# CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 0HT

### 2008 RESEARCH VESSEL PROGRAMME

# **REPORT: RV CEFAS ENDEAVOUR: SURVEY 1X**

# **STAFF:**

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Arnold Locker (Fishing Industry representative)

<b>DURATION:</b>	6 January –	15	January
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LOCATION: North Sea

#### AIMS:

1. To estimate escape rates using additional bags that close the gab below and behind the fishing line on the standard GOV survey gear (Cefas Endeavour) and to compare the standard catch rates with commercial vessels fishing along side using commercial gear on soft bottom habitats (tows in parallel) and hard ground habitats (in the vicinity). Samples for age will be collected for cod, plaice and haddock and for other species as time allows.

2. To determine the behaviour of fish in response to the standard GOV gear and to investigate means of escape a low light level camera will be installed on the net to make video recordings for later evaluation.

Additional aim:

If time allows additional tows using the Poly Rockhopper GOV may be carried out.

#### NARRATIVE: (All times GMT)

Cefas Endeavour sailed from Aberdeen at 2130h on the 7 January and headed southeast to Swallow hole to do a shakedown tow and tighten the windings on the winch after the dry dock. The standard GOV, fitted with three ground gear bags was successfully deployed in Swallow Hole, however, weather started to deteriorate and no more tows were possible that day. The vessel steamed southwest towards the Yorkshire coast throughout the rest of Monday, ready to rendezvous with the FV Our Lass II and the FV Jubilee Quest the following morning. The FV Our Lass II fished a commercial soft groundgear net in parallel with the Cefas vessel and the FV Jubilee Quest fished in close proximity but on hard ground stations with a commercial hard ground gear. With the weather having moderated enough to fish, the gear was deployed at 0729h on 8 January and two successful tows were carried out. On the third and forth tow of the day, the low light camera was attached to the selvedge, in an attempt to show movement of fish in the bosom of the groundgear (Figure 1). Unfortunately, due to the amount of sediment in the water following the storms, no footage was usable. The camera was removed and three more tows were successfully carried out that day. That night the weather deteriorated again and the vessel headed further inshore to anchor overnight. The following morning, the weather was still poor and Endeavour stayed anchored until lunchtime when we steamed northwest and were able to fish two stations on 9 January. With the weather forecast still being poor, fishing continued in the same area and on 10 January completing three more stations before the weather conditions prevented further sampling. On the second tow of the day, the camera was attached again but again no clear footage was obtained. The forecast for the following day was good so the vessel steamed east overnight to Skate Hole and 6 valid tows were completed. On the third tow that day the camera was attached again, but again no useful footage was obtained as there had not been sufficient time for the sediment to settle. With weather being good, we steamed overnight to the Wash the gear was deployed and in the deepwater channel. On the second tow of the day, 10 minutes before the end of the tow, the Scanmar readings changed. We continued the tow and on hauling the belly of the GOV was torn and the centre groundgear bag had a large metal mast in it. Damage was done to the centre bag and the GOV. This took 3 hours to mend and fishing commenced again at 1416h. On the final tow of the day, the headline sensor reading started to give readings well outside the norm, so the decision to cut the tow short to 1nm was taken. No damage was found, however a string of abandoned lobster pots were found on the starboard door and in the GOV net but the hauled was deemed valid. The Jubilee Quest transferred some fishing position data obtained in Scarborough just after dark and Cefas Endeavour steamed north towards Scarborough overnight to fish off Filey and Scarborough the following day, with the information given. At 0824h the first tow of the day was fished. The tow yielded very little roundfish and the decision to steam back to the Hartlepool grounds was made. Two successful tows were carried out over the grounds fished on Tuesday 8 January, however on the third tow of the day, all three cod-ends of the groundgear bags were damaged, and no fish were found in those nets. Due to the time needed to repair the nets, the vessels steamed south to wait off Whitby, in order to drop Arnold Locker off at first light on Monday 14 January. The FV Our Lass II and FV Jubilee Quest finished their charter with Cefas on the evening of Sunday 13 January and, after dropping Arnold Locker off, and with the forecast for Tuesday being sever southerly gales, Cefas Endeavour headed for Lowestoft and docked at 0030h on Tuesday 15 January.

#### **RESULTS:**

**AIM 1:** 24 valid comparative tows fished alongside the two fishing vessels and 2 additional tows were fished (Figure 2). SCANMAR equipment was used to monitor headline height, wing width and door spread. At each station, the catch of all commercial species was weighed with the remainder of the catch being grouped together and a total weight of this taken. All commercial fish, or representative samples, were measured. Table 1 lists the commercial finfish species caught that were sampled for length and shows the total weight of these commercial finfish species compared by GOV and ground gear collection bags and table 2 shows the same species giving total numbers. Data was recorded using the Cefas Electronic Data Capture System. Further analysis will be carried out on return to the Lowestoft laboratory. Samples of otoliths for age determination were taken as specified in standard instructions and table 3 shows the total number of biological samples taken during the survey. For information, figures 3-7 shows the length weight relationship for cod, haddock, whiting, plaice and sole for the biological samples collected. Further detailed analysis of the data collect will be carried out and a further report will be available shortly.

**AIM 2:** The low light camera was attached to the net on four of the 26 tows, in an attempt to determine the behaviour of fish in response to the standard GOV gear. Unfortunately due to the low ambient light and the amount of sediment in the water no useable video footage was obtained.

Due to weather no additional time was available to try the ground gear bags on the hard ground rig.

This survey is part on a fishing industry partnership and further reports will be available from the two fishing vessel involved in the program. Our thanks go to Arnold Locker, the skippers (Graham Hall, James Locker) and crews of the FV Jubilee Quest and FV Our Lass II for the co-operation and the information given to allow the smooth running of this program.

B Harley 14 January 2008

#### **DISTRIBUTION:**

Basic list + B Harley S Kupschus G Course M Parker-Humphreys R Humphreys S McCully D Brown R Ayers Arnold Locker, Our Lass II Graham Hall, Jubilee Quest

Figure 1. Photograph of Low Light camera in housing.





Figure 2. Plot of shooting positions from Cefas Endeavour 1x/08 survey

				Starboard	
	Standard	Centre Ground	Port Ground	Ground Gear	
Species	IBTS GOV	Gear Bag	Gear Bag	Bag	Grand Tot
Brill	2.20	1.63		1.62	5
Cod	271.02	52.58	16.34	9.61	349
Cuckoo Ray	8.71	6.22	2.65	1.35	18
Haddock	337.92	11.88	10.06	2.05	361
Plaice	45.63	25.87	10.52	12.60	94
Sole	16.56	2.96	1.70	1.07	22
Thornback Ray	93.01	8.89	6.58	0.91	109
Turbot	4.00				4
Whiting	4750.71	210.17	97.12	52.75	5110

Table 2	Catch numbers from GOV and ground gear bags
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Species	Standard IBTS GOV	Centre Ground Gear Bag	Port Ground Gear Bag	Starboard Ground Gear Bag	Grand Total
Brill	3	2		2	7
Cod	223	49	18	13	303
Cuckoo Ray	16	13	7	4	40
Haddock	1051	49	29	6	1135
Plaice	329	113	38	45	525
Sole	144	9	3	3	159
Thornback Ray	85	12	6	1	104
Turbot	3				3
Whiting	30816	1195	598	363	32972

Table 3	Biological samples
Species	Number collected
Whiting	634
Plaice	358
Cod	297
Haddock	244
Starry Ray	132
Spotted Ray	117
Sole	97
Thornback Ray	91
Cuckoo Ray	36
Blonde Ray	1
Saithe	1
Grand Total	2008

Figure 3



Figure 4



Figure 5



# WHG length/Weight.

Figure 6



# PLE length/Weight.

