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

FRV *Clupea*

Cruise 1396C

## REPORT

21 August - 6 September 1996

**Half-landing:** 1 September 1996

### Personnel

A D McIntosh	HSO	21 August - 6 September
D C Moore	SSO	21-25 August
R M Stagg	PSO	25 August - 1 September
J R G Hislop	PSO	25 August - 1 September
C Robinson	Res Ass	1-6 September

**Fishing Gear:** BT 116 Prawn Trawl; 3 m Beam Trawl

### Objectives

1. Sampling flatfish to investigate the effects of contaminants on reproductive physiology.
2. Sampling fish for biological effects monitoring for NMP.
3. Sampling sediments for hydrocarbon and other chemical analyses.
4. Sediment sampling and magnetometer survey associated with the Beaufort's Dyke monitoring.

**Out-turn days per project:** 10 days BGG1; five days BIA1; two day BEAZ

### Narrative

*Clupea* was loaded in Fraserburgh with all necessary sampling and scientific equipment and then made passage to the first sediment sampling area in the Moray Firth, where five macrobenthic samples were taken by Day grab for National Monitoring Plan AQC purposes. A trawl was taken over this area from which dab and plaice were sampled for biochemistry. On completion of this station, *Clupea* sailed for the North Minch, arriving on site at 1330 hours on 22 August. Five macrobenthic samples were taken for the National Monitoring Plan AQC. A number of trawls were then taken but failed to provide the necessary samples. The site was abandoned at 1900 hours, and *Clupea* arrived and anchored for the night at 1930 hours at Isle of Ristol. On the morning of 23 August, after investigating other possible fishing sites, *Clupea* made for the Gairloch area where a successful trawl was taken off Melvaig providing the fish samples required. *Clupea* then

made passage south and arrived at 2100 hours for anchorage overnight in Loch Brittle, sailing at 0700 hours on the morning of the 24th for the west side of Rhum where sediment type was investigated with a view to fishing. The sediment was fine silty sand, unsuitable for the flatfish species required. A deep core was taken successfully at this site and split into 1 cm portions. A suitable fishing ground was located north of Coll, and sufficient dab and plaice were obtained from one trawl. The beam trawl was deployed and fished for a 20 minute tow, to ascertain whether further smaller dab and plaice could be caught. There did not appear to be much difference in the catch by beam trawl. Passage was then made for an overnight anchorage - Loch Buie - south side of Mull arriving at 2115 hours. On the 25th, further fishing attempts were made on the south side of Mull. This area proved unsuccessful and *Clupea* then went further south, to the north end of Colonsay where a successful trawl was taken providing a sufficient sample of the species of interest. *Clupea* then made passage north to Oban, arriving at 1800 hours where D Moore disembarked and R Stagg and J R G Hislop joined the boat. *Clupea* berthed overnight in Oban, sailing again at 0700 hours on the 26th and made passage south to the proposed sampling site off the south of Jura. Fishing at this site proved unsuccessful and *Clupea* made passage for the previously successful site off Colonsay, arriving Loch Tarbert at 2200 hours for anchorage overnight, sailing again on the morning of the 27th, and after successfully obtaining a sufficient sample of fish at Colonsay, sailed for and arrived at 2230 hours for overnight anchorage off Pladda Island.

The Pladda site was successfully fished on the 28th, and *Clupea* then made passage for the designated National Monitoring Plan AQC Clyde site, where five samples were successfully taken for macrobenthos. *Clupea* then sailed for and arrived at Ardrossan at 1630 hours to pick up liquid nitrogen and a spare BT116 net and berthed overnight, sailing again on the morning of the 29th. *Clupea* then trawled at sites off Irvine Bay and Ardrossan and berthed at 1830 hours in Ardrossan where a centrifuge was collected on loan from the Marine Station at Millport. *Clupea* berthed in Ardrossan overnight, before sailing again on Friday 30th to fish on the Garroch Head dump site. *Clupea* anchored overnight in Kilchattan Bay at 1830 hours, sailing on Saturday 31 August and fishing off Hunterston and again the Garroch Head site before arriving in Ardrossan at 1830 hours and berthing for the half landing.

C Robinson arrived at 1000 hours and R Stagg and J R G Hislop disembarked and departed for Aberdeen. *Clupea* remained in Ardrossan for the half landing. *Clupea* sailed from Ardrossan on the morning of Monday 2 September and made passage for the Beaufort's Dyke sediment sampling site, where 13 stations were occupied successfully before anchoring overnight at Port Yerroch at 2200 hours. The next morning was spent fishing for a adequate sample of plaice in the Solway Firth, and subsequently sampling sediment by grab at the designated National Monitoring Plan AQC site and for temporal trend monitoring studies along a transect of the Solway Firth. *Clupea* arrived at 2100 hours and anchored overnight at Kirkandrews Bay. On the 4th, the remainder of the Solway Firth sediment samples were taken before *Clupea* made passage for the transects west of the Beaufort's Dyke where further sediment samples were taken. On completion of this sampling, *Clupea* conducted a magnetometer survey on six legs of the required area, then sailed for an overnight anchorage in Lady Bay, Loch Ryan. *Clupea* sailed at 0645 hours on the morning of 5 September to complete the magnetometry survey to the west of Loch Ryan. Subsequently, *Clupea* sailed for Ardrossan, berthing at 1800 hours on Thursday 5 September.

On the morning of 6 September all the fishing gear, scientific equipment and biological samples were unloaded and personnel disembarked for return to Aberdeen, arriving at the Marine Laboratory at 1300 hours.

### **Results**

All sediment samples were treated according to standard protocols and those for hydrocarbon extraction, heavy metal and particle size stored frozen for subsequent analysis in Aberdeen. Fishing was mainly conducted using the BT 116 prawn trawl, the beam trawl being less successful in the areas of interest which are indicated on the attached chart. The fish sampled will provide material for biochemical measurements, including mixed function oxidase, vitellogenin and oestrogen estimations, and organ-specific histopathological analyses. All fish samples, from 44 trawls at 14 sites, provided sufficient dab and plaice which were treated according to standard protocols and stored appropriately for subsequent analysis in Aberdeen. Results from these analyses will be made available in due course.

A D McIntosh  
13 September 1996

Seen in draft: Norman Beadie, OIC *Clupea*

# Clupea 1396C Track Chart and Sampling Areas

