

IN CONFIDENCE

FRV 'Clupea'
Cruise 3 /81

Cruise report

3 - 18 March 1981

Objectives

1. To undertake an underwater closed-circuit television (UWCCTV) and benthic grab survey of the Birch Point explosives dumping ground. Centre of dumping ground located at 55°37'N, 04°59.6'W. No attempt will be made to recover any dumped material seen on the TV screen.
2. To trawl for spring spawning herring in the Firth of Clyde area using the small GOV trawl.
3. (If time permits). To undertake a UWCCTV and benthic grab survey of the Garroch Head sewage dumping ground. Centre of dumping ground located at 55°39.8'N, 05°00.8'W.

Narrative

Scientific staff and crew joined 'Clupea' at Stornoway during the morning of 3 March. 'Clupea' left Stornoway during the afternoon of 3 March and headed for the Firth of Clyde, arriving at Campbeltown late in the afternoon of 4 March. Fuel was taken on board at Campbeltown, and 'Clupea' sailed for the Birch Point dump site early on the morning of 5 March. Scientific work commenced at 0900hrs on 5 March.

During the morning of 5 March a survey was made of the dump site area using the vessels echo-sounder. During the afternoon the TV sledge was launched and three tows were completed. 'Clupea' tied up at Troon for the night of 5 March to allow an observer from ICI (Mr J Tapp) to join the vessel. 'Clupea' returned to the Birch Point dump site on the morning of 6 March and the TV survey was completed. The grab survey was then undertaken, and completed during the afternoon of 6 March. 'Clupea' then returned to Troon to allow Mr Tapp to disembark, and to exchange scientific personnel. Saward, Moore and Shand left the vessel at Troon on the morning of Saturday 7 March.

Seaton and MacLachlan joined 'Clupea' during the evening of Sunday 8 March. The 30' wing trawl with 'V' doors was rigged during the morning of 9 March, and trawling commenced during the afternoon of 9 March. From 10-13 March a trawl survey was undertaken off Pladda, in Kilbrannan Sound, and on Ballantrae Bank, to establish the presence of ripe herring and cod. Catches of cod were good in all areas sampled, and most fish were in near-spawning condition.

Ballantrae Bank was the only area sampled where herring were present in sufficient numbers to suggest that it would be profitable to return there and obtain herring gonad material. In addition to the spawning stock survey, a trawl was undertaken on the sewage sludge dumping ground off Garroch Head to provide a sample of cod for heavy metal analysis. 'Clupea' sailed to Campbeltown during the evening of 13 March, and the weekend of 14/15 March was spent at Campbeltown. On the morning of 16 March 'Clupea' sailed for Ballantrae Bank and two successive hauls yielded sufficient ripe herring and cod. The gonads of suitable fish were removed and stored in ice in an insulated container. In addition cod eggs were fertilized on board ship. 'Clupea' docked at Troon during the evening of 16 March and scientific staff disembarked.

There being insufficient time available to undertake a TV and grab survey of the Garroch Head sewage dumping ground, Shand rejoined 'Clupea' on 16 March to dismantle TV equipment and prepare for the next cruise. 'Clupea' sailed from Troon and headed for Kyle of Lochalsh, arriving 17 March. Equipment was dismantled during passage to Kyle.

Results

1. Cruise objective 1 was achieved. A series of four transects was surveyed using the underwater closed circuit television camera. On the upper slopes of the Arran Trench the sea bed appeared normal. In deeper water near the centre of the dump site, both natural marine sediments and dumped dredged spoil were observed. In addition to the dredged spoil, dumped explosive waste was noted. Hessian sacks, polythene bags and wooden cases were noted. On a number of occasions the camera sledge was seen to impact on these containers, some disintegrating upon impact, others were dragged across the sea bed eventually becoming dislodged. On one occasion a number of lengths of wire and detonators became attached to the sledge, and were retrieved when the sledge was recovered. Grab samples were collected at 10 of the 15 sampling stations. At the centre of the dump site the samples appeared to be dumped dredged spoil. Other samples appeared to be natural marine sediments containing representative numbers of apparently healthy infauna species. Samples of sediment from selected sample stations were sent to ICI for nitroglycerine analysis.
2. Cruise objective 2 was achieved. Ripe herring and cod gonads were collected, and cod eggs were successfully fertilized on board 'Clupea'. Gonads and fertilized eggs were successfully transported overnight, by road, to the Loch Ewe field station.
3. Cruise objective 3 was abandoned. A sample of cod was collected from the sewage sludge dump site area for subsequent heavy metal analysis in the Aberdeen Marine Laboratory. However there was insufficient time available to undertake TV and grab surveys of the dump site.

Derek Saward