

IN CONFIDENCE - NOT TO BE QUOTED WITHOUT REFERENCE TO THE LABORATORY

FRV EXPLORER

HJT

CRUISE 11/80

REPORT:

3-23 October 1980.

OBJECTIVES:

1. To compare the herding of fish by single and twin sweep rigging systems on bottom trawls.
2. To collect data on fish reactions to various gear components, as a means of estimating the overall fish capture efficiency of bottom trawls.

NARRATIVE:

EXPLORER sailed at 1600 on the 3rd October for the Orkney Islands. Fishing with the GOV trawl BT.137 commenced on 4th October, 5 miles east of Copinsay. Work was suspended on the 5th October because of bad weather. On the 6th the gear was shot but severe conditions prevented the use of the remote TV vehicle. Gales persisted for 3 days and fishing was not possible until the 10th October. Observations were successfully made during daylight hours of 10th, 11th and 12th of October. EXPLORER returned to Aberdeen for half landing arriving at 0600 on 13th October, leaving for the same Copinsay grounds on the 14th at 5.30pm. The net was shot at 9.30 on the 15th the new camera was found faulty and observations were abandoned with rising winds. Due to northerly and then easterly gales observation was not possible except for 2 hauls on the 20th and one haul on the 21st October. On the 20th the camera attitude motor failed and the wing and belly of the gear were damaged, and during the second haul the light failed due to heavy cloud. On the 21st in worsening easterly winds observations were abandoned when the gear came fast. During the 16th to 19th October while no research was possible EXPLORER was diverted to fishery protection duties in the Pentland Firth area.

Observations and measurements of bioluminescence were made at various anchor sites and on the fishing ground on the evening of the 20th.

RESULTS:

For the first haul, the long wing nylon GOV trawl was fished with the wings linked to the groundrope along their whole length. The wings were badly torn during this haul although the ground was known to be free of obstructions, and thereafter the wings were flown ie detached from the groundrope forward of the bunt bobbins. The 21 inch heavy bobbin rig

worked well. Catch rates in the Copinsay grounds were up to 25 baskets per hour, predominantly small haddock (mean length about 25cm).

Most of the Copinsay tow was fine sand, ideal trawling ground, but at the north end of the tow there were patches of stones including boulders up to 3 feet high. The GOV trawl even with the heavy bobbin rig suffered damage to the belly when towing on this hard ground. Cross belly lines were attached to the net in an attempt to reduce the extent of tears, but it was concluded that the GOV design is not particularly well suited to towing on hard ground.

Nine 60 minutes video tapes were made of observations of the successful hauls, 8 of these during the first half. These will be analysed to evaluate this observation technique with reference to objective 2.

On the evening of 20th bioluminescent organisms were filmed striking a black and white angled netting panel mounted on the towed TV vehicle. The frequent discrete flashes seen on the TV monitor did not make the netting visible as had the dinoflagellate glow seen on CLUPEA Cruise 6/1979. The characteristics of this type of bioluminescence were recorded as single spikes quite different from the continuous light generated by the dinoflagellates. Several samples made in the Orkney area showed similar characters in Scapa Flow, Kirkwall Bay and East of Copinsay. The same organisms were seen, as daylight faded, during gear observations.

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29.10.80

Seen in draft: J Ross