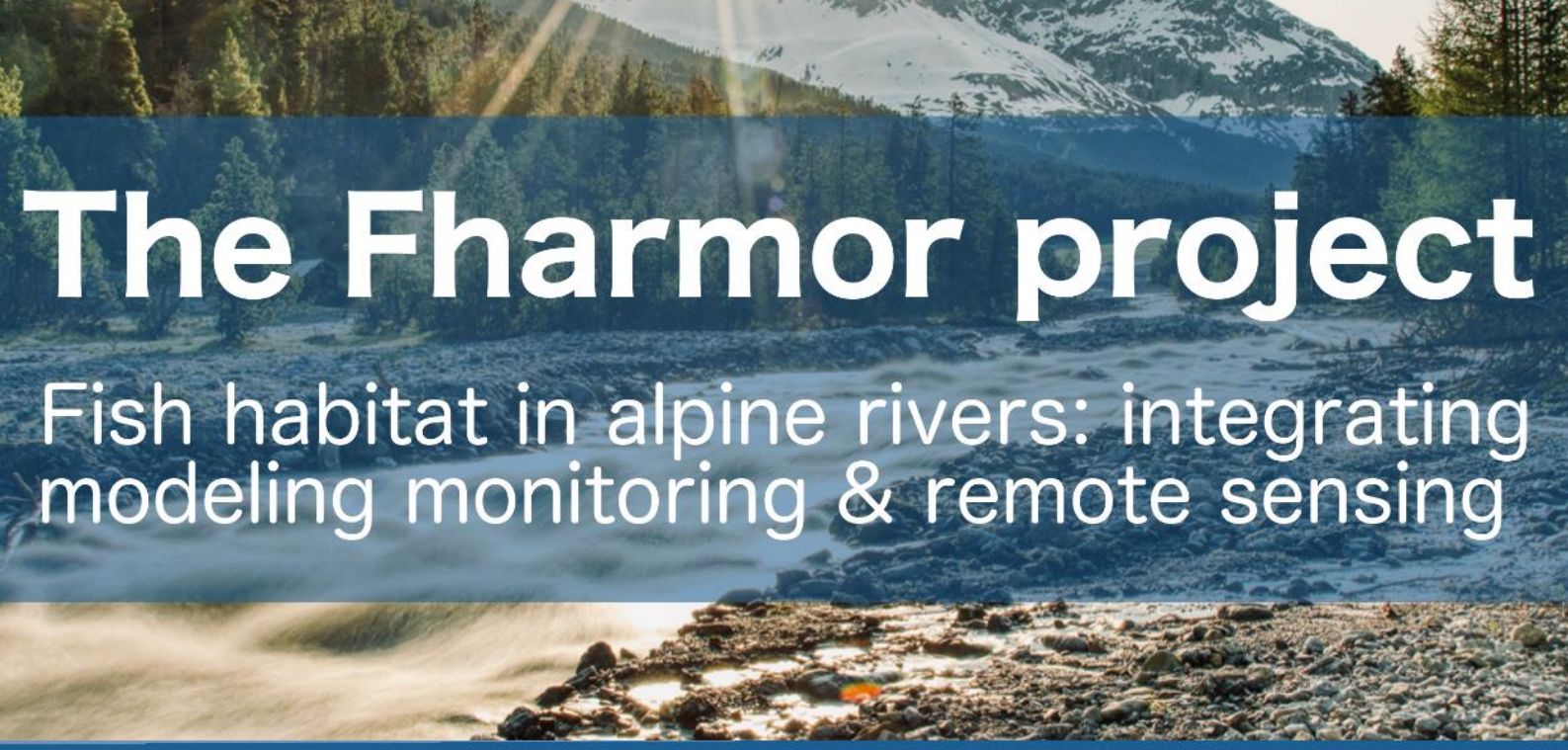

The Fharmor project

Fish habitat in alpine rivers: integrating modeling monitoring & remote sensing

Final conference

Bozen - Bolzano, 13 December 2019

The FHARMOR project contributed to the integration of complementary approaches to quantitatively assess and predict in-stream river habitat availability at the mesoscale (mesohabitat). Such integration is applicable in both large-scale scientific studies as well as for management purposes.

River habitat quantification is a powerful tool to support decision making for the conservation of instream habitat communities, to design and assess ecological flows and to assess the environmental effects of water abstractions, flow regime regulation and, more in general, of hydro-morphological alterations in rivers.

Mesohabitat quantification relies on field mapping which becomes challenging in non-wadable conditions. The FHARMOR project addressed this issue by integrating technologies such as bathymetric lidar and hyperspectral imagery remote sensing, hydrodynamic and morphodynamic modelling with field mapping. The project focused on two main Alpine rivers case studies in South Tyrol with complementary characteristics in terms of channel size, morphological pattern and degree of human alteration.

The project outcomes resulted in the development of habitat suitability criteria for local fish species and a pilot application of mesohabitat supervised learning on remote sensing and hydrodynamic data. The project produced also a framework to quantify spatial changes of fluvial habitat and mesohabitat classification in response to natural fluvial disturbances and an assessment of the potential of hydro-morphodynamic modelling and emerging remote sensing techniques to predict mesohabitat spatial and temporal patterns.

The FHARMOR project was sponsored by the Autonomous Province of Bolzano-Bozen (Italy) and carried on as international cooperation among the Free University of Bolzano-Bozen, The University of Innsbruck and the University of Trento. The Polytechnic of Turin and Polish S. Sakowicz Inland Fisheries Institute participated as associated partners.

AUTONOME PROVINZ BOZEN SÜDTIROL | PROVINCIA AUTONOMA DI BOLZANO ALTO ADIGE

unibz — Freie Universität Bozen, Libera Università di Bolzano, Università Liedia de Bulsan

universität innsbruck

UNIVERSITÀ DI TRENTO

POLITECNICO DI TORINO

IRS — The Stanisław Sakowicz INLAND FISHERIES INSTITUTE

Venue: room C4.01, Universitätsplatz 1 Piazza Università - I-39100 Bozen-Bolzano

PROGRAM

8.45 Registration

9.00 Welcome address

SCIENTIFIC OUTCOMES OF THE FHARMOR PROJECT

9.15 Overview of the FHARMOR research project
Guido Zolezzi, University of Trento, Italy

9.30 Meso and micro scale habitat models: an overview
Piotr Parasiewicz, Polish S. Sakowicz Inland Fisheries Institute, Poland

9.50 From space to the field: remote sensing for river hydro-morphological mapping
Simone Bizzi, University of Padova, Italy

10.10 Remote sensing: ALB – Airborne Lidar bathymetry
Robert Klar, University of Innsbruck, Austria

10.30 COFFEE BREAK

11.00 Mesohabitat suitability criteria for grayling
Paolo Vezza, Polytechnic of Torino, Italy

11.20 Hydraulic modelling and mesoscale habitat modelling (1)
Katharina Baumgartner University of Innsbruck, Austria

11.40 Hydraulic modelling and mesoscale habitat modelling (2)
David Farò, University of Trento, Italy

12.00 Geomorphic Units and riverine habitats: case studies in the Bolzano province
Andrea Andreoli, Vittoria Scorpio, Free University of Bozen-Bolzano, Italy

12.30 River morpholodynamics and habitat
Emilio Politti, University of Trento, Italy

13.00 **LUNCH BREAK**

FROM SCIENCE TO PRACTICE: USE OF HABITAT MODELLING IN RIVER MANAGEMENT

14.15 Synthesis of FHARMOR project key findings
Guido Zolezzi Università di Trento

14.30 Ecological flows, river habitat and fluvial geomorphology: the international and national context
Martina Bussettini, ISPRA, Italy

14.50 Topic to be defined
Author to be defined

15.10 Assessment of river habitat in the hydropeaking Talvera river in South Tyrol
Silvia Simoni, Mountain-eering srl, Daniel Spitale, Biomonitoraggi srl.

15.30 Testing the use of mesohabitat modelling for ecological flows in the Trento Province
Paolo Negri, Province Agency of rEnvironmental Protection, Trento, Italy

15.50 **Round table and discussion**
Chairman: Francesco Comiti, Free University of Bozen-Bolzano, Italy

16.30 Final considerations and conclusions

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