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MRV *Sir John Murray*

Survey 0318SJM

## **PROGRAMME**

12 – 20 November 2018

### **Ports**

**Loading:** Troon, 08 November 2018

**Sailing:** Troon, 12 November 2018

**Unloading:** Troon, 20 November 2018

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.

### **Sampling Gear**

SEPA - 2 m beam trawl with 50 mm cod-end

SEPA - Demersal trawl with 50 mm cod-end

SEPA - Day grab and table

MSS - Catamaran and neuston net

### **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 D8).
2. To undertake fish sample preparation for subsequent eco-toxicological analyses.
3. To undertake survey of sea-surface litter in the Firth of Clyde and Solway Firth (MSFD D10).
4. To undertake fish, shellfish and sediment sampling in support of the microplastics ROAME (ST014).

**Estimated Days per Project:** 7 days ST03n (OSPAR, MSFD D8); 1 days ST04c (MSFD D10), 1 day ST014

### **Procedure**

Scientific gear will be loaded on to the *Sir John Murray* in Troon on Thursday 08 November and the vessel will sail on Monday 12 November after all relevant safety drills have been completed.

Five surface (0-2 cm) sediment samples will be collected by Day grab for contaminant analysis from each of three water bodies in the Firth of Clyde and one in the Solway Firth (see Table 1 and Fig 1). Flatfish (dab, plaice or flounder) will be collected for determination of disease status, contaminant concentrations and contaminant-induced biological effects from the

Bowling, Holy Loch, Hunterston, Garroch Head and Pladda fishing stations (see Table 2 and Fig 2). The catamaran neuston net will be towed at five knots in order to survey and sample sea-surface litter from various locations, depending on time availability (see Table 3). Bycatch from the fishing trawls will be sampled adventitiously for determination of microplastics in stomach contents; sediment samples will be taken for determination of microplastics; benthic macrolitter collected during trawling will also be identified and quantified.

On completion of the survey, passage will be made to Troon where MSS scientific gear and staff will be unloaded on 20 November 2018.

### **Rest Day Provision**

One rest day will be allocated for this survey in compliance with SG WTD guidelines.

### **General Arrangements**

Liquid nitrogen, formalin and methanol will be carried for the preservation and storage of biological materials.

Normal contacts will be maintained with the Laboratory.

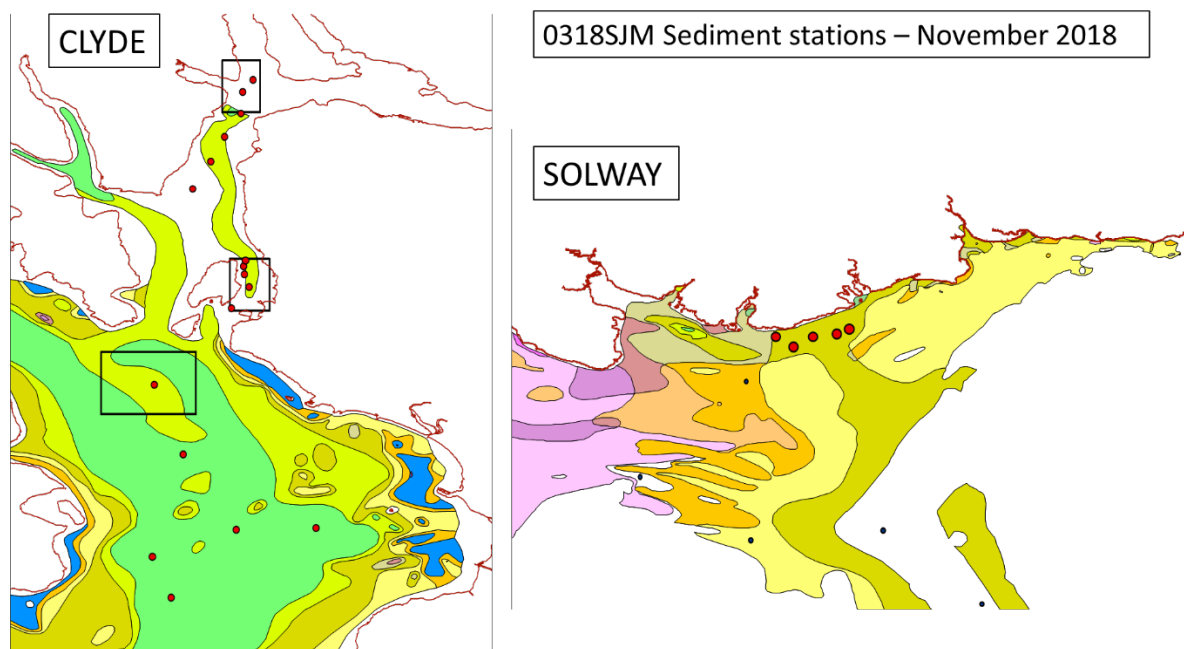
Submitted:  
G. Hermann  
30 October 2018

Approved:  
I. Gibb  
02 November 2018

**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	East of Brodick	55.586	-4.955
Clyde	Middle Offshore	Middle Offshore South	55.434	-4.968
Clyde	Middle Offshore	Middle Offshore	55.506	-4.899
Clyde	Middle Offshore	5 km SW of Lady Isle	55.508	-4.814
Clyde	Middle Offshore	7 km off Whiting Bay	55.477	-4.988
Clyde	Middle Offshore	Garroch Head - FRS	55.660	-4.986
Solway	Solway	Solway Firth @ NMMP site 25	54.750	-4.000
Solway	Solway	Solway Firth BP1	54.767	-3.835
Solway	Solway	Solway Firth BP2	54.757	-3.863
Solway	Solway	Solway Firth BP3	54.750	-3.916
Solway	Solway	Solway Firth BP4	54.727	-3.960

**Fig 1:** Location of Intended sediment sampling locations

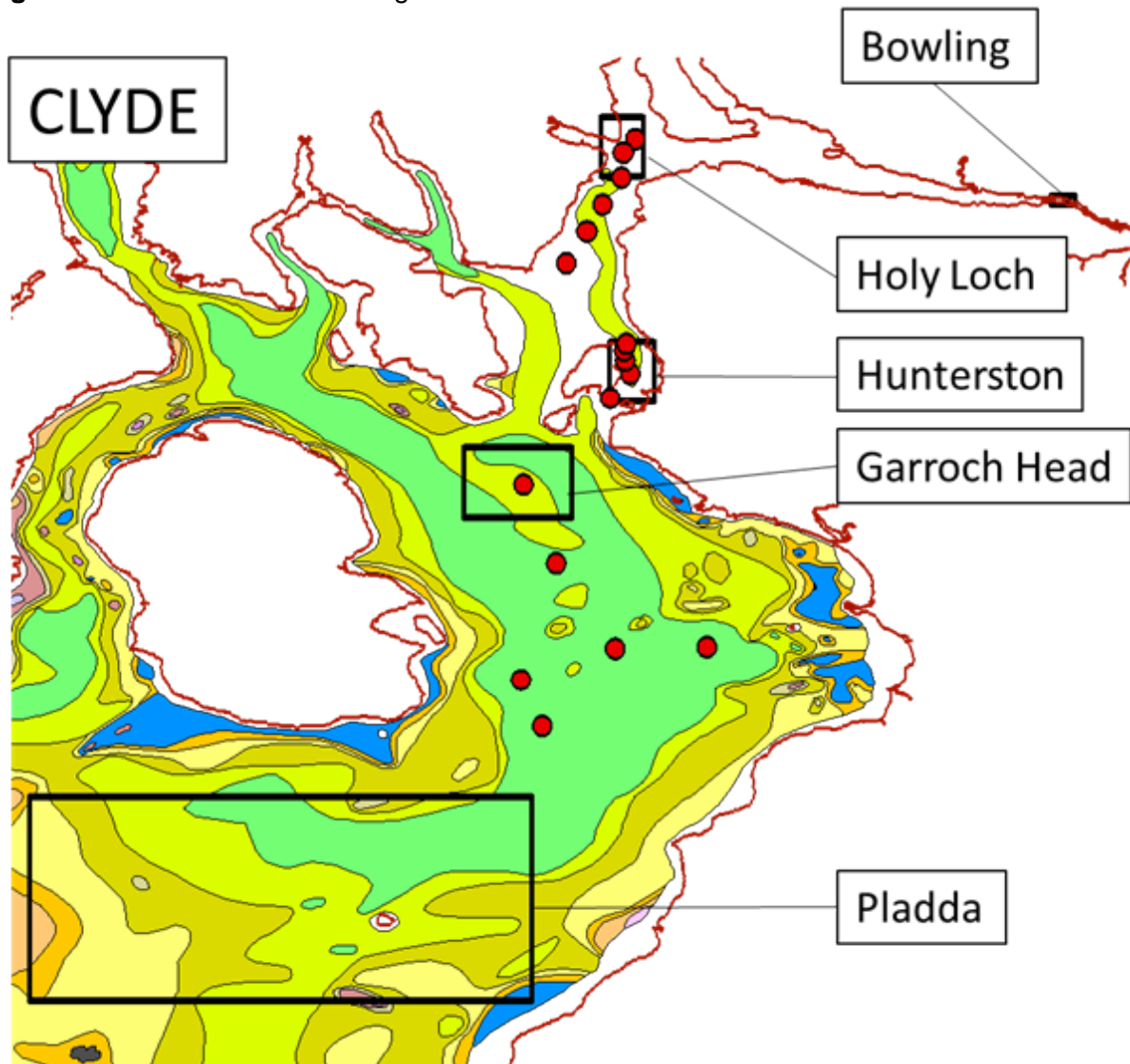


**Table 2:** Intended fishing locations and fish requirements.

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

\* bile, EROD and micronucleus only

**Fig 2:** Location of Intended fishing locations



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

Region	Area	Priority	Catamaran 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 (E of Grt Cumbrae)	1		60 mins
Clyde	West of Grt Cumbrae	1		60 mins
Clyde	Middle Offshore	2		60 mins
Clyde	Sound of Bute	2		60 mins
Clyde	Loch Fyne	3		60 mins
Clyde	Irvine Bay	2		60 mins
Clyde	Ayr Bay	2		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