

Cruise Report LF 30 2004

West of Hebrides Survey

Personnel:

W Clarke	SIC DARD (19-21/7/04)
M Service	SIC DARD (21-29/7/04)
J Strong	PDRA QUB
C Turnbull	JNCC
C Harper	FATHOMS
M Wharton	FATHOMS

Objectives:

To survey selected areas to the West of the Outer Hebrides As part of a programme to produce a comprehensive biotope map for the areas within and adjacent to the 12 mile territorial limit.

Conduct **Multibeam Survey** of the **Shamrock Pinnacle**.

Narrative:

Monday the 19th Fathoms engineers arrived am to begin installation of Multibeam system.

Divers completed Tuesday the 20th the installation of the multibeam system in the morning as the ship sailed at 14:00h to commence testing and calibration of the system. Two areas were surveyed adjacent to the mouth of Belfast Lough; the former Ram Race Disposal Sites and the existing disposal site. The vessel then returned to Belfast for the switch of SIC.

Wednesday 21st The vessel sailed at 17:30 h to mouth of Belfast Lough and completed the test survey.

Thursday 22nd The vessel arrived on station at Shamrock Pinnacle at 09:30h and following a CTD profile to calculate local speed of sound variations commenced survey this was completed at 16:00h. Due to prevailing weather conditions the decision was taken to take a slighter longer but more sheltered route to the West of Hebrides site. During this passage it became apparent that the cable system for the multi-beam had developed a malfunction. Arrangements were made for the delivery of a replacement cable to Oban and divers to organise the installation arranged.

Friday 23rd

The vessel berthed in Oban at approximately 08:00h and a divers commenced work at 10:30h. The faulty cable was removed quickly and the installation of the new cable completed by 15:00h. The vessel left Oban at 18:30h. Weather forecasts indicated conditions would be unsuitable to attempt to undertake survey work West of the Hebrides for the following 48h. After discussions with JNCC and SNH it was decided to move through the Sound of Mull and **survey selected sites around the Islands of Eigg and Rhum**.

Saturday 24th The Lough Foyle arrived at Oberon Bank in the Sound of Eigg and after a CTD profile commenced survey operations at 04:00h. Oberon Bank proved to be very distinctive feature with a particularly face of the Western Side dropping a 100m to a scour hollow (figure 1). On conclusion of the multi-beam survey consideration was given to the use of the towed video sledge to provide ground truth the site, however, by this point winds had risen to a point where after discussion this was deemed not possible. Five day grab samples were collected from the area surrounding the bank although the top of the bank appeared to be rocky and a grab sample not possible. On completing this vessel moved to an unnamed bank North of Eigg and began survey work at 20:00, again after a CTD profile.

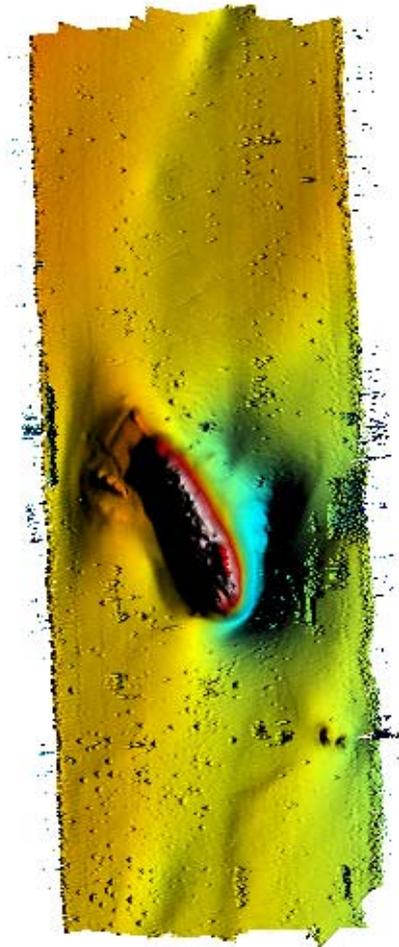


Figure 1 Oberon Bank

Sunday 25th Multibeam operations ceased around 09:30 and the video sledge deployed to ground truth this area. The bottom of the bank proved to be bioturbated mud with Nephrops burrows predominating. Before Camera work was commenced a small whale was observed swimming around the vessel (Pilot?). Other prominent taxa included the burrowing grab, *Goneplax rhomboides*, and the sea pens *Pennatula* and *Virgularia*. As the sledge moved up the bank to shallower water the seabed became progressively firmer with boulders appearing and specimens of the scallop *Pecten maximus*. Following the completion of the camera tow a number of grab samples were collected to provide samples for particle and faunal analysis. At this point the weather forecast was indicating moderating conditions so the vessel then left the area at 14:00h and began the steam to the Northernmost of the West of Hebrides stations.

Monday 26th The Lough Foyle arrived on station at 05:30 where a CTD profile was collected and the Multibeam grid started at 06:15. This was completed at 09:00h and camera ground truthing begun at 09:15h. Four areas selected from the multibeam were covered. **Four broad seabed types were observed; coarse sand, cobble, boulder and bed rock.** Conspicuous epifauna was rare although an unidentified Holothurian species was observed on the sand. The sponge *Axinella* was present on rock faces. The vessel moved inshore to begin a new grid at 16:00h. A single grab was collected that evening to confirm the presence of sand. Due to the size of the area selected the multibeam surveys was broken into two blocks.

Tuesday 27th July: a CTD profile for the second block was completed at 04:00h and the area completed by 08:30 whereupon ground truthing of the two blocks was commenced. Again 6 tows were undertaken with broadly similar results to the previous ones. The vessel moved south and commenced a new station at 15:00h. This was completed at 20:00h. A **Hammon Grab was used to collect a sediment** sample from a submarine valley revealed by the multi-beam. This returned a sample of coarse sand with large numbers of *Dentalium*. This was followed by a single camera tow. Moving south-west surveying of the final grid of the cruise commenced at 21:00h (figure 2)

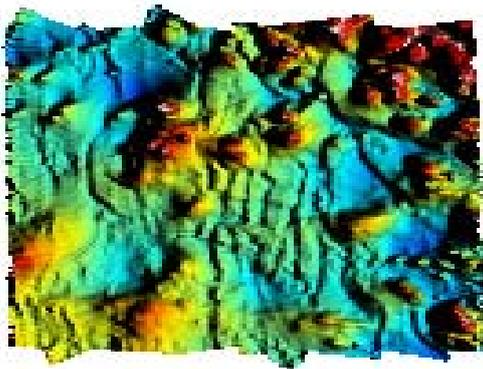


Figure 2

Wednesday 28th July

Due to large size of the grid surveying was not completed until 11:00. As with previous grids sites were selected for video tows from a preliminary assessment of the acoustic data. Again six tows were completed. As before the Hammon Grab was used to collect a sediment sample. This proved to be a sample of sand with visually a significant component of fines. Before beginning the steam back to Belfast a further hour was spent on a final calibration of the multi-beam.

Thursday 29th July: Most of the day was spent on passage back to Belfast and in starting the demobilisation of the equipment. The vessel arrived in Belfast at 16:00h. Navigation equipment was removed from the mast.

Friday 30th July: All equipment was removed from the vessel, divers arrived at 11:00 to remove the transducer head from the bow.

Conclusion

Despite the loss of 2.5 days due to adverse weather conditions, a number of key areas at the principal target zone were successfully surveyed. It seems likely that the key habitats in the area have been identified.

M Service SIC

A Niblock Master