

R1/6

Not to be cited without prior reference to the Laboratory

FRV *Clupea*

Cruise 0293C

REPORT

5-9 February 1993

Ports

Loading: Fraserburgh
Unloading: Fraserburgh

Personnel

W R Turrell SSO (in charge)
R Payne HSO
R D Adams SO
B McCreadie ASO

Objectives

1. To lay two current meter moorings (Numbers 4 and 6 - Tay series).
2. To undertake a hydrochemical survey of the northeast coast.

Narrative

Scientific staff joined *Clupea* at 1030 on Friday 5 February. Equipment was unloaded, set up and secured. *Clupea* sailed at 1300 that day, and proceeded directly to the mooring positions off the Tay estuary. By 1200 of the following day, Saturday 6 February, mooring 6 had been deployed, and by 1700 mooring 4 had been successfully deployed. *Clupea* immediately proceeded to enter the Tay estuary to perform stations H1-H3. These were completed by 1800 that evening, and *Clupea* then proceeded to St Andrews Bay to lie at anchor until 0000 Sunday 7 February.

Twenty-four hour survey work then commenced, with the Eden Mouth line (K1-K12) being completed by 0500, the Fifeness line (M1-M11) by 1130, the Tay Mouth line (J1-J10) by 1630 and the Tay North line (I1-I10) by 2200. The Todhead Point line (S1-S9) was completed by 0400 on Monday 8 February, followed by the Dee line (F1-F8) by 1030, and the Balmedie line (R1-R8) by 1400. As much data had accumulated over this intensive 36 hours of survey work, during which the complete Tay and North East Coast survey series had been completed (71 stations in all, 418 nutrient samples), *Clupea* proceeded to Fraserburgh to allow the backlog of processing to be cleared. She entered harbour at 2200. Scientific gear was packed, and scientific staff left the vessel at 1030 on Tuesday 9 February.

Results

Tay Survey

Generally conditions were vertically homogeneous, with some slight stratification mainly due to salinity. Inshore temperatures were slightly warmer (6.2°C) than offshore temperatures (5.9°C), most markedly off Eden Mouth. Salinities ranged from 33.24 (inshore Tay Mouth) to 34.66 (offshore Tay North). These high salinities were the greatest observed during this coastal zone survey. No low inshore salinities were observed along the Tay North section, again indicating the Tay plume mainly advected south.

North East Coast Survey

Temperatures were cooler along the north east coast, with inshore values of 5.8°C and offshore values of 5.7°C. Some inshore salinity stratification was evident in the Dee and Balmedie sections, with surface salinities of 33.5 compared to near-bottom values of 34.2. Offshore salinities did not reach the high values observed in the Tay survey, with the highest values being 34.52.

Nutrient Values

Owing to the new method of working coastal zone nutrients, no analyses was preformed on board, hence details must await laboratory work.

Fluorescence Profiles

The use of ROSIE to collect water samples for nutrient analyses not only reduces time-on-station to approximately 10 minutes (from a previous average of 25 minutes - saving about 18 hours during this survey of 71 stations), but also provides vertical profiles of fluorescence at each station worked. While the winter conditions that prevailed during the survey resulted in vertically homogeneous fluorescence profiles, there was clear evidence of real small scale vertical variability (down cast reproduced by up cast) that must await more detailed investigation.

W R Turrell

23 February 1993

Seen in draft: Stanley Clark (OIC, *Clupea*)

SCOTTISH NORTH SEA COASTAL ZONE PROJECT 1993

