**MSc. RESEARCH PROJECTS**

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| SUPERVISOR(s): Jo Pollett/ Matt Spencer (MSC), university supervisor TBC |
| TITLE: Endangered Threatened & Protected (ETP) species and their contact with fisheries. A risk assessment of the King Scallop dredge fishery in the North Sea, the West of Scotland and the Irish Sea utilising GIS. |
| TOPIC: Project UK Fishery Improvements (PUKFI) is a collaborative project working towards an environmentally sustainable future for UK fisheries using MSC FIP tools and facilitated by the MSC. The project stems from work conducted under Project Inshore which had identified King scallops from the North Sea, West of Scotland and Irish Sea King as a fishery with which to engage due to its value to the UK seafood sector. Scallops are a commercially important species of crustacean distributed throughout UK and are found on clean firm sand and fine gravel and in currents, which provide good feeding conditions. Total landings of scallops in 2017 by the UK fleet in the North Sea, West of Scotland and Irish Sea was 15,954t - approximately 60% of total landings were caught in the Central North Sea and the Irish Sea. Landings were dominated by Scottish-registered vessels (77%), with 90% of landings being made by vessels over 10m in length.Through utilising the MSC pre-assessment process as a gap analysis, a key area highlighted is the need to understand the fishery’s interaction with Endangered, Threatened and Protected (ETP) species. In common with other demersal fisheries, there is a need to understand what impact fishing activity is having on these ETP species. To identify these interactions, GIS analysis will be conducted to quantify the impact of fisheries activities on ETP species, allowing for comparisons to be made between different fishing areas and identify mitigation strategies going forward. The project offers the opportunity of working directly with a range of stakeholders across the UK fishery and seafood sectors, gaining hands on experience as part of cutting edge FIP work**.** The knowledge gained from this projectwill help ascertain the impact the fishery may or may not be having on ETP species and assess the risk the fishery is posing to the recovery of ETP populations. The output of this analysis can potentially be used to inform management policy and define some important methods for harmonising the priorities of the fishing industry and of the conservation sector.**Alignment to FIP action plan:**There is an action plan for this fishery that has been agreed by a steering group made up of fishing industry, government and other relevant stakeholders. This action plan includes specific actions and milestones. The action this research will be applied to is:* Information on the nature and scale of impacts on ETPs needs to be assessed. Based on this, appropriate management measures need to be developed. This needs to be embedded in an on-going, risk-based ETP impact monitoring system.

And the milestone this research will be directly addressing is: * Yr. 1 - GIS-based risk assessment. Listing of potential ETPs interacting with UoAs, and then mapping of ETP distribution overlap with UoA dredging effort.

The FIP action plan is based on the MSC principles and criteria for sustainable and well managed fisheries. The research should be carried out with this standard in mind. |
| AIMS AND OBJECTIVES:The student will investigate the relationship between the fishery and ETP species that may occur in that area. This includes spatial overlap using GIS and catchability. A risk assessment will be produced that assesses the risk the fishery is having on the recovery of these species.Scope:The scope of the analysis will take into account the data available from JNCC, MMO and other available data such as from ICES DATRAS. JNCC has ETP species data, the MMO will provide spatial data for the fishery and observer data is also available. WWF have been working on ETP lists for the fishery already. Various risk assessment methodologies can be researched and previous MSC assessment reports for similar fisheries may be used for reference.Approach:Student will deliver a risk assessment and report. This should involve:* A review of relevant literature to identify appropriate methodologies for the study
* Analysis of all relevant data found, this may be in map format among others
* Create a risk map for ETP species in each area of interest (North Sea, West of Scotland, Irish Sea)
* Identify ETP species interacting within the scope of the fishery
* Assimilate and organise data on ETP species from relevant sources
* Development of suitable risk assessment model to assess the relationship between fishing grounds, ETP species range and catchability
* Quantify catches of ETP species by vessel/gear type
* Assess, identify and compare ETP interaction in all assessment regions
* Create a map identifying which areas are most at risk of failing the MSC standard due to ETP issues
* Provide a breakdown of vulnerability of ETP species interacting with the fishery
* Reporting findings

**Timing:**The project will extend over 2019 (months defined by your university specifications). The student will be expected to attend any PUKFI meetings taking place during the research period, and to present the final report to the steering group. |
| COLLABORATING INSTITUTIONS: *List PUKFI* |
| TRAINING ELEMENT – METHODS: * Fish Identification
* ArcGIS
* R statistical programming
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| BACKGROUND REFERENCE:<https://www.seafish.org/media/1671744/project_uk_a4_leaflet_oct_16.pdf><https://www.seafish.org/article/king-scallop-north-sea-west-of-scotland-and-irish-sea-dredge>  |
| LOCATION (SOS / UK/ OVERSEAS):Based at their university, with occasional trips to the MSC office, and travel to PUKFI meetings held during this research |
| ANY SPECIAL FACILITIES: *N/A* |
| I.T. REQUIREMENTS [i.e. software]:ArcGISRExcel  |
| ESTIMATED COSTS:*A £750 stipend will be provided on submission and presentation of the final report to the project steering group* | Indicate any expenses to be paid for by student.*Travel expenses to the MSC London HQ, and to PUKFI steering group meetings will be agreed ahead of the meetings and reimbursed on provision of receipt.* |
| STUDENT NAME: |