Department of Agriculture and Rural Development (Northern Ireland)
Agriculture and Environmental Science Division

Cruise Report: LF2403
Vessel: RV *Lough Foyle*
Date: 8th -11th June 2003
Area: Irish Sea (north); ICES div. VIIa
Survey Type: Juvenile Gadoid Survey

Personnel:	Michael McAliskey	DARD	SIC/SO
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Objectives:

i. To investigate the distribution and processes which determine the success of gadoid development through to settlement.

ii. To obtain abundance indices for early-stage juveniles of the 2003 year-class of gadoids in the western Irish Sea for use in stock assessments.

iii. To obtain samples for otolith primary increment analysis.

Cruise Narrative:
The vessel sailed at 21:00 on 8 June 2003 Belfast and proceeded to the first station off county Down (Figure 1b). Sampling started at 01:35 on 9 June. The survey was suspended for almost 24 hrs on the evening of 9 June due to gale force winds and recommenced at 16:00 0n the 10 June. The 34 Gulf VII and 20 MIK net stations were completed at 02:50 on 12 June.

Methods:
Plankton and fish larvae were sampled with the Gulf VII high-speed plankton sampler and young pelagic juvenile cod, haddock and whiting, with the 5m² MIK net. Both gears were deployed to within 3m of the seabed in a double oblique manner. MIK nets were deployed at night, whilst the majority of gulf deployments took place during the day. Volumes filtered were calculated using calibrated flowmeters. Flow, depth, temperature, salinity and fluorescence were monitored using the ProNET system.

Samples were sorted, identified, enumerated and weighed onboard within 20 minutes of capture. Gadoids were fixed in 99% ethanol. Length frequencies of juvenile

gadoids were recorded. Abundance of gadoids was calculated as numbers per unit sea area.

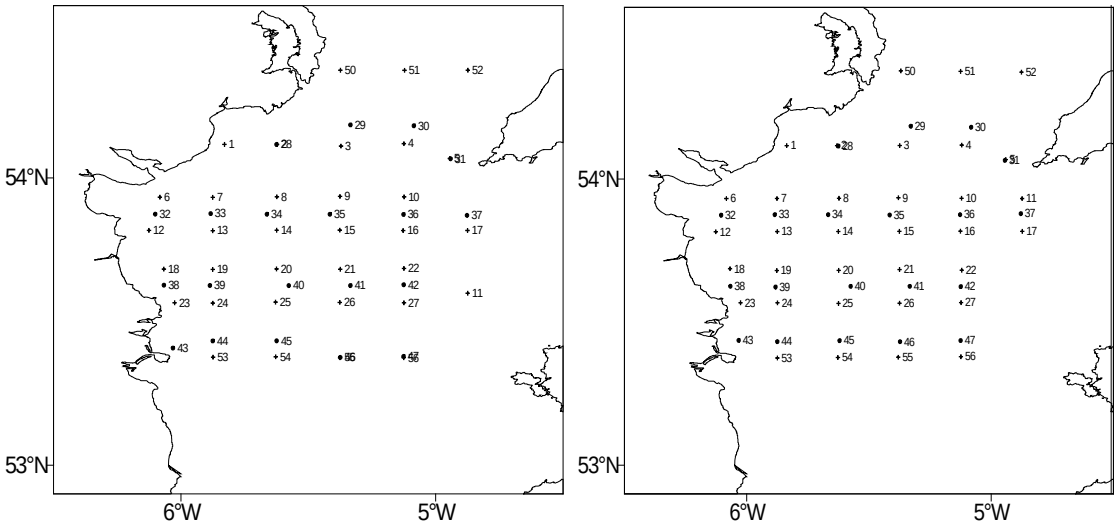

Figure 1. Position of sampling on cruises LF2203 (figure 1a) and LF2403 (figure 1b). Circles denote MIK net samples, crosses denote Gulf VII samples.

Results

The abundance of juvenile whiting was similar to the 1997 – 2001 estimates (Figure 2) whilst catch-rates of haddock and cod were comparatively small. The abundance of juvenile gadoids in the water column depends on the initial number that reach metamorphosis, their growth rate and their mortality. If the growth rate is high (as in cod in 1999) the May survey will catch more juveniles than the June survey, as the larger juvenile fish would be settling to the seabed by mid June and not caught in the MIK net. This settling behaviour applies to both cod and haddock but not whiting, which remain pelagic for much longer. Because of the interaction of number produced, growth and mortality, the series of abundance used to show likely year-class strength is constructed from the maximum estimate from that year (either May or June) for cod and haddock (Table 1).

Table 1. Time series of pelagic juvenile abundance of cod, haddock and whiting from 1994 to 2003. The fish are aged approximately 2-3 months and are caught just prior to settlement. (Nos. per 1000 m^2)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Cod	57.4	6.9	66.3	2.1	0.0	1.3	0.5	9.6	0.9	3.2
Haddock	47.0	1.7	47.8	14.5	0.0	9.4	1.7	17.1	0.5	4.3
Whiting	778	225	397	205	59	91	40	167	19	149

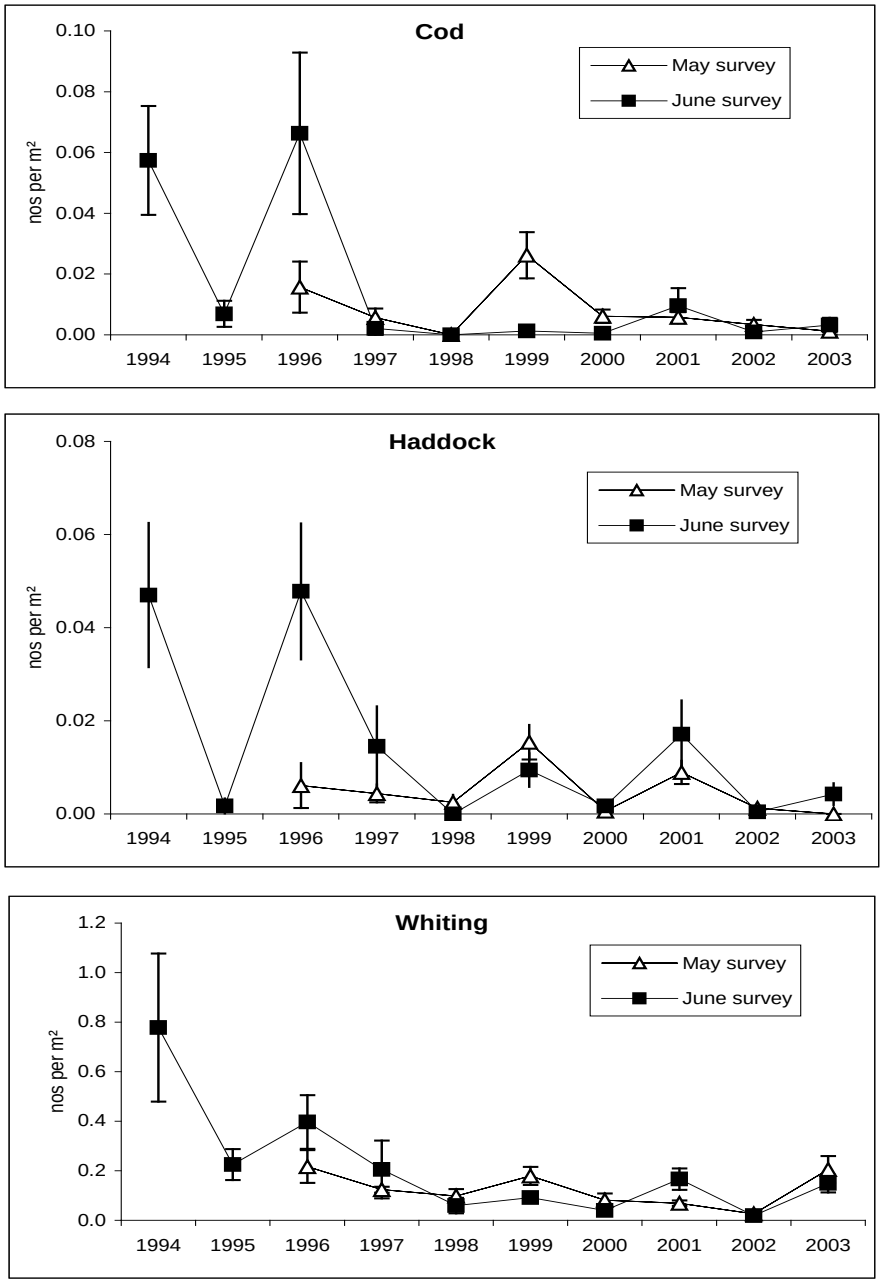

Figure 2. Time series of MIK net survey estimates of pelagic juvenile cod, haddock and whiting in the western Irish Sea from 1994 to 2003.

Acknowledgments:

The scientists, officers and crew should be thanked for working effectively in a generally good humored and ardent manner.

Signed

SIC: Head, Aquatics:

Date: 27 June 2003 Date: