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MRV *Sir John Murray*

Survey 0215SJM

PROGRAMME

16-22 November 2015

Ports

Loading: Troon (12 November 2015)
Sailing: Troon(16 November 2015)
Unloading: Troon (22 November 2015)

In setting the survey 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 survey with staff on-board before work is commenced.

In the interest of efficient data management it is now mandatory to return the Survey Report, to I Gibb and the Survey Summary Report (old ROSCOP form) to M Geldart, within four weeks of a survey ending. In the case of the Survey Summary Report a nil return is required, if appropriate.

Personnel

C Robinson (SIC)
K MacNeish
K Donald

Sampling Gear

SEPA-provided 2 m beam trawl with 50 mm cod-end
SEPA-provided bottom trawl with 50 mm cod-end
SEPA-provided Day grab and table
MSS-provided catamaran and manta neuston net
MSS-provided bongo nets for plankton sampling

Objectives

1. To undertake flatfish and sediment sampling in the Clyde and Solway in support of the Clean Seas Environment Monitoring Programme (OSPAR and MSFD).

2. To undertake sample preparation for subsequent eco-toxicological analyses.

3. To undertake survey of sea-surface litter in the Firth of Clyde and Solway Firth.

4. To take adventitious samples of fish and shellfish for micro-plastics.

5. To obtain samples of sediment, plankton, benthic invertebrates and fish in support of PhD project on the trophic transfer of contaminants within the Clyde.

Estimated Days per Project: 6 days ST03n (OSPAR & MSFD D8); 1 day ST014 (MSFD D10)

Procedure

Scientific gear will be loaded on to the *Sir John Murray* in Troon on 12 November. Scientific staff will join the vessel in Troon on 16 November.

Five sediment samples will be collected for contaminant analysis from each of two water bodies in the Firth of Clyde and one in the Solway Firth. Flatfish (dab, plaice or flounder) will be collected for determination of contaminants and their biological effects from the Bowling, Holy Loch, Hunterston (contaminants only), Garroch Head, Outer Clyde, and Solway Firth (disease only) fishing stations. At the Holy Loch and Outer Clyde fishing sites, samples of sediment, plankton, benthic invertebrates and fish will be taken in support of a PhD project on the trophic transfer of contaminants. The manta neuston net will be towed on passage at five knots in order to survey and sample sea-surface litter from the Solway, the Clyde estuary and the inner, middle and outer Firth of Clyde. On completion of the survey, passage will be made to Troon where MSS scientific gear and staff will unload and transfer to Leith to load *Alba na Mara* for survey 1815A. Staff and frozen samples will then return to Aberdeen on the 23 November.

Rest Day Provision

This is a seven-day survey programme followed by the transfer of gear to Leith and the loading of *Alba*; one rest day will be then be taken.

Possible Good Weather Programme

Day 1: Leave Troon to collect Outer Firth of Clyde fish and sediment samples; use the manta net en route to the Solway Firth.

Day 2: Sample fish and sediments from the Balcary Point sampling stations, make use of the manta net on return journey to Troon.

Day 3: Collect the Middle Clyde offshore sediments and the Garroch Head sediment/fish; berth at Troon, using manta net in Irvine Bay, Sound of Bute, and en route to/from fishing site.

Day 5: Collect fish from Hunterston and Holy Loch; use manta net en route to berth at Greenock.

Day 6: Make use of manta net en route to/from collecting fish at Bowling, and in the Gare Loch area; berth in Greenock.

Day 7: Sediment samples from Holy Loch and Largs Channel; manta net en route to Troon; unload.

Poor Weather Programme

Go into Clyde, working where possible. Fewer manta net tows. Going to Solway if/when weather allows.

General Arrangements

Liquid nitrogen and other chemicals (e.g. formalin, methanol) will be carried aboard for the preservation and storage of biological materials.

Normal contacts will be maintained with the Laboratory.

Submitted:
C Robinson
11 November 2015

Approved:
I Gibb
12 November 2015

Table 1: Intended sediment sampling locations.

Region	Area	Site	Lat	Long
Clyde	Inner Firth of Clyde	Off Cloch Point*	55.948	-4.894
Clyde	Inner Firth of Clyde	East of Strone Point	55.984	-4.881
Clyde	Inner Firth of Clyde	Lunderston Bay	55.923	-4.911
Clyde	Inner Firth of Clyde	Weymss Point	55.897	-4.926
Clyde	Inner Firth of Clyde	E of Toward (UIFM 2)	55.868	-4.945
Clyde	Inner Firth of Clyde	Holy Loch - FRS	55.971	-4.892
Clyde	Largs Channel	Hunterston - FRS	55.764	-4.885
Clyde	Largs Channel	Hunterston2	55.777	-4.890
Clyde	Largs Channel	Hunterston3	55.786	-4.891
Clyde	Largs Channel	Hunterston4	55.792	-4.889
Clyde	Largs Channel	Hunterston5	55.741	-4.904
Clyde	Middle Offshore	Garroch Head - FRS	55.660	-4.986
Clyde	Middle Offshore	5km SW of Lady Isle	55.507	-4.815
Clyde	Middle Offshore	Middle Offshore	55.507	-4.901
Clyde	Middle Offshore	East of Brodick, mid channel	55.588	-4.960
Clyde	Middle Offshore	Middle Offshore South	55.434	-4.968
Clyde	Outer Offshore	Clyde (N of Ailsa Craig)	55.3333	-5.083
Clyde	Outer Offshore	Clyde (SE of Ailsa Craig)	55.2241	-5.058
Clyde	Outer Offshore	Clyde (SW of Ailsa Craig)	55.1663	-5.223
Clyde	Outer Offshore	Clyde (Johnston's Point)	55.323	-5.368
Clyde	Outer Offshore	Clyde (NE of Ailsa Craig)	55.3405	-5.039
Irish Sea	Solway	Solway Firth @ NMMP site 25	54.750	-4.000
Irish Sea	Solway	Solway Firth BP1	54.767	-3.835
Irish Sea	Solway	Solway Firth BP2	54.757	-3.863
Irish Sea	Solway	Solway Firth BP3	54.750	-3.916
Irish Sea	Solway	Solway Firth BP4	54.727	-3.960

*samples for organotins only

Table 2: Intended fishing locations and fish requirements.

Region	Area	Site	Lat	Long	Species	Effects	Chemistry
Clyde	Outer estuary	Bowling	55.925	-4.480	Flounder	50	25
Clyde	Inner Firth	Holy Loch	55.971	-4.892	Dab	50	25
Clyde	Largs Channel	Hunterston	55.787	-4.884	Plaice	-	20
Clyde	Middle Offshore	Garroch Head	55.660	-4.986	Plaice	25*	25
Clyde	Outer Offshore	Pladda	55.420	-5.215	Plaice	25*	25
Irish Sea	Solway	Balcary Point	54.673	-4.134	Dab	25**	-

* bile, EROD and micronucleus

** external disease and histopathology only

Table 3: Intended manta neuston trawl locations. Where possible, additional sediment grabs are to be taken from the middle of the manta net trawl tracks (priority 1 sites).

Region	Area	Priority	Manta net tows	
			No.	Duration
Clyde	Estuary (Greenock – Erskine Bridge)	1		30 mins
Clyde	Inner Firth (Cloch Point - Greenock)	1		30-45 mins
Clyde	Gare Loch	2		45 mins
Clyde	Loch Long	2		60 mins
Clyde	Inner Firth (off Holy Loch)	1		60 mins
Clyde	Kyles of Bute / Loch Striven	1		60 mins
Clyde	Largs Channel	1		60 mins
Clyde	Middle Offshore	2		60 mins
Clyde	Sound of Bute	2		60 mins
Clyde	Irvine Bay	3		60 mins
Clyde	Ayr Bay	3		60 mins
Clyde	Outer Offshore	2		60 mins
N Channel	North Channel	2		90 mins
Solway	Luce Bay	1		90 mins
Solway	Wigton Bay	1		60 mins
Solway	Balcary Point	1		60 mins