MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1992 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES, CRUISE 10A/92

STAFF: B E Spencer (SIC)
B R Howell
S D Utting
M J Kaiser
R P Flatt
P Hudson
M Fonds (Netherlands)

DURATION: 21-28 August 1992 (Overall cruise 10, 21 August- 21 September)
All times GMT

LOCALITY: Irish Sea, north Wales coast

AIMS:

1. To survey sites along the north Wales coast which look promising for long-term monitoring and research on the impact of fishing on the sea bed.

2. To test a variety of fishing, grabbing and acoustic gears and methods, including side scan sonar and ROXANNE, which might be used during the long-term programme.

NARRATIVE:

Messrs Spencer and Kaiser joined the ship at Lowestoft on 19 August, Howell, Utting and Fonds on the 20 August and Flatt and Hudson on the 21 August. CORYSTES sailed at 1330h on the 21 August and arrived off the north Wales coast in the evening of the 23 August.

Work began on the 24 August at a site ca. 23 km NNE of Point Lynas, Anglesey. A survey of the sea bed with side-scan sonar and video camera indicated that the area consisted of a shell/sand substrate, free from rocks and containing erect epifauna (eg *Alcyonium digitatum*, "dead-man's fingers") and was, therefore, suitable for the study. An experimental box, approximately 200m X 40m in area, was marked on the ship's navigation plotter using the Sercel differential GPS system. Sercel position fixing differed from the ship's Decca Navigator 53 by about 60m (0.3 cables), a larger than expected error.

The epi- and in-fauna of the "box" was surveyed using the camera sledge fitted with video and stills cameras, 20 Day grab samples and three tows with the 2m beam trawl. Five Day grab samples were also taken for sediment size analysis. Positioning within the "box" was reasonably successful when the ship was under power, but was impossible under the prevailing weather conditions, when drifting with the 2m beam trawl.

On 25 August, trawling began with the 4m beam trawl fitted with chain mat. Nine passes were made through the "box". These included three tows 10, 30, and 50 mins. long to obtain information of the effect of tow duration on survival of benthos. This disturbance of the sea

bed within the "box" was followed by benthos sampling with 2m beam trawls (successfully achieved under the prevailing weather conditions) and side-scan sonar but a video survey was prevented by south-westerly winds of ca. 25 knots. A selection of benthic animals from the catches of the 4m beam trawls were transferred to survival tanks to estimate their survival at 24, 48 and 72h intervals.

On 26 August, further sampling of the box continued with 40 Day grab samples and side-scan sonar surveys to assess changes in the benthos community . An experiment was started to monitor predator activity on the sea bed by deploying two camera frames, each fitted with a stills camera, about 400m apart. One frame area was seeded with 12 baskets of benthos (lightly stained with Rose bengal) collected from the previous day's fishing. The cameras were recovered 24h after seeding.

On the 27 August, a new trawl site was established 10 km NNE of Dulas Bay, Anglesey, to assess, by visual inspection, damage to fish caught in duplicated hauls of 10, 20 and 30 min. duration. This series of hauls also afforded the opportunity to collect stomachs from the predominant fish predators [dogfish (*Scyliorhinus canicula*), red gurnard (*Aspitrigla cuculas*) and grey gurnard (*Eutrigla gurnardus*)] to asses whether the food species in their diet changed with disturbance of the sea bed during the period between the first and last hauls. A side-scan sonar survey of the trawl area was made. Towards mid-afternoon the Sercel navigation system failed which prevented further surveying within the experimental "box" set up on 24 August.

On the 28 August, a final side-scan sonar survey was made on the area fished the previous day. The programme completed, CORYSTES set course for Liverpool at 1400h Friday, 28 August and docked at 1930h later that evening.

RESULTS:

1. Side-scan sonar and video pictures from an area 23km NNE of Dulas Bay indicated that it was suitable for a preliminary beam trawl impact study.

2. Deployment of the video camera on the camera sledge showed fairly abundant erect colonies of "dead man's fingers", starfish, crabs and bivalves. Day grab samples revealed that the bottom consisted of a shell/sand substrate.

3. Configuring an experimental "box", 200 X 40m in size, proved too optimistic. A larger "box", 500 X 500m in area, would be more practical and allow the ship better scope to manoeuvre and deploy gear within the experimental area.

4. The side-scan sonar performed well and recorded trawl tracks on several occasions. ROXANNE provided only a general assessment of the sea bed structure and was not used routinely on this cruise.

5. The video camera/sledge proved a useful tool for surveying the benthic communities before and after beam trawling.

6. The survival tanks worked well and information on the effect of catch biomass on survival of various benthic species was obtained.

7. Still cameras were deployed for 24h in an attempt to obtain pictures of sea bed predators in an area seeded with trawl by-catch.

8. Stomachs of dogfish and gurnard were collected to record their diets at the beginning and end of a series of six hauls with the beam trawl.

9. Information on visual surface damage to fish in relation to catch biomass was collected.

10. Three specimens of the butterfly blenny (*Blennius ocellaris* ), a species more common on the south coast of Devon and Cornwall, and two Dory's (*Zeus faber*) were caught off Dulas Bay.

B E Spencer, SIC
28 August, 1992

SEEN IN DRAFT: MJW, RG

INITIALLED: JGS

DISTRIBUTION:

Basic List +
B E Spencer
M J Kaiser
B R Howell
S D Utting
R P Flatt
P Hudson
M Fonds (Netherlands)