Atle Harby (CEDRAN)

CNR Environmental Management System: context, framework, assessment, Dimitri COULON, CNR (F)

How to reduce the adverse perception of a hydropower, 60 years after a poorly implemented displacement-Dordogne France, Armelle FAURE, Social Scientist, Anthropologist (F)

Trade-off between hydropower and environmental concerns in the Senegal River basin, J.L. TROUVAT, SCP Lamine N'DIAYE, OMVS (F)

The Sustainability profile of the Romanche-Gavet's project, Emmanuel BRANCHE, EDF CIH (F)

Assessment of the Potential Impacts of Additional Hydroelectric Projects on Neotropical Freshwater Ecosystem in French Guiana, Pascal ROCHE, Dominique BARIL, Bénédicte VALADOU, ONEMA (F)

15h15 : 15h35 Open discussion

15h35 : 16h00 Poster presentations (part 2)

16h00 : 16h30 coffee break

16h30 : 17h30 Session 2 (part 1) : Ecological and sedimentary continuity: Sediment continuity

Olivier Metais (ENSE³)

Rhône river, Sediment management, Sylvain REYNAUD, Mathieu ROCLE, Yoann LAFFONT, CNR (F)

Impacts of sediment recharges into the upper Rhine River downstream of the Kembs diversion dam: ecological monitoring of plants, macroinvertebrates and fish, Cybill STEANTZEL, CNRS-UNISTRA, Jean-Nicolas BEISEL, Hervé PIEGAY, ENGEES, Fanny ARNAUD, ENS Lyon, Agnès BARILLIER, EDF-CIH (F)

Impacts of the 2012 VERBOIS Reservoir flushing on the Swiss Rhône river: How did fish withstand the disturbance? Franck CATTANEO, David GRIMARDIAS, HESGE (Switzerland), Jean GUILLARD, INRA (F)

Effects of fine suspended sediment releases on benthic communities in artificial flumes, Maria Christina BRUNO, FMACH, Mauro CAROLLI, Beatrice PALMIA & Guido ZOLEZZI, University of Trento (Italy)

17h30 : 18h00 Open discussion

- **18h00 : 18h20 : Jean Valembois Award Ceremony** by Daniel Loudière & Pierre-Louis Viollet
Prize winner : Agnès Leroy
- **18h20 : 19h30 :** Cocktail and gathering around the posters

Day 2 - March 17th

9h00 : 10h35 Session 2 (part 2) : Ecological and sedimentary continuity

Chair: Véronique Gouraud (EDF)

Invited lecture: Ecological and Sedimentary Continuity, Geoff PETTS, Westminster University (GB)

Brown trout Dispersal in a hydrologically unaltered headwater stream, Nicolas POULET, Alain ALRIC, Sylvie TOMANOVA, Vincent CORNU, Laurence TISSOT, ONEMA-IMFT, EDF (F)

Seasonal Patterns of downstream and upstream movements of fish, as revealed by the monitoring of fish pass & bypass facilities, J.P. BENITEZ, Michaël OVIDIO, University of Liège (Belgium)

Engineering of ecological continuity in hydroelectric dam projects, Annick VAXELAIRE, Tractebel Eng.-ENGIE (F)

10h15 : 10h35 Open discussion

10h35 : 10h55 Coffee break

10h55 : 12h40 Session 2 (part 3): Ecological and sedimentary continuity

Chair: Geoff Petts (Westminster University)

Assessing the effects of hydropower dam operations on intra-day flow regimes, María BEJARANO, Álvaro SORDO-WARDB, Carlos ALONSO, Christer NILSSON, Roland JANSSON, UMEA/Technical University of Madrid (Spain & Sweden)

Ecohydraulic quantification of hydropeaking alterations by the use of hydrosignatures, Yann LECOARER, Baptiste TESTI, Jérémy BEGUIN, IRSTEA (F)

Modelling of environmental flow options for optimal Atlantic salmon embryo survival during hydropeaking, Roser CASAS-MULET, University of Melbourne, Knut ALFREDSSEN & Anund KILLINGTVEIT, NTNU (Australia & Norway)

Operational and structural measures to reduce hydropeaking impact on juvenile fish, Ianina KOPECKI, Matthias SCHNEIDER, SJE - Ecohydraulic Engineering (Germany)

Assessment and mitigation of hydropeaking impacts, Véronique GOURAUD, Laurence TISSOT, Agnès BARILLIER, EDF, Vincent CORNU, Dominique COURRET, Philippe BARAN, ONEMA & ECOGEA (F)

12h10 : 12h40 Open discussion

12h40 : 14h00 Lunch

14h00 : 15h45 Session 3 : Technological innovation for low-impact facilities

Chair: Jean-Michel Tinland (CFBR)

Invited lecture: Trends in Hydropower Environmental Performance, Farid Mazzouji, GE - Alstom Renewable Power (F)

Mitigation of hydropower impacts in Austrian rivers, Stefan SCHMUTZ, Stefan AUER, Franz GREIMEL, Institute of Hydrobiology and Aquatic Ecosystem Management, (Austria)

Experimental investigation of fish downstream passage and turbine related, Franz GEIGER, Mathilde CUCHET, Peter RUTSCHMANN, TUM (Germany)

Protecting fish from entering Turbines : the efficiency of a low-sloping rack, Sylvie TOMANOVA, ONEMA-IMFT (F)

Oil free hub for double regulated turbines: How to combine successful reliability and environmental concerns, Fabrice LOISEAU, Claude BUCHI & Mathieu LASCURETTES, GE - ALSTOM HYDRO (F)

The VLH Turbine, A Proven Fish Friendly Low Head Technology, Thierry LAGUARRIGUE, ECOGEA, Marc LECLERC, MJ2 Technologies S.A.S., Brian ROBIN, MJ2 Technologies, (F & Canada)

15h45 : 16h15 Open discussion

16h30 End of conference

LIST OF POSTERS

3 minutes per poster

Multi-criteria Hydroelectric scheme management optimization, Quentin MOREL, SETEC Energy Solutions (F)
Increasing Climate-Related-Energy penetration by integrating run-of-the river hydropower to wind/solar mix, Baptiste FRANCOIS, Benoit HINGRAY, Damien RAYNAUD, University of Grenoble (F), Marco BORGA, University of Padova, (Italy)
Weather and climate services for hydropower management, Maria-Helena RAMOS, IRSTEA (F), Andrea CASTELLETTI, Politecnico di Milano (Italy), Manuel P. VELAZQUEZ, UPV (Spain) IRSTEA (F)
Strategic Environmental Assessment of four multipurpose dams in the Senegal River Basin, Okechukwu AMOGU, Tractebel Eng. ENGIE (F)
Modeling the effects of different flow management practices on marble trout habitat, Mauro CAROLLI, Francesca GELMINI, Stefano PELLEGRINI, University of Trento (Italy)
Numerical modelling of sediment transport management measures, Magalie JODEAU, Anne-laure BESNIER, Pablo TASSI, Florian CORDIER, Benoit CAMENEN, EDF R&D LNHE , Lab. St. Venant, Irstea (F)
Influence of small run-off hydropower on sediment passage - A scale model case study, Ronald MÖWS, Katinka KOLL, TU Braunschweig (Germany)
Graphical user interface to optimize economic and ecological efficiency of small hydropower plants, Stefania TRON & Amin NIAYIFAR, EPFL (Switzerland), Paolo PERONA, University of Edinburgh (UK)
Sedimentary state diagnosis downstream of a dam, Jean-René MALAVOI, Rémi LOIRE, A. EL KADI, EDF DPIH (F)
Aerating weir at Lom Pangar dam, Jérémy SAVATIER, Michel LINO, ISL, Stéphane DESCLOUX, EDF-CIH, (F), Sébastien ERPICUM, Michel PIROTTON, UL (Belgium)
Experimental study of the influence of macro-roughnesses on Vertical Slot Fishway flow, Aurelien BALLU, Damien CALLUAUD, Laurent DAVID, University of Poitiers (F)
The fish pass in Sauveterre, Pierre-Emmanuel PAREAU, Hélène CHAPUIS, CNR (F)
Technical baseline aquatic environments - incidence Documents applied to hydroelectricity, Dominique BARIL, Nadia MOULIN, ONEMA (F)
The fishpass of the Poses dam: the starting point for fish restoration in the Seine River, Romain MARCEL, ARTELIA-PARIS (F)

Organizing Committee chaired by Didier Roult (CNR)

- Pierre-Louis Viollet (Chair of SHF Scientific & Technical Committee)
- Neda Sheibani & Anna Dupont (SHF)
- Agnès Barillier (EDF - CIH)
- Jean-François Brun (SCP)
- Guy Caignaert (ENSAM Lille-SHF)
- Claude Guilbaud (ARTELIA)
- Véronique Gouraud (EDF - CIH)
- Olivier Métais (ENSE3-Grenoble)
- Jean-Luc Pigeon (Tractebel - ENGIE)
- Maria Helena Ramos (IRSTEA)
- Olivier Teller (GE - ALSTOM Renewable Energy)

Exhibitors:



Spaans Babcock

MJ2 technologies



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