

IN CONFIDENCE: Not to be quoted without reference to the Laboratory

CRUISE REPORT

TRV 'Mara'

16 June - 4 July 1969

OBJECTIVES

1. Observation and photography of the behaviour of round and flatfish during the process of Danish seining.
2. Instrument measurement of gear parameters during Danish seining.
3. Underwater photometry and visibility studies for correlation with fish behaviour work.

PERSONNEL

C C Hemmings SSO; J Main EO; Miss M V Moodie SA; C Robb SA; G J Booth SA; R D Galbraith SA constituted the diving group and were present full time.

D N MacLennan SSO; A Corrigan EO; D Cattanach EO; E S Strange SSA were present part time and investigated seine net performance from above the water surface.

W H Sutherland EO and R K Christie (Workshop) attended for one day during further trials of the divers towed sledge.

NARRATIVE

Diving and scientific gear was loaded in Torry dock at the end of the previous cruise. Removal of the trawl gillows and fitting of the seine net coilers was carried out on 16 June in Buckie.

All seine net hauls were made in the same area of Spey bay and underwater visibility experiments in Buckie approaches when weather was too poor for fishing.

Southerly winds prevailed for most of the cruise and only one day's work was completely lost.

1. SEINE NET INVESTIGATIONS

Experimental procedure. Previously established diving routines were used with divers descending down a marker line to the seine net headline immediately prior to 'Mara' picking up the dhan. This marker line carried a telephone cable from a bone conductor microphone on the headline to a 'water mate' connector at the surface. This was plugged into earphones and tape recorder on the attendant rubber boat so that a complete commentary of each haul was made.

This spoken commentary was supported by still photographs taken by Nikonos & Masselblad cameras. A number of difficulties were encountered in the operation of the 16 mm cine camera which prevented its extensive use.

Additional instrumentation in the form of spread meter, warp load cells, head line height manometer and water speed indicator were used on a number of occasions. Photographs were taken to determine the warp divergence at the point of entry into the water.

The seine net was shot 25 times on the cruise and of these 22 constituted valid hauls resulting in a taped commentary of gear and fish behaviour; good records from instruments were obtained on 9 hauls. Roundfish in small quantities were observed or caught on all hauls allowing comparisons to be made between roundfish and flatfish behaviour. Detailed results from the analysis of tapes, photographs and instrumentation will be prepared on completion of the second cruise.

2. UNDERWATER PHOTOLOGY AND VISIBILITY

Information was obtained about κ , beam attenuation coefficient; K , the diffuse attenuation coefficient and prevailing underwater irradiance using the following techniques:

1. Vertical sighting of 9% reflectance grey ceramic tile.
2. Horizontal black body sighting distances.
3. Selenium cell irradiance meter using surface and underwater cells.

These techniques were used as frequently as possible during the cruise in an attempt to correlate any changes in behaviour with the visibility of the gear.

Two days were spent determining the visibility to the human eye of the white, black, green and orange nets that will be used during the two seine net cruises this year, and also the visibility of headline floats which can be conveniently counted by a diver on the headline.

C C HILLINGS
29 July 1969