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FRV *Clupea*

Cruise 1798C

REPORT

6-17 October 1998

Personnel

S P R Greenstreet	B3 (in charge)
F Armstrong	B2 (12-17 October)
I M Gibb	B1
C J Doyle	B1 (6-12 October)
H M F Emmerson (Mrs)	A4

Cruise Objectives

To carry out a night time grab survey, over sediments previously determined as suitable sandeel habitat, to assess sandeel abundance and distribution. Length and age frequency distribution data were collected. The sediment samples collected during this survey will also be used to assess the RoxAnn derived sandeel habitat map. To carry out an acoustic survey, backed up by pelagic trawling, to determine the biomass and distribution of pelagic fish in an area off the Firth of Forth which included the Wee Bankie and Marr Bank. Again data to examine age and length frequency distribution of pelagic fish were collected. To assess the abundance and distribution of seabirds in the area using standard transect census techniques and to locate the feeding sites of dye-marked kittiwakes breeding on the Isle of May. To record the location of all marine mammals observed at sea. To map seabed sediment type using the acoustic system RoxAnn and to collect sediment samples to "groundtruth" the RoxAnn data. To determine spatial variation in the water temperature and salinity profile within the study area.

Out-turn days per project: 12 days C578**Narrative**

The scientific equipment was loaded onto *Clupea* on 1 October at Fraserburgh. Scientific staff joined the vessel on 6 October at 1000 hours and the ship sailed at 1230 hours. *Clupea* steamed straight to Largo Bay in the Firth of Forth where she anchored at 2300 hours. The following night, at 1730 hours, the nocturnal day grab survey for sandeels commenced and this continued for the next four nights during which time a total of 157 stations were sampled (Fig. 1). At 20 of these grab stations a SEABIRD CTD sampler was also deployed to provide information on the temperature and salinity profile through the water column. These stations were chosen to provide an approximately even coverage throughout the study area (Fig. 2).

On the morning of 12 October *Clupea* steamed into Montrose for a half landing to allow crew and scientists to change from a night to a day time working regime, and to allow changes in the scientific staff to be made.

Clupea left Montrose at 0630 hours on 13 October to start the acoustic survey for pelagic fish and the seabird and marine mammals survey. One transect in the north of the study area was surveyed in very marginal conditions. *Clupea* then steamed for anchorage off Dunbar. The next day most of a second transect was steamed in an easterly direction before a strong westerly wind. No work was possible steaming in the reverse direction. *Clupea* anchored off St Abbs to be in a position to work in the most southeasterly part of the study area. The same conditions prevailed on 15 October and most of a third transect was surveyed steaming east. Again no work was possible when steaming in a westerly direction. The vessel initially anchored off Dunbar on the evening of 15 October, however, with several days of severe easterly and northeasterly gales forecast, *Clupea* lifted her anchor and made for Fraserburgh, where she arrived at 0900 hours on 16 October, a day or so earlier than planned. The problems with the weather, and the early curtailment of the cruise, meant that a large proportion of the planned acoustic/seabird survey track was not covered. Figure 3 shows the acoustic survey track steamed and indicates those sections of track where seabird and marine mammal survey was also undertaken. Concentrations of pelagic fish were sampled using an International Young Gadoid Trawl (PT154 with 6 mm cod-end) to determine species composition, length frequency distributions, length-weight relationships and samples of fish had their otoliths extracted to determine age at length relationships. The positions of the trawl samples are also indicated on Figure 3.

The scientific equipment was offloaded and marine laboratory staff left the ship at 1100 hours on 16 October.

Simon Greenstreet
15 April 1999

Seen in draft: A Simpson, OIC

Figure 1. Locations of grab samples to assess sandeel density.

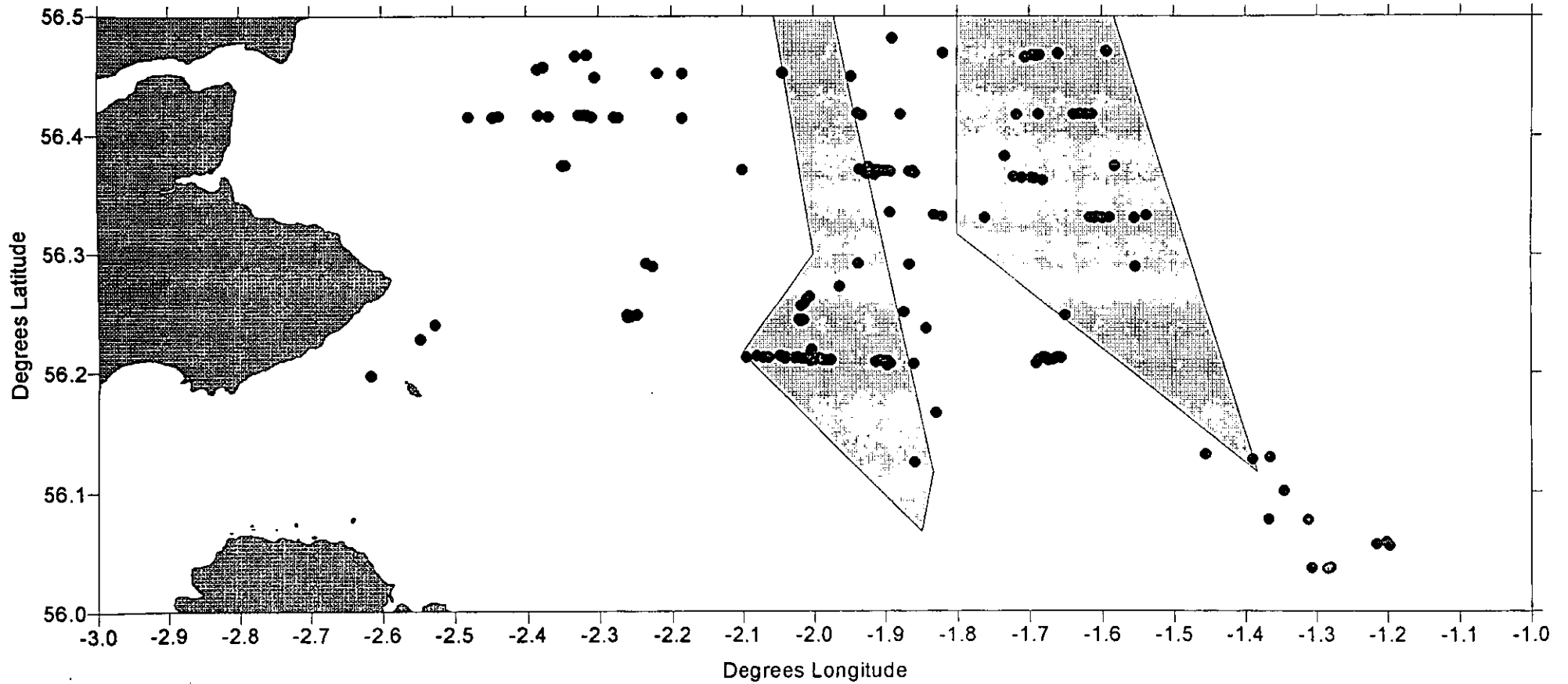


Figure 2. Positions where CTD sampler was deployed.

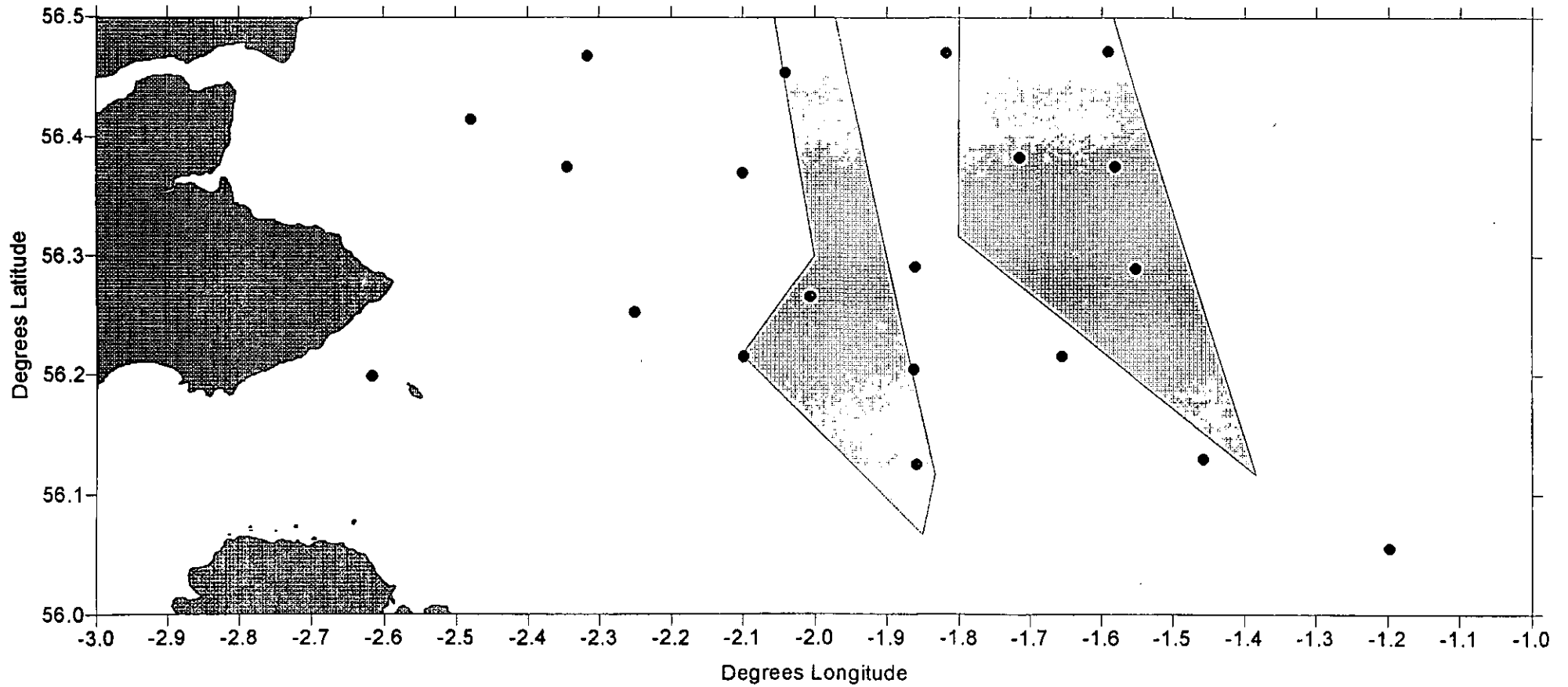


Figure 3. Acoustic survey track indicating sections where seabird/marine mammal survey was also undertaken (filled circles). The positions where two pelagic fishing samples were taken are also shown (squares).

