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

## CRUISE REPORT

## FRS CLUPEA

12 June - 5 July 1972

## OBJECTIVES

1. To carry out a bottom trawl survey for sandeels and Norway pout off the north and west coasts of Scotland, and to investigate the limits of the distribution of any major concentrations found.
2. To investigate diurnal changes in availability of sandeels and Norway pout.
3. To carry out a Gulf III survey for sprat eggs and larvae.
4. To make observations on seabirds.

## NARRATIVE

"Clupea" left Aberdeen at 1530 on 12 June, and on 13 June trawling was begun, at station 6, west of the Orkneys using the Norway pout trawl. For the rest of the week, the "Mara" sandeel trawl was used in shallower water and 12 trawl stations were completed along the Scottish north coast and in Broad Bay. The ship docked in Stornoway at 1700 on 16 June. Dr Bourne left the ship and Mr Whicher joined on 17 June.

"Clupea" left Stornoway at 0830 on 19 June and completed four stations off the Butt of Lewis before strong winds prevented further work in this area. On 21 June two stations were completed in the north Minch and the ship anchored in Loch Ewe for the night, remaining there during the following day due to bad weather. On 23 June a further station in the Minch was worked before "Clupea" returned to Stornoway for the weekend. Dr Bailey and Mr Morrison left the ship and Mr Richards embarked in Stornoway.

"Clupea" left Stornoway at 0730 on 26 June. At two shallow stations off the Shiants the sandeel trawls were badly damaged, and similarly, at a deep water station in the South Minch, the Norway pout trawl was torn. On 27 June the last remaining net was torn and after informing the Marine Laboratory, "Clupea" headed for Kyle to await the arrival of further gear. A "Mara" sandeel trawl and a "Scotia" herring trawl were taken on board at 0830 on 28 June and the ship headed for the Coll area. Two stations were completed in this area, the second resulting in further net damage. On 29 June the ship successfully completed two stations in deep water east of Stanton Banks and one at Dubh Artac. On 30 June bad weather prevented further trawling and "Clupea" docked in Oban at 1300 hours.

The ship left Oban at 0630 on 3 July and proceeded to Kyle to exchange crew members. A station north of Skye was completed on 3 July but with further net damage. The remainder of the cruise was devoted to the Gulf III survey in the North Minch and at 2200 hours on 4 July "Clupea" headed for Buckie, where she docked at 0600 on 5 July.

#### TRAWLING SURVEY

During the survey, 32 trawl hauls of one hour duration were made, 18 with a "Mara" sandeel wing trawl, 9 using a Danish 'Norway pout' trawl, four using a "Scotia" herring trawl and one with the Danish sandeel trawl. Nine hauls were made along the north coast of Scotland, 11 in the north Minch, eight in the South Minch, and four off the Butt of Lewis. Severe damage was caused to the nets on 13 of the hauls.

Small catches of sandeels were made along the north coast of Scotland and in the north Minch in depths of 47-78 m, but few were caught in Broad Bay, an area where concentrations have previously been recorded. The largest catch was of  $5\frac{1}{2}$  baskets west of Cape Wrath. Most of the sandeels caught were Ammodytes marinus, ranging in length from 4-22 cm. Apart from one haul of almost two baskets off Cape Wrath, Gymnammodytes semisquamatus were caught in smaller numbers and ranged in length from 7-25 cm. Fish up to 13.5 cm were all immature, whereas the larger ones were mainly ripe or running. Greater sandeels, Hyperoplus lanceolatus, were caught in five hauls, the largest catch being about one third of a basket. Lengths ranged from 20.5-41.5 and apart from one fish at 20.5 cm, which was immature, most were ripe or running. Three specimens of Hyperoplus immaculatus were caught off Cape Wrath at 22.5, 28 and 34.5 cm, the first two being immature, the largest spent fish. Otoliths were collected from all species and samples of ripe ovaries were preserved from H lanceolatus and G semisquamatus for fecundity determination.

Norway pout were caught in rather small numbers in depths of 54-185 m, the largest catches being  $2\frac{1}{2}$  baskets and 3 baskets caught in depths of 100-110 m off the Butt of Lewis and near Stanton Bank respectively. The fish ranged in length from 2-22cm.

In addition to potential industrial fish species, small catches of dogfish, commercially important gadoids, flatfish, herring and sprats were made. Sprats were caught in reasonable quantities in the north Minch (up to 1800 per haul) and most fish over 11 cm were ripe and running.

No concentrations of sandeels or Norway pout sufficiently large to warrant intensive trawling to investigate diurnal variation in availability were located.

#### EGG AND LARVAL SURVEY

A total of 47 hauls were made with a Gulf III high-speed sampler mainly off the north coast, in the North Minch and east of Stanton Banks. These samples will be examined for sprat eggs and larvae in the laboratory.

Dr Bourne made observations on seabirds during the first week of the survey.

R S BAILEY  
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28 August 1972