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FRV *Clupea*

Cruise 0105C

REPORT

28 January – 11 February 2005

Ports

Loading: Fraserburgh
Unloading: Fraserburgh

Personnel

P Copland (In charge)
J Drewery
J Mills
M Stewart
C Wylie

Sampling Gear and Equipment

Modified PT154 with 6 mm codend
Scanmar (Headline depth and door spread units)
Simrad EK500
Seabird CTD
Licor light level unit

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 age-length and length-weight relationships. Herring samples will be analysed for sex, maturity, *Ichthyophonus* and *Cryptocotyle lingua* infection. Sprat samples will be analysed for *Lernaeenicus sprattae, L. encrasicoli* and *Cryptocotyle lingua* infection. Stomach samples will also be taken from both herring and sprat.

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

Out-turn Days Per Project: 15 days MF0465

Narrative

Due to poor weather, *Clupea's* sailing from Fraserburgh was delayed until 2300 on 28 January. Scientific staff joined the vessel at 0800 on 30 January in Kyle of Lochalsh and the vessel sailed immediately to commence a survey of Loch Hourn on the ebb tide. A pelagic trawl was carried out to sample fish traces seen. Loch Nevis was surveyed on

31 January and 1 February and two trawls were carried out to obtain biological samples from observed fish traces. Vertical plankton sampling was carried out at the centre position of each of these trawls.

Flood and ebb tide surveys were carried out in Loch Duich on 2, 6 and 8 February when two trawls on surface marks were carried out. A vertical plankton dip was used to collect samples for comparison with stomach contents of fish caught in the haul. Six CTD's were undertaken in the Loch. Despite these repeated surveys it was not possible to obtain a biological sample of small marks seen in 50-60 m of water. These marks were always in positions where static gear or shallow water made trawling untenable.

In order to try to obtain a sample from an area close to Loch Duich a partial survey of Loch Alsh was carried out on 6 February. Unfortunately no similar fish marks were seen.

Loch Carron was visited on 3 and 7 of February and ebb and flood tides surveys undertaken with two repeat trawls and an associated plankton dip. Four CTD's were carried out in the loch.

Flood tide surveys were carried out in Lochs Hourn and Nevis on 4 and 5 February respectively.

Samples for chlorophyl analysis were taken at each CTD station and light level readings were recorded throughout the cruise. Herring samples, from each haul, were analysed for sex, maturity, *Ichthyophonus* and *Cryptocotyle lingua* infection. Sprat samples were similarly analysed for *Lernaeenicus sprattae, L. encrasicoli* and *Cryptocotyle lingua* infection. A total of 10 trawl hauls and 20 CTD stations were carried out during the survey.

Calibration of the acoustic systems for all 3 frequencies was carried out in Loch na Beiste on the evening of 8 February.

Unfortunately plans to survey the Northern Minch had to be abandoned due to severe weather conditions. All scientific staff left the vessel in Kyle of Lochalsh on the morning of 9 February. *Clupea* was unloaded in Fraserburgh on 11 February.

Discussions

In general, fish traces seen in the lochs were adequately sampled on at least one occasion for biological data for stock estimation. Loch Duich proved an exception for deeper traces. Unfortunately the number of traces seen in all the lochs was extremely small compared with previous surveys. This may make observing differences in fish densities due to tidal effects difficult.

P Copland
27 May 2005

Seen in draft: A Simpson, OIC FRV *Clupea*