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FRV Scotia

Cruise 1006S

Report

8-28 June 2006

Personnel

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Objectives

1. To obtain estimates of abundance and distribution of *Nephrops* in the Fladen Ground, Firth of Clyde, North Minch, South Minch, Stanton Banks, using underwater television. If time permits the survey will also include stations in the Sound of Jura.
2. To make use of the TV survey to estimate the densities of other shellfish species and benthic organisms and to record evidence of commercial trawling activity
3. To collect sediment samples at each station
4. To carry out *Nephrops* trawling in each stratum throughout the survey areas for size and sex composition analysis and examination of biological features
5. To collect samples of *Nephrops* for comparison of reproductive condition and morphometrics in the different functional units. Information on sex at maturity will contribute to EU DCR requirements.
6. To conduct video transects of the Buzzard Field site to collect data for the Serpent project.
7. To trial the Visual Works software and recording device for future use in *Nephrops* UWTV surveys.

Out turn days by project: 21 days RV0605

Narrative

Scotia sailed from Aberdeen mid morning on 8 June for the Buzzard Oilfield. Three tows of the UWTV sled along transects in the vicinity of the rig and manifold, and a further tow in the adjacent control area, were successfully completed by 1700 hours. *Scotia* then proceeded to the Fladen Ground where the *Nephrops* burrow TV survey started at 2230. Weather conditions and visibility were excellent initially and good overall and a total of 58 tows at Fladen were completed between 8 and 12 June. Sediment samples were obtained at all stations and three 30 minute trawls hauls were conducted over different sediment types in the central and western areas of the survey grounds.

Scotia left the Fladen in the evening of 12 June for the Pentland Firth, rounding Cape Wrath overnight to arrive at the first station in the North Minch mid morning on 13 June. The survey continued smoothly and on schedule with the *Scotia* working at 20 stations down the western side of the North Minch and a further 22 stations on the western side of the South Minch on 13 and 14 June. One fishing trawl in the North Minch and two in the South Minch were carried out.

Scotia left the South Minch for the Stanton Banks in the early hours of 16 June. An additional station en route, recently fished by a commercial vessel, was included. Despite a moderate swell, survey tows and sediment sampling at Stanton (8 stations) was successfully completed by mid afternoon 16 June, when *Scotia* steamed east to the Clyde. TV sled tows were conducted at 4 stations in the Clyde prior to the half landing at Greenock on 17 June.

Leaving Greenock on the morning of 18 June, *Scotia* travelled in an anticlockwise direction around the North of Arran, and despite reduced water visibility due to commercial fishing activity, completed all 39 remaining stations to the west and south of the Firth, as well as 2 trawls by 0600 on the 20 June.

Scotia then proceeded to the Sound of Jura, where 4 TV survey tows and one fishing trawl were completed before worsening weather forced the vessel to shelter on the east side of Islay. Strong gale force winds did not allow for safe, workable conditions until 0830 on 22 June. Travelling to the north end of the Sound and planning to work south, allowed more time for the sea state to settle at the more exposed southerly stations. A further 5 TV stations were surveyed before water leaked into the housing containing the range finder depth units - forcing operations to stop for 12 hours. The down time was used to steam towards Tiree, completing 3 stations by 1400 on the 23, *Scotia* then steamed to Rhum for 50 miles in good weather conditions to Rhum, working the east side of the South Minch. Despite some electrical equipment problems in the early hours of the 24 June, all stations in the South Minch were finished by 1430 that day.

Scotia then steamed to Rona, (to the east of Skye), where submarine activity precluded under water TV work. Four stations were surveyed to the east of the exclusion zone, before the ship was informed that the area to the north was also affected by military exercises. On the 25 June in sunny conditions, *Scotia* headed for the Noup, arriving there mid afternoon, and surveying 7 stations by 2330. One fishing tow was undertaken before heading back to Fladen to survey an additional 12 stations in high burrow density areas. All tows at Fladen were completed in the afternoon of 27 June, after which *Scotia* headed for Aberdeen, arriving in port in the early hours of 28 June. Scientific staff disembarked later that morning.

Results

TV station and trawl locations within the *Nephrops* functional units surveyed are shown on the attached charts.

Data recorded from the trawls included catch composition by species, *Nephrops* length frequency distribution and female maturity stage. In addition, male maturity (derived from measuring the appendix masculina) was recorded from 409 *Nephrops*, from 8 trawls, covering each geographical area visited at least once. Samples from each distinct area were also taken for morphometric data. 713 individual *Nephrops* were examined with up to 12 observations being made on each individual.

Out of the 209 successful TV recordings, burrow counts from 179 stations were independently verified by two members of staff (whilst at sea). Analysis of the TV footage and final work up of data will be completed at the Laboratory.

Area	Number of TV Tows	Number of Fishing Tows
Fladen	70	4
North Minch	30	2
South Minch	35	2
Stanton Banks	8	1
Clyde	43	2
Sound of Jura	10	1
Noup	7	1

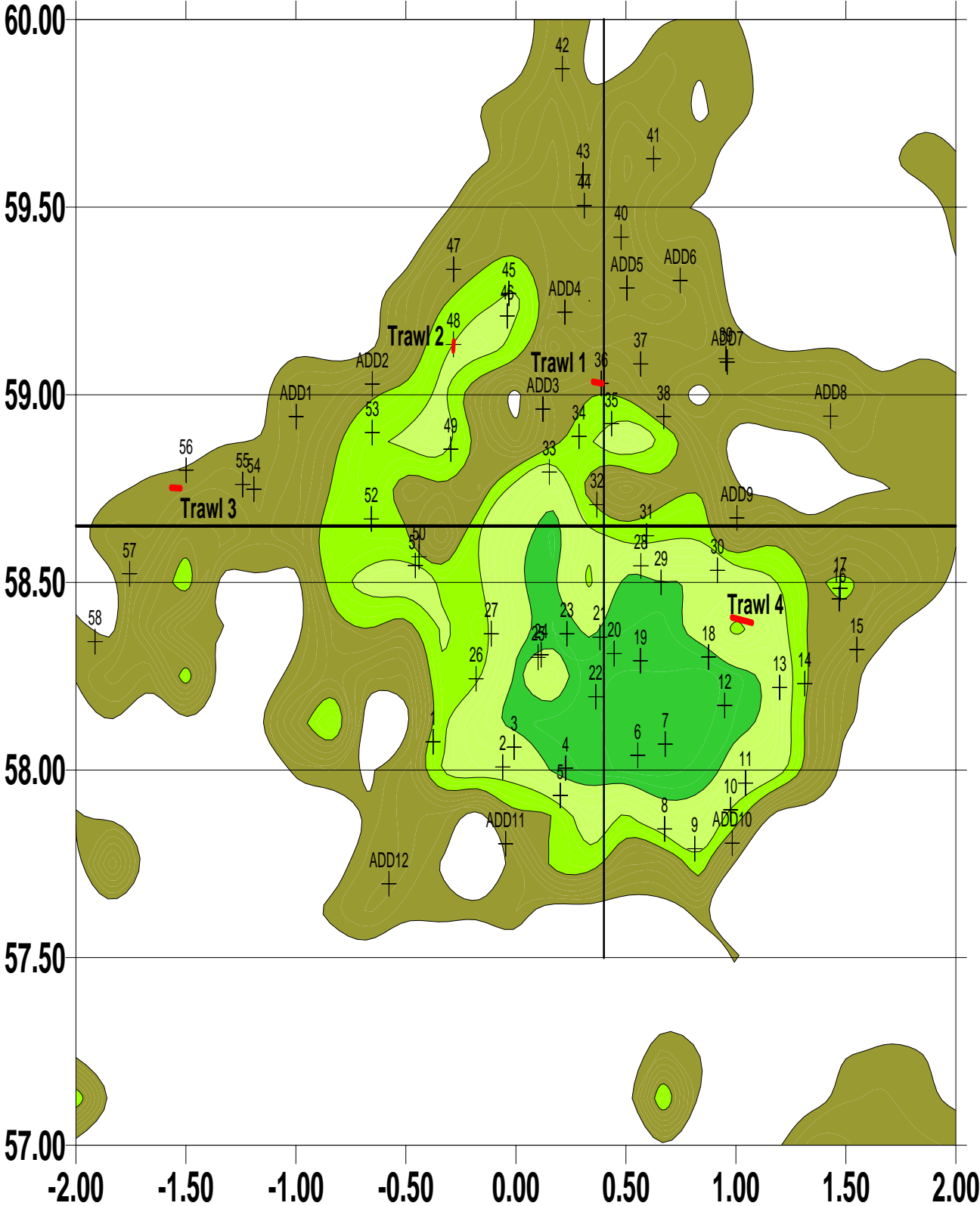
200 sediment samples were taken during the course of the cruise. The samples are to be analysed within two months of completion of the cruise. The results will help improve sediment distribution charts and survey design.

Fin clips from 15 common dabs from 5 locations were taken during the cruise, to be used for genetic analysis.

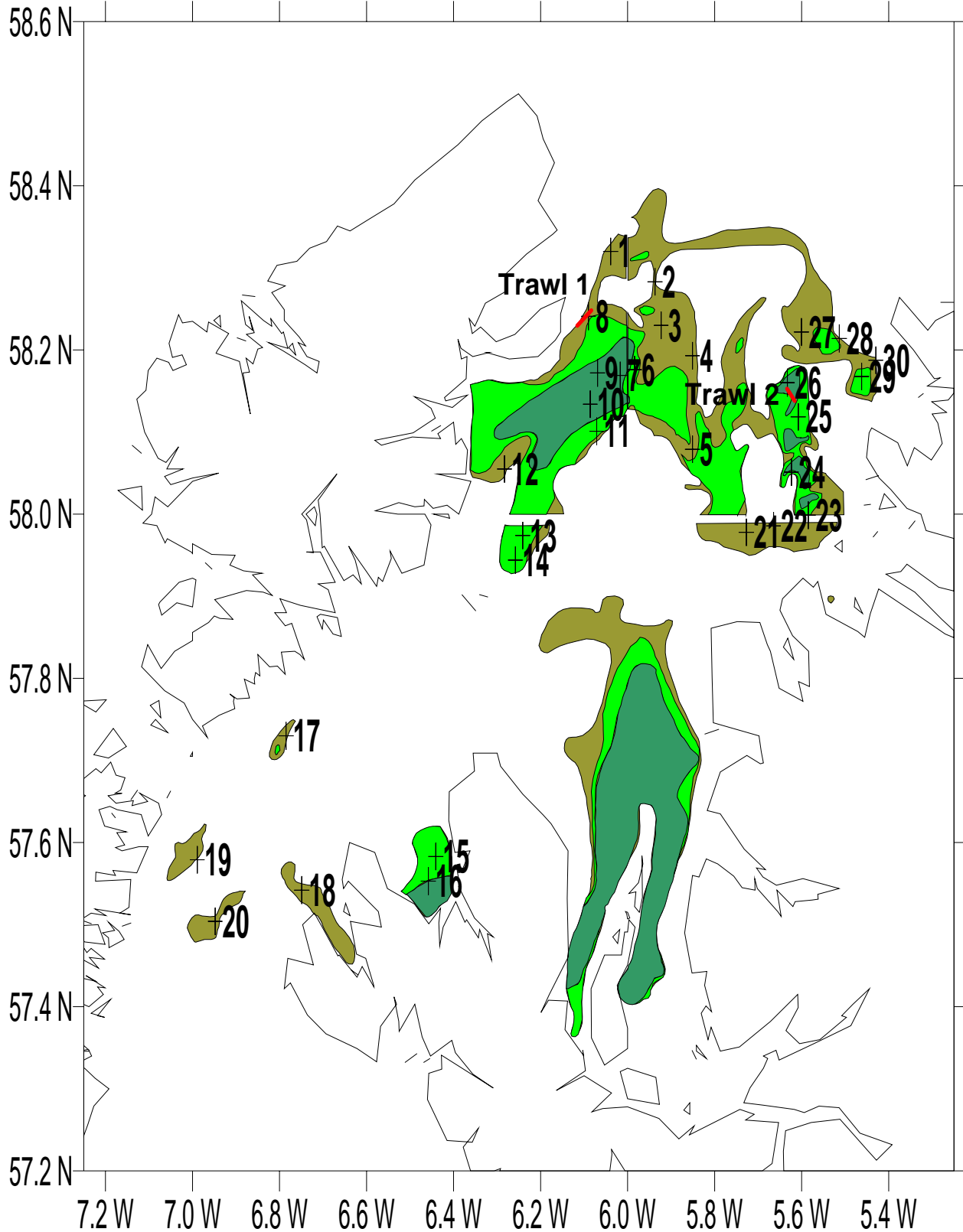
Tentacle samples were taken from squid, for DNA analysis in Vigo, Spain for an improved species distribution map.

The Visual Works software was successfully used on 3 occasions, providing the Engineering Group with useful initial data. The system shows great potential for improving data collation and a more efficient search facility for specific data.

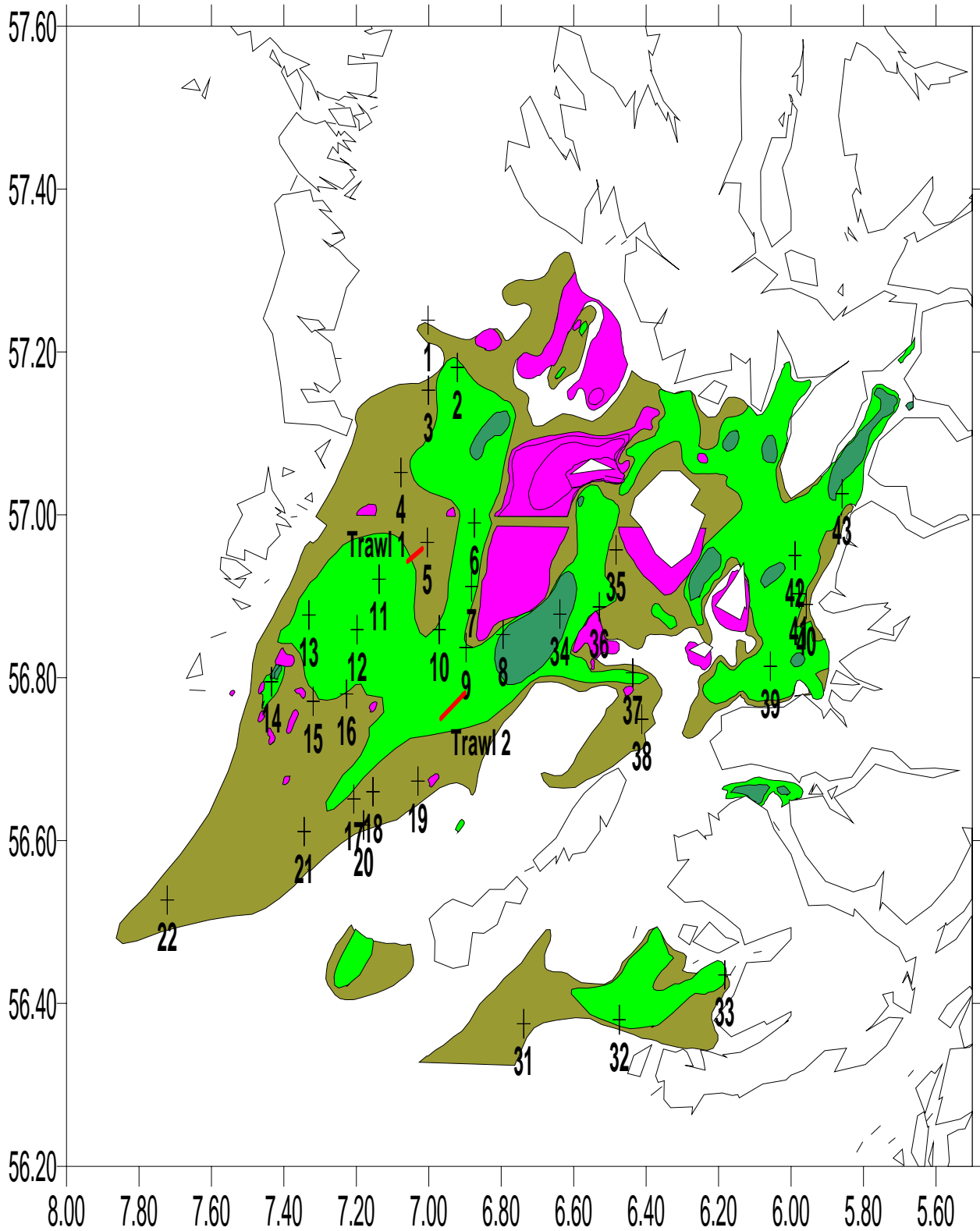
Fladen TV Survey 2006



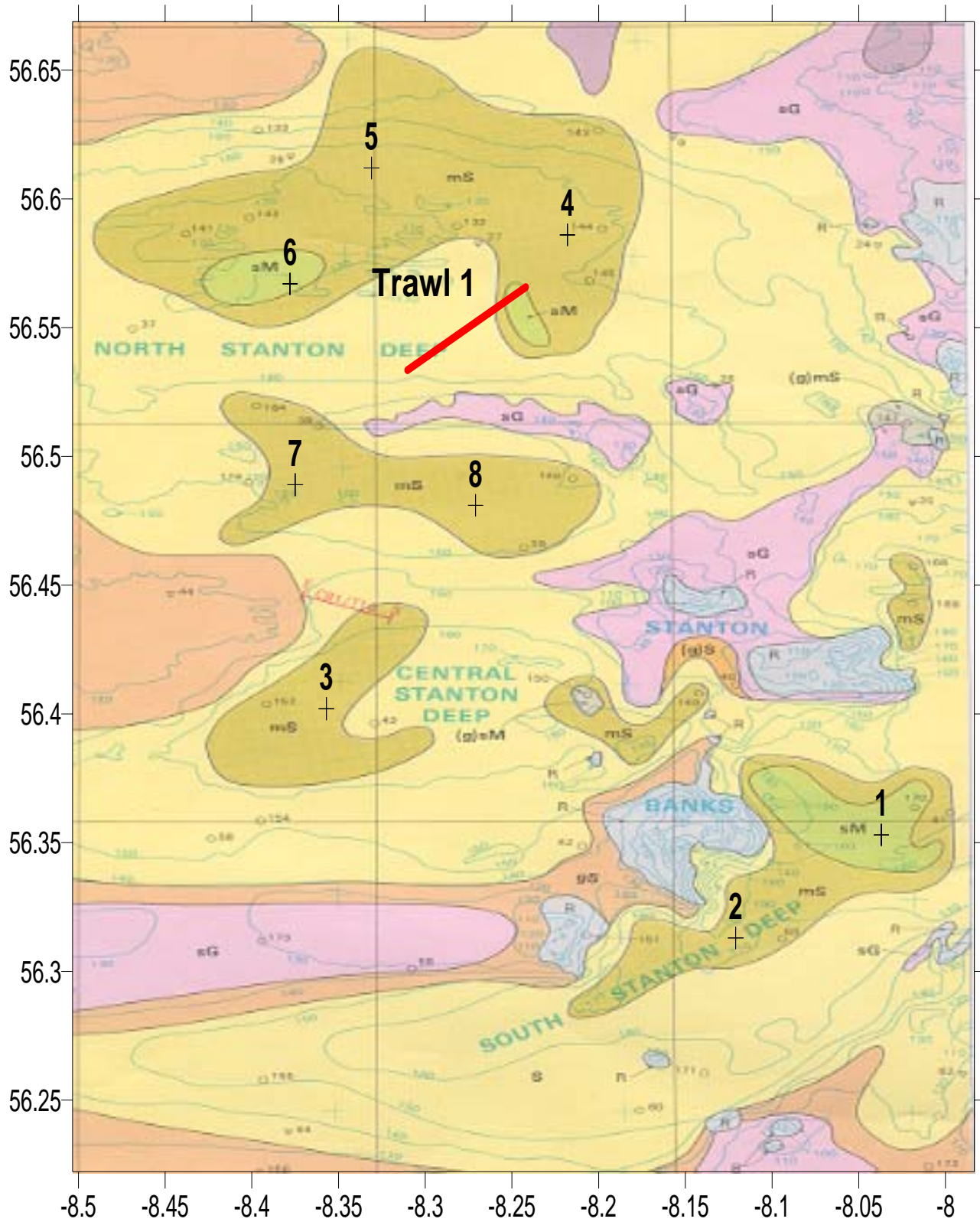
North Minch TV Survey 2006



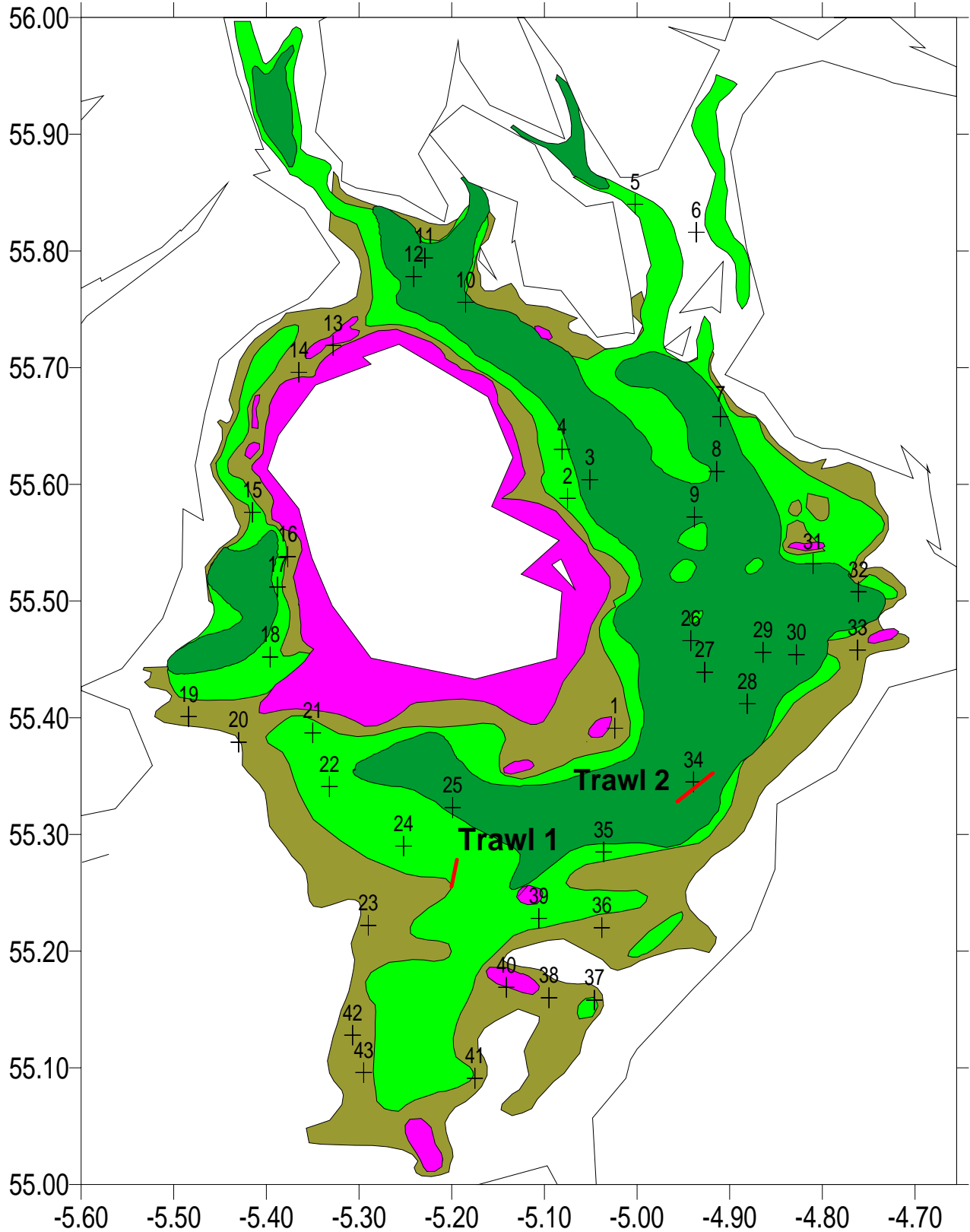
South Minch TV Survey 2006



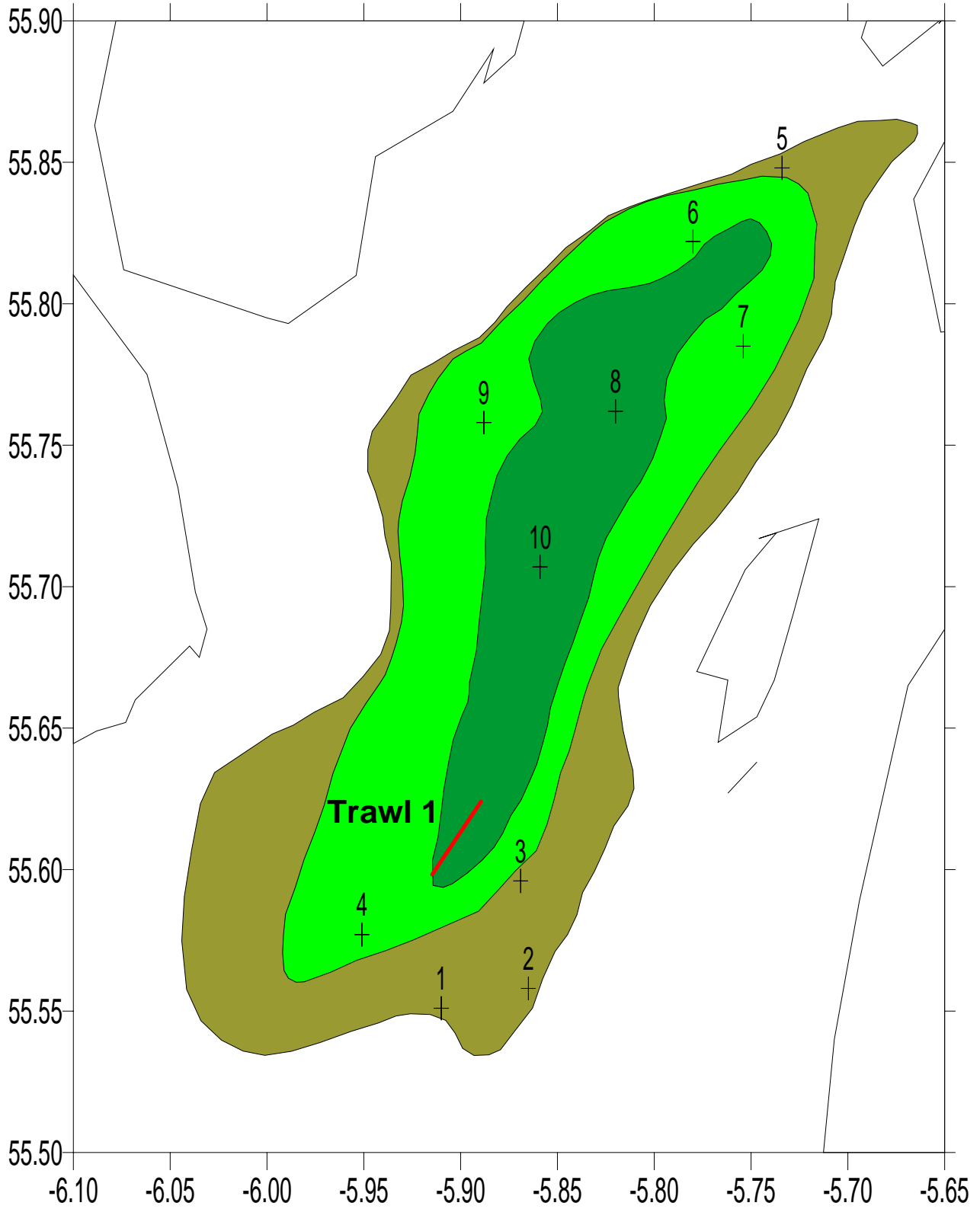
Stanton Bank TV Survey 2006



Firth of Clyde TV Survey 2006



Sound of Jura TV Survey 2006



Noup TV Survey 2006

