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MRV *Alba na Mara*

Survey 0823A

PROGRAMME

2-16 June 2023

Loading: Fraserburgh, 30 May 2023

Gear change: Fraserburgh 08-12 June 2023 (TBC)

Unloading: Fraserburgh, 16 June 2023 (please note most equipment will remain on board for 0923A)

In setting the survey programme and specific objectives, etc the Scientist-in-Charge needs to be aware of the restrictions on working hours and the need to build in adequate rest days and rest breaks as set out in Marine Scotland's Working Time Policy (Lab Notice 34/03). In addition, the Scientist-in-Charge must formally review the risk assessments for the survey with staff on-board before work is commenced.

In the interest of efficient data management it is now mandatory to return the Survey Report, to I Gibb and the Survey Summary Report (old ROSCOP form) to M Geldart, within four weeks of a survey ending. In the case of the Survey Summary Report a nil return is required, if appropriate.

Out-turn days per project: 20696 - 15 days

Equipment

SBE CTD with fluorometer

International Young Gadoid Trawl PT154 with 4.8 mm Codend;

Jackson Rockhopper Trawl BT158 with 10 mm Codend

Prawn sorting table

Scanmar depth unit, trawl width and height units

Day Grabs x 2 and sieving table

Background and Objectives

0823A will conduct a survey of fish distributions within and around offshore windfarm development sites in the Moray Firth. This survey is part of the PrePARED (Predator and Prey Around Renewable Energy Development) project and aims at quantifying the fine and broad scale effects of OWF (Offshore Windfarm Development) on fish distributions and, indirectly, the effects of changes in prey distributions on marine top-predators.

Objectives

- 1. To conduct a fisheries acoustic survey to assess the distribution and abundance of pelagic fish in the Moray Firth OWF development sites**

To undertake an acoustic survey of sandeels and clupeid fish in the water column using 38 and 120 kHz. Concentrations of fish will be sampled using the pelagic trawl. Species composition and length frequency distributions of fish caught will be determined. Subsamples will be weighed and their otoliths removed to establish length-weight relationships and age composition.

2. **To conduct RoxAnn survey of the substrate along the acoustic survey track (Figure 1).**

3. **To conduct a demersal fishing survey in the Moray Firth adjacent to the Windfarm sites**

To assess abundance, length-frequency-distribution, and weight-at-length of demersal fish at fixed stations in the Moray Firth region by demersal trawl survey. Samples will be retained for energy content analysis at a later date.

4. **CTD and FLNTU**

To sample variation in water temperature, conductivity, turbidity and chlorophyll-a through the water column using a SBE CTD sampler and Fluorometer at all demersal trawl stations and additional where required.

Procedure

Scientific equipment will be loaded onto *Alba na Mara* on 30 May at Fraserburgh harbour. Scientists will join the vessel in the early morning of Friday 2 June. *Alba na Mara* will make passage to the Moray Firth study site the same morning following the acoustic transect depicted in Figure 1. Work around the Moray Firth OWFs will take place between 2 June and 15 June.

Daily scientific sampling will occur between 0700 hrs and 1900 hrs. Concentrations of pelagic fish will be sampled using the PT154, aiming to fish twice each day if possible. Trawl samples will be worked up to determine the total catch at length of each species. Sub-samples of herring, sprats and sandeels will be weighed to determine length-weight relationships and will have their otoliths removed for age composition assessment back at the laboratory. RoxAnn data will be collected along the acoustic transect to enable the development of seabed sediment maps.

It is expected that the vessel will berth in Fraserburgh one morning between 8 and 12 June. Changes of sampling gear will take place at this time.

In the days that follow, *Alba* will sample as many of the demersal and CTD stations indicated in Figure 1 as is possible. Demersal trawl stations will be fished using the BT158. Each catch will be worked up to determine numbers at length of all species caught. Trawl performance characteristics will be monitored using Scanmar equipment to enable swept area to be determined. Catch size will then be converted to point density estimates. Size stratified samples of cod, haddock and whiting will be weighed to determine their length-weight relationships. At each location a sample of approximately 50 whole fish across the species and size ranges will be retained and frozen for energy content. Prior to each demersal fishing operation, the CTD sampler will be deployed.

The demersal survey will cease in time to arrive in Fraserburgh on the evening of 15 June. Scientific equipment will not be offloaded and will be retained onboard for use on 0923A but scientific staff will leave the vessel.

Normal contacts will be maintained with the Marine Laboratory.

Submitted:
R Main
17 May 2023

Approved:
I Gibb
30 May 2023

Figure 1: Map showing the acoustic transects and demersal trawl stations in the Moray Firth.

