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FRV *Clupea*

Cruise 1600C

## REPORT

13-24 November 2000

**Loading:** Fraserburgh

**Unloading:** Fraserburgh

## Personnel

A D McIntosh (In charge)

L Campbell

D Tait

G Packer

**Fishing Gear:** BT116 and light beam trawl

## Objective

To undertake fish and sediment sampling in the Clyde and Minch areas in support of the temporal trend and biomarker monitoring studies.

**Out-turn Days Per Project:** 12 days AE10n

## Narrative

Staff accompanied the scientific gear, which was loaded and secured aboard *Clupea* by 1100 hours on 13 November. Due to poor weather, sailing was postponed until 0600 hours on Tuesday 14th, when passage was made to the west coast, arriving in Broad Bay and anchoring by 0300 hours on Wednesday 15th. Fishing commenced at 0730 hours and continued until 1600 hours. Sediment samples were taken as representative of the trawling area. Due to inclement weather in the Minch, *Clupea* anchored overnight in Broad Bay.

Sailing again at 0700 hours on Thursday 16th, passage was made south towards Loch Torridon where it was the intention to trawl for fish samples in the vicinity of fish farming activities in the area. Due to the number of fleets of creels in this area it was considered inappropriate to attempt any fishing in the area and passage was continued to Colonsay, arriving at 0030 hours on Friday 17th and anchoring overnight. Fishing at this site commenced at 0730 hours and after collecting sufficient fish and sediment samples, passage was made to the Clyde, arriving at 2330 hours and anchoring overnight in Campbeltown Bay.

After checking the ground for creels, fishing at Pladda commenced at 0915 hours on Saturday 18th. With only five fish being obtained, and the net sustaining considerable damage, sediment samples were taken and passage was made for Irvine Bay where fishing was completed by 1800 hours and *Clupea* berthed overnight in Ardrossan.

After being delayed leaving Ardrossan harbour, due to it being closed, on the morning of Sunday 19th, fishing commenced at 1115 hours at Garroch Head. Further trawls were taken at 1500 hours and 1900 hours before anchoring overnight in Kilchatton Bay. These trawls provided fish for a time series experiment where 24 plaice were transferred from the trawl into tanks and sampled at time zero, plus three hours, plus 12 and plus 24 hours. While all parameters were sampled on each of the 12 sampling occasions, the main purpose was to sample the bile, for PAH metabolites, and to compare the gut contents, at these time intervals.

Fishing was carried out at Hunterston and Skelmorlie during Monday 20th and samples of flounder from the upper Clyde, collected by the SEPA West vessel *Endrick*, were transferred to *Clupea* which berthed overnight in Rothsay.

*Clupea* sailed at 0730 hours on Tuesday 21st for the Holy Loch where a trawl and sediment samples were taken. Further sediment samples were taken at Greater Cumbrae, off Brodick Bay and Holy Island before *Clupea* started passage north on route to Fraserburgh. The weather forecast was unpromising for the remainder of the week but with favourable weather conditions during Tuesday and continuing on Wednesday, good time was made on the passage north. Less favourable weather was experienced late on Wednesday and during Thursday. *Clupea* arrived in Fraserburgh where docking was completed by 1230 hours on Thursday 23 November. Scientific personnel returned to Aberdeen by public transport. All scientific gear and samples were transferred to the Marine Laboratory, Aberdeen on 24 November.

## Results

In support of the trend monitoring programme, a total of 215 plaice were sampled from seven sites and provided liver tissue for mixed function oxidase activity, DNA analysis, polycyclic aromatic hydrocarbon (PAH) and polychlorinated biphenyl (PCB) analysis. Bile was sampled, from those fish with bile present in the duct, for PAH metabolites. Flesh was sampled for PAH and PCB analysis. Gonads were taken for gonadic somatic index determination. Length, weight and sex were recorded and otoliths taken for age determination.

Sediment was sampled from the start, middle and end of each trawl site and additionally at a further three locations. Each grab sample was divided into three aliquots and provided a total of 81 samples for PAH and PCB determination.

The flounder samples were taken in support of the Marine Laboratory's participation in the National Marine Monitoring Programme (NMMP). In addition to the somatic measurements, samples also included liver and flesh for PAH and PCB determination.

Analyses on these samples will be carried out at the FRS ML and elsewhere and results made available in due course.

A McIntosh  
5 December 2000

Seen in draft: A Simpson (OIC *Clupea*)

Sampling Locations; 1600C; 13 - 24 November 2000

