

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD  
CEFAS, LOWESTOFT LABORATORY

1999 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES: CRUISE 1

STAFF: G P Arnold (SIC)  
C M O'Brien  
B H Holford  
B F Riches  
A A Buckley  
T G Locke

DURATION: Left Lowestoft: 1745 h 13 January  
Arrived Lowestoft: 1200 h 5 February  
All times are GMT

LOCALITY:  
Eastern English Channel

AIMS:

- 1. To estimate swimming speed and orientation of spent plaice by simultaneous use of the sector scanning sonar and ADCP.
  - 3. To assess the precision of geographical location using data storage tags in conjunction with the POL tidal model.
- And additionally
- 4. To collect live male plaice for laboratory studies.
  - 5. To test satellite pop-up tags.

NARRATIVE:

Corystes sailed on the afternoon tide on 13 January and proceeded to the eastern English Channel, where she arrived on station at 1200 h the next day. Fishing commenced at 1320 h at 50° 25.8'N 00°32.52' W and continued until 1500 h. Corystes was then forced to seek shelter from gale force winds for the next 48-h. Tag and scanner tests were carried out in St Helens Roads, Isle of Wight, on 15 and 16 January. Corystes sailed again at 2300 h 16 January and arrived on station at 0500 h 17 January. Fishing recommenced at 0815 h at 50° 04.5'N 00° 13.6'W and continued until 1430 h the next day with a break overnight. Plaice 1 was released at 50° 03.61' N 00° 02.22' W at 1820 h 20 January and tracked until 2330 h 21 January when the tag signal was lost. Plaice 2 was released at 50° 04.51'N 00° 25.24' E at 0210 h 22 January but was abandoned at 1120 h, when Corystes left station to land a member of the crew because of a family bereavement. Corystes arrived off Brighton Marina at 1600 h and sailed again at 1745 h. She arrived back on station at 2200 h, but plaice 2 was not relocated despite a search lasting several hours. Fishing resumed at 0730 h the following morning and continued until 1645 h, by which time five spent female plaice

had been caught and tagged. Plaice 3 was released at 2000 h 23 January at 50° 04.19' N 00° 21.1' E and tracked until 2400 h 26 January, when work was abandoned because of a severe north-westerly gale. Corystes then dodged north overnight and arrived off the Owers at 1200 h 27 January. The current meter rig (Aim 2) was deployed at 50° 33.09' N 00° 35.18' W at 1215 h and retrieved at 0825 h the following morning. Corystes docked in Southampton at 1200 h to replenish freshwater and land live fish. She sailed again at 1200 h 29 January and was back on station off Dieppe by 1945 h. Plaice 4 was released at 2005 h 29 January at 50° 06.97' N 00° 46.39' E and tracked for approximately 60 h over the period of the full moon. This fish moved very little and was abandoned at 1215 h 1 February. Plaice 5 was released close by at 1320 h the same day and tracked until 2145 h 2 February, when the tag signal became very weak and was lost with the fish in midwater. A systematic search was carried out through the night but abandoned at 0800 h 3 February. Corystes then steamed back to the fishing ground 10 miles north-west of Fécamp and fished for male plaice from 1430 h 3 February until 0930 h 4 February, with a break overnight. Sea trials of pop-up satellite tags (Aim 4) were carried out at various stations between 2 and 5 February when an Argos satellite was due overhead at a convenient time. Work was concluded at 1400 h 4 February when Corystes set course for Lowestoft. Further tests of pop-up satellite tags were conducted off Corton on the morning of 5 February.

## RESULTS:

### 1. Plaice tracking

Four plaice were tracked for periods of between 30 and 77 h; a fifth fish had to be abandoned after only 9 h. All fish were caught locally in the English Channel, although fish 3 had been returned to Lowestoft from the previous cruise (COR 12/98). Plaice 1 and 2 were caught on 17 January, plaice 4 and 5 on 23 January.

Plaice 1 (35 cm, spent female, Petersen tag no. E66 4444) remained in midwater for most of the time and its track largely followed the pattern of the local tidal stream ellipse. Plaice 2 (55 cm, spent female, Petersen tag no. E66 4445) had to be abandoned before any pattern of movement was established and could not be relocated.

Plaice 3 (41 cm, spent male, Petersen tag no. E66 4443) went to the bottom on release and remained there for the first 7.5 h before moving south-west on a west-going tide. It then spent a further 10.5 h on the bottom. It subsequently swam in a south-westerly direction, remaining in midwater through two west-going and one intervening east-going tide. During the second midwater period the fish showed a strong avoidance reaction when the ship got closer than 60 m, but subsequently returned to its original course. Plaice 3 continued to move in a south-westerly direction during the last west-going tide but remained on the bottom, possibly because of disturbance caused by gale force winds.

Plaice 4 (40 cm, spent female, Petersen tag no. E66 4451), which was very lively on deck, went rapidly to the seabed on release and, apart from two short excursions at the beginning of two east-going tides, moved very little. This fish was tracked over the period of the full moon when the sea was brightly illuminated at night, the surface was calm and the water extremely clear.

Plaice 5 (37 cm, spent female, Petersen tag no. E66 4452) was also a lively fish on deck. It initially went to the bottom but came up into midwater during two west-going tides and part of an east-going tide. After about 30 h it left the bottom at slackwater and began to move to the east on the east-going tide. This behaviour suggests that it was starting to migrate towards the North Sea by selective tidal stream transport. Unfortunately the tag signal began to fade progressively and was lost a few hours later with the fish still in midwater. Despite an all night search the tag was not relocated.

## 2. Precision of geographical location

The current meter rig was deployed for the requisite 13 h and should provide appropriate information the data storage tag programme.

## 3. Live fish collection

Approximately 100 live male plaice were landed in Southampton and returned to Lowestoft by road. A further 200 fish were landed in Lowestoft at the end of the cruise.

## 4. Sea trials of pop-up satellite tags

Four PTT-100 pop-up tags were deployed by line over the stern during 5 periods when an Argos satellite was predicted to pass within range. Transmission was confirmed by goniometer. One tag was detected at Lowestoft during each of the first, second and fourth trials and two tags were detected during the third and fifth trials. Weather conditions were generally poor during these trials with substantial sea, or swell.

G P Arnold  
5 February 1999

SEEN IN DRAFT: B A Chapman (Master)

INITIALLED: GPA

DISTRIBUTION:

Basic list + G P Arnold, C M O'Brien, B H Holford, B F Riches, A A Buckley, T G Locke;  
Clerk to Eastern SFC; FCO.

FIGURE CAPTION

Figure 1. Ground track of plaice 3 released at 2000 h 23 January 1999 and tracked for 77 h. The fish avoided the ship when it approached within 60 m at 2150 h 25 January and did not leave the bottom during the last west-going tide, possibly because of a severe north-westerly gale.

Figure 1

Track of Fish 3, (E66 4443, spent male 41cm)

