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MRV *Scotia*

Survey 1412S

PROGRAMME

16-22 October 2012

Ports

Loading: Aberdeen 13 October 2012
Departure: Aberdeen, 16 October 2012
Unloading: Aberdeen, 22 October 2012

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 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.

Personnel

P Copland	(SIC)
C Davis	
J Dooley	
P Fernandes	(Aberdeen University)
B Scoulding	(Aberdeen University)
J Thorburn	(Aberdeen University)
N Fallon	(Aberdeen University)

Estimated days by project: 7 days; SV02NP (20158)

Sampling Gear

Midwater trawl PT160 x 3.
Seabird 911 CTD

Objectives

- To obtain in-situ target strength data and biological samples from dispersed individuals and schools of mackerel to verify target strength models.

- To obtain echosounder and sonar data from mackerel schools to determine numerical density and abundance.

- To obtain hydrographic data from vertical CTD casts

Specific Objectives

1. Obtain individual in-situ TS measurements of mackerel.

2. Obtain sonar recordings of mackerel schools.

3. Obtain echosounder recordings of mackerel schools.

4. Obtain biological samples of mackerel from schools (trawl).

5. Obtain biological samples of mackerel from dispersed single targets (rod and line).

6. Calibrate Sv and TS gains on the Simrad EK60.

7. Obtain and freeze a length stratified sample of mackerel for analysis on the laboratory.

8. Obtain biological samples of spurdog.

9. Obtain echosounder recordings of spurdog.

10. Obtain hydrographic data from vertical CTD casts

Procedure

All gear will be loaded in Aberdeen between 13 and 15 October. The vessel will depart Aberdeen on 16 October and make passage for Loch Erribol, where a calibration of all echosounders will take place (approximately 8-12 hours at anchor). Crew training and trial deployments of fishing gear will take place en route as convenient for the fishing master.

A provisional timetable of work is included at the end of this narrative.

Scotia will make her way to the survey area after the calibration has been completed. The proposed survey area is shown in Figure 1. However, this is based on the expected position of the Scottish pelagic fleet which will be fishing for mackerel at this time. Contact will be maintained with the fleet and the survey area/design may be altered to reflect any changes in the fish distribution. The survey will follow a pattern of parallel transects running east/west, at normal steaming speed (approximately 10.5 knots) until an area with suitable shoals is found. Work will then be concentrated in that area.

Acoustic data will be collected at four frequencies (18, 38, 120 and 200 kHz) between 0800 and 2000 hours. Fish shoals seen on the echosounder will be identified using a pelagic trawl (PT160). Trawling operations will be carried out up to three times per day at anytime between 0800 and 2000. The vessel's netsonde systems will be required to monitor catch density and position of shoals in the water column during trawling. Where there is evidence of shoals dispersing or single targets then fishing may also be carried out using rod and line.

Biological sampling of all species caught will be carried as per standard sampling protocol.

If required a vertical hydro dip will be carried out immediately following a pelagic trawl, this will require the vessel to use its DP system to remain on station. The ships thermosalinograph will be run continuously to obtain sea surface temperature and salinity throughout the survey area.

Acoustic surveying may continue on an opportunistic basis between 2000 and 0800 to collect data on spurdogs. Rod and line fishing will be carried out to obtain biological samples of these species.

Scotia will be unloaded of fishing and scientific gear on her return to Aberdeen on 22 October 2012.

Approximate Schedule: (All Timings are Provisional)

Date	**Time**	
16 October	10:00	Depart Aberdeen – passage to Loch Erribol
17 October	01:00	Arrive Loch Erribol Calibrate EK60 SV and TS gains
17 October	13:00	Depart Loch Erribol
18 October	09:00	Arrive Viking/mackerel area
18-21 October		Survey/TS measurements/fishing (up to three trawls per day; rod and line by night or day)
21 October	13:00	Depart Viking/mackerel area
22 October	07:00	Arrive Aberdeen

Normal contacts will be maintained with the laboratory.

Submitted:
P Copland
03 October 2012

Approved:
I Gibb
11 October 2012

Figure 1: Survey track 1412S.