

In Confidence: Not to be quoted without prior reference to the Laboratory

R1/6

FRV "Clupea"

11CR82

Report

Cruise 11/82

9-25 November 1982

Objectives

1. To survey the distribution and abundance of young herring and sprats in the Clyde with an echo-sounder and midwater trawl.
2. To investigate the biological composition of young herring and sprats in the Clyde.
3. To carry out an acoustic survey to estimate herring biomass in the Clyde.
4. To investigate the availability and abundance of suitable sized organisms in the Clyde for use as diet for ranched juvenile salmon.

Narrative

Scientists and crew joined 'Clupea' in Stornoway on the evening of 9 November but departure for the Clyde was delayed until the morning of 11 November due to gale force winds. The ship reached Islay Sound at 2 am on 12 November and dropped anchor there due to further storms which prevented sailing until the morning of Saturday 13 November. Troon was reached at 14.15 the same day. A visiting scientist from Pitlochry joined the vessel on Sunday 14 November.

During the following week the first four days were devoted to a routine trawling survey and 7 hauls were completed. These hauls provided sufficient quantities of samples and measurement data to meet the fourth objective of the cruise. Progress in the trawl survey was considerably hampered by storm force winds which persisted for most of the week and restricted both the working area and the time during which trawling could be carried out. Part of Monday was also lost due to a failure of both the ships and the backup netsonde systems. These were repaired in Troon on Monday night and no such problems were experienced subsequently. Mr Armstrong joined the vessel in Troon on the evening of 17 November and a calibration of the acoustic equipment was carried out on 18 November at anchor in Campbeltown Bay. An acoustic survey of Kilbrennan Sound was carried out on 19 November before 'Clupea' docked in Troon that evening for the weekend, when Mr McQueen and Mr Grant left the ship.

At the start of the following week sailing was delayed until just after mid-day on 22 November by further gale force winds. An acoustic survey was begun later that day in the lea of Arran but a fault developed in the paper analogue recorder soon after the start. Since this could not be repaired in the short-term and since there was insufficient time remaining before the end of the cruise, it was decided to abandon the acoustic survey and continue with the routine trawling survey. A further 8 stations were completed by the evening of 24 November when 'Clupea' docked in Troon for the end of the cruise. The scientists departed the following morning.

Results

In the trawling survey herring were taken at each of the 15 stations sampled with an average catch rate of 272 fish per one hour haul. A provisional split of the data into the number of fish per age-group per one hour haul is given in the table below with, for comparison, equivalent data from the previous three surveys:

Survey Stations Nos herring per one hour haul

Year	Sampled	O-Group	I-Group	Older Age Groups	Total
1979	28	82	252	32	366
1980	25	126	50	47	223
1981	29	259	6	41	265
1982	14(15)	241(226)	30(172)	1(2)	272(400)

Figures in brackets include data from an additional haul during which the headline transducer did not function.

The data indicate a slight decrease in abundance of O-group herring relative to 1981 but a higher level than in the 1979 and 1980 surveys. I-group herring were more abundant than in 1981 and if one takes into account a haul during which the headline transducer did not function they were also more abundant than in 1980 but less so than in 1979. The distribution of O-group herring was very similar to that found in previous surveys with highest catch rates in the upper Clyde. I-group herring were most abundant in catches taken from the Inchmarnoch area.

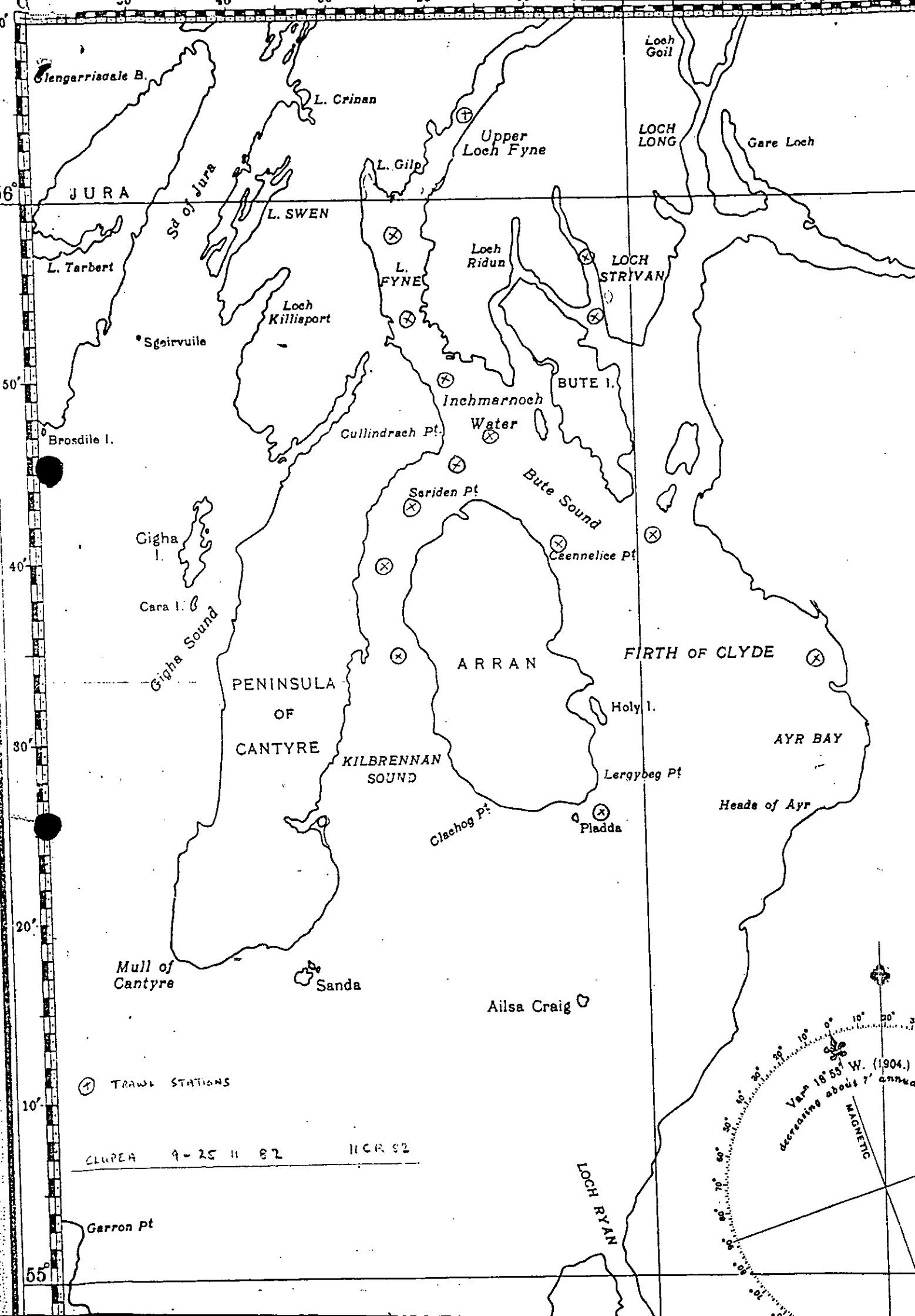
As in previous surveys the other most abundant species taken in the catches were sprats, small whiting, Norway pout and euphausiids (Meganyctiphanes norvegica). The catch rates of Norway pout and small whiting were lower than in any of the previous three surveys while those of sprats and euphausiids were higher.

Analysis of echo sounder recordings during the routine survey indicated that I-group and older herring were largely confined to the Inchmarnoch area, N Kilbrennan Sound and the area immediately south of Little Cumbrae island and Garroch Head.

Samples of Norway pout were deep frozen at sea and returned to the Marine Laboratory for length/weight analysis.

M Walsh
16 December 1982

Seen in draft: G Geddes



Glegarrisaale B.

L. Crinan

JURA

Sd of Jura

L. SWEN

L. Gilp

Upper Loch Fyne

Loch Goil

LOCH LONG

Gare Loch

L. Tarbert

Sgeirvuile

Loch Killisport

L. FYNE

Loch Ridun

LOCH STRIVIAN

Inchmarnoch Water

BUTE I.

Brodile I.

Cullindrach Pt.

Bute Sound

Gigha I.

Cara I. C

Gigha Sound

PENINSULA OF CANTYRE

ARRAN

FIRTH OF CLYDE

AYR BAY

KILBRENNAN SOUND

Holy I.

Lergybeg Pt

Heads of Ayr

Clachog Pt.

Pladda

Mull of Cantyre

Sanda

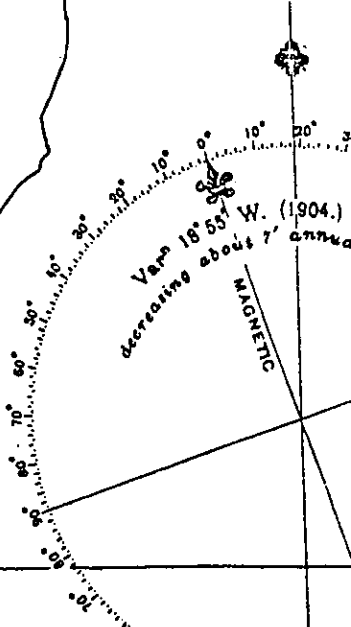
Ailsa Craig

⊗ TRAWL STATIONS

CLUPEA 9-25 11 82 11CR 92

Garron Pt

LOCH RYAN



55°

6°

50°

40°

30°

20°

10°