



PrePARED
Predators + Prey Around Renewable Energy Developments

Quarterly Report: Q2 2022

Date: 30/06/2022

Project Overview

During Q2 2022, the PrePARED project team were busy planning and starting to undertake fieldwork. Fish telemetry work in the Moray Firth (Task 3.3) was started, with 58 acoustic receivers successfully deployed and 60 cod and haddock tagged. Also, fisheries acoustic transect work to understand broadscale fish distribution in and outside of the Moray Firth and Forth & Tay Offshore Wind Farms was started in June (Task 1.1 and Task 3.1).

Whilst fieldwork has taken place as planned, a large amount of project team resource was taken up with obtaining agreement from developers for the team to undertake research within their Offshore Wind Farms. This involved producing extensive and very detailed documentation plus addressing many comments and producing further iterations of documentation, along with many calls with Offshore Wind Farm site teams and environmental managers. This unexpected workload has drawn project team resource away from the research they had planned to carry out during Q2. Whilst this will not have long term impacts on project deliverables, it does mean that some survey planning has had to take place without a full understanding of fish distribution informed by previous surveys.

Further fieldwork is planned during Q3 (fine scale fish distribution within offshore wind farms, Task 1.2 and Task 3.2) but we anticipate obtaining agreement with Offshore Wind Farm developers to undertake this work is also going to be highly resource demanding, with risks that some work may not be delivered due to objections by developers.

Avian flu currently poses a risk to obtaining data on seabird movements in the Forth & Tay due to restrictions on tagging and entering bird colonies imposed to avoid spreading the highly

pathogenic disease. Alternative data sources are available that can be used instead.

Marine Scotland have not yet recruited a project manager and two other posts for the PrePARED project due to Scottish Government wide restrictions on recruitment. Other project staff have been successfully recruited across the rest of the PrePARED project team.

Summary of activities undertaken in Q2 2022

Meetings:

- Quarterly project team meetings on 24th March and 13th June
- Planning for annual knowledge exchange workshop in November 2022
- Many meetings with environmental managers and site teams of Offshore Wind Farms where PrePARED is working.

Task 1.1:

- Extensive documentation preparation and revisions for Seagreen and Neart na Gaoithe Offshore Wind Farms to obtain their agreement to undertake fisheries acoustic transect surveys in these Offshore Wind Farms.
- Survey preparation, collating historic survey data for Forth & Tay and Moray Firth. Started processing historic data to produce point abundance data for each species/age class/year. These maps help with survey planning.
- Fisheries acoustic survey Forth & Tay underway (as of 30th June 2022).

Task 1.2:

- Preparation and sharing of documentation (risk assessments and method statements) with Seagreen and Neart nan Gaoithe Offshore Wind Farm for baited remote underwater video surveys and sandeel tows and grabs in August.

Task 2.1:

- Data management discussions and planning, file structures being developed, data review.
- Initial processing of existing seabird GPS and environmental data.

Task 3.1:

- Extensive documentation preparation and revisions for Beatrice Offshore Wind Farm to obtain their agreement to undertake fisheries acoustic transect surveys in these Offshore Wind Farms.
- Three day fisheries acoustic survey completed by MSS on Alba Na Mara (8 of 9 transects surveyed)
- Collation of available previous/historical fisheries biomass survey data completed.

Task 3.2:

- Preparation and sharing of documentation (risk assessments and method statements) with Beatrice and Moray East Offshore Wind Farm for remote camera surveys in August.
- Detailed analysis of current/tide data, area of attraction using bait and mooring surface marker drift in various turbine depths for survey planning.
- Short literature review on evidence for localised fish aggregation around artificial structures, to help inform need for deployment of cameras in close proximity to turbine jackets.
- Remote camera survey design altered multiple times and re-confirmed due to changes in marine mammal passive acoustic monitoring array locations, caused by extensive Offshore Wind Farm O&M restraints/requirements.
- Delivery of unbaited cameras delayed/not possible so survey/deployments with this kit delayed till 2023 but baited camera surveys going ahead.

Task 3.3:

- Two trips in April 2022 and June 2022 to deploy acoustic receivers and to catch and tag fish.
- 58 acoustic receivers deployed in Beatrice and Moray East Offshore Wind Farm to detect tagged fish.
- Two receivers redeployed – had successfully recorded a tagged fish moving between turbine jackets.

- Tagging of 60 cod and haddock close to acoustic receivers.
- Fish traps required modification before use in June 2022 (see 'risks' below) and jiggers were not very successful for catching fish so fewer fish were tagged than initially planned. More fish will be caught and tagged when vessels are working in the area in August/September 2022.

Task 4.2:

- Liaised extensively with Beatrice and Moray East about Passive Acoustic Monitoring (PAM) array design.
- Designed precise layout for PAM (harbour porpoise passive acoustic monitoring) devices close to jackets, avoiding inter array cables, CTV push on points, and other O&M activities.
- Sent documents for PAM deployments to Moray developers and responded to comments on these from Beatrice, Moray East and Moray West
- Maintenance and preparation of equipment for PAM deployments

Task 4.3:

- Received update on Moray West construction schedule.

Task 4.4:

- Literature review of diet of marine mammals to identify species and size of fish for bomb calorimetry analysis. Obtained first fish samples from MSS for analysis and set up bomb calorimeter.

Task 7.4:

- Have started initial preparations on cumulative impact assessment frameworks for marine mammals to help explore conservatism in assessments and how their effects propagate through CIA. Will involve building off existing cumulative effects framework tool commissioned by MSS under a separate project, which is almost complete.

Summary of activities to be undertaken in Q2 2022

Task 1.1:

- Complete Forth & Tay fisheries acoustic surveys

Task 1.2:

- Finalise paperwork and agreement with Forth & Tay developers
- Undertake baited underwater video surveys and sandeel tows and grabs

Task 2.1:

- Complete data acquisition for all relevant existing data for seabirds, prey, environmental, hydrodynamic (except aerial survey data)
- Develop generic scripts for data importing, cleaning, summarising.
- Building metadata files for all datasets (that don't already have them)

Task 3.1:

- Provide method statements to OWFs and meet to discuss and reach agreement on survey work going ahead.
- Prepare equipment for and conduct baited remote camera survey at OWFs in August.
- Collate and start processing video data from baited camera surveys.
- Collate and start processing of fisheries acoustic survey data.
- Meeting with task participants including new MSS acoustician to discuss survey data and plans for future surveys.

Task 4.2:

- Deploy and recover PAM array (July-August).
- Collate covariate data for all PAM sites.

Task 4.4:

- Continued literature review on methods available to integrate different data sources to predict fisheries distribution.

Task 5.1:

- Completed exploration of methods developed by Matthiopoulos et al 2022 to integrate different spatial datasets.

Task 5.2:

- Continued developing R code scripts to automatize pre-processing of aerial survey data.

Task 6.2:

- Continued developing R code scripts associated with Matthiopoulos et al 2022 to process digital aerial survey data.

Task 7.4:

- Will continue exploring how CIA scenarios can be established

Task 8.1:

- Draft scope/invitation to tender for network and stakeholder analysis consultant to review project team's networks and advise on stakeholder comms strategy

Task 8.2:

- Draft Communications strategy and plan and seek input/comment from project team and TCE and CES as project funders

Task 9.1:

- Initial preparation for annual knowledge exchange workshop, provisional date 8th November 2022

Task 9.4:

- Develop project website