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FRV *Clupea*

Cruise 0306C

## **REPORT**

2–6 March 2006

**Loading Port:** Fraserburgh

**Unloading Port:** Fraserburgh

### **Personnel**

Alistair McIntosh (In Charge)

Margaret McKenzie

John Beaton

**Out-turn Days per Project:** 5 days AE11s

### **Objective**

To conduct a 'winter' survey of sea lochs impacted by varying degrees of nutrient releases from fish farming activity. The survey forms part of an ongoing programme of work to assess the potential for eutrophication arising from nutrient 'hotspots' linked to aquaculture.

### **Narrative**

Scientific equipment and personnel joined the vessel on 2 March and all setting up and securing of equipment was completed prior to sailing. *Clupea* departed Fraserburgh at 2200 and made passage north and west, berthing overnight in Stornoway on 3 March. Sailing at 0700 on 4 March, passage was made south where sampling was completed in Lochs Leurbost, Erisort and Odhairn before returning to Stornoway overnight. Sailing again at 0700 on 5 March passage was made to Loch Shell where sampling was completed by 1230 and passage then made to Fraserburgh where berthing was completed by 0900 on 6 March.

### **Results**

A total of 31 stations were occupied covering 4 sea lochs (Fig. 1). At each station a CTD cast was made with the rosette sampler. At multiple depth points, covering the extent of the water column at the sampling site, water was taken for various nutrient analyses, salinity check and a filtered sample for chlorophyll determination as detailed in Table 1.

A McIntosh

10 March 2006

Seen in draft: A Nicol, OIC *Clupea*

**Table 1**

Sea loch location	Station No.	Sample Depths (m)	Nutrients Nitrate/ Phosphate/ ammonia	Silicate	Salinities	Chlorophyll a (from 3m)
Loch Erisort	Off Erisort	3,5,10,20,40,60	6	6	5	1
	9	3,5,10,20,35	5	5	4	1
	8	3,5,15,25	4	4	3	1
	7	3,5,15,25	4	4	3	1
	6	3,5,15,25	4	4	3	1
	5	3,5,15	3	3	2	1
	4	3,5,15	3	3	2	1
	3	3,5,15	3	3	2	1
	2	3,5	2	2	1	1
	1	3,5	2	2	1	1
Loch Leurbost	1	3,5,15	3	3	2	1
	2	3,5	2	2	1	1
	3	3,5,15	3	3	2	1
	4	3,5,15	3	3	2	1
Loch Odhairn	Off Odhairn	3,5,15,25,35,50,100,125	8	8	7	1
	2	3,5,15,25	4	4	3	1
	3	3,5,15,35	4	4	3	1
	4	3,5,15,25	4	4	3	1
	5	3,5,10	3	3	2	1
	6	3,5	2	2	1	1
Loch Shell	Off Shell	3,5,15,25,35,50,100	7	7	6	1
	1	3,5,15,25,35	5	5	4	1
	2	3,5,15,25	4	4	3	1
	3	3,5,15,25,35	5	5	4	1
	4	3,5,15,25,35	5	5	4	1
	5	3,5,25,35	4	4	3	1
	6	3,5,15,25,35	5	5	4	1
	7	3,5,15	3	3	2	1
	8	3,5,15,25	4	4	3	1
	9	3,5,15,25	4	4	3	1
	10	3,5,15,25	4	4	3	1
<b>Totals</b>	<b>31</b>		<b>122</b>	<b>122</b>	<b>91</b>	<b>31</b>

Figure 1

Cruise track and sampling areas – 0306Ca

