

P17/15

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

FRV *Scotia*

Cruise 1504S

## PROGRAMME

21 October – 7 November

### Ports

**Loading:** Aberdeen, 18-20 October

**Departure:** Aberdeen, 21 October

**Half-Landing:** Lerwick, 29 October

**Unloading:** Aberdeen, 7 November

\*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

		Cabin Request	
P Fernandes	(SIC)	G	
E Armstrong		B	
P Copland		C	
R Watret		F	
S Fassler		A	
C Davis	(21–29 Oct)	D	
C Mueller	(21–29 Oct)	H	Visitor (FRS student)
M Stewart	(29 Oct – 7 Nov)	-	
J Hunter	(29 Oct – 7 Nov)	-	
M Burns	(29 Oct – 7 Nov)	-	
R Skeide	(29 Oct – 7 Nov)	-	Visitor (IMR, Norway)

**Project:** MF01ta – 18 days

### Fishing Gear

Large pelagic trawl PT170 x 2, 100 m sweeps and 8.4 m<sup>2</sup> pelagic doors

Midwater Trawl PT160 x 2 and 4.6 m<sup>2</sup> pelagic doors

Multisampler codend attached to PT160

## Objectives

1. To conduct an acoustic survey to estimate the abundance and distribution of mackerel in the northern North Sea (ICES division IVa).
2. To obtain samples of mackerel for biological analysis, including age, length, weight, sex and maturity.
3. To determine the species composition and target strength of fish in schools using the autonomous echosounder and video rig.
4. To make video observations of the multi-sampling pelagic trawl with the RCTV.

## Procedure

All gear will be loaded onto the vessel from Monday 18 October – Wednesday 20 October. The vessel will depart on Thursday 21 October and head for Scapa Flow, Orkney Islands, where calibration of all echosounders will take place (between 12 and 16 hours). *En route* to the survey start point at a time and exact location to be decided, deployments of the large pelagic net will take place in order to familiarise the crew with its operation.

The survey will then commence at approximately 62°N, 002°W. The survey area is bounded by 58°N to 62°N and 002°E to 04°W. Parallel transects running east / west will then be adopted at normal steaming speed (approximately 10 knots), progressing southwards along the west side of Shetland extending into the Norwegian sector. A one-day half-landing will take place on 29 October in Lerwick to allow for staff rest days (see further details below). The survey will be co-ordinated with the survey undertaken by the Norwegian FRV *GO Sars* in the same area using an interlaced transect design. An intercalibration will take place between the two vessels at an appropriate time.

Acoustic data will be collected at four frequencies (18, 38, 120 and 200 kHz) on a 24 hours basis. Fish shoals seen on the echosounder will be identified using a pelagic trawl (PT170 or PT160). Where appropriate video observations will be made of the multi-sampling pelagic trawl using the RCTV. Fishing operations will be carried out between two and four times per day, and may occur at any time depending on the location of fish marks. 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 mackerel to determine age; sex and the state of maturity will also be recorded. Particular attention should be noted to meshed fish and, if possible, samples of these should be taken to record species and size.

On suitably calm occasions, the autonomous echosounder and video rig will be deployed to make simultaneous measurements of fish target strength and visual observations. This will involve stopping the vessel over a large fish school and dropping the rig into the school for a period of about one hour.

The ships thermosalinograph will be run continuously to obtain sea surface temperature and salinity throughout the survey area. CTD casts will be taken in association with fishing operations.

Normal contact will be retained with the Marine Laboratory.

## **WTD Implications**

### **1. Rest Period Provision**

Staff will be divided into acoustic teams (P Fernandes, S Fassler / M Stewart, E Armstrong, and P Copland) and trawl teams (C Davis / S Fassler and R Watret). The trawl team will work from 0800 to 2100 each day as required, with at least three periods of 30 minutes rest within that working time. Any fish caught between the hours 2100 and 0800 will be put on ice for the team to process in the morning. J Hunter and M Burns will work a similar shift to the trawl team. The acoustic team will work a consistent rota of paired 12 hour shifts. P Fernandes and S Fassler / M Stewart will work from 0300 to 1500; and E Armstrong and P Copland from 1500 to 0300. Both pairs will work a 3-hour-on / 3-hour-off system of acoustic watches and will assist the trawl team as required (e.g. clerking for large catches).

### **2. Rest Day Provision**

All staff will be required to stand down during the half-landing from 12:00 Friday 29 October to 12:00 Saturday 30 October; this will count as a rest day. All staff leaving the vessel on Sunday 7 November will be allowed a rest day on Monday 8 November.

J A Morrison  
18 October 2004

## Circulation List: Cruise Programmes and Reports

### SCOTIA 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  
Mr G Howard  
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

P Fernandes  
E Armstrong  
P Copland  
R Watret  
S Fassler  
C Davis  
C Mueller  
Visitor (FRS student)  
M Stewart  
J Hunter  
R Skeide

#### Fishery Officers at

Shetland