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FRV *Clupea*

Cruise 0305C

REPORT

7-21 March 2005

Ports

Start Point: Fraserburgh

End Point: Fraserburgh

Personnel

J Drewery	(SIC) 7-21 March
J Kinnear	12-21 March
I Gibb	7-12 March
F Neat	7-12 March
R Campbell	7-21 March
C Whyllie	7-21 March

Gear

Young gadoid trawl BT158 with bobbins and 10 mm cod-end/live fish capture (lined) cod-end.

Other Equipment

Minilogger

Live fish tanks

Objectives

1. To investigate the distribution of juvenile commercial gadoids on selected inshore grounds on the West Coast of Scotland, with particular reference to habitat preference.
2. To locate suitable grounds for live haddock capture.
4. To haddock and other suitable species using Data Storage Tags.

Project Out-turn: 15 Days MFO465

Narrative

Clupea departed for the West Coast on the afternoon of 7 March and arrived at the first station off Kinlochbervie the following morning. After a pair of normal demersal tows established the presence of suitable target species, operations turned to tagging and continued for two days

until all available tags were used. With tagging work completed and unsuitable weather for the North Minch setting in, *Clupea* steamed south to work around Skye and the Small isles before a changeover of staff on at Kyle on 12 March. Taking advantage of fair weather the boat worked south and completed the southernmost stations around Colonsay in the following couple of days. Working north again, poor weather meant a day in port (Gairloch) on 16 March, but steady improvement of the weather enabled work at all the remaining stations with the final station at Cape Wrath being completed on Saturday 19 March. *Clupea* docked at Fraserburgh on the afternoon of 20 March and was unloaded on the morning of 21 March.

Trawling

Demersal trawls of up to 30 minutes duration were conducted using the BT158 with 10 mm cod-end on grounds of varying depth and habitat, the exact sediment types having been established on prior surveys. A mini logger attached to the trawl collected temperature and depth data.

The species and numbers caught by trawl are summarised in Table 2 and 3. Numbers are standardised to a 30 minute tow. A total of 34 trawls were performed.

All trawl stations are shown in Figure 1, Table 1 gives the associated positional data.

Sampling

All fish were sorted and measured at sea according to standing instructions, biological data was obtained in accordance with established protocols.

Fish Tagging

Information from this and previous surveys was used to identify areas suitable for obtaining numbers of appropriate species and age class of fish in good condition.

For live fish capture the BT 158 Jackson Rock hopper trawl was modified to include a PVC liner in the cod-end, retaining one cubic metre of seawater in a still water environment. A minilogger attached to the headline recorded water temperature and depth throughout each tow. Tagging tows varied in length from 15-20 minutes duration depending on expected amounts of target species.

Haddock of suitable size and condition for internal tagging were implanted with the Data Storage Tags and released within 5 km of the area caught. Fin clips were taken from all tagged fish for genetic analysis.

A total of 44 haddock were tagged and released, using up all the DSTs retained for fish in the North Minch. Three monkfish were also tagged with DSTs.

Biological Sampling

Morphological measurements were taken on all 0-group cod caught that were considered unsuitable for tagging. Samples of gill tissue were fixed in absolute ethanol for genetic studies, sagittal otoliths removed with plastic forceps for otolith microchemistry and age analysis and lapillar otoliths removed for future microstructure analysis.

Ad Hoc

Saithe – Gills from all saithe caught were preserved in alcohol for parasite analysis back at the laboratory.

Haddock – Biological data, gill samples and otoliths of spawning haddock were taken and examined back at the laboratory, the data contributing to a PhD project.

J Drewery
19 July 2005

Seen in draft: A Nicol

Table 1 – Haul Summary

Cruise	Haul No.	Area	Shoot (Deg/min)				Haul (Deg/min)				Notes
			Lat	Long			Lat	Long			
0305C	105	Clash	58	28.8	5	25.41	58	27.7	5	25.11	
0305C	106	Clash	58	28.53	5	19.38	58	29.6	5	18.63	
0305C	107	Clash	58	28.7	5	19.19	58	29.34	5	18.73	Tag Tow
0305C	108	Clash	58	28.85	5	22.57	58	29.58	5	22.18	Tag Tow
0305C	109	Clash Approaches	58	28.05	5	16.5	58	28.12	5	15.22	Tag Tow
0305C	110	Clash Deepes	58	28.74	5	29.13	58	29.41	5	30.7	Tag Tow
0305C	111	Clash Deepes	58	29.82	5	30.5	58	29.12	5	30.03	Tag Tow
0305C	112	Clash Deepes	58	28.28	5	28.87	58	27.27	5	29	Tag Tow
0305C	113	Clash Deepes	58	26.95	5	31.13	58	28.11	5	31.98	Tag Tow
0305C	114	Clash Deepes	58	28.55	5	31.75	58	29.54	5	31.85	Tag Tow
0305C	115	Clash Deepes	58	28.48	5	31.96	58	29.32	5	31.99	Tag Tow
0305C	116	Broad Bay	58	19.96	6	8.71	58	19.23	6	9.48	Tag Tow
0305C	117	Clash Deepes	58	19.68	5	55.9	58	18.68	5	56.68	Tag Tow
0305C	118	Clash Deepes	58	29.22	5	31.85	58	28.48	5	31.82	Tag Tow
0305C	119	Loch Eishort	57	4.68	6	3.84	57	5.98	6	3.51	
0305C	120	NE Eigg	56	54.82	6	5.78	56	56.07	6	6.37	
0305C	121	Armadale Bay	57	4.61	5	52.05	57	5.73	5	50.92	
0305C	122	Sound of Sleat	57	5.19	5	48.75	57	3.79	5	49.59	
0305C	123	Sound of Sleat	57	3.7	5	50.65	57	3.21	5	51.41	
0305C	124	East Loch Alsh	57	16.07	5	36.94	57	16.19	5	38.09	
0305C	125	Loch Hourn	57	7.47	5	36.04	57	7.78	5	37.83	
0305C	126	Bloody Bay	56	38.97	6	5.65	56	39.62	6	6.33	
0305C	127	Inner Loch Sunart	56	41.16	5	47.7	56	41.88	5	46.69	
0305C	128	Loch Buie	56	19.21	5	54.93	56	18.09	5	54.93	
0305C	129	Colonsay West	56	9.4	6	16.17	56	8.5	6	17.81	
0305C	130	Kiloran Bay	56	7.47	6	14.22	56	8.01	6	11.86	
0305C	131	North East Colonsay	56	7.48	6	4.59	56	6.17	6	4.61	
0305C	132	West Jura	56	4.18	6	0.58	56	3.3	6	2.11	
0305C	133	Outer loch Sunart	56	39.43	5	58.53	56	39.38	5	59.43	
0305C	134	Loch Carron	57	19.28	5	45.09	57	18.59	5	45.91	
0305C	135	Longa Isalnd	57	45.53	5	50.51	57	44.47	5	50.47	
0305C	136	Longa Island West	57	46.06	5	53.49	57	47.59	5	53.31	Foul Tow
0305C	137	Longa Island West	57	46.08	5	53.55	57	46.89	5	53.46	
0305C	138	Melvaig	57	49.5	5	51.63	57	48.38	5	51.55	
0305C	139	Rubha Reidh	57	53.54	5	49.54	57	52.47	5	50.31	
0305C	140	Rubha Reidh North	57	55.69	5	46.72	57	54.78	5	46.93	Foul Tow
0305C	141	Annat Bay	57	56.15	5	14.93	57	56.55	5	17.29	
0305C	142	Rubha Coigeach	58	5.42	5	34.43	58	6.86	5	53.23	
0305C	143	The Clete, Lochinver	58	8.72	5	22.62	58	9.86	5	23.06	
0305C	144	South of Stoer	58	12.01	5	23	58	12.25	5	25.18	
0305C	145	Bay of Stoer	58	12.26	5	22.16	58	11.53	5	21.25	
0305C	146	Achmelvich Bay	58	11.32	5	21.15	58	10.77	5	20.28	
0305C	147	Clashnessie Bay	58	15.9	5	21.83	58	15.47	5	20.17	
0305C	148	Clash Approaches	58	26.88	5	10.33	58	27.04	5	12.55	
0305C	149	Clash	58	28.92	5	22.48	58	29.87	5	21.96	
0305C	150	Cape Wrath	58	35.32	5	5.18	58	36.5	5	4.5	
0305C haul positions											
Light blue box indicates live fish capture tow, dark blue indicates foul tow.											

Table 2 – Catch Summary
Missing haul numbers refer to tagging/foul tows

Inshore Fisheries Survey 0305C March 2005 Caught/Species/Haul (Standardised To 30 Min Tow)	Clash West	Clash Approaches	Loch Eishort	North East Eigg	Armadale Bay	Sound of Sleat	Sound of Sleat	East Loch Alish	Loch Hourm	Bloody Bay	Inner Loch Sunart	Loch Buie	Colonsay West	Kiloran Bay	North East Colonsay	West Jura
Haul Number	105	106	119	120	121	122	123	124	125	126	127	128	129	130	131	132
Haddock	201	11	1	13				25	1		8		17			4
Whiting	927	71	17	123	59	62	182	65	31	175	20	142	244			80
Norway Pout	1505	46	1					3				53	1031			
Poor Cod	8	1	8	19	75	6	2	260				49	16			20
Blue Whiting																
Silvery Pout																
Lesser Argentine Cod													1			
Saithe					2			63								
Common Dab	290	30	3	4		1		5		8	4		2	6	2	1
Long Rough Dab	1		21	3		5	10		4	1	1	1	225	38		6
Witch									2							
Lemon Sole	21							3								
Plaice	77	14		2					1	1				92	4	1
Herring	255	7	401	1924	102	2	108	5	2	53	41	8531	590			300
Sprat	216	20	548	2219	76		2			148	6	1	497			173
Mackerel				1	54			2								
Blonde Ray																
Cuckoo Ray	1															
Spotted ray					1									2	2	
Thornbackray					3			5			6	2				
Skate									1							
Longnose Skate																
Lesser Spotted Dogfish	3				4			38	1		79	5	1	2	1	
Spurdog	9								23			5				
4B Rockling						1										
Brill																
Bullrout								5								
Butterfish								2								
Crystal Goby			1													
Dragonet						1		2			2					
Flounder												1				
Frie's Goby				1												
Sand Goby									1							
Grey Gurnard	18	5		4		1		10	1	2	4	1				3
Red Gurnard		4						2								
Tub Gurnard													1			
Hake			3		5	34	16		7				1			
John Dory					3				7		1					
Pearlside						8	14	15	2							
Redbandfish					1											
Great sandeel		4		3												
Raitts Sandeel				1						1				2578	1033	56
Corbins Sandeel		2		10												
Scad								2								
Scaldfish				1						1			1			
Snake Blenny									1							
Snake Pipefish																
Thickback sole	2								1							
Norwegian Topknot																
Lesser Weever																
Loligo	10	35		1	6					2						
Alloteuthis			17	2	6					2			43			2
Ommasrephid																
Nephrops			24		1	62	20	2	7		10	82	11			
Velvet Crab									2							
Pandalus									118							
Queen Scallop					1			3								

Table 3 – Catch Summary

Inshore Fisheries Survey 0305C March 2005 Caught/Species/Haul (Standardised To 30 Min Tow)	Outer Loch Sunart	Loch Carron	Meivaig South	Longa West	Meivaig	Rubha Reidh West	Annat Bay	Rubha Coigeach	The Cleite, Lochinver	South of Stoer	Bay of Stoer	Achnmelvich Bay	Clashnessie Bay	Clash Approaches	Clash	Cape Wrath	Cape Wrath
Haul Number	133	134	135	137	138	139	141	142	143	144	145	146	147	148	149	150	150
Haddock			395	84		202	53	18	187	52			1	177	136		
Whiting	62	81	205	170	1	250	1	27	8	48				187	7		
Norway Pout		19	119	374			6	15	22	1				36			
Poor Cod	12	14	16	280													
Blue Whiting		2															
Silvery Pout																	
Lesser Argentine	2	2												1			
Cod				2		3									1		
Saithe													2				
Common Dab	4	2	44	16	5	6				96	10	14	7	53	10	11	11
Long Rough Dab	36	19	1	8			19	5									
Witch																	
Lemon Sole				8		3		4		2	2			19	5		
Plaice			4	6	7	1		1		22	64	106	68	62	5	20	20
Herring	1100	3681	724	24	21	26	104	3	36	2				61	1		
Sprat	8	5	43				13	6	8	1				3	1	2	2
Mackerel			870			1											
Blonde Ray					1												
Cuckoo Ray															3		
Spotted ray														1			
Thornbackray	6	11															
Skate	2	2															
Longnose Skate		2															
Lesser Spotted Dogfish	154	9	1														
Spurdog																	
4B Rockling									1								
Brill													1				
Bullrout			1														
Butterfish																	
Crystal Goby																	
Dragonet		2								1							
Flounder					2					1	6	12	4				
Frie's Goby							2										
Sand Goby							2										
Grey Gurnard		5	13			7	1			2			1	4	1		
Red Gurnard		2				3											
Tub Gurnard																	
Hake	2	7		2						1							
John Dory					1												
Pearlside		41															
Redbandfish																	
Great sandeel					334	12				5	2		1		1	45	45
Raitts Sandeel																	
Corbins Sandeel					103	38				4					53	140	140
Scad		2															
Scaldfish																	
Snake Blenny							1										
Snake Pipefish						1	1				12	9	1	3	2	2	2
Thickback sole				4													
Norwegian Topknot						1											
Lesser Weever		2					1					4					
Loligo			1			3							6				
Alloteuthis		9	10	2	50	17				77	14	6	2	10	81	81	81
Ommasrephid		2		2											2		
Nephrops	66	131		166			132	75	36								
Velvet Crab																	
Pandalus																	
Queen Scallop						3											

Figure 1

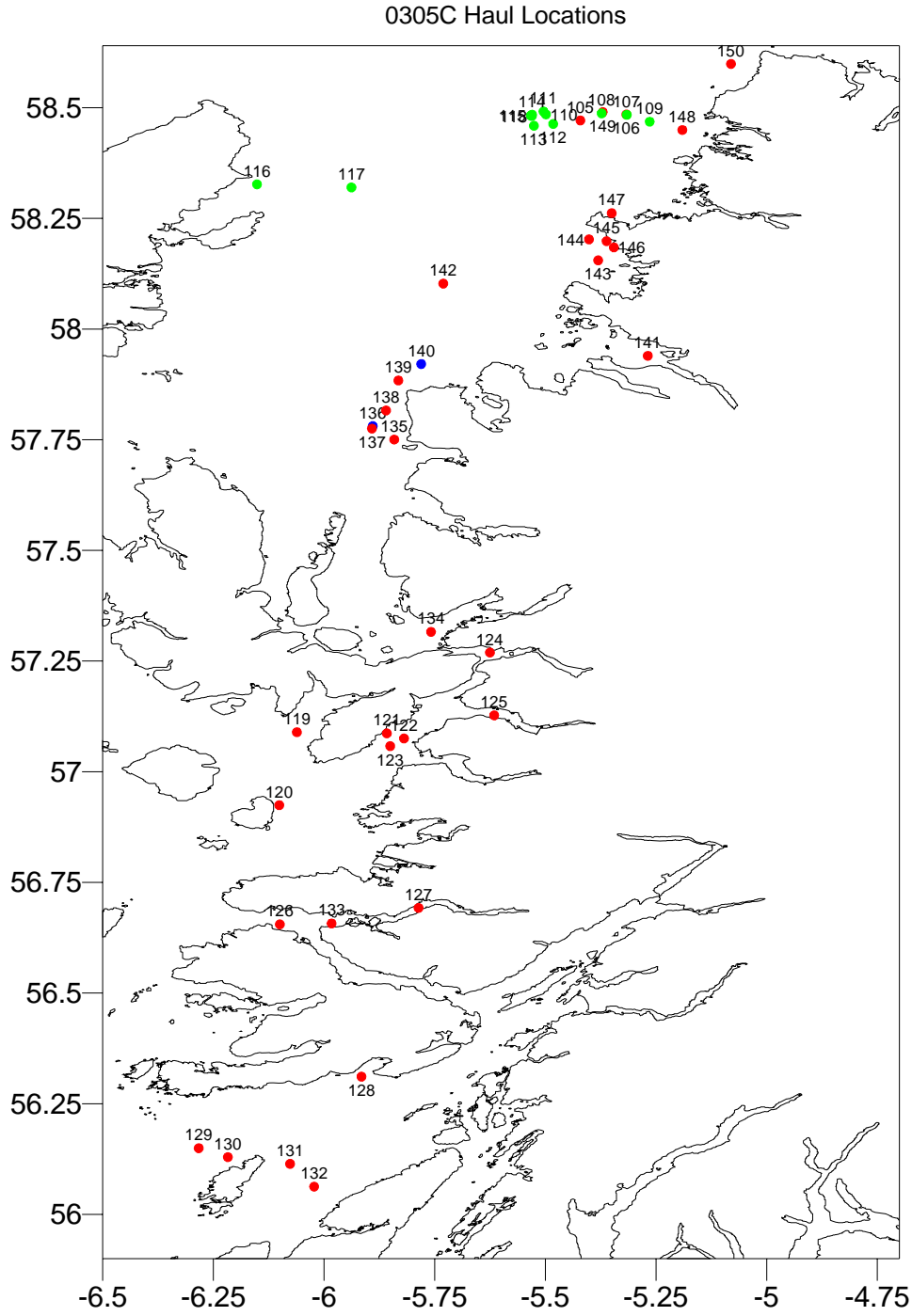


Figure 1. Approximate midpoints of Hauls 0305C
Red - Valid demersal tows
Blue - foul tows
Green - Tagging tows

Circulation List: Cruise Programmes and Reports

CLUPEA VESSEL

Programmes - Mr J A Morrison for approval. Reports - Mr J A Morrison for approval.

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.

PROGRAMMES ONLY

Lab staff

~~Mr J T M Hunter~~
~~Mr T Reid~~
~~Mr P J Copland~~
~~Mr J Dunn~~
~~Mr A Beaton~~
~~J Petrie~~
~~Security~~

Non-lab staff

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PROGRAMMES AND REPORTS

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Dr J G Gordon
G Kane
R de Clerck
Mr B Stewart
Capt J Cannan (*Scotia* and *Clupea* only)
Controller Coastal Ops - A Stewart
Dr P Grieg-Smith
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

*J Drewery
J Kinnear
I Gibb
F Neat
C Wylie
A N Other

Fishery Officers at

Fraserburgh