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

FRV *Clupea*

Cruise 1096C

REPORT

5-14 July 1996

Ports

Loading:	Fraserburgh
Unloading:	Ardrossan

Personnel

P A Gillibrand	HSO (in charge)
R Payne	HSO
S J Hay	HSO
N S Collie	PTO

Objectives

To conduct a large scale hydrography, chemistry and biology survey of the Minches area, from 56°20'N-58°30'N between the mainland and the Outer Hebrides.

Out-turn days per project: 10 days BKF1

Narrative

After loading during the morning, *Clupea* sailed from Fraserburgh at 1400 hours on 5 July and proceeded toward Cape Wrath and the North Minch, arriving early the following morning. Sampling commenced at 0800 hours on Saturday 6 July. Due to poor weather conditions and some difficulties with instrumentation, only three stations were completed that day. Each station consisted of two plankton tows, with the dual methot net and OCEAN sampler, a CTD cast and water sampling. In addition, at some of the following stations, a 250 micron mesh vertical net was used for further plankton sampling. On the following day, 7 July, six stations were worked, completing the two most northerly lines.

Over the following five days, *Clupea* worked steadily southwards (see attached cruise track). Due to time constraints, some prioritisation of the planned stations had to be made in order to provide the large scale coverage required. Later in the cruise, some stations were worked with only the CTD, to provide more detail of hydrographic processes without using too much ship time. During Friday 12 July, *Clupea* worked from Barra Head to Tiree, from where it had been planned to work northwards to the Sound of Mull. However, the weather forecast on Friday was for imminent southerly gales and at 2100 hours *Clupea* headed southward and made passage to Ardrossan, where she docked at 1000 hours on Saturday 13 July. Staff returned to Aberdeen on Sunday 14 July.

Objectives

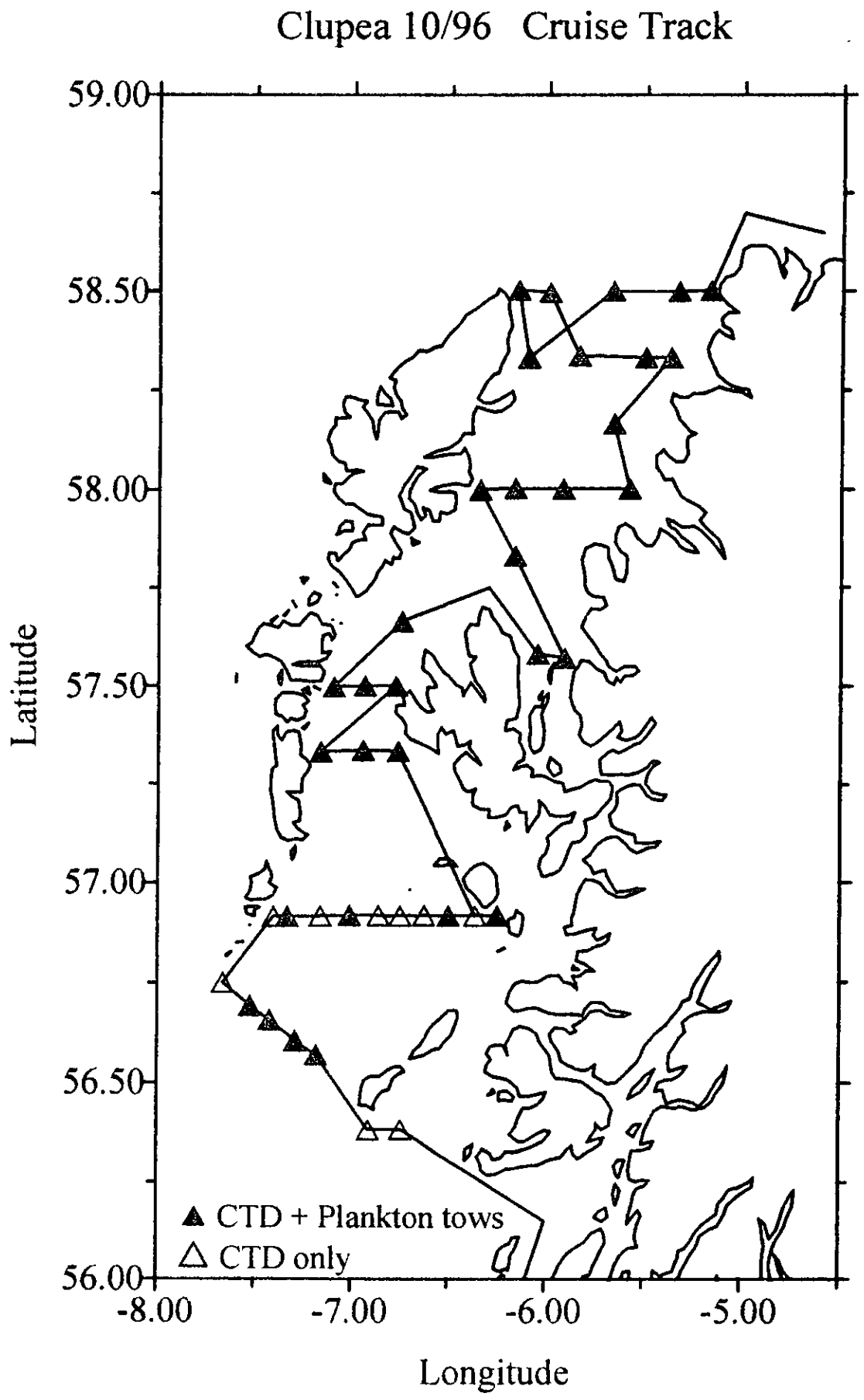
The objective was completed, in that hydrographic, chemical and biological samples were taken throughout the Minches area. However, due to time constraints, the coverage was not as detailed as originally planned. In all, 41 CTD casts were and a total of 94 plankton hauls (including vertical nets) were made. Water samples for nutrient analysis were taken at 37 stations.

Results

Preliminary analysis of the hydrographic results indicates significant north/south and east/west gradients within the Minches. In the North Minch, temperatures and salinities are generally lower than in the South Minch and a distinct east/west divide also exists, with colder, fresher water lying along the mainland coast. Cold water also lies in the deeper basins of the North Minch along the east shore. In the South Minch, the deep intrusion along the western boundary of cooler, high salinity water (S>35.0) was observed, confirming measurements taken in 1995 showing a dome of high salinity water in the area.

P A Gillibrand
22 July 1996

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


Clupea 10/96 Cruise Track
59.00
58.50
58.00
57.50
57.00
56.50
56.00
Latitude
-8.00
-7.00
-6.00
-5.00
Longitude
▲ CTD + Plankton tows
△ CTD only