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MRV *Scotia*

Survey 1513S

PROGRAMME

7 – 13 November 2013

Ports
Loading: Aberdeen 5 November 2013
Departure: Aberdeen, 7 November 2013
Unloading: Aberdeen, 13 November 2013

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 M Geldart, 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	(In Charge)
R Gillespie-Mules	
R Cairns	
P Fernandes	(Aberdeen University)
B Scoulding	(Aberdeen University)
J Lawrence	(St. Andrews University)

Estimated days by project: 7 days – SU02NP-(20158)

Sampling Gear

Midwater trawl PT160 x 2
Seabird 911 CTD
4 rod and line setups
Go-pro camera system with additional sensors (depth, temp, attitude etc)
Towed hydrophone array

Objectives

- To estimate mackerel density and abundance.
- To study distribution of cetaceans and their relationship to mackerel shoals.

Specific Objectives

1. Obtain echosounder recordings of mackerel schools and map their distribution.

2. Obtain biological samples of mackerel from schools (trawl and rod and line).

3. Calibrate SV and TS gains on the Simrad EK60.

4. Deploy a camera system with additional sensors into the mackerel schools to observe behaviour.

5. Observe marine mammal distribution and activity during daylight hours.

6. Obtain towed hydrophone recordings of mammal vocalisation during survey transects.

Narrative

All gear will be loaded in Aberdeen on 5 November. The vessel will depart Aberdeen on 7 November and make passage for Loch Erribol or Scapa Flow, 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.
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 using email, cell phone and radio communication 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) on a 24 hour basis While transecting a towed hydrophone array will be deployed over the stern of the vessel. It will be recovered prior to any fishing operations.

Fish shoals seen on the echosounder will be identified using a pelagic trawl (PT160). Trawling operations will be carried out up to twice per day at anytime between 09:00 and 21:00 hrs. The vessels netsonde systems will be required to monitor catch density and position of shoals in the water column during trawling. The same schools will be targeted for rod and line fishing to obtain a comparison between trawled and line caught sampling methods.
Biological sampling of all species caught will be carried out as per standard sampling protocol.

A vertical CTD dip will be carried out immediately following a pelagic trawl, this will require the vessel to use its DP system to remain on station.
Deployment of the fishing rod mounted camera/sensor system will be done either in DP or with vessel drifting depending on the conditions.
The ships thermosalinograph will be run continuously to obtain sea surface temperature and salinity throughout the survey area.
Scotia will be unloaded of fishing and scientific gear on her return to Aberdeen on 13 November.

Normal contact will be maintained with the laboratory

Submitted:
P Copland
14 October 2013.

Approved:
I Gibb
31 October 2013.

Figure 1. Provisional Survey track 1513S.