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Not to be cited without prior reference to Marine Scotland, Marine Laboratory, Aberdeen.

FRV *Scotia*

Cruise 0909S

PROGRAMME

28 June – 16 July 2009

Ports

Departure: Aberdeen, 28 June
Half-landing: Lerwick, 6 July
Arrival and unloading: Aberdeen, 16 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 Marine Scotland's Working Time Policy (Lab Notice 34/03). 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 I Gibb and the Cruise Summary Report (old ROSCOP form) to D Lichtman, within four weeks of a cruise ending. In the case of the Cruise Summary Report a nil return is required, if appropriate.

Personnel

P Copland		(SIC)
S Keltz		
O Goudie		
R Catarino		
F McIntyre		Student, Aberdeen University
J Hunter		(Part 1 28/6 – 6/7/09)
B McIver		(Part 1 28/6 – 6/7/09)
C Main		(Part 1 28/6 – 6/7/09)
J Stewart	(SPFA)	(Part 1 28/6 – 6/7/09)
P Fernandes		(Part 2 6 -16/7/09)
C Hall		(Part 2 6 -16/7/09)
D Kaminski		(Part 2 6 -16/7/09)
D Anderson	(SPFA)	(Part 2 6 -16/7/09)

Project : 19 days - RV0906 (10667)

Fishing Gear

Midwater trawl PT160 x 3.
Multisampling pelagic cod-end with one fine mesh cod-end.
Ocean Sampler.

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 58º30'-62ºN and 4ºW to 2ºE, excluding Faroese waters.

- To obtain biological samples for echosounder trace identification using a pelagic trawl.

- To obtain samples of herring for biological analysis, including age, length, weight, sex, maturity, ichthyophonus infection and fat content.

- To obtain hydrographic data for comparison with the horizontal and vertical distribution of herring.

- To obtain plankton samples to map the distribution and abundance of zooplankton.

Procedure

All gear will be loaded onto the vessel on Wednesday 24 June. Marine Scotland staff will fit acoustic transducers for control of the multisampler net to the drop keel prior to sailing. The vessel will depart Aberdeen on 28 June and head for Scapa Flow, Orkney Islands, where calibration of all echosounders will take place (approximately 8-12 hours at anchor). Crew training and trial deployments of fishing gear and the Ocean sampler will take place en route as convenient for the fishing master.

The survey will commence after calibration and follow a pattern of parallel transects running east/west, at normal steaming speed (approximately 10.5 knots), progressing northwards, along the east side of Orkney/Shetland, and southwards along the west side. The survey area is bounded by 58º30'-62ºN and 02ºE-04ºW. A half landing will take place on approximately 6 July in Lerwick to allow for the transfer of staff and to comply with the WTD policy. A scientific crew change will take place with P Fernandes, C Hall and D Kaminski joining the vessel and J Hunter, C Main and B McIver leaving. 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). Survey trawling operations will be carried out between two and four times per day at anytime between 0300 and 2300. Fishing operations will normally be carried out using the multisampler cod end. 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 Icthyophonus infection will also be recorded. The fat content of herring will be measured with a handheld fat-meter and gonad samples will be preserved for further examination ashore.

In addition to the opportunistic tows a 30 minute duration pelagic trawl will take place each day in the period between 2300 and 0300 to establish the presence of Hake in the area.

Where required, an Ocean Sampler tow will be carried out immediately following a pelagic trawl. The decision to carry this out will be based on achieving at least one CTD & plankton cast in each ICES rectangle. The Ocean Sampler will be equipped with a CTD to record temperature and salinity and zooplankton nets to compare samples from out-with and within observed plankton layers. The ships thermosalinograph will be run continuously to obtain sea surface temperature and salinity throughout the survey area.

Normal contact will be maintained with the Marine Laboratory and the appropriate Fishery Office. Radio contact will also be maintained with the other vessels taking part in the coordinated survey.

Submitted:
P Copland
9 June 2009

Approved:
I Gibb
12 June 2009.

PROGRAMME AMENDMENT

The following personnel changes will take place:

D Anderson will no longer sail on the cruise, J Stewart will complete the whole cruise.

I Gibb
7 July 2009