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FRV *Lough Foyle*

Cruise 1191

REPORT

8-15 November 1991

Personnel

S Hay	HSO (in charge)
R Mitchell	SSO (8-11 November)
C Hall	SSO
D Reid	SSO (11-15 November)
R Adams	SO
E Macdonald	SO
F Brown	ASO
J Turriff	ASO
R Bellerby	Visitor (Plymouth Marine Laboratory)

Objectives

1. To deploy and service instruments on moorings in Loch Linnhe.

2. To carry out a programme of physical, chemical and biological sampling in Loch Linnhe.

Narrative

The vessel sailed from Oban at 1500 on Friday 8 November and discovered that the spar buoy marking the Lismore mooring had disappeared. Contact was made with Aberdeen to provide a replacement. Although the moored instruments and current meters were recovered there was no sign of the moored thermistor chain and this is presumed lost. The vessel then sailed to the inner loch and early the next morning recovered and redeployed the moored instruments at this site. Due to imminent bad weather the outer loch mooring became the next priority and was recovered and redeployed successfully during 9 November 1991 with a surface current meter also placed temporarily on the mooring. On 10 November 1991 a fixed station with sea bed coring, water sampling, CTD and other instrumented depth profiles, live zooplankton collections and incubation experiments to measure primary production, nutrient regeneration, zooplankton excretion and microheterotroph grazing, was carried out at the inner loch mooring site. This was followed by a tow with the multi-depth Aries plankton sampler down the inner loch from Fort William. The rest of the day from 1330 was lost due to bad weather.

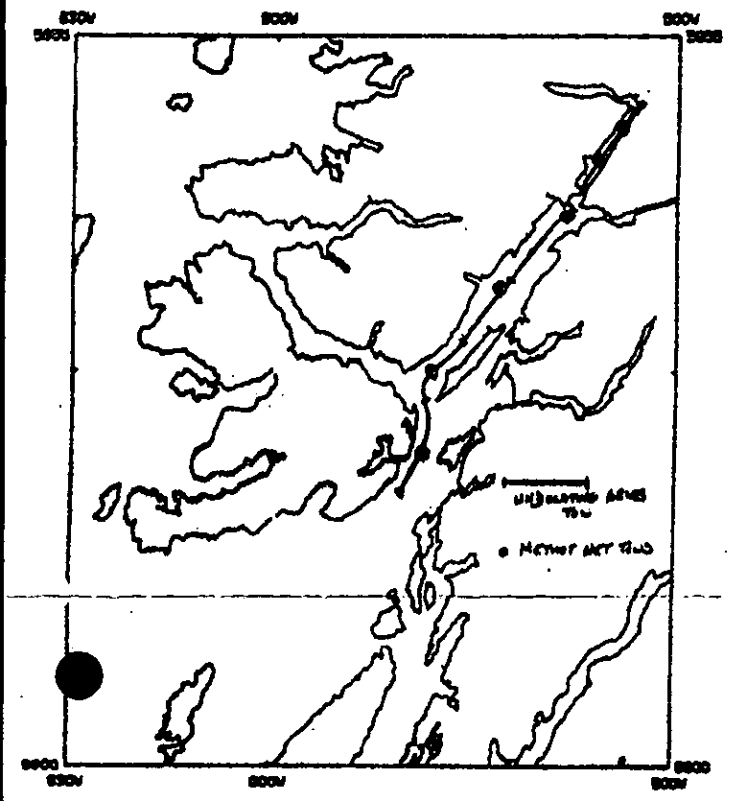
On the morning of 11 November 1991, after a short steam from sheltered anchorage at Craignure Bay, two further Aries tows were done in the outer loch basin before calling in at Oban 1330 to exchange staff, pick up the new mooring and repair navigation equipment damaged by lightening strike in the morning. Sailing from Oban at 1630 a further Aries tow was made in the Firth of Lorne before once more the weather made work impossible. Despite an attempt to find a sheltered area to work, the stormy weather resulted in no work being possible during Tuesday 12 November apart from a calibration exercise on the sonar equipment while at anchor.

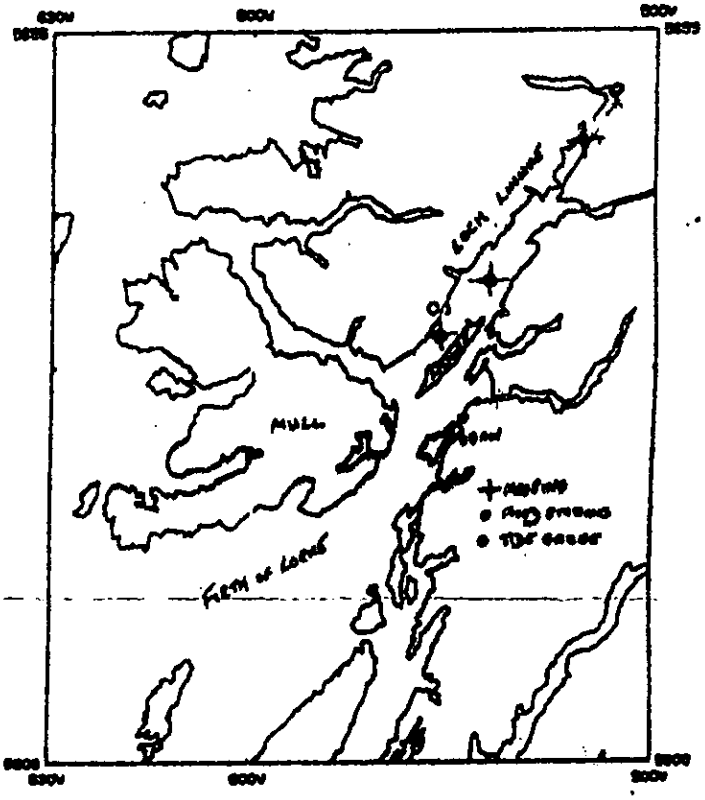
On 13 November 1991 the new marker buoy was laid at Lismore and the moored instruments were redeployed. Sonar transducers were set up and run as an Aries tow was made and sonar records kept thereafter on the cruise. Five Methot net tows were made for macrozooplankton in the outer and inner lochs. This was followed by fixed station sampling at the outer loch mooring site which continued into the morning of 14 November 1991. After a short steam to Fort William, where a tide gauge was reinstalled on the shore, the towed CTD, zigzag survey of the surface waters of the loch was commenced at 0800 and completed at 1600 in the Firth of Lorne. One further Methot sample was collected in the Firth before moving to the Lismore mooring site to sample depth profiles of water. A considerable amount of data was collected during the later half of the cruise using the Roxann sea bed discrimination system. After on board analysis was completed the gear was tidied and packed ready for unloading. The ship docked in Oban 0800 on 15 November 1991. After a brief stop at Dunstaffnage to read the continuous light-meter record, staff returned by minibus to Aberdeen.

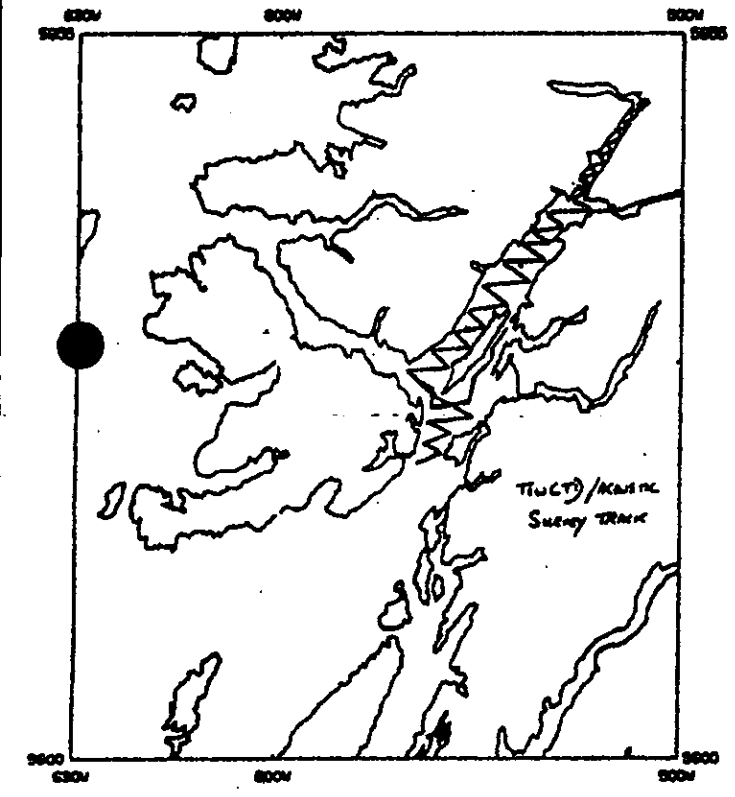
Results

Despite very bad weather and with the exception of the lost thermistor chain, all the moored instruments were safely recovered and new units deployed in their places. Low chlorophyll concentrations were found throughout the loch system despite fairly abundant nitrate concentrations. An extensive low salinity surface layer was present particularly in the upper reaches of the loch with low light transmission in this layer. It was evident from the net catches that zooplankton biomass in the surface waters was low and dominated by the small copepod *Acartia*. However, in deeper water considerable numbers of euphausiids and some *Calanus* were found. The density distributions and species assemblages of the zooplankton community varied particularly with depth but also between areas of the loch system. Acoustic data on vertical distribution of biomass along the cruise track was obtained and experimental work on live phyto/zooplankton was conducted at two fixed stations. Large amounts of information were downloaded from the instruments deployed and many samples collected for further analysis in the Laboratory.

S Hay
2 December 1991







Lough Foyle Cruise 11/91

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