SFI Public Service Fellowship 2023

1. **Name of Governmental Department or Agency**
Inland Fisheries Ireland (IFI)
2. Title of the Project
IFI2 Development of a classification system to rank different anthropogenic impacts to Irish Atlantic salmon populations
3. Description of the Project
IFI is the statutory state agency for the protection, management and conservation of wild Atlantic Salmon in Ireland. Ireland has 144 salmon rivers and currently only 48% of these are considered to have healthy stocks. Many of these stocks are impacted by a range of anthropogenic pressures acting individually and synergistically at local, regional and national scales. Within river systems, the principal threats to the sustainability of salmon stocks include: • water quality issues from agriculture, domestic waste-water treatment and forestry; and urban waste-water pressures; • over-exploitation of stocks and illegal fishing; • hydromorphological pressures relating to physical modification or damage to habitat and natural river/lake processes including migration barriers; • climate change stressors; and • invasive alien species, heightened predation pressures and disease. There are also anthropogenic pressures acting in the coastal and marine environment likely affecting stocks, notably threats from salmon farming as well as wider ecological changes in the Atlantic Ocean. This project will develop a classification system to rank different anthropogenic impacts to Irish Atlantic salmon populations based on the methodologies used by Forseth *et al*. (2017) and Gillson *et al*. (2022). It is envisaged that the classification will be designed to be updated annually to highlight and aid in the reporting of the ongoing pressures and threats to the continued sustainability of our salmon stocks. The project will be guided and supported by Senior Scientific staff in IFI. Gillson, J.P., Bašić, T., Davison, P.I. *et al.* A review of marine stressors impacting Atlantic salmon *Salmo salar*, with an assessment of the major threats to English stocks. *Rev Fish Biol Fisheries* **32**, 879–919 (2022). https://link.springer.com/article/10.1007/s11160-022-09714-x

Forseth T, Barlaup BT, Finstad B, Fiske P, Gjoaester H, Falkegard M, Hindar A, Mo TA, Rikardsen AH, Thorstad EB, Vøllestad LA (2017) The major threats to Atlantic salmon in Norway. ICES J Mar Sci 74(6):1496–1513 https://tinyurl.com/2s49bws9

4. **Project Scope**

The project will develop a classification system based on the approach used by Forseth *et al*. (2017) and Gillson *et al*. (2022) and collate and analyse data on pressures facing Atlantic salmon from a range of existing publications, data and datasets and *via* the input of assessments from experts working in the relevant area of concern.

5. **Skills/Expertise Required**

The role will require an ability to extract from, collate and manipulate large environmental and biological datasets and databases and strong statistical modelling skills. An ability to extensively review and critically evaluate the literature pertaining to environmental stressors on aquatic ecology is necessary. Knowledge of ecological threat assessments and expert-judgment classification systems is desirable as is a general interest in the conservation of Irish biodiversity.

6. **Expected Outputs of Project**

The output will comprise a scientific publication and production of associated documentation to support the use of the classification system. It is envisaged that the classification system will be designed to facilitate annual revisions to highlight and aid in the reporting of the ongoing pressures and threats to the continued sustainability of our salmon stocks. An additional anticipated output of the project will be a spatial product highlighting the overall extent of stressors ranked according to the classification system at the regional or river basin scale. This will enable evidence-based targeting of conservation and mitigation resources for the most at-risk salmon rivers. As such the system may be used in annual Technical Expert Group on Salmon reports and associated reporting by Ireland to the North Atlantic Salmon Conservation Organisation.

7. **Working Arrangements**

The appointee will have the standard IFI supports and be expected to work full-time for a period of six to twelve months. This is a desktop study so the appointee may be based remotely with periodic requirements for in-person meetings in IFI offices (3044 Lake Drive, Citywest Business Campus, Dublin 24). However, the appointee may be based in a suitable Inland Fisheries Ireland office.

8. **Expected Timeline**

6-12 months full-time

9. **Contact Details**

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