CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE
LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 OHT
2004 RESEARCH VESSEL PROGRAMME

REPORT: RV CEFAS ENDEAVOUR: CRUISE 3/04

STAFF:

Part 1	Part 2
S Warnes (SIC)	S Warnes (SIC)
P Large (2 SIC)	S Flatman (2 SIC)
T Woods	T Woods
A Tidd	A Tidd
B Harley	G Burt
S Warne	M Easey
D Brown	R Millner
S Walmsley	L Greenwood
S Milligan	M Godard

DURATION: Part 1: 4 – 19 March. Part 2: 20 March - 1 April

LOCATION: Celtic Sea, South-Western Approaches, western English Channel.

AIMS:

1. To carry out a trawl survey of the Celtic Sea, to obtain information on:
   a) Distribution, size composition and abundance of all fish species.
   b) Age - length distribution of selected species.
   c) The detailed distribution of spawning cod (*Gadus morhua*) in the NW of ICES Division VIIg (Celtic Sea).
   d) Collect biological data in support of the EU Data Collection Regulation.

2. To sample juvenile fish for recruitment studies.

3. To collect material for fish identification courses.

4. To collect and preserve frozen, all scallops (*Pecten maximus*) that are caught.

5. To continue the development and testing of electronic data capture equipment.

6. To collect plankton samples in order to estimate onset of mackerel (*Scomber scombrus*) spawning (S. Milligan).

7. To collect hake (*Merluccius merluccius*), mackerel (*Scomber scombrus*) and

horse mackerel (*Trachurus trachurus*) maturity and fecundity material (P. Witthames).

8. To obtain length distributions of mackerel within the Mackerel Box (C. Darby).

9. To investigate the use of a 3m beam trawl for obtaining juvenile fish samples (Jim Ellis).

10. Tag and release specimens of spurdog (*Squalus acanthias)*, smoothhound (*Mustelus* spp.), greater spotted *dogfish (Scyliorhinus stellaris)* and tope (*Galeorhinus galeus).*

11. Collect tissue samples from rays.

NARRATIVE:

RV CEFAS ENDEAVOUR sailed from Lowestoft at 0745h 4 March. The vessel made for a position in the southern North Sea to undertake a shallow tow in order to carry out Scanmar trails in depths less than those encountered on the standard survey. The vessel then made a good passage through the southern North Sea and eastern English Channel until the morning 5 March when two survey stations were undertaken in the western Channel before heading to Falmouth to drop off 2 staff, the Scanmar aims having been completed. Two more survey tows and a trial of the 3m beam trawl took place on 6 March before the vessel again returned to Falmouth in order to pick up a crew member. CEFAS ENDEAVOUR then proceeded to work out towards the shelf edge on 7 March, the wind beginning to pick up from the Southeast, until work stopped on the morning 10 March due to weather conditions. The vessel then made for SW Ireland and shelter. On 12 March the vessel sailed again, completing one Irish tow on the way to the Northwest corner of the survey grid. On 14 March the weather again increased, this time from the southwest and the vessel again headed for shelter. As the weather eased on 17 March CEFAS ENDEAVOUR recommenced fishing in the Irish sector until midday on 18 March when the weather again deteriorated.
CEFAS ENDEAVOUR docked in Cobh at 1800 on 18 March, staff changes having been arranged for the following day. Bad weather prevented any further work until 23 March, after one station off the Irish coast the vessel returned to Cobh to pick up some cod-end liners before heading to the shelf edge to continue working. The shelf edge stations were completed on 26 March and CEFAS ENDEAVOUR steamed overnight for the Trevose grounds. Work continued until 1340 30 March when the vessel made course for Lowestoft docking at 0700 1 April.

RESULTS:

1. The Portuguese high headline trawl was deployed on 56 occasions at standard survey positions (Figure 1a). Two standard survey positions were not worked due to static gear and two because of the high concentrations of boarfish (*Capros aper*) in the vicinity. The 12 stations in the French sector were not worked due to changes made to cruise priorities in relation to EU sampling requirements and loss of time due

to bad weather. One tow was undertaken in the southern North Sea for Scanmar trials. A further 5 experimental tows were undertaken for possible use by the Quarter 1 or Quarter 4 survey (Figure 1b). At each trawl station the total catch was weighed by species and all fish, or an appropriate sample, were measured. Otoliths were taken from selected species over the length range caught, for subsequent age determination. All fish sampling was carried out according to prescribed survey protocols and was input direct the fishing survey database using the electronic data capture system. The system was used to monitor and control otolith sampling levels. The new CEFAS 5 stage maturity key was used to enable the data collected to be used to help meet the CEFAS sampling requirements under the new EU sampling regulation.
Charts showing the distribution and relative abundance of a selection of species, mainly those of commercial interest, are attached (Figures 2, 3). Only standard survey hauls were included in order to make these charts comparable with previous years.

2. Data on the distribution and abundance of juveniles of commercially important species were collected. These data will be provided to the appropriate ICES assessment working groups for inclusion in the relevant assessment models.

3. Samples were collected from commercial fish species for training in otolithing on fish markets.

4. The few scallops caught were frozen and returned to CEFAS.

5. The electronic data capture system was used throughout the survey, and no major problems were encountered. Testing of the new Fishing Survey System and user guide was undertaken and a report forwarded (R. Ayers).

6. The ring net was deployed at 10 stations on the shelf Edge to collect plankton samples in order to estimate onset of mackerel (*Scomber scombrus*) spawning (S. Milligan).

7. 8 cod and 92 hake samples were obtained for maturity and fecundity studies. As part of the Triennial Mackerel Egg Survey 165 mackerel samples were collected for fecundity and 40 mackerel and 40 horse mackerel samples for Atresia (P. Witthames).

8. Length and age samples were obtained from mackerel within the Mackerel Box (C. Darby).

9. The 3m beam trawl was shot 14 times (Figure 4) at different warp ratios. A suggested gear specification has been produced (J. Ellis).

10. 10 spurdog (*Squalus acanthias)* and 1 smoothhound (*Mustelus* spp.) were tagged and released (J. Ellis).

11. 15 samples of ray tissue were collected for DNA analysis (J. Ellis).

12. Fin ray samples from 12 cod were collected for DNA studies (C. Fox).

13. Samples for DNA studies were also collected from 2 conger (Conger conger) and

42 Bluemouth redfish (Helicolenus dactylopterus).

S. Warnes
1 April 2004

SEEN IN DRAFT

R. McCurry (Master)

B. Salter (Senior Fishing Mate)

INITIALLED:

Dr R.S. Millner

DISTRIBUTION:

Basic list
Staff on Cruise
Devon SFC)
Cornwall SFC)
South Wales SFC)
Isles of Scilly SFC)
Ireland (via FCO)
France (via FCO)

CEFAS ENDEAVOUR : Valid Standard PHHT hauls

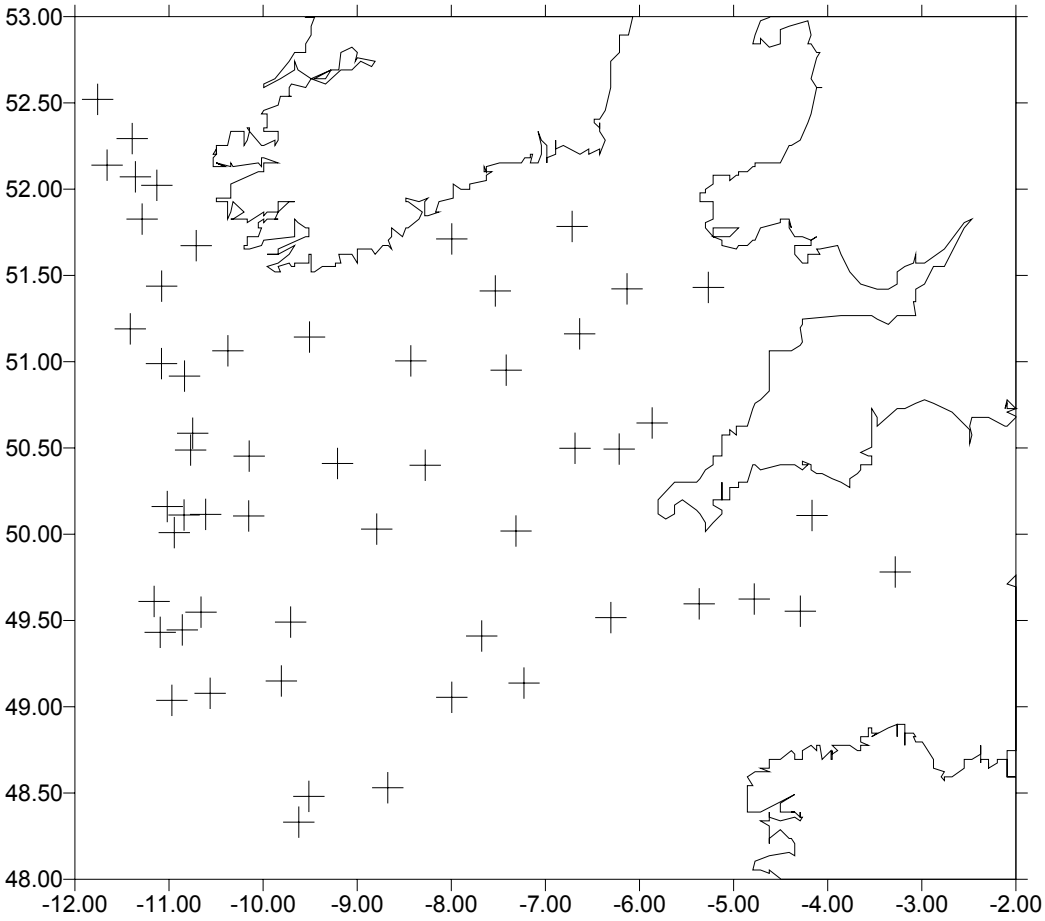


Figure 1a

CEFAS ENDEAVOUR Additional PHHT hauls

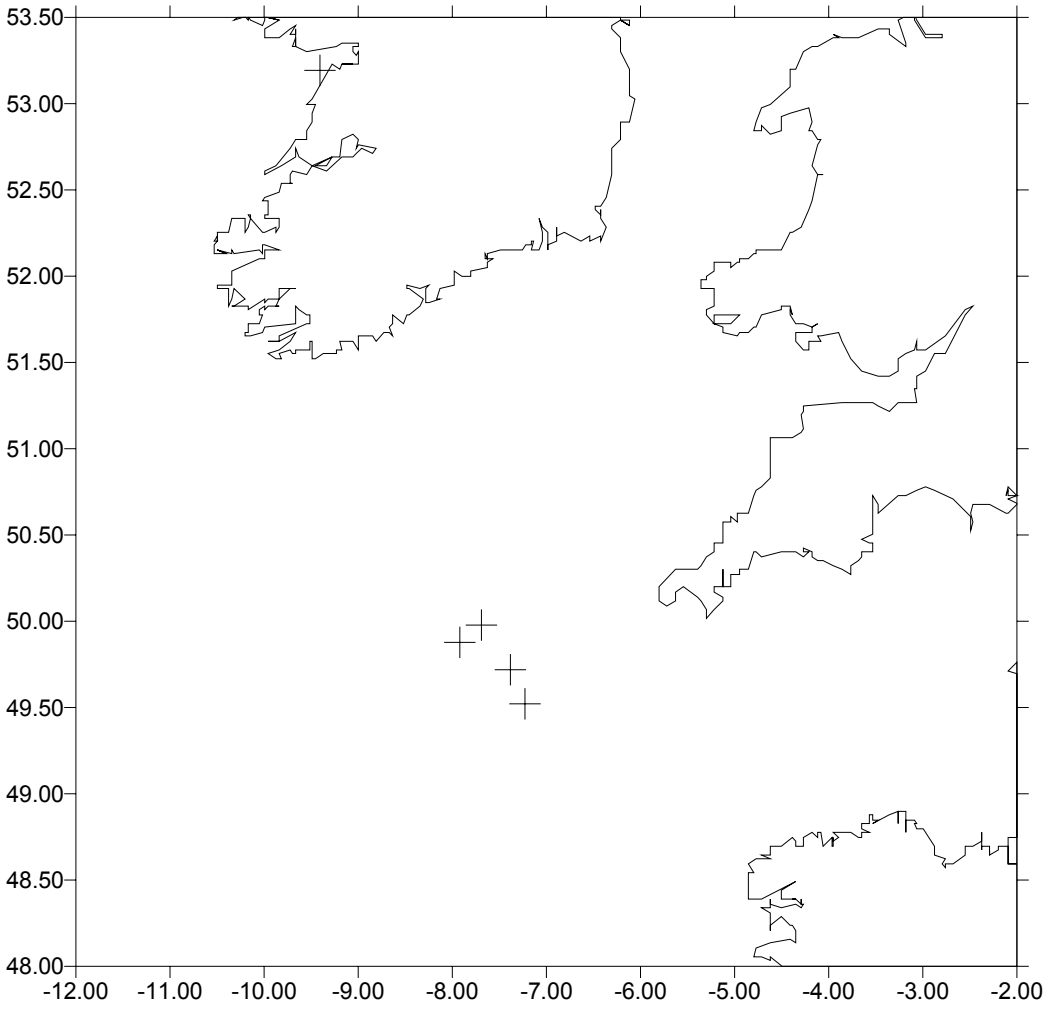
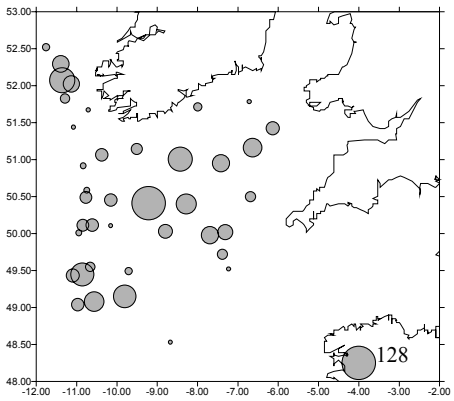
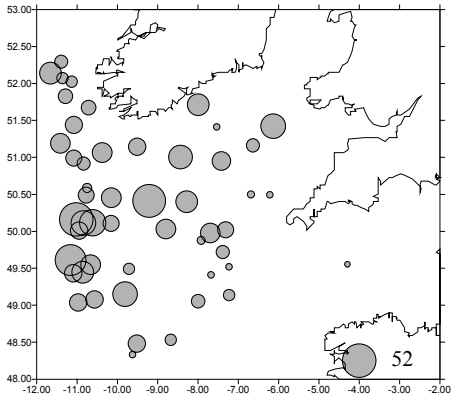


Figure 1b

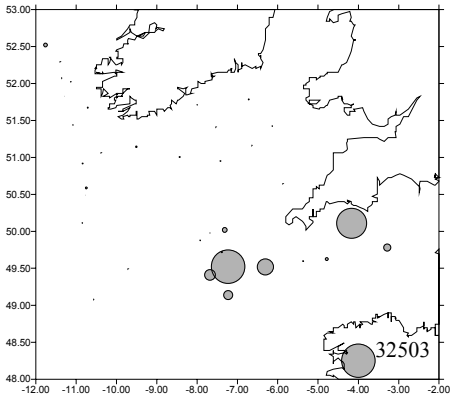
CEFAS ENDEAVOUR 3/04
hake < 21cm (No/hr)



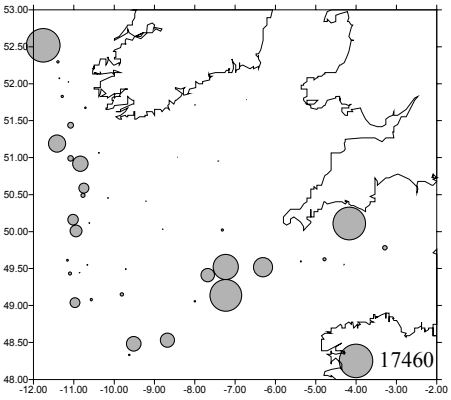
CEFAS ENDEAVOUR 3/04
hake>= 21cm (No/hr)



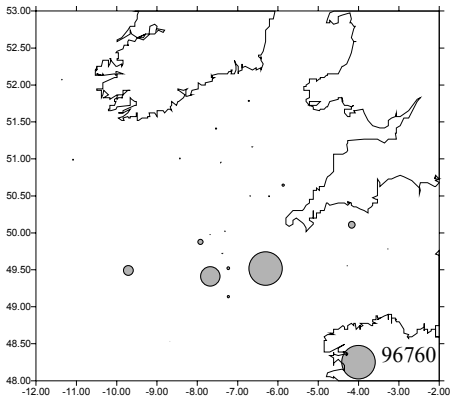
CEFAS ENDEAVOUR 3/04
horse mackerel < 15cm (No/hr)



CEFAS ENDEAVOUR 3/04
horse mackerel >= 15cm (No/hr)



CEFAS ENDEAVOUR 3/04
mackerel < 24cm (No/hr)



CEFAS ENDEAVOUR 3/04
Mackerel >= 24cm (No/hr)

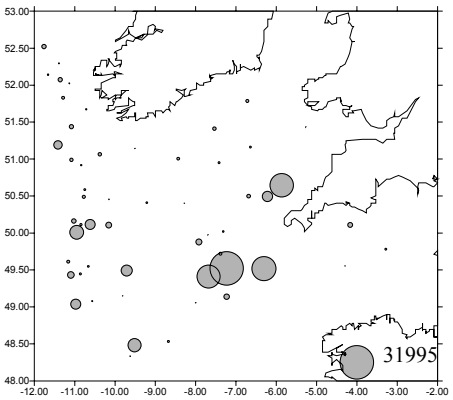
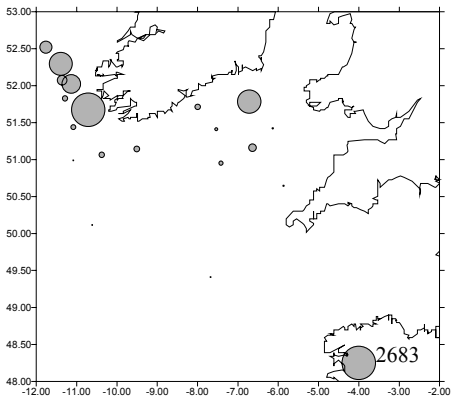
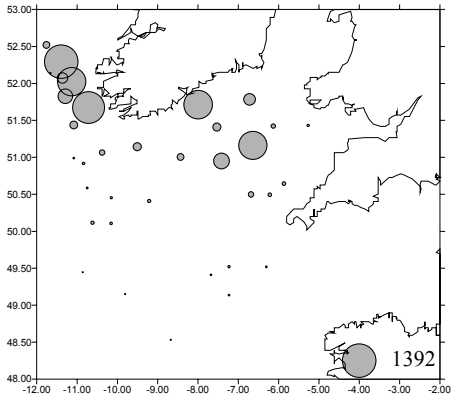


Figure 2

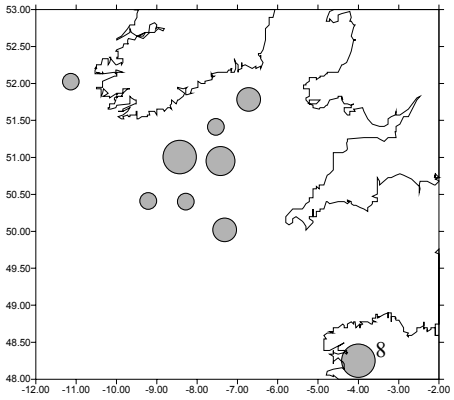
CEFAS ENDEAVOUR 3/04
haddock < 25cm (No/hr)



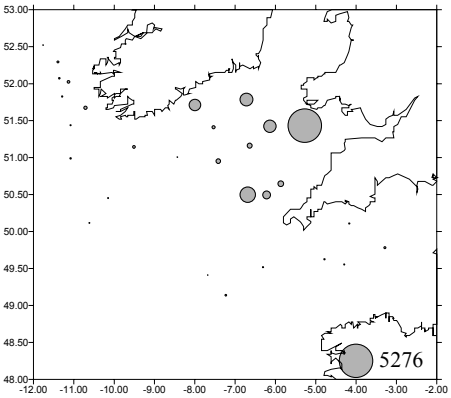
CEFAS ENDEAVOUR 3/04
haddock >= 25cm (No/hr)



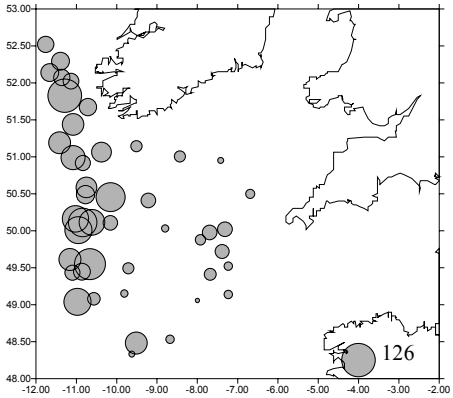
CEFAS ENDEAVOUR 3/04
cod (No/hr)



CEFAS ENDEAVOUR 3/04
whiting (No/hr)



CEFAS ENDEAVOUR 3/04
megrim (No/hr)



CEFAS ENDEAVOUR 3/04
boarfish (No/hr)

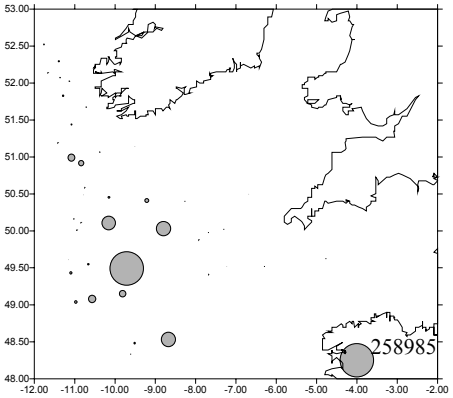


Figure 3

CEFAS ENDEAVOUR : Valid 3m Beam trawl hauls

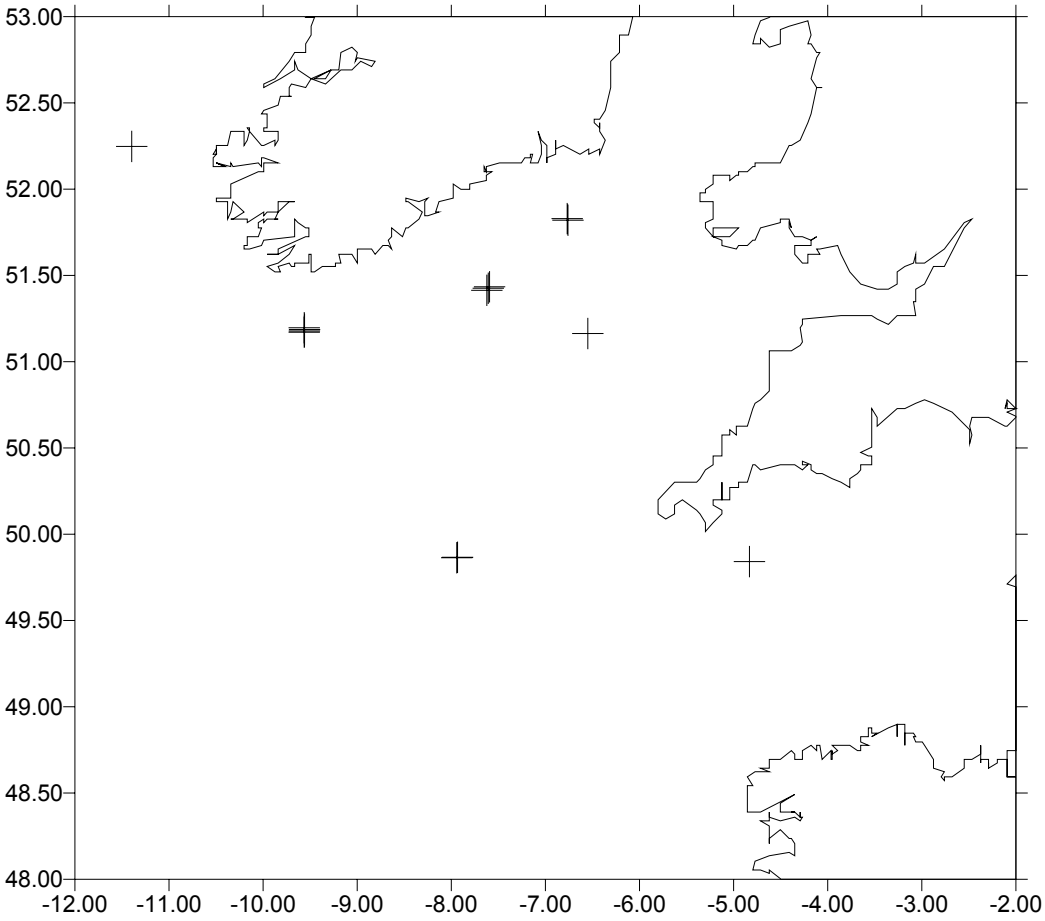


Figure 4