

**THE CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE
SCIENCE
LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 OHT**

1998 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES: CRUISE 6

STAFF:

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- B Fogg
- T A Mead

DURATION: 2 - 29 June

LOCALITY: Bay of Biscay / Cantabrian Sea / Northern Galicia

AIMS:

1. To participate in the international mackerel and horse mackerel egg survey of the western and southern areas in survey period 5, to 11 June and period 6 to 28 June.
2. To sample adult mackerel and horse mackerel in the western area for atresia studies and the estimation of maturity, using the midwater FOTO trawl.

NARRATIVE:

RV Corystes sailed from Lowestoft at 1600h 2 June and steamed south to the English Channel. The vessel arrived off Weymouth at 1330h 3 June to pick up Captain McCurry and two other crew members by ships workboat. The transfers and hand over of the vessel from Captain Jolliffe, who had sailed from Lowestoft in temporary command, were completed by 1715h. The vessel then proceeded to the start of the plankton survey grid at 48°15'N; 005°15'W. On arrival there, at 0930h 4 June, the performance of the plankton sampler with new Guildline CTD system was tested and adjustments made to correct the dive profile. The first plankton station was completed by 1410h. On route to the next station the FOTO trawl was streamed in order to ensure that it was correctly coiled on the net drum after difficulties had been experienced in loading the gear from the quay in Lowestoft. Trial deployments of the trawl resolved minor problems with rigging the Scanmar sensors and highlighted a major problem with the headline transducer which was not serviceable. The plankton survey continued westwards at latitude 48°15'N in fine weather throughout 5 June to 011°15'W returning eastwards towards the shelf edge on the following day. The FOTO trawl was shot close to the shelf edge at 2245h 6 June at 48°12'N; 008°20'W. The trawl was shot at the surface with a gape of 34 metres and yielded a mixed catch of 47 baskets of mackerel, horse mackerel, small blue whiting and eleven hake.

The plankton survey was resumed at 0600h on the following day in strengthening SW winds. After a further six plankton stations to the east the vessel steamed 30nm. north to an area designated for sampling juvenile mackerel and horse mackerel. One surface tow with the FOTO trawl at 2040h provided an adequate sample of horse mackerel and the vessel returned south to the plankton survey grid.

The plankton sampling commitment for survey period 5 was completed at 0600h 8 June at 47°45'N; 004°45'W. The vessel then steamed 60nm. SE along the French coast to begin the plankton survey for period 6 at 1215h on the same day at 47°15'N; 003°15'W. The survey progressed very slowly westwards in deteriorating weather. Strengthening SW winds and a heavy swell meant that the sampler had to be deployed before the wind putting additional distance onto each station leg. At 1450h on the following day the vessel steamed 30nm. north to the third designated fishing area. The trawl was deployed twice in this area for a total of two and a half hours but no fish were caught. The marginal weather conditions generated handling problems with this large trawl resulting in fouled gear on both deployments. The fishing station was abandoned at 0015h 10 June followed by a long and uncomfortable return steam to the plankton survey grid.

The survey was restarted at 0905h 10 June and continued slowly west in strong winds until 1430h when the vessel was hove to in SW force 7 wind with gusts up to 50 knots in the squalls. A temporary lull permitted a further plankton station to be worked at 1915h but on completion the vessel then dodged slowly westwards through the night towards the next station. The survey was restarted at 0740h 11 June, at 47°10'N; 008°50'W, working south and then returning east along latitude 46°15'N. Good progress was made over the following two days until increasing SW winds slowed the vessel down on the westerly leg along latitude 45°15'N during 13 June. By 2145h on the following day the final plankton station allocated for the first half of the survey in the western area was completed at 44°15'N; 002°45'W.

Sampling stations in the southern area were started at 0050h 15 June at the south-eastern corner of the Bay of Biscay. Moderately strong winds and a heavy westerly swell along the Cantabrian coast slowed progress. The first eight stations had been completed by 2335h at 44°22'N; 003°32'W. The vessel then steamed south to arrive in Santander for the mid cruise break at 0630h 16 June to take on fresh water, replenish supplies of fresh food, and dispose of ships waste.

A buffet reception was held on board RV Corystes at 1100h for the Director and 14 members of his staff from the Instituto Espanol Oceanografico, Santander. This was hosted by the scientific staff and ships officers who wish to record their appreciation of the work of the Chief steward and his staff for the excellent spread superbly presented for our guests. We were unable to accept a return invitation to the Institute for lunch on the following day. This remains open for the next visit of a CEFAS vessel to Santander.

RV Corystes sailed from Santander at 0900h 17 June and steamed to the first plankton station 35nm. west along the Cantabrian coast. Excellent progress was made on the north/south legs in the southern area completing the remaining 26 stations in the Cantabrian section by 2340h 19 June at 43°35'N; 009°36'W.

The plankton survey continued into Galician waters in exceptionally fine weather with only minor problems caused by occasional fog patches during late afternoon and through the night. The survey in the southern area was completed at 1410h 21 June 15nm. north of La Coruna.

The plankton survey in the western area was restarted at 45°45'N: 006°15'W at 0230h 22 June progressing east onto the shelf. The FOTO trawl was shot at 45°45'N: 002°53'W at 2030h producing 24 mixed baskets of two species of mackerel (*Scomber scombrus* and *S. japonicus*) and two species of horse mackerel (*Trachurus trachurus* and *T. mediterraneus*) plus three sunfish (*Mola mola*) which were released live. The remaining allocated plankton stations in the western survey area were completed at 0930h 24 June at 46°46'N: 008°18'W.

Contact was made with the RV Scotia to co-ordinate sampling in period 6. As a result it was agreed that RV Corystes would continue sampling, a further two rows, up to 48°15'N. This would release RV Scotia to cover some of the rectangles north of 52°30'N which, because of bad weather, the Irish had been unable to complete. Both vessels would attempt to cover trawl sampling, north of 48°30'N which the Norwegians had been unable to complete.

Good progress was made plankton sampling on the additional eastwards leg at 47°45'N and the return leg west at 48°15'N through to the 25 June. The FOTO trawl was shot at the shelf edge at 2000h 25 June where a small catch of horse mackerel was taken. A heavy westerly swell then slowed progress on the plankton survey and by 0930h 27 June it became necessary to deploy before the swell. In the absence of either horse mackerel or mackerel eggs in the sample at 48°15'N: 010°15'W further sampling to the west was deemed unnecessary. The plankton survey was completed at that position at 2015h 27 June.

The FOTO trawl was shot at 2305h at 48°33'N: 009°43'W at the surface in an area designated for horse mackerel maturity sampling. No traces were seen on the echo sounder but after towing for one and a half hours a catch of 24 baskets of mixed mackerel and horse mackerel was taken. RV Corystes then steamed NW towards the 'SW mackerel box'

After a fruitless echo sounder search of the area from SW of the Scilly Isles to the Cornish Peninsula the FOTO trawl was shot at 1730h, 15nml. south of the Lizard. The trawl, fitted with Scanmar sensors, was fished for one and a half hours throughout the water column. No fish traces were encountered and the catch was zero. The trawl was shot again, 30nml. to the west at 2030h. During the tow some midwater marks were fished on and an estimated 5 tonnes of horse mackerel, with some mackerel, was taken. On completion of this haul at 2315h RV Corystes began the steam back to Lowestoft.

RV Corystes docked in Lowestoft at 0936h 29 June.

RESULTS:

Aim 1.

A total of 29 plankton stations were completed in the designated area between latitude 47°N and 48°30'N in sampling period 5 (Figure 1) Some mackerel and horse mackerel eggs were found out to 10°W in this area. As a consequence sampling was only continued out to 011°15'W.

Sampling in period 6 began on 8 June, within the designated time overlap between the two periods. Sampling was carried out on alternate rows one degree of latitude apart working south to 45°15'N and then completing the remaining two rows at the southern end of the western area. Samples taken towards the western end of each leg were examined for the presence of mackerel and horse mackerel eggs. Sampling was only continued beyond the limit of egg distribution for two zero observations. As a result sampling at the northern end was stopped at 008°45'W. On return to the western area,

after sampling in the southern area, the two rows of rectangles at 45°45'N and 46°45'N were sampled to complete the area coverage allocated to RV Corystes. Two further rows to the north were then sampled, in the area allocated to Scotland, to permit RV Scotia to sample areas further north which had not been sampled by Ireland. This resulted in an additional 20 sampling stations making a total of 87 stations in the western area in period 6 (Figure 1)

The abundance of mackerel and horse mackerel eggs over the western area, south of 46°N, was low. The highest densities of both species were found to the west of the shelf edge north of 47°N with maximum numbers off the shelf in the vicinity of La Chapelle and Little Sole Banks.

A total of 48 stations was sampled in the southern area (Figure 1). The abundance of mackerel and horse mackerel egg was very low and confined to the few stations on or close to the shelf along the Cantabrian coast. Off the Cantabrian shelf and in the Galician area there was a general dearth of zooplankton. As a result six rectangles at the northern and western edges of the area were not sampled.

The new Guildline system on the 53cm sampler worked very well and it is pleasing to report that in 164 deployments no problems were encountered with either the sensors or the cable.

The speed control system on the cable winch is unsuitable for plankton sampling. The system is not sufficiently sensitive to the fine tuning required for even sampling of the water column. Furthermore it is not possible to maintain manual control with a 'dead mans handle' for continuous deployments lasting up to one hour.

During the cruise cetacean sightings were recorded and logged on the Oxford University data sheets for submission at the end of the cruise. Five species were sighted and their numbers and positions recorded, Common dolphins, Bottlenose dolphins, Pilot Whales, Fin whales and one Minke whale (Figure 2)

Aim 2.

Mackerel and horse mackerel populations were sampled by trawling to estimate atresia (the loss of eggs from the annual egg production in the ovary) and maturity at age according to targets agreed at the egg survey planning meeting. The positions of the eleven trawling stations are shown on Figure 1. Details of the number of fish sampled by species are shown in the text tables below.

Atresia sampling

ICES rectangle	Date	Horse mackerel	Mackerel
25E1	8 June	20	20
20E7	22 June	30	21
26E0	26 June	15	15

Maturity at age sampling

ICES rectangle	Date	Horse mackerel	Mackerel
25E1	6 June	100	
25E4	7 June	100	
24E3	9 June	4	
25E3	25 June	96	
26E0	26 June	100	
28E5	27 June	100	100

Trawling was carried out, with a FOTO trawl, mainly on the surface at dusk. Catches ranged from about 25 kg to 5,000 kg. The echo sounder gave no indication of the presence of fish in the trawl during the surface tows. Mackerel and horse mackerel dominated the catches, which also included some anchovy, pilchards and garfish. One trawl, in rectangle 20E7, also contained half a basket of hake and a few 0 group (to be confirmed) mackerel which were already 15 cm in length. The largest catch was taken in the SW 'mackerel box' after trawling through three small marks recorded on the echo sounder. An estimated total of 5 tonnes of mainly juvenile horse mackerel with approximately 300 kg of mainly juvenile mackerel was taken. In addition to the standard survey sampling requirements a separate length and maturity sample was taken for the mackerel and horse mackerel in this catch.

The hopper system for fish sorting was fitted for the first time on Corystes. This worked extremely well.

J.H. Nichols

SEEN IN DRAFT:

R. Mc C. (Master)
M.R. (1st Off.)
A.S.L. (SFM)

INITIALLED:

G.P.A

DISTRIBUTION:

Basic list
Staff on Cruise

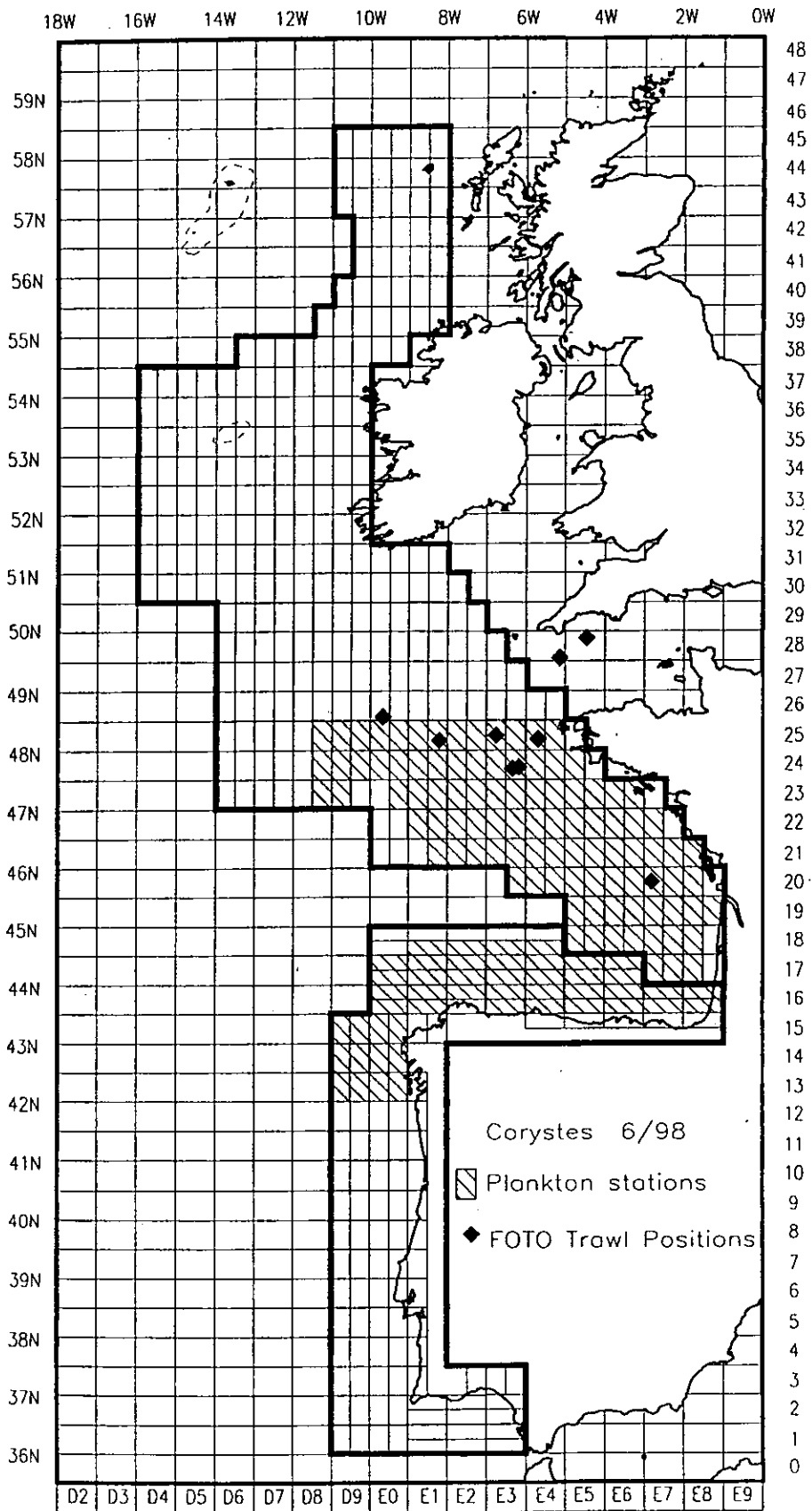


Figure 1

Corystes 6/98

2nd - 29th June 1998

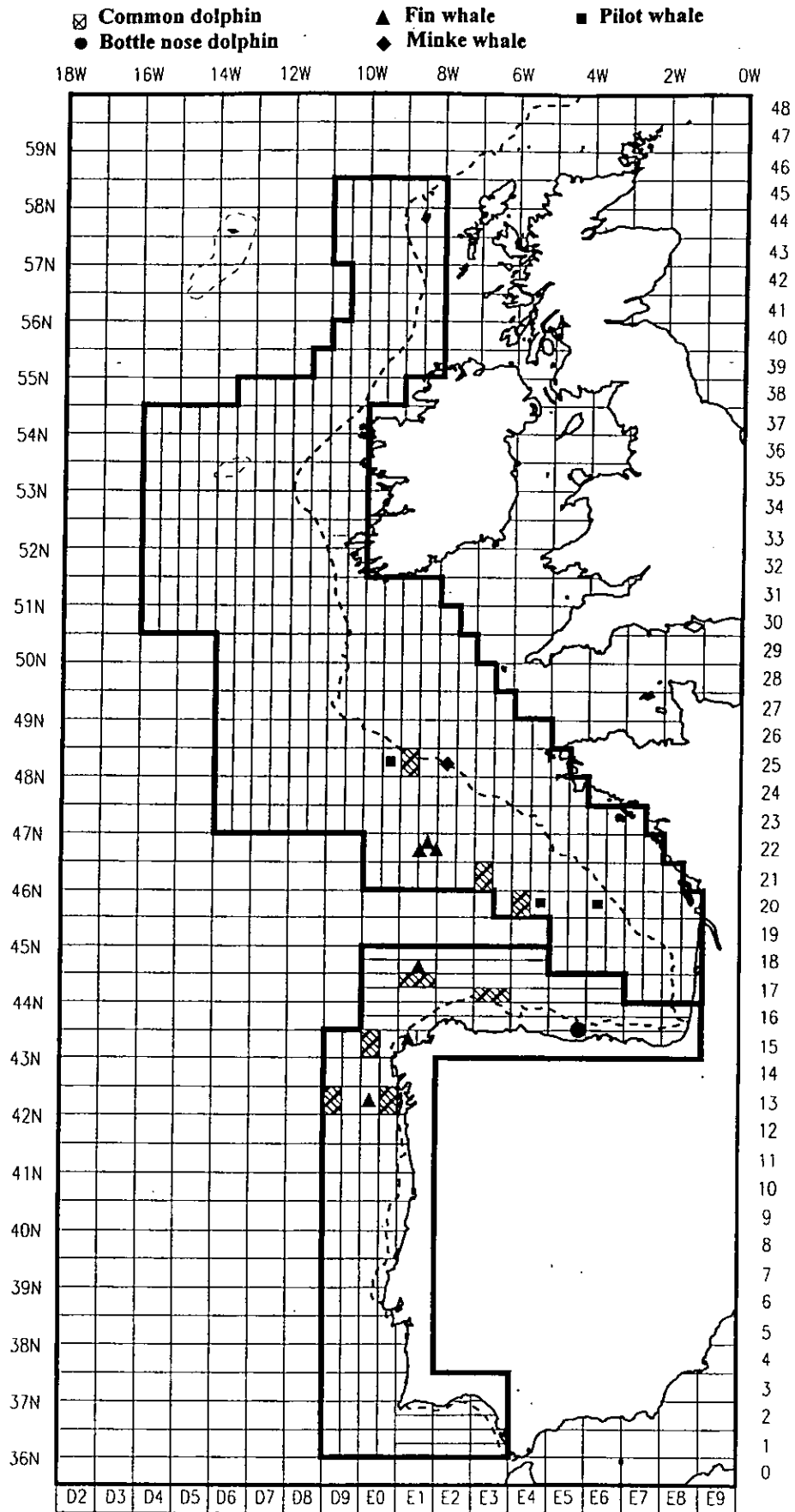


Figure 2