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MRV *Alba na Mara*

Cruise 0923A

REPORT

19 June – 5 July 2032

Personnel

T Regnier (SIC)
J Clarke (Co-SIC)
CCooper
J Dunning
D Copland

Objectives

1. To conduct a fisheries acoustic survey to assess the distribution and abundance of pelagic fish in the Forth and Tay

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. If weather allows, conduct a simultaneous seabird at sea survey by collecting data on seabird diversity and abundance on the water and in flight, according to the protocol used in past historic surveys in the region.

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

3. To conduct a demersal fishing survey in the Forth and Tay region

a. Demersal fishing

To assess abundance, length-frequency-distribution, and weight-at-length of demersal fish at 23 fixed stations in the Forth and Tay region by demersal trawl survey. Samples will be retained for energy content analysis at a later date.

b. CTD and FLNTU

To sample variation in water temperature, conductivity, turbidity and chlorophyll-a through the water column using a Seabird CTD sampler and FLNTU at all demersal trawl stations and one additional site within Seagreen OWF.

Out-turn days per project: 20696 - 17 days

Equipment

Seabird CTD with FLNTU
International Young Gadoid Trawl PT154 with 6 mm Codend;
Jackson Rockhopper Trawl BT158 with 10 mm Codend
Prawn sorting table
Scanmar depth unit, trawl width and height units
Minilogger (or equivalent – i.e. DST). (x2)
Birdwatching seats and 10X40 binoculars.

Cruise Narrative

Scientists joined *Alba na mara*, berthed in Fraserburgh harbour, on June 19 at 08:00 hours. *Alba* locked out of Fraserburgh on the same day at 09:00 hours and steamed toward the Forth and Tay area (arrived at 18:00 hours) and anchored off St-Cyrus. On 20 June, fisheries acoustics survey of Transect 1 (Figure 1) and the simultaneous seabird at sea survey were completed before anchoring to the North of Montrose for the evening. An incident involving creel ropes entangled in a rudder was dealt with swiftly by the skipper and crew of *Alba na Mara* allowing operations to resume rapidly. On June 21, the second acoustic and seabird survey transects, including a section through the Seagreen OWF were completed (good communication with Seagreen Marine Coordination Centre was maintained during operations). *Alba na Mara* anchored in Lunan Bay for the evening. On the following day (June 22), the third acoustic and seabird transects passing through the Seagreen and Inch Cape OWFs were completed (Figure 1). A CTD sampling was done in the Seagreen OWF and a pelagic tow was done after observing a significant fish school on the echosounder. *Alba na Mara* anchored off Carnoustie for the evening. On June 23, the fourth acoustic and seabird transects, passing through the Inch Cape and Berwick Bank OWFs were completed (Figure 1) before anchoring in St Andrews' Bay for the night. The next day (June 24), the fifth acoustic and seabird transects around NNG OWF and across the Berwick Bank OWF were completed as well as a pelagic tow to sample a fish school identified on the echosounder (Figure 1). *Alba na Mara* anchored in St-Andrews' Bay for the night. On June 25, the seventh acoustic and seabird transects across Berwick Bank OWF and around NNG OWF was completed (Figure 1) before stopping for the night in Largo Bay. The following day, the final acoustic and seabird transects were completed but had to be shortened (Figure 1) in order to be on time to pass the locks in Leith where *Alba na Mara* was berthed for the night of June 26. A gear change took place in Leith harbour on 27 June in order to swap the pelagic net (PT154) for a demersal net (BT158). *Alba na Mara* passed the locks in Leith at 07:00 hours on June 28 and made passage to the first demersal station. The three first demersal tows and CTD Stations (1,2 and 3, Figure 2) were completed that day and *Alba na Mara* anchored to the West of Wee Bankie. On June 29, Demersal Tows 4, 5 and 6 and their associated CTD Stations were completed (Figure 2) before anchoring between the Seagreen and Berwick Bank OWFs. The next day (June 30), Demersal Stations 7,8 and 9 and CTD Stations (Figure 2) were sampled before anchoring at Lunan Bay to find shelter from the strong Westerly wind. On July 1 Demersal Tows 10,11 and 15 and the

associated CTD casts (Figure 2) were completed before anchoring in St-Andrews Bay for the night to find shelter. On the next day (July 2), Demersal Stations 12, 13 and 16 and CTD Stations (Figure 2) were completed before returning to St Andrews' Bay for the night. On July 3, Demersal Station was not sampled due to the abundance of creels, instead, Demersal Tow 17 and CTD cast were completed before moving to Station 19 which also had creels and uneven ground so decision was made to prospect for a new location in the vicinity. During the tow, the demersal net was damaged and due to the time needed to either mend the net or replace it, decision was made to end the survey and make passage North. On July 4, passage North resumed and *Alba* reached Fraserburgh harbour at 13:00 hours and the equipment was serviced and cleaned for the end of the trip and unloading planned on 5 July. Unloading took place in Fraserburgh harbour on 5 July.

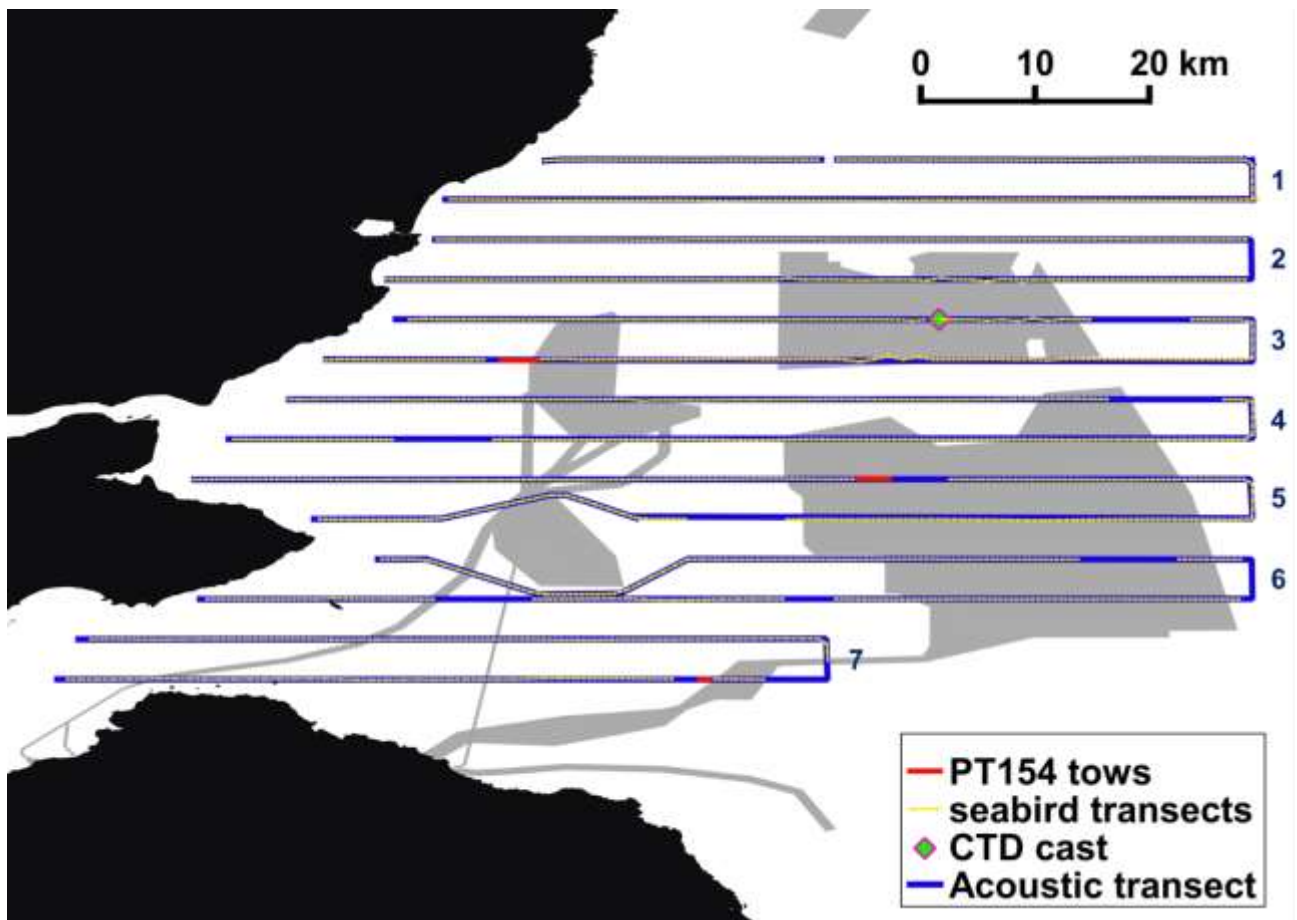


Figure 1: 0923A Acoustic and seabird transects across the Forth and Tay region.

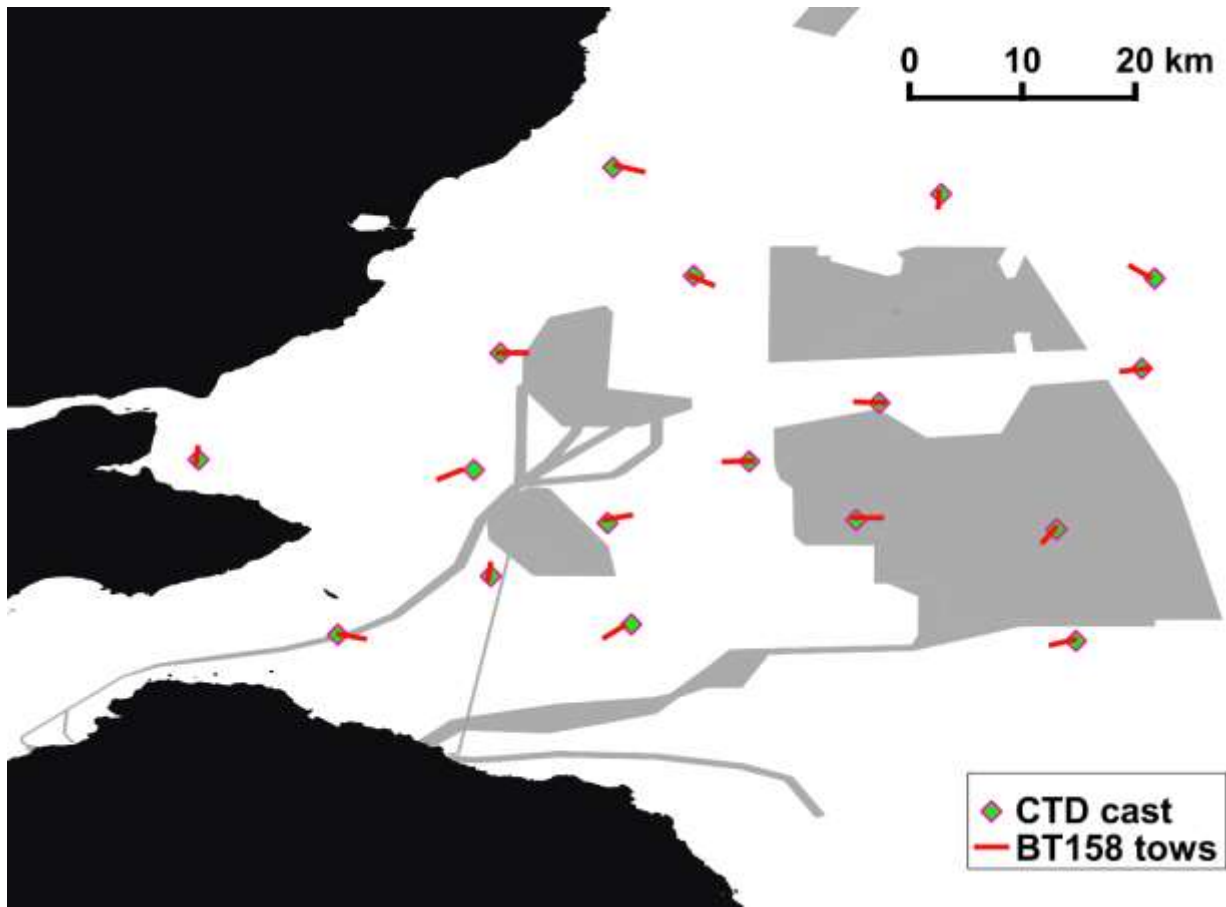


Figure 2: 0923A Demersal and CTD stations across the Forth and Tay region.

Results

NB: numbers refer to cruise programme objectives.

- 1) Between 19 and 26 of June, the seven acoustic transects planned for the Forth and Tay region were completed. A survey of seabirds at sea was also completed along the transect and three pelagic tows (Figure 1) were done during this period. A total of 217 fish were measured and samples were frozen for further analyses in the laboratory.
- 2) A RoxAnn survey of the substrate was conducted along the acoustic transects and all other operations and provided a good coverage of the regions sampled.
- 3) 3.1 - Between 28 June and 5 July, 17 stations were sampled with the BT158 net in the Forth and Tay region. A total of 21,041 fish were measured during this period, 926 otoliths extracted and frozen samples taken for further analyses in the laboratory.

3.2 - A total of 18 CTD casts were made at sites in the Forth and Tay region (Figure 2). Salinity and chlorophyll samples were taken.

We would like to express our deepest gratitude and appreciation to the crew and captain of the *Alba na Mara* and to the scientific crew from Marine Scotland Science Aberdeen.

T Régnier
5 July 2023