

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

1997 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES: CRUISE 6a/97

STAFF: M J Kaiser (SIC)  
D B Edwards  
R P Flatt  
P F Millican  
F Spence (Manchester University)  
K Cheney (Manchester University)

DURATION: 09 - 22 May 1997

LOCALITY: English Channel

AIMS:

To survey areas subjected to different intensities of fishing in the English Channel and North Sea using a combination of the following techniques:

- 1) Side-scan sonar survey to ascertain the comparability of substratum type in areas used for comparative studies, and to ascertain the recent intensity of fishing in those areas.
- 2) Sample the epibenthic community within specific areas using repeated tows (3-5 min duration) of a 2 m beam trawl fitted with a stills camera to obtain images of the seabed and quantitative estimates of epifauna.
- 3) Collect specimens of live bivalves at each station using an anchor dredge for determination of historical fishing intensity (NP0309).
- 4) Collect sediment samples at each station using a Day grab for sedimentological analysis.
- 5) Record the occurrence and damage rate of starfish and retain them for laboratory analyses.

Contingency aims:

- 6) In the event of completing the main aims of the programme a similar survey of potted and trawled areas in the Mid-English Channel and off Cromer will be undertaken.

NARRATIVE:

The scientific staff joined the ship at Lowestoft on 09 May 1997. CORYSTES sailed at 11.00 h that morning and arrived off Start Bay at 14.00 h on 10 May 1997.

**10 May:** Two areas (1 and 2) were marked on the Transas navigational charts. Area 1 was has been continuously open to trawling. Area 2 was adjacent to area 1 and located in the Start Bay closed area from which mobile fishing gears have been excluded since 1983. The seabed in both areas was completely surveyed using a side-scan sonar after checking survey lines for obstructions using the ship's echosounder. Halfway through the survey, Corystes was requested to assist in an air/sea rescue for

- missing divers. The survey was resumed once the alert was over. Throughout the entire cruise, RoxAnn was used to collect sediment discrimination data during echo-sounder surveys. Quester tangent was also calibrated during Day grab surveys.
- 11 May:** Two grids of nine stations were sampled in area 1 and 2 using the 2 m beam trawl fitted with a SLR camera set to take 18 exposures per tow. Animals in the catches were counted and identified for a comparison of the fished and closed area.
- 12 May:** The grids of stations in areas 1 and 2 were sampled with a rock dredge for macroinfauna and to collect bivalves for the identification of trawl disturbance marks. One Day grab was also collected from each station for the determination of particle size composition. Three basking sharks were observed during the day.
- 13 May:** Improving weather meant that areas 3 and 4 due south from Start Point were sampled. Area 3 is located in an area open to trawling 6 months of the year, whereas area 4 is outside the inshore fishing limit and fished all year. Once again, the echosounder and side-scan sonar survey were conducted in each area and a grid of nine stations was sampled with the 2 m beam trawl.
- 14 May:** Area 5, which is within the 'potting only' area, was surveyed using the echo-sounder and side-scan sonar. A grid of nine stations was then sampled using the 2 m beam trawl and Day grab.
- 15 May:** The grid of Day grab and rock dredge samples were completed in area 5. Two camera sledge tows to obtain video recordings of the seabed were undertaken in area 5. *Corystes* then returned to area 3 to complete the grid of rock dredge samples.
- 16 May:** Ms Susie Arnott, from Yorkshire Television education section, was picked-up by searider from Salcombe and remained on-board throughout the day to film footage for a secondary school education film. The remaining samples from area 3 and 4 were collected during the day, concluding with a video survey of area 3.
- 17 May:** Dense fog prevented work in the second 'potting only' area, hence a complete set of samples were collected from area 6, which is outside the inshore fishing limit and open to fishing all year.
- 18 May:** Visibility was greatly improved and permitted a complete set of samples to be collected from area 8, the second 'potting only' area. During the survey, the 2 m beam trawl fitted with the camera fittings was damaged on an underwater obstruction. Such damage must be anticipated given the rough nature of the bottom. The camera equipment was undamaged.
- 19 May:** Area 7 in the seasonally open area was sampled successfully.
- 20 May:** With the main aims of the programme complete, *Corystes* sailed north east for an area off Teignmouth where there appears to be little fishing activity. During the morning an echosounder and side-scan sonar survey of the area was undertaken followed by two video sledge surveys. This may be a useful site for future work. Three basking sharks were observed close to the ship. As there was insufficient time to undertake the supplementary aims of the programme, *Corystes* then set sail for Lowestoft.
- 21 May:** *Corystes* docked in Lowestoft on Wednesday 21 May at 21.00 h.

## RESULTS

Both the fished and closed area within Start Bay were in shallow water (<15 m) with a sandy shelly sediment formed into large sandwaves. Not surprisingly, the epifauna was relatively sparse. Most of the bivalves collected were small species such as *Spisula elliptica*, although there was a population of large *Ensis americanus* (?). Samples of all bivalves were retained for the complimentary project NP0309. A cursory examination of the data suggests that the biomass of attached biota such as hydroids and *Laminaria* spp. was greater in the area protected from mobile fishing gear.

The ground in areas 3 and 4 was very patchy, with areas of smooth ground interspersed with boulders and patches of sand ripples. Some of the bivalves collected for NP0309 had signs of trawl/dredge damage. Area 5, the 'potting only' area, had a similar seabed but boulders occurred much more frequently. Attached epifauna were much more abundant in area 5 than in area 3 and 4, as most of these organisms were attached to boulders. Scallops were also highly abundant in area 5. Bivalves were a common feature of beam trawl and dredge catches in this area, especially *Glycymeris glycymeris*, which is a slow growing species. Most notably, several large colonies of the fragile bryozoan, *Pentapora foliosa*, were caught in area 5.

The ground in area 8, a 'potting only' area was patchy, with areas of sand ripples, gravel and shell deposits and outcrops of jagged bed rock which complicated sampling. There were some obvious differences between this and other areas surveyed. Starfish were much larger than in other areas, and there was a notable abundance of the empty shells of *Paphia rhomboides*. The starfish, *Marthasterias glacialis*, was also common. More importantly, seafans were observed in trawl catches and on video recordings. These were exclusively associated with the outcrops of bedrock.

The ground and communities found in the areas 6 and 7 were similar to those found in areas 3 and 4.

A preliminary examination of the area off Teignmouth revealed areas of bed rock interspersed with shell sand and stone with occasional colonies of *Pentapora foliosa*.

It is too early to make any conclusions about whether the differences observed between the 'potting only' areas and the areas open to fishing are attributable to the effects of fishing disturbance or physical differences in the environment.

Dr M.J. Kaiser

22/05/97

INITIALLED:

S.G.P.

B. Chapman, Master  
M. Reynolds, Senior Fishing Mate

*B.C.*

*M.R.*

DISTRIBUTION:

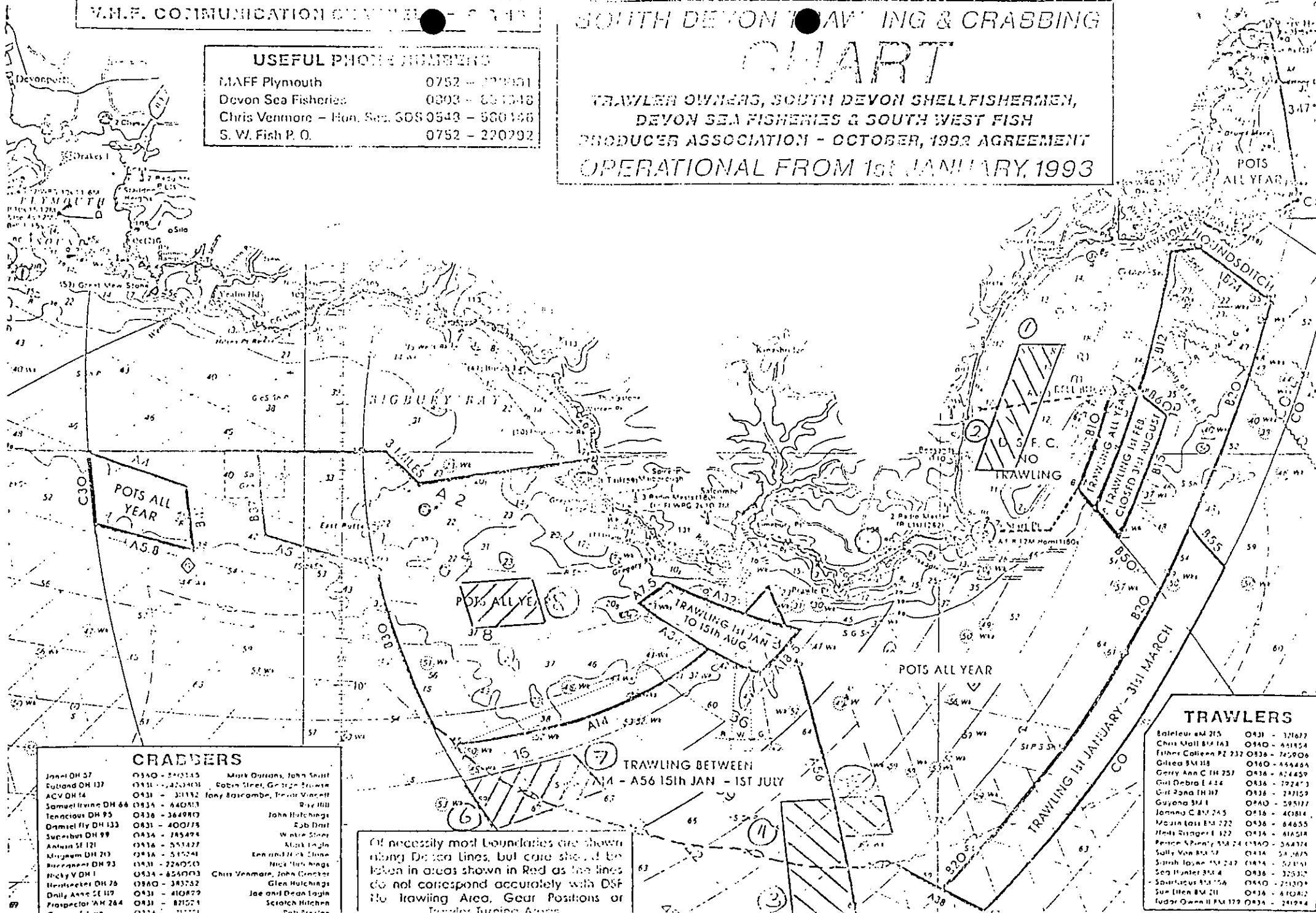
Basic list +  
M J Kaiser  
W J Meadows  
D B Edwards  
R P Flatt  
P F Millican  
N Downes DSFC  
S C Amos Eastern SFC

# SOUTH DEVON TRAWLING & CRABBING CHART

TRAWLER OWNERS, SOUTH DEVON SHELLFISHERMEN,  
DEVON SEA FISHERIES & SOUTH WEST FISH  
PRODUCER ASSOCIATION - OCTOBER, 1992 AGREEMENT  
OPERATIONAL FROM 1st JANUARY, 1993

## USEFUL PHONE NUMBERS

MAFF Plymouth	0752 - 220031
Devon Sea Fisheries	0303 - 631348
Chris Venmore - Hon. Sec. SDS	0549 - 530188
S. W. Fish P. O.	0752 - 220292



## CRABBERS

John OH 57	0350 - 240145	Mark Durans, John Swift
Ruband OH 137	0311 - 212143	Robin Street, George Swaine
ACV OH 14	0431 - 311332	Iony Boscambe, Brian Vincent
Samuel Irvine DH 68	0434 - 440413	Roy Hill
Tennacious DH 95	0438 - 364907	John Hutchings
Ormsel Fly DH 133	0431 - 400775	Rob Dair
Superior DH 99	0434 - 785494	Walter Storey
Arthur SE 121	0416 - 551427	Mark Eagle
Miragem DH 793	0416 - 515241	Edward H. K. Stone
Russell DH 93	0431 - 224020	Mark Van Hings
Ricky VDH 1	0434 - 454073	Chris Venmore, John Garter
Hendricks DH 78	0360 - 345752	Glen Hutchings
Daily Anne SE 117	0431 - 410429	Joe and Dean Logan
Prospector WH 284	0431 - 821521	Scratch Hitchen
George Fish	0434 - 312211	Bob Patten

Of necessity most boundaries are shown along Devco Lines, but care should be taken in areas shown in Red as the lines do not correspond accurately with DSF No Trawling Area. Gear Positions or Trawler Turning Areas.

## TRAWLERS

Baileys WH 315	0431 - 371677
Chris Wall BH 143	0340 - 461854
Fisher Colleen PT 232	0438 - 745906
Gilicia BH 318	0340 - 454485
Gerry Ann C IH 257	0438 - 454485
Gill Debra E 424	0438 - 192477
Gill Dana IH 117	0438 - 231157
Guyona BH 1	0340 - 595177
Joanna C BH 245	0438 - 401844
Marin Lois E 272	0438 - 64655
Heidi Sanger E 122	0438 - 64655
Penon N Emily 154 24	0340 - 564774
Sully Vee BH 17	0438 - 547675
Strath Jayne 154 247	0438 - 547675
Sea Hunter BH 4	0438 - 325377
Southcoast BH 176	0440 - 751377
Sun Iten BH 211	0438 - 610412
Tudor Owen IH 171 172	0438 - 341944