

R1/3

Not to be cited without prior reference to the FRS Marine Laboratory, Aberdeen

Chartered Vessels *Sunlight* (PD 187) and *Illustrious* (PD 243)

Charter Cruise 0700H (2 of 2)

## REPORT

30 January - 13 February 2001

### Personnel

*Sunlight*: R D Galbraith (In charge)  
C A Stewart  
I Penny

*Illustrious*: G I Sangster (In charge)  
R J Kynoch  
W E Leiper

Shore based: N S Collie (30 January only)

### Objectives

1. To carry out commercial gear handling trials with centrally hinged polyamide grids (**Eurogrids**).
2. To obtain selectivity estimates for whitefish grids with 25 mm, 30 mm and 35 mm bar spacing and 100 mm cod-ends.
3. To obtain videofilm of deck handling procedures.

**Out-turn Days per Project:** 15 days C630

### Narrative

Staff and equipment travelled to Peterhead on 30 January 2001 where 30 mm grids and small mesh top grid covers were installed in both pair trawl extensions with 35 mm blinders fitted to both cod-ends (Case 3). These grid covers were kindly supplied complete by the Institute of Marine Research, Bergen but the heavier of the two, fitted to *Sunlight's* gear, was designed for use on a stern ramp trawler and had a cod-end length of only 11 m. This was increased by the addition of a further 9 m small mesh extension to facilitate catch handling. Scanmar and other electronic equipment was installed in both wheelhouses by a member of the Laboratory instrumentation staff and extensively tested before the vessels left for the fishing grounds that evening.

Trials resumed on the Bressay grounds on 31 January and it soon became clear that problems created by large by-catches of immature fish remained. *Sunlight's* top grid cover cod-end had to be extended by a further 9 m to 29 m in order to deal with the substantial quantities of fish taken. *Illustrious's* small mesh top grid cover was required to be extended by a similar length and the main (100 mm) cod-end extension was also increased by 50 meshes aft of the grid section in order to be able to operate with safety. Work continued until 2 February when the vessels entered Lerwick to change gear. Despite the grid section being constructed from low stretch netting the grid angle continued to decline from haul to haul. Although the grid was reset several times using the fitting formula previously used successfully on research vessel cruises it became increasingly clear that for commercial fishing an alternative method of establishing and

maintaining grid angle was required. Accordingly when changing over to the 35 mm grid on *Sunlight* (Case 4) and 25 mm grid on *Illustrious* (Case 5) two 10 mm polyethylene grid tension strops 4 m long were fitted between upper grid corners and selvages abaft the escape aperture on each gear. Bad weather kept the vessels in harbour until 5 February when work was resumed on the Forty Mile ground.

After some minor adjustments whereby the grid tension strops were shortened to 3.81 m to deliver the required angle the trials continued until the afternoon of 8 February when the vessels returned to Lerwick to carry out the final gear change. The top cover and small mesh blinder were removed from the *Sunlight's* gear and replaced by the hooped small mesh cod-end cover (Case 6), with a similar procedure carried out by the crew of *Illustrious* to furnish Case 7. The vessels sailed that evening and steamed south to the Fair Isle grounds where the fleet had reported a slightly better run of fish. The change in small mesh cover arrangements required that the grid tension strops on both vessels be lengthened by five centimetres. This ensured that the appropriate grid angle was maintained for the remainder of the cruise. Work continued until the afternoon of 10 February when the vessels were again forced to seek shelter in Lerwick harbour, where they remained until 12 February. With bad weather preventing further trials the vessels steamed south and docked in Peterhead early on 13 February. Experimental fishing gear and instrumentation were unloaded and staff and equipment returned to Aberdeen later that day.

## Results

1. No significant handling problems were experienced during the trials, despite working under some very unfavourable conditions. On one occasion the steel grid angle sensor bracket was damaged on the stern roller while hauling in heavy weather but none of the polyamide grids used suffered any impairment. The central hinges enabled the grids to be stored neatly out of the way on the net drum while the catch was being taken aboard. Even the addition of tension strops did not cause any problems in heaving the grid on to the net drum with the gear under strain. The 10 mm rope, which has a nominal breaking load of 1 tonne ( failure at knot 600 kg ) and would be expected to part before any damage was sustained by the grid, proved adequate to the task under the conditions encountered. Short link chain strops, rather than rope, would enable finer adjustments to be made to strop length, with an in-line weak link incorporated each side to protect both grid sections and hinge.
2. A further 34 hauls, of which 30 were considered valid, were made in addition to the 21 hauls carried out on the first cruise. The total numbers of hauls by vessel for both cruises are presented in the table below. The catch data, together with that obtained by the other four Eurogrid partner institutes for differing species and grid bar spacings, will be analysed by ConStat, Hjørring, Denmark. ConStat has been subcontracted to develop a predictive model of grid selectivity characteristics which will establish relationships between bar spacing, L50 and selection range for each designated target species, namely cod, haddock, whiting, saithe and red mullet.

Case 1 - Standard Extension with Small Mesh Cover Over 100 mm Cod-end.

Case 2 - 30 mm Grid in Extension with Small Mesh Cover Over 100 mm Cod-end.

Case 3 - 30 mm Grid in Extension with Top Cover and Blinded Cod-end.

Case 4 - 35 mm Grid in Extension with Top Cover and Blinded Cod-end.

Case 5 - 25 mm Grid in Extension with Top Cover and Blinded Cod-end.

Case 6 - 35 mm Grid in Extension with Small Mesh Cover Over 100 mm Cod-end.

Case 7 - 25 mm Grid in Extension with Small Mesh Cover Over 100 mm Cod-end.

Case	<i>Sunlight</i> No. of Hauls	<i>Illustrious</i> No. of Hauls	Total Hauls	Valid Hauls
1	4	6	10	8
2	6	5	11	8
3	4	5	9	8
4	9		9	9
5		9	9	9
6	4		4	3
7		3	3	1
Totals	27	28	55	46

**25 mm grid** - 18 valid grouped hauls (including eight hauls with standard extension).

**30 mm grid** - 24 valid grouped hauls (including eight hauls with standard extension).

**35 mm grid** - 20 valid grouped hauls (including eight hauls with standard extension).

3. Over one hour of video material featuring deck shots of the vessels handling fishing gear was obtained, together with numerous still photographs. This material will be incorporated into a videofilm describing the entire **Eurogrid** project, which will be produced by FRS using contributions supplied by all partners. From this English language version copies will be made in Norwegian, French, Swedish and Danish.

R D Galbraith  
22 August 2001