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FRV *Alba na Mara*

Cruise 0611A

PROGRAMME

25 May – 01 June 2011

Loading: Fraserburgh, 24 May 2011
Unloading: Leith, 01 June 2011

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 Scotland's 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 I Gibb and the Cruise Summary Report (old ROSCOP form) to M Geldart, within four weeks of a cruise ending. In the case of the Cruise Summary Report a nil return is required, if appropriate.

Personnel

M Russell	(SIC -MSS)
L Bush	(SEPA)
A N Other*	(SEPA)

* Will join in Rosyth for fishing part of cruise on 31 May.

Fishing Gear
2.7m beam trawl with 90mm main mesh then 50mm cod-end (SEPA to Supply heavy duty non-draining fish boxes, fish measuring board, camera) ;

Sediment Sampling
Day grab and Auto-siever (SEPA to supply sieves for auto-siever (1mm and 0.5mm), pre-labelled sample buckets, PSA corer, PSA sample bags, camera, formaldehyde, borax)

Phytoplankton Sampling
YSI 6600 Sonde, phytoplankton 10m Lund tube, Niskin bottle, 20µm net, Secchi disk, Filtration Equipment.

Objectives

1. To undertake water, sediment and biological sampling to improve the understanding of the state of the Scotland's seas as part of the work under both Clean and Safe and Healthy and Biologically Diverse monitoring work.

2. Monitor and record all litter brought aboard in all trawls.

Estimated Days Per Project: 8 days.

Procedure

At 15 Grabbing sites (MED INV 09 – Kirkwall Bay, MED INV 10 – Scapa Flow, MED INV 08 - Stonehaven, MED INV 04 – St Andrews Bay, MED INV 01 - Forth) sediment will be sampled using a Day Grab.

At each Grabbing Site:

Biology Inverts – 1 Day Grab

- Record bathymetric depth;
- Digital Photo of sediment in grab;
- Record time and bite depth;
- Sieve sediment at 1mm (**0.5mm for Forth Estuary**);
- Digital photo of sediment residue in sieve;
- Transfer residue to pre-labelled sample bucket;
- Fix with formaldehyde.

Biology PSA – 1 Day Grab

- Record bathymetric depth;
- Digital Photo of sediment in grab;
- Record time and bite depth;
- Depth integrated PSA Core/scoop and transfer to pre-labelled bag. Double bag the sample;
- Store PSA sample frozen.

Phytoplankton samples will be collected at 5 sites (Kirkwall Bay, Scapa Flow, St Andrews Bay, Isle of May South, Firth of Forth Fairway Buoy).

At each Phytoplankton stations:

- Integrated Lund to 10m → Bucket from which relevant samples are collected;
- Niskin Bottle samples from 1m, 5m and 10m → directly into Salinity and Nutrient Bottles;
- Net sample from <50m (bottom depth minus 5m) → directly into Net Bottle;
- YSI 6600 profile to <50m (bottom depth minus 5m);
- Secchi Depth recorded.

Beam trawling will be undertaken at 3 sites in the Forth Estuary. Monitoring of litter brought on board during trawling operations will be undertaken.

At each Fishing Site:

- Deploy beam trawl and tow full length of transect.
- Land catch into draining fish boxes. Wash off mud if necessary with deck hose.
- Photograph catch to show main constituents.
- Make notes on dominant invertebrates present.
- Remove all fish and place in sea-water in non-draining boxes.
- Identify and measure all individual fish and return alive to sea.
- (Retain and freeze a small subset of fish for AQC).
- If catch is low (e.g. about 20 fish) consider a second tow at the same site.
- Remove and record all marine litter.

General Arrangements

Formaldehyde and Lugols iodine will be carried aboard for the preservation and storage of biological material.

Normal contacts will be maintained with the laboratory.

Submitted:
A Downie (SEPA)
5 May 2011

Approved:
I Gibb
10 May 2011

Table 1

Grab Sampling

Orkney				
WFD Site	**Latitude**	**Longitude**	**Benthos PSA**	**Macrobenthos (1mm sieved fraction)**
Kirkwall UWWTD E	N 58 59.70	W 2 49.868	1 sample, PS only	1 sample
Kirkwall C SE of Broad Taing	N 59 2.014	W 2 59.722	1 sample, PS only	1 sample
Kirkwall B	N 59 1.281	W 2 58.329	1 sample, PS only	1 sample
Kirkwall @ Point of Backaquoy	N 59 1.126	W 3 2.855	1 sample, PS only	1 sample
Kirkwall UWWTD B	N 59 1.281	W 2 58.329	1 sample, PS only	1 sample
Scapa Flow W of Houton Head	N 58 54.576	W 3 13.902	1 sample, PS only	1 sample
Scapa Flow @ Near Middle	N 58 53.458	W 3 3.091	1 sample, PS only	1 sample
Scapa Flow NE of Calf Cava	N 58 54.194	W 3 9.038	1 sample, PS only	1 sample
Scapa Flow NE of South of Kirkwall	N 58 55.209	W 3 0.695	1 sample, PS only	1 sample
Scapa Flow @ Near Howequoy Head	N 58 53.150	W 2 58.464	1 sample, PS only	1 sample
Stonehaven				
Stonehaven North @ E of Newtonhill	N 57 3.120	W 02 4.790	1 sample, PS only	1 sample
Stonehaven North @ E of Portlethen	N 57 3.120	W 02 2.510	1 sample, PS only	1 sample
Coastal Survey @ Findon Ness	N 57 4.390	W 02 3.590	1 sample, PS only	1 sample
Stonehaven North @ E of Crawspeel	N 56 59.990	W 02 8.090	1 sample, PS only	1 sample
Coastal Survey Stonehaven North	N 57 1.530	W 02 6.420	1 sample, PS only	1 sample
St Andrews Bay				
St Andrews Bay @ Babbet Ness	N 56 19.229	W 02 35.676	1 sample, PS only	1 sample
St Andrews Bay @ surveillance site1	N 56 21.806	W 02 37.838	1 sample, PS only	1 sample
St Andrews Bay Plankton Station 15	N 56 26.292	W 02 59.92	1 sample, PS only	1 sample
St Andrews Bay @ surveillance site2	N 56 24.361	W 02 44.846	1 sample, PS only	1 sample
Firth of Tay Ladies Buoy	N 56 27.329	W 02 43.904	1 sample, PS only	1 sample
Forth Estuary				
WFD Site			**Benthos PSA)**	**Macrobenthos (0.5 mm sieved fraction)**
Forth Estuary FEEAP Station 7	N 56 1.396	W 03 32.982	1 sample, PS only	1 sample
Station GC Lower Forth Estuary (LFEGC)	N 56 0.948	W 03 29.184	1 sample, PS only	1 sample
Station EB Lower Forth Estuary (LFEEB)	N 56 0.846	W 03 32.700	1 sample, PS only	1 sample
Station DB Lower Forth Estuary (LFEDB)	N 56 0.840	W 03 26.460	1 sample, PS only	1 sample
E42 Forth Estuary at Crombie	N 56 1.794	W 03 31.830	1 sample, PS only	1 sample

Table 2

Fish Sampling

Forth Estuary		
WFD Site	**Latitude**	**Longitude**
Lower Forth Estuary WFD, mid-water fishing site, west of Beamer rock (START)	N 56 0.797	W 03 27.243
Lower Forth Estuary WFD, mid-water fishing site, west of Beamer rock (FINISH)	N 56 0.512	W 03 25.188
Forth Estuary Fishing, Port Edgar (START)	N 56 0.710	W 03 30.370
Forth Estuary Fishing, Port Edgar (FINISH)	N 56 0.490	W 03 28.890
Forth Estuary Fishing, Tancred Bank (START)	N 56 01.490	W 03 31.410
Forth Estuary Fishing, Tancred Bank (FINISH)	N 56 1.720	W 03 33.280

Table 3

Phytoplankton WFD sampling

Sampling Programme Summary			Biological samples			Supporting determinands and samples			
Site Name	**Latitude**	**Longitude**	**Plankton - 10m Lund Tube**	**Plankton - 10m Lund Tube**	**Plankton (20µm) - Vertical Net Haul**	**Salinity - 1, 5 & 10m - Niskin Bottle**	**Nutrients 1, 5 & 10m - Niskin Bottle**	**Chlorophyll - 1, 5, 10m depth - Niskin Bottle**	**Chlorophyll sample - 10m Lund Tube**
			250ml brown glass bottle	**30ml sterilin tube**	**30ml sterilin tube**				
			Lugol's Iodine	**Lugol's Iodine**	**Formalin**			**chl filtr and: freeze**	**chl filtr and: freeze**
Kirkwall B	N 56 9.99	W 2 35.09	sample	sample	sample	sample	sample	sample	sample
Scapa Flow @ Surveillance site	N 59 2.9983	W 3 0.0873	sample	sample	sample	sample	sample	sample	sample
ST ANDREWS BAY PLANKTON STATION 21 (SABP021)	N 56 27.2924	W 2 39.6917	sample	sample	sample	sample	sample	sample	sample
CSP13 COASTAL SURVEY MAY ISLE SOUTH	N 56 9.99	W 2 35.09	sample	sample	sample	sample	sample	sample	sample
FIRTH OF FORTH AT FAIRWAY BUOY	N 56 2.9983	W 3 0.0873	sample	sample	sample	sample	sample	sample	sample