



PrePARED
Predators + Prey Around Renewable Energy Developments

Quarterly Report: Q3 2022

Date: 30/09/2022

Project Overview

Q3 milestone delivery in terms of field work has progressed well and all achieved, with two exceptions (Task 3.3 and Task 7.2 – all details given in next section). Marine Scotland has made major changes in how the project is managed. A senior staff member (Prof. Bill Turrell) has assumed leadership of the project owing to staff resource constraints and internal restructuring. We hope this will accelerate the administration tasks currently pending (appointment of full time project manager, PrePARED web site, milestone reporting, PAG, organisation of Annual Knowledge Exchange Meeting, etc.).

Summary of activities undertaken in Q3 2022

Task 1.1: Broad-scale fish response to OWF in Forth

- Milestones were delivered for February and March. Despite spending a lot of time on recruitment for PrePARED we manage to gather the necessary data.
- We produced spatial abundance data for key prey species and started the process to model their distributions. Collated data for the Moray Firth were also provided to our partners at University of Aberdeen.
- Preparation of the surveys, including an enormous time investment in the production and modification of risk assessment documents satisfying the developers. PrePARED broad-scale survey took place in June-July.
- The Fish Community Ecologist hired on this project started on 08/08/2022 (initially planned for 01/04/2022) and, despite lengthy processes in getting access to the required IT equipment, has started to work on the modelling of fish distributions from the collected data. The Fisheries Acoustician hired on the project started on 19/09/2022 (for 01/04/2022) and again despite not having access to the right IT equipment, started processing the acoustic signal collected during the first survey.

Task 1.2: Fine-scale fish response to OWF in Forth

- Survey was planned, required documentation produced (RAs, etc.) and BRUV/Fish trap surveys were conducted in August 2022 in Forth and Tay windfarms.
- The contract worker was introduced to post survey video analyses.
- Grab sample could not be collected due to the time pressure on the survey. Instead RoxAnn data were collected, and post-processing started.

Task 2.1: Seabird spatial distribution models in Forth

- The milestone was delivered by end of September. Processed relevant environmental, hydrodynamic, historic prey (sandeel model and HERAS), and some seabird GPS data.
- Developed scripts for data importing, cleaning, summarising. R code is being developed to be generalisable and reproducible, held on BioSS' GitLab (transferrable to GitHub). All data processing is in R Markdown & R functions. This work will continue to develop to include building an R package and formal code testing.
- Met with MSS to discuss prey data and implications of delays for task 1.1 and 1.2 to tasks 2.1 and 2.2.

Task 2.2 Seabird movement models in Forth:

- No milestones this quarter.

Task 2.3 Seabird displacement rates in Forth:

- No milestones this quarter

Task 3.1: Large-scale fish distribution in Moray and Task 3.2: Fine-scale fish distribution in Moray (reef effects)

- BRUV survey designed and completed during August. All 108 deployments were successful in 2 operating windfarms and 2 pre-construction windfarms. Deployments around 21 turbines and 15 reference sites with over 80 hours of video footage collected.
- Unbaited camera survey delayed till 2023 due to problems with camera system supplier. New supplier needed, so will go to tender in October.

Task 3.3: Fish acoustic telemetry in Moray

- Tagging summary: 60 fish have now been tagged: 7 Cod, 3 Whiting & 50 Haddock.
- The acoustic array servicing and data retrieval trip is now planned for October.

Task 4.1: Drivers of broadscale marine mammal distribution in Moray

- Organized internal University of Aberdeen meeting to discuss modelling framework. Drafted outline for report content, data available and methodologies. Continued developing R code scripts to pre-process and analyse data.

Task 4.2: Finescale marine mammal distribution in response to OWF and prey fields in Moray

- Reached final agreement with developers about SHE documents, RAMs & location of PAM sites close to turbines. Notice to Mariners for PAM array sent to developers before and after deployments and before recoveries. Covariate data for all PAM sites collated and equipment for PAM deployments setup. PAM array deployed at end July (56 sites). Recovery of PAM array started on 31st August: 38 sites within Beatrice recovered by 26th September.

Task 4.3: Dose response curves in Moray

- Received update on Moray West construction schedule. Presented initial plans to MFRAG-MM (22nd Sept) for PAM array to study porpoise responses during piling at Moray West

Task 5.1: Generalities in fish response to OWF

- No milestones this quarter.

Task 5.2: Generalities in harbour porpoise response to OWF

- Continuing PAM data preparations as per Seagreen and NnG separate contracts. Meeting University of Aberdeen team more often to discuss progress and harmonise approaches. Also developing other Marine Mammal species ideas (with Gordon Hastie)

Task 6.1, 6.2, 6.3 and 6.4:

- No milestones this quarter

Task 7.1 IPCoD and DEPONS integration of new data and testing

- Planning calls with Aarhus University team for December to get updates on DEPONS progress. Discussing iPCoD developments with potential funders.

Task 7.2 Adding biological realism to SeabORD and testing

- Milestone “Development of initial model parameterisation to simulate hypothesized redistribution of prey around OWFs” has been postponed to early 2023 once new project postdoc hired at UKCEH. No anticipated impacts on other tasks or deliverables.

Task 7.3 SeabORD for the FFC SPA

- No milestones this quarter

Task 7.4: Integration of PrePARED findings for harbour porpoise CIA

- Have continued collating information from OWF impact assessments for large Cumulative Impact Assessment (CIA). This can help explore conservatism in assessments and how their effects propagate through CIA. Currently building off CEF tool datastores (which SMRUC compiled on MSS funded project), This work won't impact the timing or quality of PrePARED deliverables.

Task 7.5 Integration of PrePARED findings for seabird CIA:

- No milestones this quarter

Task 8.1 Stakeholder and network analysis:

- Prospective contractors contacted.

Task 8.2 Communications Plan:

- Template plan obtained and prepared plan in progress.

Task 9.1 Annual knowledge exchange workshops:

- Proposed change to February 2023.

Task 9.2 Dissemination of project findings:

- No milestones this quarter.

Task 9.3 PrePARED project scientific symposium:

- No milestones this quarter.

Task 9.4 website and social media:

- Marine Scotland tweets during Climate Week.

Summary of activities to be undertaken in Q3 2022

Quarter 4 is largely data processing and archiving following the Q3 field campaign. All tasks are holding meetings / data analysis discussions. Task 3.3 Fish acoustic telemetry in Moray: Acoustic array servicing and data retrieval trip planned for October.

Administration tasks: Meeting with OWEC, 13th October. Website initiation. Project manager recruitment. Engagement and Communication plan finalised. Annual Knowledge Exchange meeting booked for February.