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FRV *Clupea*

Cruise 0307C

REPORT

1-10 March 2007

Ports

Sailing: Fraserburgh

Unloading: Fraserburgh

Personnel

A Weetman (SIC)
J Drewery 3-10 March 2007
P Barkel

Gear

50 mm prawn trawl BT 149B.
Day grab and table
Towed TV sledge, umbilical towing cable and cameras (plus backup)
TV drop frame
Creel frame and associated equipment

Objectives

- To use underwater cameras, to obtain estimates of the distribution and abundance of *Nephrops*, *Nephrops* burrows and other fauna in Loch Torridon and the Inner Sound areas.
- To collect sediment samples at each station.
- To use trawl caught samples of *Nephrops* to examine biological features at different sites throughout the survey areas.
- To record benthic fauna interactions with a creel whilst *in-situ*.
- To use the TV survey to collect data on other benthic fauna.
- To carry out similar surveys in neighboring Lochs if weather permits.

Outturn days: 10 Days, MF01ta

Narrative:

A Weetman and P Barkel joined the vessel in Fraserburgh on 1 March, but due to gales, sailing was delayed until 0815 on the 2 March. In transit to the West Coast, the sea state improved.

After arriving off Gairloch in the early hours on the morning of 3 March TV work began at 0730 in breezy conditions. During the initial deployment it became apparent that the TV umbilical was coming into contact with the micro switch housing on the TV winch's guiding on gear and that the vertical tensioning guides on the TV winch were seized. This resulted in a delay of 2½ hours after which the ship's engineers rectified the problem. The remainder of the day was spent completing six TV stations across the North of the survey area, before heading to Gairloch for the night, where J Drewery joined the vessel.

With westerly gales imminent, a route was set to cover stations towards the Isle of Skye and the Sound of Raasay. Eight TV stations were successfully completed during the day with a further two aborted due to either unsuitable substrate or trawler activity creating poor visibility.

With a 40 knot South Easterly gale on 5 March the only area where the vessel could safely and effectively carry out TV camera work was in the Sound of Raasay. To maximize the vessel's time, an additional four stations were surveyed, one of which was out-with the BGS limits for suitable *Nephrops* habitation. With the wind remaining in the West, the vessel headed for a safe anchorage off Staffin, arriving there at 1900. This followed an exploratory TV run off North East Skye, to confirm the sediment boundaries as suggested by the BGS charts.

On 6 March a Westerly gale was forecast but a calm start allowed a scheduled station to be completed. However by 1000, the conditions deteriorated to such a degree that the vessel had to head back to Staffin for a safe anchorage for the remainder of the day.

On 7 March *Clupea* headed in an Easterly direction, surveying a further three Inner Sound stations and carrying out a fishing trawl en route to Loch Torridon. Due to a crew change, the scientific work had to be adjusted accordingly, which resulted in only three TV stations being completed in Outer Loch Torridon before the vessel had to head for Gairloch to allow the crew member to leave the vessel that evening.

Due to the weather forecast it was decided to head for the East coast as soon as the crew transfer was complete. *Clupea* arrived in Cullen Bay late in the afternoon of 8 March, after a very poor transit through the Pentland Firth. Before anchoring in Cullen, the creel cam was, however, successfully deployed.

Work began on 9 March to recover the creel cam. The intention was then to proceed east, surveying several points at the edge of the *Nephrops* grounds as defined on the BGS charts; - with the aim of verifying the accuracy of the charts with the TV sledge. The vessel's sounder was used to provide a guide as to where the preferred sediment type was located, and then on the first survey, the sledge was launched just South East of this point, towing North West towards the *Nephrops* grounds. At the second survey site, the TV sledge was deployed on *Nephrops* grounds but was towed South Westerly away from the suitable sediment.

On completing the second of these sediment mapping tows, the weather had worsened and the ship was forced back to Fraserburgh harbour, arriving in port at 1500 on 9 March. The remainder of the day was spent packing up the scientific and electronic equipment.

Following the debrief and unloading, the scientific staff left *Clupea* at 1015 on March 10 to return to the Laboratory.

Results:

All the recorded DVD footage was reviewed whilst at sea, primarily for the abundance of *Nephrops* and associated burrow complexes. However, additional data on sea pen species and abundance, other fauna, water clarity, sea bed type, and fishing activity was also recorded as standard. The final abundance figures for *Nephrops* in the area have yet to be calculated.

One fishing trawl was carried out, which, however, yielded a very poor catch. Of those *Nephrops* caught, the carapace length and width was recorded, along with the cutter and crusher claws' length, width and height, and for each male the length of the appendix masculina was also measured.

Due to the extreme weather conditions experienced, the creel cam was deployed only once during the cruise. Site locations for the frame were limited and although the exercise was carried out on non-*Nephrops* grounds, the principle behind the system worked well. New recording technology was being trialed on the frame, which produced very promising results.

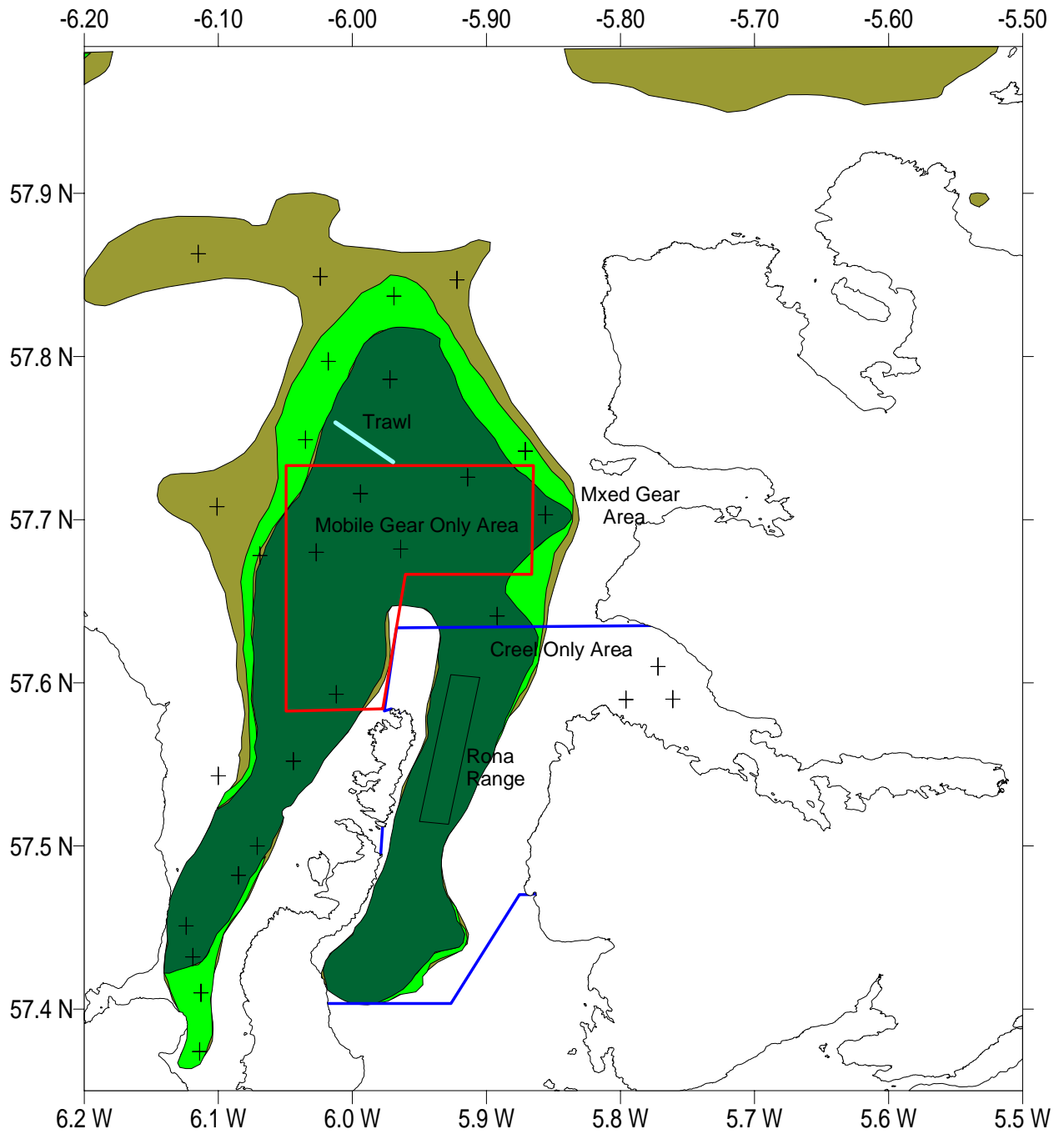
34 still images were taken with the Benthos camera. These provide a high resolution record of various benthic scenes, including trawl marks; entrances to various burrow complexes and a range of fauna.

28 attempts to collect sediment samples were made on the West Coast, of which 25 were successful. These samples will be analysed for particle size at the Laboratory. The results will help improve the quality of future surveys and assessments.

3 sites were surveyed with the camera to examine the extent of suitable *Nephrops* grounds as indicated on the BGS charts. The one West Coast station found numerous *Nephrops* burrows out-with the expected area, whereas in the Moray Firth the charts were far more accurate. This may lead to further investigation.

A Weetman
2 July 2007

Completed Inner Sound TV Sites March 2007, Cruise 0307C



Moray Firth Exploratory Work, March 2007, Cruise 0307C

