

The Provision of Hydrological Modelling Pilot Study of the Bundorragha River

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Descriere: The Department of Housing, Local Government and Heritage (DHLGH) provides the legislative and policy framework for the conservation of nature and biodiversity in the Republic of Ireland. It also oversees its implementation, based on good science, with particular emphasis on the protection of habitats and species. The conservation of restoration of biodiversity and habitats in Ireland necessitates scientific monitoring to inform management design and to evaluate the relative success of implemented works. The conservation of habitats is also increasingly valued as an important component of global processes such as climate regulation, food security and water supply. NPWS is currently managing and regulating a large programme of works related to peatland restoration and the conservation management of river, callow, turlough and coastal dune ecosystems. This has led to the need for additional hydrological information and insights to aid in the design of management plans and to assess plans and measures developed by other agencies. In addition to this, the conservation status of ecosystems is under increasing threat from pressures related to development, pollution and other activities. Hydrological expertise is required to ascertain the linkages between habitats and surrounding areas, and advise on mitigation and remedial management options. The freshwater pearl mussel (FPM) is a freshwater species of international importance, but a species in decline in Ireland and across Europe. However, whilst hydrology is the main driver sustaining populations, it is relatively unstudied. This is problematic when attempting to design appropriate conservation management plans, and when trying to understand the impacts of activities that may alter the flow and water quality behaviour of a given river. One of the largest population of mussels that remains in Ireland is found in the Bundorragha River in the Delphi Valley, Co. Mayo. This area thereby presents a good setting in which to carry out detailed hydrological study for analysis and modelling purposes, which can be used for conservation and wider river management. The purpose of this request for tender is to procure scientific support to develop a pilot hydrological model of the Bundorragha River and its catchment, with a particular emphasis on the FPM and its hydrological environment. The study will attempt to understand the main environmental drivers sustaining the FPM in the Bundorragha River, identify land-use pressures that may be impacting on their sustainability, assess the possible impacts of climate change on river flow dynamics, and identify any conservation management issues and solutions.
