

P17/6

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

FRV *Clupea*

Cruise 1404C

## **PROGRAMME**

28 September - 4 October 2004

### **Ports**

**Start Point:** Fraserburgh

**End Point:** Fraserburgh

**\*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.**

### **Personnel**

\*H M Fraser (SIC)

M R Robertson

N Jacob

### **Sampling Gear**

- Two 4' Sandeel dredges with 6mm cover (or 10 mm cover if this is the standard) and 6' teeth, spare tooth bars.
- Two Day grabs.

### **Equipment**

Seabird CTD, water sample bottles.

### **Objectives**

1. To investigate variation in sandeel population age structure at different locations on the Wee Bankie and Marr Bank from samples collected using the Sandeel dredge.
2. To determine spatial variation in seawater temperature/salinity and chlorophyll across the study area using a Seabird CTD sampler.
3. To investigate potential new sites for sandeel dredging, using the sandeel dredge and Day grab in the Firth of Forth.

## Procedure

The heavy sampling equipment, along with all the scientific equipment required in the main laboratory, will be loaded at Fraserburgh on 22 September 2004. Scientists will join *Clupea* by 1200 hours on the morning of 28 September and the vessel will depart Fraserburgh, if possible, by 1300 hours. *Clupea* will steam to anchor and remain at anchor for the day on Wednesday 29 September, sailing at approximately 1600 hours to commence nocturnal grab and dredge survey work. This work will continue for the following five nights. The sandeel dredge will be deployed at several stations, all sampled during previous cruises. Catches will be worked up to determine numbers of sandeels at length. Sub-samples will be weighed to determine length-weight relationships and otoliths will be collected for age determination in the laboratory. Potential new sandeel dredge sites will be investigated using the Day Grab. Sediment samples will be collected from each grab and stored in the freezer. These will be analysed on return to the laboratory to determine particle size distribution in the sediment at each sample location. All sandeels caught in the grab will be measured, weighed and have their otoliths sampled for age determination. At selected grab stations the CTD will also be deployed. While this night work is done, *Clupea* will lie at anchor during the day. Work will be terminated in time to allow passage to Fraserburgh for unloading on Monday 4 October.

Normal contacts will be maintained with the FRS Marine Laboratory.

J A Morrison  
1 September 2004

**CLUPEA VESSEL**

Programmes - Mr J A Morrison for approval. Reports - Mr J A Morrison for approval.

Issue two copies of Record of Haul and Station Numbers pro-forma with Scientist-in-Charge's copy of *Scotia* and *Clupea* programmes.

Two xerox copies of track chart for reports to be sent to Dr L Rickards.

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**PROGRAMMES ONLY**

**Lab staff**

Mr J T M Hunter  
Mr T Reid  
Mr P J Copland  
Mr J Dunn  
Mr A Beaton  
J Petrie  
Security

**Non-lab staff**

~~Island Cmdr Faroes (Faroes only)~~  
~~Flag Officer, Denmark (Danish part of N Sea only)~~  
Coastguard  
G Lees

**PROGRAMMES AND REPORTS**

**Lab staff**

Mr J A Morrison  
Capt R Denholm  
Mr R S T Ferro ) Fish Man team  
Mr C Hall ) progs only  
Dr R M Stagg  
Dr C Moffat  
Mr M R Heath  
Mr A Macdonald  
D Lichtman (+ additional copy of track chart  
of reports only)  
Mrs E Morrison  
CO/OIC of Vessel (*Scotia*) (to be faxed)  
Library (2)  
File

**Non-lab staff**

~~Library, Danmarks Fisk (reports only)~~  
~~Mr J Mortensen (Faroes only)~~  
~~Mr A Souplet (Fishing Cruises only)~~  
~~Dr S Ehrich (Entering German Waters) (reports only)~~  
W J McCurdy, Belfast  
Technical Director, SFIA (J E Tumilty)  
Dr L Rickards  
Dr I Joint  
Director – Havfor Inst, Norway  
Dr S Ehrich  
Monsieur le Chef du dépt, Nantes  
Mr J C Brabant  
Mrs van Duyvenvoorde  
Dr J G Gordon  
G Kane  
R de Clerck  
Mr B Stewart  
Capt J Cannan (*Scotia* and *Clupea* only)  
Controller Coastal Ops - A Stewart  
Dr P Grieg-Smith  
Mr H C Boyar  
Dr R J A Atkinson  
Mr H i Jákupsstovu  
Mr C Bullimore (To be faxed: 01923 846392)

**Laboratory Personnel on Vessel**

H Fraser  
M Robertson  
N Jacob

**Fishery Officers at**

Fraserburgh