



Euro-FLOW: a European training and research network for environmental FLOW management in river basins. A MARIE SKŁODOWSKA-CURIE ACTIONS Innovative Training Network (ITN) funded under H2020-MSCA-ITN-2017

ESR 14: Future river flows: designing and modelling environmental flow regimes to account for changing climate and policy drivers.

3 year fixed- term PhD position.

Host institute: University of Leeds, UK

Supervisors: Dr Megan Klaar, Dr Julia Martin-Ortega (University of Leeds)
Dr Susan Grass (IHE-Delft) and Dr Mathew Charlton (Environment Agency)

Project Description:

The abstraction or removal of water from water bodies for use in industry, public supply, farming, and recreation results in a change in the natural flow regime of the donor water sources, which may or may not have an impact upon instream biota and processes. Current abstraction management in the UK has been unchanged since its initial conception in the 1960s. Changing resource availability twinned with increased population and industrial growth since then have driven the need for changes to the regulatory framework which governs water resource licensing, and we are faced with the need to re-think how we can effectively manage water abstraction to ensure that it is done in the most sustainable manner

Given the planned overhaul of the abstraction licensing system, in addition to the consideration of a number of alternative abstraction regulation strategies, water availability and access is likely to change considerably for a number of users. The socio-economic impacts of these proposed changes to flow regimes via water licensing changes requires careful consideration in order to ensure that alternative licensing strategies do not adversely affect businesses, the economy or the environment.

Outputs from this project will help ensure that future environmental flows provide a sustainable water resource management system that supports healthy riverine habitats as well as cost-effective and sufficient water supply to satisfy societal needs. The successful ESR will benefit from working in a cross-disciplinary field, under the supervision of expert hydroecologist (Dr. Klaar) and environmental economist (Dr. Martin-Ortega) with input from the regulatory (Environment Agency) and international (IHE-Delft) experts to define the future of water resource management in the UK.

Objectives:

- (1) Assess and model alternative river abstraction licensing options currently proposed by the Environment Agency
- (2) Determine projected water availability under climate change scenarios and implications for business, economy and environmental ecosystem services.
- (3) To recommend and enable mechanisms to facilitate water abstraction licensing changes which take into account technical, economic and behavioral barriers to implementation.

Expected outcomes:

(1) Improved modelling and regulatory decision tools for abstraction licensing under climate change and policy reforms.

(2) Consideration of how 'designer flows' may be implemented within proposed UK policy reform.

(3) Understanding of the socio-economic consequences of abstraction licensing reform options and identification of the most feasible/ likely options.

Secondments:

Delft Institute for Water Education (IHE-Delft), Netherlands, 3 months in year 2 or 3 to undertake designer flow modelling and further socio-economic analysis

Environment Agency, 3 months total, in years 1 and 3 to learn and train in government abstraction licensing systems

Eligibility Criteria:

* Applicants must not have resided or carried out their main activity in the UK for more than 12 months in the 3 years immediately prior to their recruitment¹.

* Applicants must hold a first degree and/or Masters degree in Geography, Sustainability and Environmental Management, Water Resource Management or similar that has exposed them to an understanding of the socio-economic aspects of managing natural systems. Candidates must be highly motivated to work in an international team including frequent travel between the Euro-FLOW beneficiaries and project partners.

* Applicants must not have more than 4 years (full time equivalent) research experience at the date of their recruitment¹. This is counted from the date they obtain the degree that would let them start work on a doctorate. They must not have been awarded a doctoral degree.

* Experience in literature searching and reviewing, methodological design, primary data collection and analysis (both quantitative and qualitative), communicating and disseminating results to a range of audiences would be beneficial.

* Applicants must have excellent written and spoken English skills.

Other requirements: Full driving license (UK/EU)

¹Date of recruitment is defined as the first day of the applicant's employment i.e. the start date indicated in their employment contract.

EuroFLOW Information:

The regulation of river flows is one of the biggest stressors affecting river ecosystems across the world. In many countries, major legislative efforts are therefore underpinning the development of new approaches to mitigate the impacts of river flow regulation. These approaches are based on optimising the management of river flows to maintain services to humans (e.g. water supply, hydropower) whilst protecting and/or rejuvenating the aquatic environment with water of adequate quantity and quality in space and time (i.e. environmental flows). In this context, a field of applied aquatic science has developed to generate the evidence base for identifying the best ways to manage the quantity, quality and patterns of environmental flows to sustain river ecosystems, Euro-FLOW will train a new cohort of researchers to be future leaders in this field. Within Euro-FLOW, 15 early-stage researchers will develop new theoretical and empirical insights via ground-breaking experimental manipulations, large-scale field surveys and

development of cutting-edge models to inform the management of water flows and aquatic ecosystems in river basins. Future research leaders will be developed through advanced training in: (i) river ecosystem science in relation to environmental flows; (ii) transferable scientific and life skills; (iii) collaborative working with international and inter-sectoral networking. Euro-FLOW will produce scientists with the ability to span subject boundaries, e.g. hydrology, geomorphology, geochemistry, ecology, microbiology, modelling and environmental management. The strong involvement of the non-academic sector will provide the PhD students with a holistic perspective on career opportunities.

Application details

The application should contain a cover letter that states your motivation, a CV and supporting documents about your education and studies (i.e. transcripts, certificates) and professional experience where applicable and two references. If you are applying for more than one EuroFLOW position, please rank your preferred projects.

Contact Dr Megan Klaar; m.j.klaar@leeds.ac.uk for information on how to apply

<https://jobs.leeds.ac.uk/vacancy.aspx?ref=ENVGE1066>

Closing date: 30 November 2017

Post start date: February 2018