

R1/6

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

FRV *Clupea*

Cruise 1404C

## **REPORT**

28 September - 4 October 2004

### **Personnel**

H M Fraser (SIC)  
M R Robertson  
N Jacob

### **Cruise 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 and Day Grab.
2. To determine spatial variation in seawater temperature/salinity and chlorophyll across the study area using a Seabird CTD sampler.

**Out-turn Days per Project:** 7 days MF07n

### **Narrative**

The scientific equipment was loaded on board *Clupea* at Fraserburgh on 22 September. Scientists joined *Clupea* at Fraserburgh at 1200 on Tuesday 28 September and the vessel sailed at 1300. *Clupea* sailed to the Isle of May and remained at anchor on Wednesday, to switch over to a night-working regime, sailing at 1700 on 29 September to commence nocturnal dredge sampling and hydrographic CTD work in the main study area. Over the following four nights 298 grab stations and eight dredge stations were sampled, and eight hydrographic dips were made.

The modified sandeel dredge was deployed at each of the eight stations sampled previously in 2003. The purpose of these dredge samples was to collect sufficient sandeels for more accurate estimation of population age and length composition on the various sandbanks. At each location the dredge was towed twice along the seabed for 10 minutes, towing down the line in both directions. A scanmar depth unit was attached to the dredge so that the precise time and position of touch-down on to, and lift off from the seabed could be determined. The total number of sandeels in each of these 16 catches was determined and a sub-sample from each was measured to the half centimetre below. Five sandeels from each half-centimetre size class were weighed to determine length-weight relationships. Otoliths were removed from these fish to establish age-length keys. In total 902 sandeels were measured, weighed and otolith sampled.

The grab work involved intensive sampling in the vicinity of each of the dredge stations. The eight main dredge sites had been sampled on many previous occasions. A box, which included the area covered by all previous dredge tows, was drawn around each dredge station. The *Clupea* then drifted across each of the boxes several times with the grab being

deployed constantly in order to assess changes in habitat and density of sandeels across the box. On average 50 grabs were deployed at each site. A total of 298 grabs were deployed. At 36 stations no sediment sampled was obtained. In total 259 valid sandeel assessment grab samples were obtained, of which 114 contained sandeels, providing a total catch of 300 sandeels. All sandeels caught were measured to the half centimetre below and weighed (to the nearest 0.1 g). Otoliths were removed from all fish for age determination back in the laboratory.

The CTD was deployed at each dredge station. CTD data was collected at all eight stations.

During the course of the nocturnal grab and dredge survey, *Clupea* spent daylight hours at anchor off the Isle of May (29 September), Pease Bay (30 September, 1 October), St Andrews (2 October). The cruise programme was completed by 0130 on Sunday 3 October, whereupon the *Clupea* sailed for Fraserburgh, arriving at 1200 on Sunday 3 October.

The scientific equipment was off-loaded and scientists left the vessel by 1100 on Monday 4 October.

H M Fraser  
29 December 2004

## Circulation List: Cruise Programmes and Reports

### 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.

---

### 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