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IN CONFIDENCE: Not to be quoted without reference to
the laboratory.

CRUISE REPORT

FRV "MARA"

24 November-18 December 1970

OBJECTIVES

1. A survey of selected mainland and island sea lochs with Multi-depth Plankton Indicators, associated with temperature and salinity observations.
2. Two transects of the Minches with Multi-depth Plankton Indicators and temperature and salinity observations.
3. A survey of selected mainland and island sea lochs for euphausiids and other crustaceous plankton, using 1m 60 and WP3 nets.
4. Collection of biological material for trace metal determinations.
5. Field trials of underwater TV system at Loch Ewe and Loch Eil.
6. A routine survey of Loch Linnhe and Loch Eil.

NARRATIVE

Messrs Adams and Bainbridge joined "Mara" at Corpach on the afternoon of 24 November and the vessel sailed the following morning. During the following three days work was completed in Loch Linnhe, Hause Bank area and Loch Nevis and the vessel then berthed at Kyle of Lochalsh for the weekend of 28-29 November.

Mr Bainbridge was replaced by Mr Canning on 29 November. On 30 November a transect of the South Minch was completed in excellent weather, but during the remainder of that week the weather gradually deteriorated, forcing the ship to take shelter in Stornoway on the afternoon of Thursday 3 December. However a line of stations was completed from Loch Boisdale to East Loch Tarbert.

On 5 December Mr Canning was replaced by Mr Collins, and "Mara" left Stornoway on the morning of 7 December. A transect of the North Minch was completed that day, and the vessel berthed at Aultbea to land deep frozen material for Dr Topping. On the following day the vessel proceeded north to work in Enard Bay and Loch Cairnbawn. Weather conditions proved unsuitable however, and the ship returned to work in the Loch Broom area.

Messrs Adams and Collins left the vessel at Ullapool on Friday 11 December, and were replaced by Messrs Priestley and Shand on Sunday 13 December. Field trials of the underwater TV system were then conducted at Loch Ewe,

in which Mr Eleftheriou took part, and at Loch Eil where Messrs Topping, Blacknell (SMBA), Wilson and Currie (Pulp Mill observers) joined the ship.

On completion of these trials Mr Burns joined the vessel to carry out the routine survey of Loch Linnhe and Loch Eil.

RESULTS

Temperature, salinity and oxygen

Surface temperatures ranged from 7.3 to 10.1°C in Loch Linnhe, 9.8 to 10.4° in Loch Nevis and from 7.0 to 9.4° in the Loch Broom area. Surface salinities in the same area were - 11.03 to 31.99‰, 33.49 to 32.73‰, and 22.90 to 34.29‰- respectively. Off the east coast of the Outer Hebrides temperatures ranged from 9.5 to 9.8° and salinities from 34.69 to 34.75‰. Detailed profiles of temperature and salinity were obtained at all stations for comparison with the multi-depth indicator samples. At some stations oxygen samples were also obtained, and at only one of these stations - in Little Loch Broom - was any indication of stagnant water found.

Plankton

In none of the mainland sea lochs surveyed (Loch Linnhe, Loch Nevis, Loch Broom area and Enard Bay) were concentrations of euphausiids found. The largest numbers caught were 7 Meganyctiphanes norvegica and 18 Thysanoessa raschii in a 12½ minute haul of a WP3 net in Loch Linnhe. The sampling in the coastal waters on the Outer Hebrides side of the Minches yielded only a few Nyctiphanes couchii and even less Thysanoessa inermis. Sampling with 1m, 60 mesh nets gave quite large catches of small copepods in Loch Nevis and Loch Broom. A smaller quantity of small copepods were found in the Sound of Sleat.

An extensive survey was made with the multi-depth plankton indicators, the samples from which will be analysed by the Oceanographic Laboratory, Edinburgh.

Trace metal sampling

Samples were obtained for Dr Topping from Loch Eynort, South Uist and from East Loch Tarbert, Harris.

Underwater TV System trials

The survey of benthos with the TV system in Loch Ewe was completed satisfactorily, but the need for certain modifications of the equipment were indicated for future, detailed benthos work. At Loch Eil the use of the TV system showed no obvious deposits of pulp mill fibre, but a more detailed TV survey, combined with core and grab sampling, is required to confirm these preliminary observations.

Routine Loch Linnhe and Loch Eil Survey

The routine Loch Linnhe and Loch Eil survey was conducted on 18 December.

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