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MRV *Scotia*

Survey 0222S: North Sea International Bottom Trawl Survey Q1

## **PROGRAMME**

22 January – 11 February 2022

### **Ports**

**Loading:** Aberdeen, 19 January 2022

**Sailing:** Aberdeen 22 January 2022

**Half landing:** Aberdeen (date flexible)

**Unloading:** Aberdeen, 11 February 2022

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.

**Out-turn days:** 21 days, RV2201/20671

### **Fishing Gear**

GOV Trawl (BT 137) with ground gear A & B

MIK Net (Round Frame with IK depressor)

MIKeyM net (attached onto the MIK net on selected stations)

### **Other Gear**

RBR concerto<sup>3</sup> CTD unit

### **Objective**

1. To complete an internationally coordinated demersal trawling survey in the North Sea in ICES area IV.
2. To undertake MIK sampling for pre-metamorphosed clupeid and sandeel larvae during the hours of darkness within the trawl survey area. MIKeyM samples will also be collected from selected MIK deployments.
3. To obtain temperature and salinity data from the surface and seabed at each trawling station using a RBR concerto<sup>3</sup> CTD.
4. To collect samples of surface and near seabed water for nutrient analysis (nitrates, silicates and phosphates)
5. To collect additional biological data in connection with the EU Data Collection Framework (DCF) and by special request.

6. To record marine litter at each trawl station for MSFD

## Background

NSIBTS Q1 is a fishery-independent multi-species bottom-trawl survey of the North Sea undertaken by Denmark, France, Germany, Netherlands, Norway, Scotland and Sweden and coordinated by International Bottom Trawl Survey Working Group (IBTSWG). The survey aims to provide ICES assessment and science groups with consistent and standardised data for examining spatial and temporal changes in (a) the distribution and relative abundance of fish and fish assemblages; and (b) the biological parameters of commercial fish species for stock assessment purposes. The stratification of the survey is grid-based using ICES statistical rectangles. Rectangles are allocated to each participating country by IBTSWG so that each rectangle is sampled with two hauls with each haul by two different countries where possible. The overall survey area and rectangles allocated to Scotland for 2022 are shown in Figure 1.

## Trawling

A single haul of 30 minutes duration will be made in each assigned rectangle using the GOV trawl. Exceptions to this will be in the 11 squares indicated (Figure 1.) where two hauls will be made logistics allowing. Hauls in adjacent rectangles will be separated by at least ten miles where possible. Wherever possible, fishing will be carried out during daylight hours as defined below:

	Daylight period – GMT	
	South of 57 30'N	North of 57 30'N
22-31 January	0747 - 1635	0815 - 1545
1-10 February	0729 - 1658	0749 - 1636
11 February	0708 - 1720	0723 -1705

For each degree of longitude west, four minutes will be added to the time; for each degree of longitude east, four minutes will be subtracted.

The exact fishing position in each square will be decided on a haul by haul basis in collaboration with the fishing master and will depend largely on logistics (of both trawl and MIK survey) and on prevailing sea conditions. However, efforts will be made to undertake hauls at positions proposed in advance by IBTSWG to increase the randomisation of sampling.

The Scanmar system will be used throughout the survey to monitor and summarise headline height, wing spread, door spread and distance covered during each haul. A bottom contact sensor (BCS) will be attached to the ground-gear to QA contact with the seabed and the data collected will be downloaded after each haul.

Catches will be processed as per the most recent version of the IBTS sampling manual (ICES SISP 10 – IBTS X November 2020) with additional biological data collected for species as agreed.

## MIK Sampling

Pre-metamorphosed clupeid larvae will be sampled during the hours of darkness with the MIK mid-water trawl (round frame). A minimum of two double oblique tows is planned for every square within the assigned survey area. The vertical profile of the tow will be monitored using the Scanmar system. The small 20 cm round frame net (MIKeyM net) will also be deployed on the MIK frame on one station per square for the purpose of collecting pelagic fish eggs from the overall survey area and of collecting pre-metamorphosed sandeel larvae from pre-

selected squares. Catches will be processed as per the most recent version of the MIK sampling manual.

### **Hydrography**

Surface and bottom temperatures along with salinities will be recorded at all trawl stations by vertical deployments of the Seabird CTD to within 5 m of the seabed where possible.

### **Seawater Nutrient Analysis**

A sample of surface and near seabed water will be collected at each CTD station and frozen for analysis back at Marine Laboratory.

### **Marine Litter Recording**

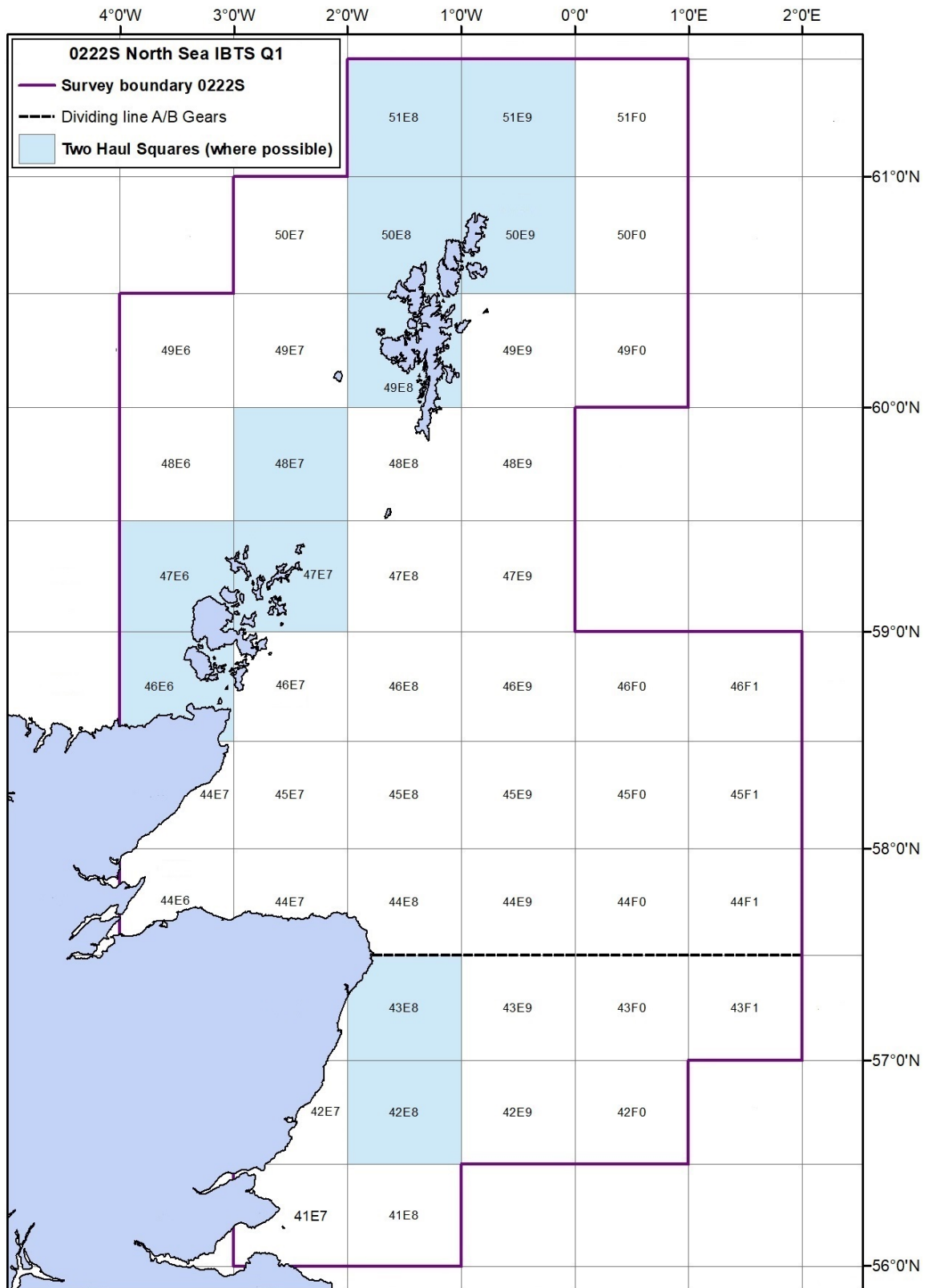
All litter picked up in the trawl will be classified, quantified and recorded as per accepted protocol then retained on board for appropriate disposal ashore.

Regular contact will be maintained with IBTS coordinator to allow the SIC to respond to any requests as they arise or to facilitate alterations to the initial survey plan should this be required.

Normal contacts will be maintained with the Laboratory.

Submitted:  
J Drewery  
10 January 2022

Approved:  
I Gibb  
18 January 2022



**Figure 1:** Scottish survey area for cruise 0222S. The dashed line at 57.5 degrees north indicates dividing line between groundgear types (A used south of line, B used north of line).