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Charter Cruise FRV *Lough Foyle*  
Cruise 6/91, 14-21 June 1991

## REPORT

### Personnel

S Hay	HSO	(in charge 14-17 June)
J Dunn	HSO	(in charge 17-21 June)
R Mitchell	SSO	(14-17 June)
C Hall	SSO	
P Copland	HSO	(17-21 June)
R Payne	HSO	(14-17 June)
P Rankine	HSO	
E Macdonald	SO	
F Brown	ASO	
A Ross	Visitor	(Strathclyde University, 17-21 June)
A Rees	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

SOAFD equipment was loaded and set up in Oban on 14 June, and the vessel sailed at 1500. Calibration sampling was performed and all three moorings were serviced over the next two days with problems encountered only when it was discovered that all the surface floats had been removed from the mooring in the outer loch. This mooring was retrieved safely by grappling the ground chain. Coring, water sampling and CTD work were carried out at night on two fixed stations, and a series of towed deployments were made with the ARIES sampling system. Live material was collected for use in experimental studies at Dunstaffnage Laboratory.

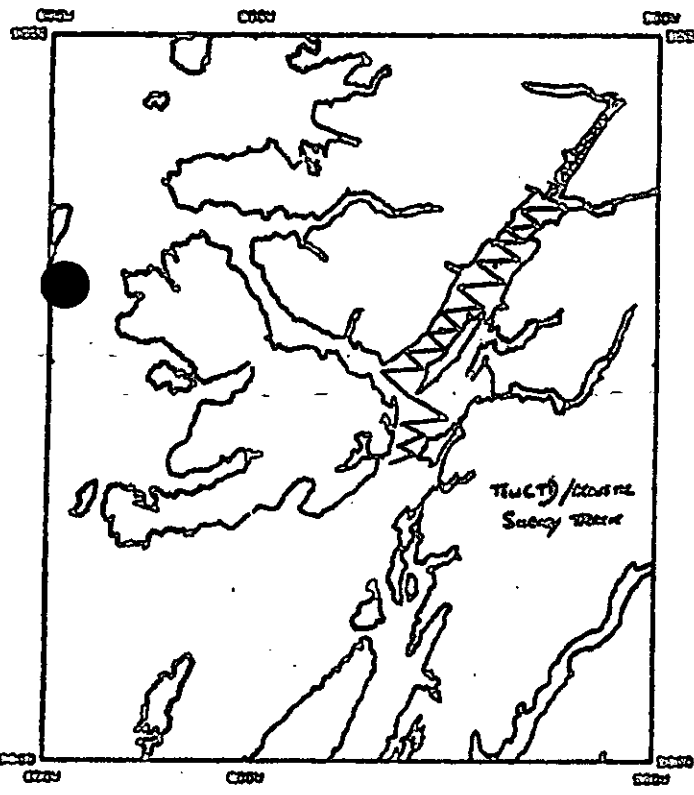
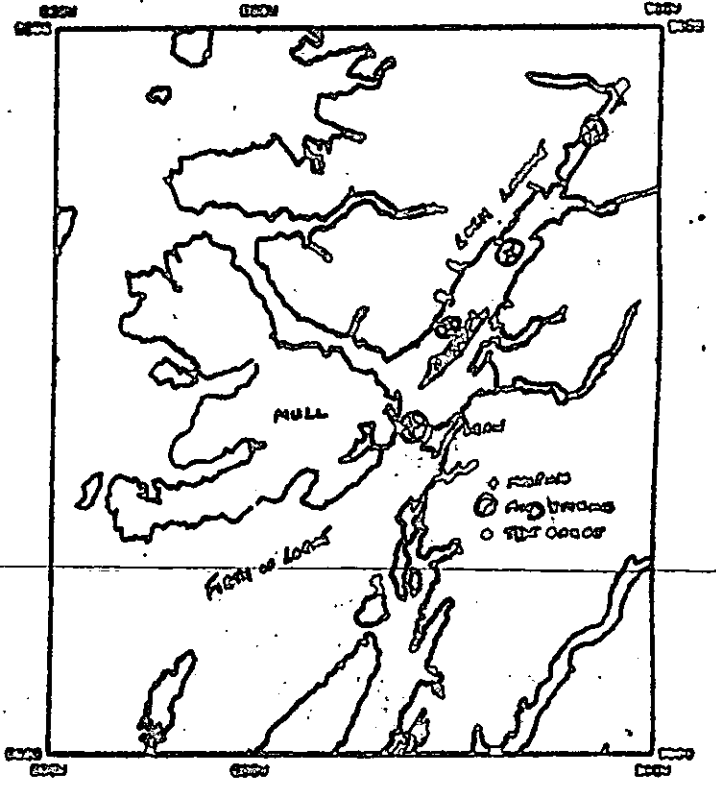
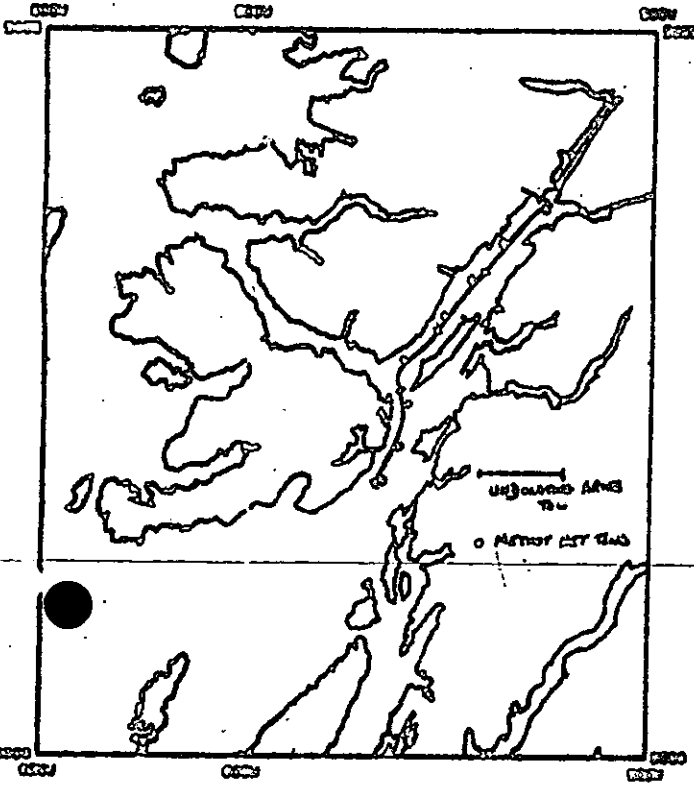
Staff were exchanged at Oban on 17 June and a further ARIES deployment was made in the Firth of Lorne. Over the next three days two further fixed stations, a zig zag, surface-towed CTD survey, and two Methot net surveys were performed, with both small and large Methot net hauls made for comparison. Also a further ARIES deployment was made through the Corran narrows and into the outer loch. Experimental incubations of live caught material were performed at all four fixed stations to study primary production, nutrient uptake, zooplankton excretion and microzooplankton grazing. A dual frequency echosounder survey was run in association

with the towed CTD and Methot net surveys. After calibrating the sonar gear and packing up through the last night, the vessel docked at 0830 on Friday 21 June, unloaded and sailed. The SOAFD staff having called at Dunstaffnage to download the month's recorded lightmeter information, returned to Aberdeen.

### Results

Most of the moored instrumentation had functioned well and the data recovered indicated that the spring bloom of phytoplankton in Loch Linnhe was over, although phytoplankton levels were still quite high and, despite depletion of dissolved nitrate concentrations, there were still quite high nitrate and ammonia levels in the loch. Evidence of algal fall-out was found in the sediment traps. Samples from the ARIES deployments indicated that increased zooplankton biomass, noted on the previous cruise and thought to have been largely imported from outside the loch system, was declining in places, perhaps in response to the very large numbers of a predatory scyphomedusan, *Aurelia*, present in both basins of the loch. As on the previous cruise, *Aurelia* were most abundant in the outer loch around Lismore. There were also increasing numbers of another predator, the ctenophore, *Pleurobrachia*, noted in the samples; the number of another scyphomedusan, *Cyanea*, were also increasing along with their prey which are largely the other species of medusae. Considerable numbers of 0-group whiting were taken in the Methot tows and could be seen in the water associated with the *Cyanea*. 0-group cod were also caught in these nets.

S Hay and J Dunn  
7 August 1991



Lough Foyle Cruise 6/91

1991