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Charter Vessel Cruise  
MV *Ocean Bounty*

Report

13-21 October 1989

Personnel

J Kinnear        HSO  
C Shand         HSO

Objectives

1. To survey the artificial reef in Pease Bay, Torness.
2. To investigate the possibility of using the towed sledge and underwater TV to estimate edible crab (*Cancer pagurus*) densities.

Narrative

Crew and scientists joined the vessel on 13 October at Berwick-on-Tweed. The camera equipment was set up and tested before sailing for Pease Bay the following morning. Photographic work was carried out in Pease Bay and on the commercial crab grounds from Berwick-on-Tweed to Torness from 14 to 21 October. The vessel docked at Berwick-on-Tweed on the 21st. One half day was lost due to bad weather.

Results

1. The artificial reef showed little change from the 1988 survey. There was slight evidence of silting at the eastern end of the reef, the natural bottom in this area being composed of fine sand.

The sea urchin *Echinus esculentus* and the starfish *Asterias rubens* were less common than during the 1988 survey. Very large numbers of squat lobsters *Galathea* sp. (probably *G. dispersa*) were present in densities of at least 3 per m<sup>2</sup>. Fewer than 0.1 m<sup>2</sup> were observed on the natural sea bed.

Also present on the reef were shoals of small fish 2-4 cm in length. These have been identified as possibly a species of *Gobius*. A positive identification has not yet been possible.

No commercial species were seen on the reef during the survey. Trammel netting and creeling have been carried out on the reef during the summer months by the Gatty Marine Laboratory, St Andrews. Preliminary results have shown an increase in catches of commercial species, especially cod, since the 1988 survey.

2. Commercial fishing grounds for the edible crab (*Cancer pagurus*) were surveyed during the charter. Crabs were very scarce in all areas (densities averaged one crab per 10,000 m<sup>2</sup>) however the number of tows was limited, other than in Pease Bay where 35 tows were carried out on and around the reef. Crab densities in Pease Bay were similar to the other areas surveyed except in one area approximately 100 x 100 m where crab numbers were estimated to be in excess of 20,000 animals. There was no obvious reason for this dense concentration of crab, the sea bed being composed of "cobble" and sand, similar to much of the surrounding area. Crab concentrations of this nature have never been reported before. Female crabs are thought to congregate during spawning, but this is generally believed to occur in deep water offshore. Unfortunately, it was not possible to sample the crabs although enlargements of some of the photographs may enable sexual characteristics to be seen.

None of the crabs seen during the survey showed any signs of awareness of the sledge or lights passing over them. Crabs were clearly visible on the TV monitor even using a black and white video camera. It is obvious from the results of this trial that more information is required on edible crab behaviour before this method can be successfully used to assess population densities.

J Kinnear  
8 January 1990