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FRV *Alba na Mara*

Cruise 1409A

PROGRAMME

26 August – 11 September 2009

Loading: Fraserburgh, 21 August 2009

Unloading: Fraserburgh, 11 September 2009

Staff change: Lochinver, 4 September 2009

Summary of working areas:

Hydrographic work in (and offshore from) sea lochs bordering the Minch and Shetland Voes.

In setting the cruise programme and specific objectives, etc the Scientist-in-Charge needs to be aware of the restrictions on working hours and the need to build in adequate rest days and rest breaks as set out in Marine Scotlands' Working Time Policy (Lab Notice 34/03). In addition, the Scientist-in-Charge must formally review the risk assessments for the cruise with staff on-board before work is commenced.

In the interest of efficient data management it is now mandatory to return the Cruise Report, to Iain Gibb and the Cruise Summary Report (old ROSCOP form) to Dougal Lichtman, within four weeks of a cruise ending. In the case of the Cruise Summary Report a nil return is required, if appropriate.

Personnel

M Gubbins	(In charge)
D Lichtman	
L Morley	26 August – 4 September
G Hermann	26 August – 4 September
J Graham	26 August – 4 September
M Rose	4 – 11 September
AN Other EI staff	4 – 11 September

Project codes: AE11q 6 days AE11s 11 days

Equipment

Proteus workboat and 100 L unleaded fuel
Sealogger CTD/Rosette
Nutrient analyzer (4 – 11 September)
Passive sampling frames and moorings x 10
Plankton auto-sampler buoy

Plankton sampling nets and hoses

Objectives

- 1) To collect water column hydrographic data from approximately 20 sea lochs in the North Minch and Voes in Shetland to provide validation / forcing data for models of fish farming carrying capacity.
- 2) To deploy passive samplers for hydrophobic contaminants (silicone rubber) and algal toxins (SPATT bags) at key locations around Shetland and the Western Isles, including an auto-sampling buoy in Busta Voe.
- 3) Attempt to locate toxic Alexandrium in Shetland waters using rosette and plankton hose sampling. Once located, continuously sample the development of the local population using CTD/Rosette and plankton hose/nets and deploy passive samplers (resin bags) on appropriate local structures.
- 4) To continuously monitor T&S and chlorophyll a in surface waters and surface irradiance during the cruise.

Procedure

Loading will take place on 21 August and boarding of scientific staff on 26 August. Survey work will commence in Shetland if weather permits. CTD / plankton sampling will be conducted in Shetland Voes and plankton samples analysed in real time to locate the presence of Alexandrium dinoflagellates. If these are located, passive samplers will be deployed either on small moorings, or by using the *Proteus* workboat to attach to local structures such as fish farms. Regular and continuous sampling of the local water column will then be undertaken to monitor the progression and development of the Alexandrium population over a period of up to 5 days.

Hydrographic sampling by CTD will take place around additional Shetland Voes and an automatic plankton sampler will be deployed in Busta Voe.

Alba na Mara will steam to Lochinver on 3 September for a change of scientific staff and equipment. The nutrient analyser will be loaded in Lochinver. The cruise will proceed with normal hydrographic survey work around West coast and Western Isles sea lochs and passive sampling buoys will be deployed at up to 10 locations around the coast using either independent moorings or local floating structures.

Within each loch, hydrographic sampling by CTD/Rosette will be undertaken at 2 stations and a further station will be sampled in the open sea outside each loch / voe. The parameters measured at each station will be:

- Nutrients
- CTD
- Chlorophyll a
- Dissolved oxygen
- Transmission and optical properties: PAR, CDOM and SPM

For stations in sea lochs / voes that *Alba na Mara* cannot access, the workboat *Proteus* will be launched to undertake the required survey work.

Following the completion of survey work on the West coast, the *Alba na Mara* will return to Fraserburgh for unloading on 11 September.

Submitted:
M Gubbins
19 May 2009

Approved:
I Gibb
19 May 2009.