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MV "OCEAN BOUNTY"

Report

29 September-14 October 1987

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Objectives

- a. To investigate the extent of possible offshore lobster grounds off the South East coast.
- b. To survey the artificial reef near Torness power station.

Narrative

Crew and scientists joined the vessel in Berwick on 29 September. On the following day trials were carried out using the British Geological Survey's side scan sonar, the Laboratory's own newly developed side gear sonar and "Sea Pup", a remote controlled submersible. All systems worked well with only a few teething problems with the BGS scanner which were quickly corrected. Further work on an offshore reef the following day was prevented due to a heavy SE swell making anchoring impossible and side-scan sonar readings unreliable. The vessel then steamed to Peace Bay in the Firth of Forth to begin the survey of the artificial reef. Initial surveys using "Sea Pup" showed only a sand bottom at the eastern co-ordinates of the reef. Side-scan sonar then revealed promising echos approximately 100 m inside the outermost reef co-ordinates. A heavy Northerly swell prevented the use of "Sea Pup" the following day. The vessel steamed up the Forth and observations were made around the Bass Rock using "Sea Pup". Problems developed with the "Sea Pup" controls and the vessel steamed to Berwick where repairs were carried out on 3 October. Trials were carried out on the 4th off Berwick, the vessel then steaming back to Peace Bay and, during passage, a promising offshore reef area 7 miles north of St Abb's Head was investigated using side-scan sonar.

From the 4th to the 10th October "Sea Pup" was used extensively to survey the artificial reef and surrounding natural sea bed. Staff from St Andrew's University joined the vessel for one day as observers.

Further observations were made on the north side of the Firth of Forth using the Laboratory's towed sledge in areas which were too deep to anchor. The area 7 miles north of St Abb's Head was also investigated using the sledge. The ship returned to Berwick on 13 October.

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### Results

The side-scan sonar built in the Laboratory gave comparable results to the "Klein" model supplied by British Geological Sciences.

"Sea Pup" proved excellent for close survey work, but was difficult to work in strong tidal conditions. It proved possible to follow a transect line accurately. "Sea Pup" was used to observe a fleet of creels but the inability of "Sea Pup" to remain stationary on the bottom without the use of the propellers limited its use in such a manner. The observations made on the artificial reef showed that the material has become well established with no signs of silting. Very little sediment had settled on the rocks.

Most of the larger rocks had encrustations of Pomatoceros triqueter. Nearly all the animals spotted were browsers Echinus esculentus, filter feeders Alyonium digitatum or detritus feeders Henricia sanguinolenta. Very few Asterias rubens were spotted, those that were seen were under 5 cms across. No large crustaceans were seen although several large groups of Neomysids were seen among the boulders. The areas of natural "lobster" bottom surveyed close to the artificial reef had a larger population of Alyonium digitatum both in numbers and size. There were also larger numbers of Asterias rubens but fewer Henricia sanguinolenta, numbers of Echinus esculentus appeared comparable. Again no large crustaceans were seen.

Only one fish was spotted on the reef during night observations, but during daylight hours five codling and three saithe, ranging in size from 45 to 65 cms, were captured in one hour using hand-lines. No fish were captured during a similar spell of fishing off the reef.

Observations of "typical" lobster grounds off Elie Ness on the Fife coast showed large areas of layered bed-rock running in a north-south direction, and sloping west to east. The rock was strongly crevassed on the west face making it very good lobster holding ground.

The area 7 miles north of St Abb's Head proved to be three ridges of bed-rock running for approximately 10 miles in an east-west direction with the steep faces of the outcrop to the north. The main ridge rises 15 metres vertically from a mud/gravel bottom interspersed with small to medium sized rocks. The areas between the ridges is composed of a similar mud/sand/rock mix. No large crustaceans were seen but the area seems suitable for lobster and crab fishing, and would be worth investigating at a future date.

J Kinnear

30 December 1987