

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

1975 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA: CRUISE 10

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

STAFF

P O Johnson  
D H Cushing (4-10 November)  
B C Bedford  
M G Pawson  
W I Huggins  
M W Easey  
B J Robinson  
M L Windsor (Chief Scientist's Group: Fisheries Liaison Officer)  
J Lees (Newlyn Office, 4-10 November)  
R B Mitson (10-16 November)  
J R Dunn " (Birmingham University)  
C R Hood "

DURATION

Left Grimsby 0500 h 4 November  
Arrived Falmouth 1350 h 16 November.  
All times are Greenwich Mean Time.

LOCALITY

Western English Channel.

AIMS

1. An acoustic survey within the area Start Point-Wolf Rock extending up to 40-50 miles off the coast.
2. Trace identification by means of mid-water trawling and feathering.
3. Tag feather-caught mackerel using both internal and external tags.
4. Target strength estimations using the pulse-height analyser.
5. Trials with the Birmingham University wideband sonar equipment.
6. Monitor foreign fishing activity within the survey area.

NARRATIVE

After leaving Grimsby CIROLANA made passage to the English Channel where the acoustic survey commenced at 1700 h 5 November after preliminary noise level measurements had been made. The first part of the survey extended between Start Point and the westernmost leg of the main grid (6°W) which was picked up at 0730 h 6 November. This grid extended up to 50 nautical miles off the coast, and over the period 6-9 November was completed to longitude 04°10'W, with some additional coverage inshore between Falmouth Bay and the Eddystone. On 10 November CIROLANA briefly docked at Plymouth, when Dr Cushing and Mr Lee left the vessel and Messrs Mitson, Dunn and Hood joined the ship with the wideband sonar equipment. After leaving Plymouth at 1300 h, the eastern end of the main

survey grid was picked up and the survey continued in this region until late on 11 November when an overnight passage was made to the westernmost part of the survey area about 10 miles southwest from Wolf Rock, where a large shoal had been reported by radio a day or so previously. On 12 November the survey was temporarily interrupted by a strong to gale force southeasterly wind and after this moderated the vessel returned to the Falmouth area where she arrived at 0600 h 13 November. However, a strong to gale force easterly wind then developed and this necessitated dodging until 1300 h, and later that day it was decided to seek more sheltered waters in Mounts Bay in order to carry out calibration work with the wideband sonar equipment whilst at anchor. This was completed by 1140 h 14 November, after which mackerel feathering operations were carried out in the area to catch fish for tagging. Further work was also undertaken with the sonar gear at this time. This work continued on 15 November in very dense fog and later that day when visibility had improved a return passage was made to the Falmouth area, when a further acoustic survey grid was undertaken in the western part of the Eddystone Bay. However, weather conditions rapidly deteriorated during the night and by the morning a severe northwesterly gale had developed and the survey was abandoned at 0945 h. The weather subsequently showed no signs of moderating and it was decided to enter Falmouth that day, CIROLANA docking there at 1350 h 16 November. The scientific staff returned to Lowestoft by train the following day.

## RESULTS

1. The acoustic survey was successfully completed to cover the area between  $6^{\circ}W$  (Land's End-Scillies) and  $03^{\circ}20'W$  (Start Point area) extending up to 50 miles off the coast. Traces were generally thinly distributed offshore and the best concentrations were mainly within the 12 mile limit. Major concentrations of mackerel were found in the Mounts Bay area, and during the first week of the survey off the Manacles and between Dodman Point and the Eddystone. However, after an intervening several days of strong to gale force E-SE winds the latter patches appeared to disperse, and the large shoal reported earlier south of the Wolf Rock was not found and also appeared to have broken up. A large patch of horse mackerel extending over a distance of several miles was also found centred about 5-6 miles south/southeasterly from Start Point.
2. Several successful mid-water trawl hauls were made with the 1600 mesh Engel trawl, and mackerel feathering in the Mounts Bay area also proved very profitable.
3. In the Mounts Bay area a total of 1 110 feather-caught mackerel were tagged and released, 860 fish (less than 36 cm in length) with internal tags and 250 fish (exceeding 36 cm) with external tags. The fish caught ranged in length between 22 and 47 cm, with clearly defined modal length groups between 26-28 cm and 38-40 cm.
4. Several runs were carried out over dispersed mackerel shoals using the pulse height analyser and single fish discriminator system to obtain target strength distributions for further analysis.
5. Some encouraging preliminary results were obtained using the prototype wideband sonar equipment on various fixed targets and mackerel shoals.

6. Very little foreign fishing activity was observed within the survey area. A few Russian stern trawlers were seen steaming around about 10-15 miles south from the Wolf Rock and another a few miles south of Start Point. The only vessels noted actually fishing were a group of three about 19 miles south of Portland Bill.

P O Johnson

21 November 1975

SEEN IN DRAFT T H Finn  
G W Argumont

INITIALLED AJL

DISTRIBUTION

Basic list  
P O Johnson  
D H Cushing  
B C Bedford  
M G Pawson  
W L Huggins  
M W Easey  
B J Robinson  
M L Windsor  
J Lees  
R B Mitson  
J R Dunn  
C R Hood