Conservation and management of Mediterranean freshwaters under climate change: An eco-evolutionary and socio-economic modelling framework

Fact Sheet

Project Information

EcoEvolClim

Grant agreement ID: 329264

Project closed

Start date
6 May 2013

End date
5 May 2015

Funded under
Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Total cost
€ 161 968,80

EU contribution
€ 161 968,80

Coordinated by
HELMHOLTZ-ZENTRUM FUR UMWELTFORSCHUNG GMBH - UFZ
Germany

Objective

There is increasing acceptance of the existence of a bi-directionality that intertwines ecological and evolutionary dynamics on the short time scales most relevant to conservation and management. Climate change and anthropogenic pressures are key drivers and accelerators of the short-term dynamic feedbacks resulting from these bi-directional interactions. Consequently, understanding how rapid climate-driven evolutionary and adaptive processes can influence ecological dynamics is crucial for defining ecosystem conservation and management strategies under ongoing global change. This is particularly relevant in freshwater ecosystems, where the impacts of climate change on ecosystem functioning threaten the implementation of several environmental directives, conventions and protocols, especially the European Water Framework Directive (WFD). The researcher proposes to evaluate how climate change will affect eco-evolutionary dynamic feedbacks under different river basin management scenarios at multiple spatio-temporal scales, using Mediterranean brown trout as model system. This will serve as a basis to simulate the long-term dynamics of biological reference conditions, ecological thresholds, restoration targets, and system recovery trajectories of Mediterranean mountain trout rivers.
The researcher will use an innovative multidisciplinary and interdisciplinary approach, combining (i) statistical modelling of spatio-temporal patterns of climatic events and anthropogenic disturbances, (ii), molecular genetics and (iii) individual-based and eco-evolutionary modelling, to generate new tools for the conservation and management of Mediterranean salmonid freshwater systems under the WFD. The project aims to synthesize and harmonize the links among socio-economy, ecosystem conservation and eco-evolution disciplines into a coordinated and coherent modelling framework, with potential application to complex real-world problems, especially regarding the implementation of the WFD.

Fields of science (EuroSciVoc)

natural sciences > biological sciences > molecular biology > **molecular genetics**

natural sciences > biological sciences > ecology > ecosystems > **freshwater ecosystems**

natural sciences > biological sciences > **evolutionary biology**

natural sciences > earth and related environmental sciences > hydrology > **drainage basins**

natural sciences > earth and related environmental sciences > atmospheric sciences > climatology > **climatic changes**

Programme(s)

FP7-PEOPLE - Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Topic(s)

FP7-PEOPLE-2012-IEF - Marie-Curie Action: "Intra-European fellowships for career development"

Call for proposal

FP7-PEOPLE-2012-IEF
See other projects for this call

Funding Scheme

MC-IEF - Intra-European Fellowships (IEF)

Coordinator

HELMHOLTZ-ZENTRUM FUR UMWELTFORSCHUNG GMBH - UFZ

EU contribution

€ 161 968,80

Total cost

No data

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Region

Sachsen > Leipzig > Leipzig

Activity type

Research Organisations

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Last update: 31 March 2016

Permalink: https://cordis.europa.eu/project/id/329264