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FRV *Clupea*

Cruise 1399C

## **REPORT**

10-19 August 1999

(EU Fair Programme - Nephrops Trawl Discard Reduction Using Activating Selection Grids (NETRASEL) C627)

### **Ports**

**Loading:** Fraserburgh

**Unloading:** Fraserburgh

### **Personnel**

N Graham (In charge)

P J Barkel

S Mckay

F G O'Neill (Part time)

C Radcliffe (Visitor - Part time)

E Buyvoets (Visitor)

K Sophridinis (Visitor)

### **Fishing Gear**

Experimental prawn trawl fitted with selection grids.

### **Objectives**

1. To determine optimum bar spacing, gap size and general rigging arrangement for selection grids.
2. Obtain underwater video of selection grids using mini-cameras to assess fish and *Nephrops* behaviour.

**Out turn days to project:** 10 days C627

### **Narrative**

Scientific staff joined the *Clupea* at 0930 hours on 10 August at Fraserburgh. *Clupea* sailed at 1030 hours and proceeded to fishing grounds in the Moray Firth approximately 10 nm NNW of Fraserburgh. Fishing commenced at 1230 hours with the first of four selection grids fitted in small mesh (40 mm) double codend arrangement of the prawn trawl.

Due to a good mix of fish and prawns being obtained in the first catch, it was decided to continue fishing in the same area. With the available time, three 2 ¼ hour tows were made daily

with the vessel returning to home port each evening. Five valid hauls were obtained with the first grid configuration, 25 mm bar spacing with a 150 mm bottom gap, during the first two days of fishing. On the evening of 11 August, the grid was swapped over and replaced with a grid with a 30 mm bar spacing and 150 mm bottom gap, this pattern was repeated every two days, allowing sufficient data to be collected for each grid configuration from 23 valid hauls. A Scanmar grid sensor was used to ensure that the grid angle was similar for all four grids.

Due to engine failure on 12 August, only one haul was conducted; the vessel returned to Fraserburgh under reduced speed for repairs to be completed. An unscheduled change of one member of the scientific crew occurred on 11 August as Mr Radcliffe from the University of Newcastle sustained a dislocated shoulder and fractured arm whilst ashore that evening. Mr Radcliffe was replaced by Dr O'Neill the following evening. The final haul on the last day of the trip (18 August), was abandoned due to poor weather conditions. The vessel was offloaded on 19 August and the scientific crew returned to Aberdeen that morning.

## **Results**

A total of 22 valid hauls were obtained during the 10 days of the cruise. Table 1 summarises the percentage split between upper and lower codends for three species with each of the four different grid configurations. Scanmar instrumentation showed that the grids were operating at angles between 39° and 42°.

Mini cameras were attached to the grid on two occasions, but were found to be ineffective due to high levels of sand and mud obscuring the camera vision. It was also decided not to continue using the camera and lights due to possible interference with fish behaviour.

Based on percentage split by number, the results showed good separation for each grid, but results were variable, further analysis based on length data is being undertaken. It is probable that the separation estimates would be greater using commercial mesh sizes (70 mm and 100 mm) as many of the fish retained in the lower codend during these trials (based on previous selectivity estimates), would have escaped due to their small size (~<20 cm). However, it is clear from the initial inspection that the grid with the larger bar and gap spacing provided the best separation for prawns with an acceptable level of fish separation.

N Graham  
28 April 2000

Seen in draft: A Simpson, OIC

TABLE 1

## Percentage split between upper and lower codends

<i>Clupea</i> II		<i>Nephrops</i>		Haddock		L R Dab	
Haul No	Grid	Upper	Lower	Upper	Lower	Upper	Lower
155	25/150*	Awaiting data from Husky Computer					
156		6	94	35	65	56	44
157		18	82	86	14	64	36
158		19	81	81	19	79	21
159		22	78	74	26	76	24
<b>Mean</b>		<b>16</b>	<b>84</b>	<b>69</b>	<b>31</b>	<b>69</b>	<b>31</b>
160	30/150*	18	82	81	19	67	33
162		9	91	70	30	61	39
163		13	87	84	16	61	39
164		11	89	41	59	39	61
165		10	90	84	16	49	51
166		15	85	81	19	58	42
167		24	76	70	30	65	35
<b>Mean</b>		<b>14</b>	<b>86</b>	<b>73</b>	<b>27</b>	<b>57</b>	<b>43</b>
168	30/200*	8	92	60	40	50	50
169		24	76	79	21	69	31
170		11	89	76	24	45	55
171		11	89	79	21	59	41
172		10	90	85	15	59	41
173		14	86	76	24	43	57
<b>Mean</b>		<b>13</b>	<b>87</b>	<b>76</b>	<b>24</b>	<b>54</b>	<b>46</b>
174	25/200*	41	59	98	2	95	5
175		38	62	91	9	74	26
176		29	71	74	26	77	23
177		20	80	93	7	82	18
<b>Mean</b>		<b>32</b>	<b>68</b>	<b>89</b>	<b>11</b>	<b>82</b>	<b>18</b>

\*Refers to bar spacing/gap size

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**CLUPEA VESSEL**

Programmes - Mr J A Morrison then Dr J M Davies for approval. Reports - Mr J A Morrison for approval.  
Circulation list on Director and file copies only.

Issue two copies of Record of Haul and Station Numbers pro-forma with Scientist-in-Charge's copy of *Scotia* and *Clupea* programmes. Two xerox copies of track chart for reports to be sent to Dr L Rickards. Original chart to be returned to Scientist-in-Charge of cruise.

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**PROGRAMMES ONLY**

**Lab staff**

Mr J T M Hunter  
Mr T Reid  
Mr P J Copland  
Mr J Dunn  
Mr A Beaton  
Mr G Howard  
Mr A Cranna

**Non-lab staff**

Island Cmdr Faroes (Faroes only)  
Flag Officer, Denmark (Danish part of N Sea only)  
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Capt R Denholm		Dr P Hovart
<del>E Kewley</del>		Mr C Black
CO/OIC of Vessel ( <i>Clupea</i> ) (to be faxed)		Capt J Cannan ( <i>Scotia</i> and <i>Clupea</i> only)
		Controller Coastal Ops - Mr B Knight
		Dr D J Garrod
		Mr H C Boyar
		Dr R J A Atkinson
		Mr H i Jákupsstovu
		Mr C Bullimore (To be faxed: 01923 846392)

**Laboratory Personnel on Vessel**

N Graham (In charge)  
P J Barkel  
S Mckay  
F G O'Neill  
C Radcliffe (Visitor) c/o N Graham  
E Buyvoets (Visitor) c/o N Graham  
K Sophridinis (Visitor) c/o N Graham

**Fishery Officers at**

Fraserburgh  
Kirkwall  
Lerwick