MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1973 RESEARCH VESSEL PROGRAMME

REPORT: R V CLIONE: CRUISE 4

(PROVISIONAL: Not to be quoted without prior reference to the author)

STAFF

P R Winslade
W G Parnell
J Dann
B Clarke
J Rous
N Diner (ISTPM)

DURATION

Left Lowestoft 1058 h, 19 February

Arrived Lowestoft 0730 h, 1 March

All times are Greenwich Mean Time

LOCALITY

Western English Channel

AIMS

1. To observe the movement of pelagic fish shoals in relation to tide by:-

   (a) anchoring the ship andusing the sector scanning sonar to record shoal movements whilst using DRCMs to measure the tidal currents;

   (b) launching a parachute drogue in the vicinity of a suitable shoal, tracking the drogue by radar and the shoal by conventional sonar.

2. To investigate the structure of pelagic fish shoals using the ARL scanner in combination with a towed underwater camera.

3. To use a towed underwater camera and then a midwater trawl with a camera fitted to the headline to assess the use of the former as an aid to trace identification.

4. To carry out an echo/fishing/plankton survey of the area to the south and west of Plymouth and Mounts Bay.

NARRATIVE

On leaving Lowestoft CLIONE steamed to Boulogne where Monsieur Diner (ISTPM) was picked up by pilot boat at 2230 h, 19 February. The ship then set course for Plymouth. Tests with the towed underwater camera were carried out on the morning of 20th February and the ship arrived

at Plymouth that evening mooring at Millbay docks at 2113 h. The dome was fitted and CLIONE left Plymouth at 2355 h to start an echo/sonar search for pelagic fish shoals. Large shoals of mackerel had been reported off Dodman Point and SE of Falmouth and CLIONE located a suitable concentration of fish 5' SE of Dodman Point. One tow was made with the underwater camera and then the ship anchored at 0545 h, 21 February. Two DRCMs were rigged and work with the ARL scanner and the DRCMs was carried out from 0724 to 2114 h. The ship left the anchorage at 2125 h and after completion of a tow with the underwater camera which was fitted with an acoustic tag, CLIONE began another echo/sonar search of the area SE of Falmouth. A large concentration of shoals was found off Manacle Point and the ship anchored again at 0600 h, 22 February. DRCM and ARL scanner observations were carried out from 0630 h to 2125 h, and the anchorage was left at 2225 h. Further work was then done with the ARL scanner and towed underwater camera, before proceeding to Falmouth at 0200 h, 23 February. CLIONE moored at Falmouth from 0808 to 1200 h, whilst the dome was removed, and then steamed back to the working area. Gale force winds from the west prevented work with the parachute drogue but there was sufficient lee from the land to feather for mackerel in the afternoon, to collect liver and muscle samples for immunogenetical work and it was possible to use the underwater camera in the evening. The winds had moderated by the following morning and the parachute drogue was launched at 0953 h 24 February. The drogue was tracked by radar and various shoals were tracked with the Simrad Sonar during the course of the day, the drogue being picked up at 2003 h. Work with the underwater camera was then carried out until 0047 h, 25 February, when the ship left the Falmouth area to make an echo/sonar search for pelagic fish shoals south of the Eddystone. A large concentration of shoals was located in the morning and the Engel midwater trawl, fitted with an underwater camera, was shot at 1500 h and hauled at 1750 h. CLIONE then steamed east of the Eddystone to use the towed underwater camera in the area that some midwater trawlers were fishing. This work was completed by 0015 h, 26 February. Free flow calibrations were made with the 20" TTN from 1020 to 1135 h and then CLIONE proceeded with a TTN/echo survey of the area from Start Point to the Scilly Isles, working out as far as 45 miles south of Plymouth. The grid of 17 stations was completed by 0218 h, 28 March and then the ship set course for Lowestoft, arriving at 0730 h, 1 March.

RESULTS

1. Plans 1a and 1b were both accomplished. Using the ARL scanner a total of 80 shoals were tracked. 15 of these were tracked for 10-20 minutes and 1 shoal for 51 minutes. Using the Simrad Sonar 6 shoals were tracked for 5-30 minutes and 1 shoal for 4½ hours. The majority of the shoals appeared to be moving with the tide.

2. Aims 2 and 3 were achieved in part. Good photographs of mackerel were obtained on one tow but on many of the tows the camera was not operating correctly. The acoustic tag fitted to the camera enabled it to be followed with the ARL scanner and although, at times, the fish appeared to be taking avoiding action, on the successful run the camera was seen to be in the shoal. The photographs showed that the mackerel were very densely packed and were swimming with the tide. With further development it would appear that a towed underwater camera could be useful for identifying pelagic fish shoals and investigating their structure.

3. Aim 4 was successfully accomplished. A TTN survey of 17 stations was completed. Bottom and surface temperatures and salinity observations were made at 5 stations and surface observations were made at the remaining stations. No fishing was carried out as very little trace was encountered outside the operational area of the local midwater fishing vessels. However, there were at least 3 French boats working near the 12 mile limit between the Wolf Rock and the Lizard and one of these had caught 55 tons of mackerel in two daylight hauls.

4. Samples of liver and muscle from 100 mackerel were deep frozen for Mr Smith and a sample of mackerel was deep frozen for Mr Bolster.

5. Total dome distance steamed was 98.8 miles and the dome was in good condition when removed.

Peter Winslade
1 March 1973

SEEN IN DRAFT: JEMB (Master)
AHB (Fishing Skipper)
INITIALLED: HAC
DISTRIBUTION

Basic list

Mr Parnell
Mr Dann
Mr Clarke
Mr Rous
Mr Diner (ISTPM)
Mr Blacker
Mr Bolster
Mr Smith
Mr Williams, DI SW England
Mr Buchanan-Woolston, FO Newlyn
Mr Ross, SO Brixham