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Not to be cited without reference to the FRS Marine Laboratory, Aberdeen

FRV *Scotia*

Cruise 0905S

PROGRAMME

28 June - 18 July 2005

Ports

Departure: Aberdeen, 28 June

Half-landing: Lerwick, July 8

Arrival and unloading: Aberdeen, 18 July

***In setting the cruise 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 FRS' Working Time Policy (which is published on the Intranet). In addition, the Scientist-in-Charge must formally review the risk assessments for the cruise with staff on-board before work is commenced.**

In the interest of efficient data management it is now mandatory to return the Cruise Report, to John Morrison and the Cruise Summary Report (old ROSCOP form) to Dougal Lichtman, within four weeks of a cruise ending. In the case of the Cruise Summary Report a nil return is required, if appropriate.

Personnel

*Paul Fernandes (In Charge)
Sandy Robb
Robert Watret
Michael Stewart
Marco Kienzle
Stephen Keltz
John Dunn
Jim Hunter
Marine Pomarede PhD student, Imperial College
Tara Marshall Aberdeen University, 1st pt
Sarah Clarke MSc Student Aberdeen, 2nd pt

Fishing Gear

Midwater trawl PT160 x 3
Multisampling pelagic cod end with one fine mesh cod end
ARIES oceanographic sampling vehicle

Objectives

- To conduct an acoustic survey to estimate the abundance and distribution of herring in the north western North Sea and north of Scotland between 58°15'-61.45'N and 4°W to 2°E, excluding Faroese waters.

- To obtain echosounder trace identification using a pelagic trawl.
- To obtain samples of herring for biological analysis, including age, length, weight, sex, maturity, ichthyophonosis infection and fat content.
- To obtain hydrographic data for comparison with the horizontal and vertical distribution of herring.
- To obtain plankton samples for acoustic identification work.
- To test the new multisampling pelagic cod end.

Procedure

All gear will be loaded onto the vessel on Monday 27 June. The vessel will depart on 28 June and head for Scapa Flow, Orkney Islands, where calibration of all echosounders will take place (approximately 8-12 hours).

The survey will commence immediately after calibration and follow a pattern of parallel transects running east/west, at normal steaming speed (approximately 10 knots), progressing northwards, along the east side of Orkney/Shetland, and southwards along the west side. The survey area is bounded by 57°-61.45'N and 02°E-04°W. A half landing will take place on 8 July in Lerwick to allow for the transfer of staff. The survey will be completed in the south-western part of the area to coincide with the acoustic survey in the adjacent area (ICES division VIa). A calibration will be conducted either east of Shetland or in Orkney at the end of the cruise if time permits.

Acoustic data will be collected at four frequencies (18, 38, 120 and 200 kHz) between 0300 and 2300 hours. Fish shoals seen on the echosounder will be identified using a pelagic trawl (PT160). Trawling operations will be carried out between two and four times per day, and not between 2300 and 0300 hours. Samples of all species caught will be measured for length to partition the echo integral amongst species and size classes for target strength functions. Fish will also be weighed to establish a length-weight relationship. Otoliths will be collected from a sub-sample of the herring to determine age; the state of maturity and presence of Ichthyophonosis infection will also be recorded. The fat content of herring will be measured with a handheld fatmeter. Jellyfish will be counted and a sample taken to measure umbrella diameter. After each pelagic trawl haul an ARIES tow will be carried out. ARIES will be equipped with: a CTD to measure temperature, salinity and fluorescence; an OPC to measure small particles; and zooplankton and phytoplankton nets.

The ship's thermosalinograph will be run continuously to obtain sea surface temperature and salinity throughout the survey area.

The multisampling cod end will be deployed between the hours of 2300 and 0300 to determine its functionality. If and when it is working well it will be placed on a net for fishing trials.

Normal contact will be retained with the Marine Laboratory and the appropriate Fisheries Officers.

J A Morrison
20 June 2005