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

FRV *Clupea*

Cruise 1704C

## **PROGRAMME**

17 November – 01 December 2004

### **Ports**

**Loading:** Fraserburgh

**Unloading:** 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**

*E Hatfield	(In charge)
P Copland	
J Drewery	
O Gaudie	
M Stewart	
A Weetman	17-23 or 24 November - 1 December
C Wylie	23 or 24 November - 1 December

**Out-turn days:** 15 days - MF0465

### **Sampling Gear and Equipment**

Modified PT154 with 6 mm codend  
Scanmar (height and spread units)  
Simrad EK500  
Seabird CTD

### **Objectives**

1. To carry out detailed acoustic surveys in selected lochs, the Sound of Sleat and North Minch (if time allows) using the EK 500 to determine the distribution and abundance of herring and sprat. Concentrations of pelagic fish will be sampled using the PT154. Species composition and length-frequency distributions of the fish caught will be determined. Sub-samples will be weighed and otolithed to establish length-weight relationships. Herring samples will be analysed for sex, maturity and *Ichthyophonus* infection. Stomach, gonad and DNA samples will also be taken, as

part of the EU project WESTHER. Sprat samples will be analysed for *Lernaeenicus sprattae* and *Cryptocotyle lingua* infection.

2. A line of CTDs will be carried out through each loch.

### **Survey Areas**

Main survey areas - Loch Carron, Loch Duich, Loch Hourn, Loch Nevis.  
Secondary survey areas - Sound of Sleat, North Minch.

### **Procedures**

*Clupea* will load on 12 November. On sailing, on 17 November, *Clupea* will proceed to Kyle where scientific staff will join the ship. The survey will work within the sea lochs in a pattern determined by tides. The trip will concentrate on pelagic species and the acoustic survey in the selected sea lochs. If time allows at the end of the trip, zig-zag transects and fishing will be carried out across the North Minch.

Where possible contact with commercial fishermen working in the lochs will be made before the start of the cruise to establish the distribution and shooting patterns of the static gear in an effort to avoid damage.

### **Staff**

Scientific staff will join the ship at Kyle at the start of the cruise. Scientific staff may return with the ship to Fraserburgh, on 30 November, if time allows work to be carried out in the North Minch. In case of inclement weather staff will leave the ship at Kyle.

There will be a scientific staff changeover, on the evening of 23 or 24 November, at a suitable port, likely Kyle of Lochalsh.

### **WTD**

The weekends of 13/14 November and 4/5 December will cover the cruise and no rest days will be due.

Normal contact will be maintained with the laboratory.

J A Morrison  
29 October 2004