

**CENTRE FOR ENVIRONMENT, FISHERIES & AQUACULTURE SCIENCE
LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 0HT**

2002 RESEARCH VESSEL PROGRAMME

REPORT: CIROLANA CRUISE 2X/02

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DURATION: 29 April – 12 May 2002

LOCATION: English Channel, Western Approaches, Celtic Sea and Bristol Channel

AIMS:

1. To conduct a plankton survey using a 53 cm high speed tow net fitted with the Guildline CTD monitoring system, to determine the distribution and abundance of crab (*Cancer pagurus*) larvae in relation to fishing ground and sea bed sediments over the sea area bounded by latitudes 48°30'N and 52°00'N and longitudes 9°00'W and 2°00'W.
2. To continuously monitor temperature and salinity of sub-surface sea water.

NARRATIVE:

RV Cirolana departed Lowestoft at 1130h BST on 29 April, making slow progress through the southern North Sea and English Channel in a 25-35 kt SW wind. The vessel arrived close to the first sampling station (50°22.5'N, 5°15.0'W) at 1800h BST on 30 April. Poor weather conditions delayed the start of work until 0700h BST on 1 May. By this time, the wind direction had changed to just north of west, allowing some coastal shelter at the station position (SE of Portland). The wind returned to a SW direction later in the day, but registered only 10-15 kt, giving no problem for the deployment of the plankton sampling gear. Weather conditions were very good for the remainder of the cruise. Light winds varied between westerly and north-easterly directions, predominantly northerly. Sea states were light to extremely calm.

The survey track moved westwards through the English Channel during 1-4 May, thence into the Western Approaches, Celtic Sea and outer Bristol Channel during 5-10 May, before returning eastwards into the western English Channel on 11 May. The furthest westward extent of the survey was 48°50.8'N, 7°45.2'W in the Western Approaches, and 51°52.1'N, 7°46.1'W off the coast of Co. Cork, Ireland. The survey grid was adjusted from 173 proposed stations to 110 stations actually sampled (including one repeated station), reflecting that 12 stations per day was the maximum achievable over the extensive survey area. One extra station (ship's ID 111) was sampled on 12 May during the run home. This was on the Hastings Shingle Bank in the eastern English Channel (50°44.9'N; 0°35.8'E), in an area that will be covered by a separate crab larvae survey in 2003.

Sampling at each station consisted of towing a 53 cm high speed tow net ('tin tow'), equipped with 20 cm aperture nose cone and 270 µm mesh end bag, at a speed through the water of approximately 4.5 kt. A dive rate of about 0.1 m.s⁻¹ was maintained, and the water column was sampled to within 2 m of the bottom. Sampled depths ranged from about 30-160 m. Plankton samples retained on the nets were washed down and stored in a 4% formaldehyde solution, buffered with 3.3 g.l⁻¹ sodium acetate trihydrate. Internal and external flow meters were used to monitor water flow rates through and around the net, allowing the volume of water filtered to be calculated. Temperature, salinity and dive depth were continuously monitored during each dive by the Guildline CTD system. No major operational problems were encountered, although the altimeter, used to measure distance of the gear from the sea bed, proved to be unreliable. The altimeter unit was changed twice during the cruise, but all three units were found to be intermittently faulty. The CTD unit was changed at station 93, after the original unit developed problems with pressure (depth) readings. Water samples, for analytical determination of salinity were taken at every second station.

Following completion of the last survey station on the Hastings Shingle Bank at 0910h BST on 12 May, RV Cirolana resumed the steam home and docked at Lowestoft at 2130h BST of the same day.

RESULTS:

Aim1

A total of 111 stations was completed (Figure 1), including a repeat of one station at the eastern end of the survey grid, to the north of Alderney (ship's ID 11 and 110, survey reference number 2), and an extra station on the Hastings Shingle Bank at the eastern end of the English Channel (ship's ID 111). The Alderney station was repeated towards the end of the cruise, towed in a different direction, because a very sharp change in water depth had been experienced during the first tow, from about 170 m at the beginning to just over 100 m during the second half of the tow. The repeat tow was undertaken more-or-less parallel to the depth contours, and showed only about 17 m variation in depth. A second reason for repeating this station was to assess how far larval development had

proceeded during the intervening 9 days. This will help in determining the appropriate timing for a second crab larvae survey planned for 2003. This will concentrate on the eastern part of the English Channel, but there will also be an overlap with the eastern part of the current survey grid. Sampling at the Hastings Shingle Bank station was also undertaken to help in planning the 2003 survey. There is an important edible crab fishery in the area, and it is presumed to be of importance as a spawning ground, since the fishery predominantly takes large mature females in late summer and autumn. A comparison of stages of crab larval development between the eastern and western end of the English Channel will give a further indication of the time of year at which early stage larvae may be expected to be found in different areas.

Full sorting of the plankton samples will be undertaken in the laboratory in the coming months, but some preliminary examination of a limited number of samples was undertaken on board. Edible crab larvae were noted in 9 out of 23 samples examined, with stage I zoeae in 4 samples. All five stages of zoeae were recorded, with stage II being most abundant. No megalopae were noted. Estimated densities were low, up to 60 larvae.m⁻² at zoea stage I and up to 293 larvae.m⁻² overall.

Aim 2

Profiles of temperature and salinity by depth were recorded for all stations by Guildline CTD. Water samples for analytical determination of salinity were taken at 55 stations, with replicates at 4 stations – total 59 samples.

M C Bell
12 May 2002

SEEN IN DRAFT:

A Reading (Master)
G Oliver (1st Officer)
M Reynolds (Senior Fishing Mate)

INITIALLED:

A I Payne

DISTRIBUTION:

Basic list
Staff on cruise
J T Addison
A I Payne
C George (SFI South-West)
Chief Fisheries Officers
Guernsey
Jersey
Scillies

Sea Fisheries Committees
Southern
Devon
Cornwall
South Wales
FCO (for Republic of Ireland and France)

CIROLANA 2X/02 CRAB LARVAE SURVEY

Station Numbers

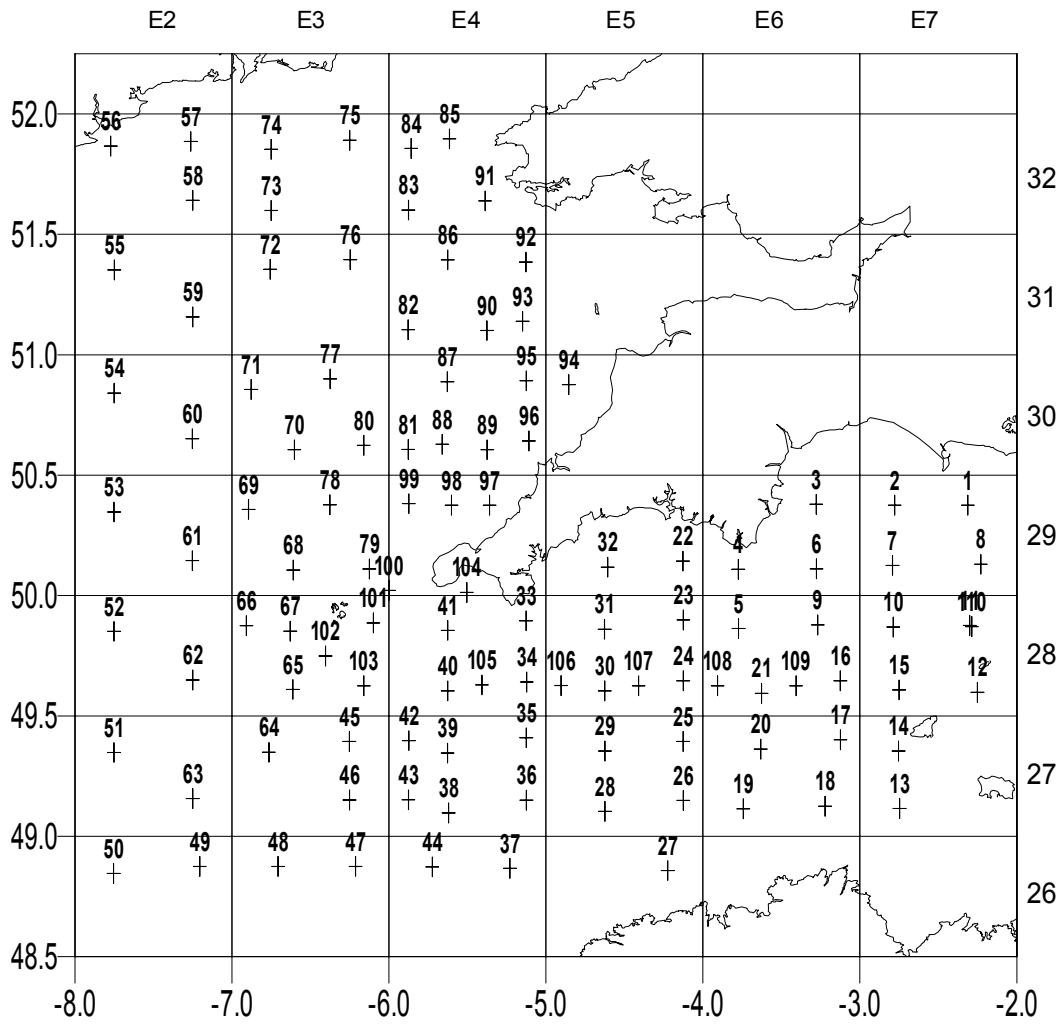


FIGURE 1. Cirolana 2X/02 plankton sampling stations.