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MFV Audacious

Survey 0623H

Demersal Vessel Charter SIAMISS Survey

## **PROGRAMME**

24 April – 5 May 2023

### **Ports**

**Loading:** Peterhead, 24 April 2023

**Port Call:** TBC

**Unloading:** Peterhead, (TBC) 05 May 2023

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 Iain Gibb within eight weeks of a survey ending and the Survey Summary Report (old ROSCOP form) to Matt Geldart within four weeks. In the case of the Survey Summary Report a nil return is required, if appropriate.

**Estimated Days Per Project:** 12 days, MONKRV (20702).

**Fishing Gear:** Anglerfish Trawl BT 195 (Supplied by Jackson Trawls)

### **Objectives**

1. To undertake the Scottish Irish Anglerfish Megrin Industry Science Survey (SIAMISS). An internationally co-ordinated demersal trawling survey of Anglerfish (*Lophius piscatorius* and *Lophius budegassa*), Megrin (*Lepidorhombus wiffiagonis*) and Four-Spot Megrin (*Lepidorhombus boscii*) in the North Sea (ICES area IVa) and Norwegian Waters of the North Sea.
2. To collect species distribution, length frequency and biological data of Anglerfish (*Lophius piscatorius* and *Lophius budegassa*), Megrin (*Lepidorhombus wiffiagonis*), Four-Spot Megrin (*Lepidorhombus boscii*) Cod (*Gadus morhua*), Blue Skate (*Dipturus batis*) and Flapper Skate (*Dipturus intermedius*).
3. To collect additional species distribution, length frequency and biological data in connection with the UK Workplan and Data Collection Framework (DCF).

## Procedures

### General

The (Scottish Irish Anglerfish Megrim Industry Science Survey (SIAMISS) trawl survey follows a set of protocols drawn up by an industry science survey planning group made up of Marine Scotland and Marine Institute scientists and fishing industry representatives. These protocols share much in common with the sampling regimes described in the Marine Scotland SOPs for demersal trawl surveys and the Manual of the IBTS North Eastern Atlantic Surveys. *Series of ICES Survey Protocols SISP 15*. 92 pp. <http://doi.org/10.17895/ices.pub.3519>.

Loading of scientific staff and crew will be on 24 April with rigging and testing being completed on the same day. The trawl and scientific equipment will remain onboard from the previous Charter, 0523H.

Charter vessel *Audacious* will sail in the evening of 24 April once safety drills have been completed. The vessel will proceed north where the first predefined station doubling as a shakedown trawl will be completed in order to check the net configuration, equipment functionality and the SCANMAR units.

The route taken to complete the survey will be weather dependent and formulated close to survey departure. It is likely charter vessel *Audacious* will work north and initially before working east and transecting down through the North Sea. Charter vessel *Audacious* after completing the survey area will make for a NE (TBC) port for unloading. An operational daily survey plan will be formulated by the SIC subsequent to meetings with the charter vessel *Audacious*' Master.

### Trawling

This is a semi-random-stratified survey design with trawl stations being distributed within four predefined strata that cover ICES areas IVa (See Figure 1.). Norwegian clearance will be required to survey all four strata comprehensively. Fishing operations will be conducted 18 hours a day with scientific staff working throughout whilst ensuring adequate WTR rest breaks. A total of 30 primary stations and 60 alternative stations have been generated for the charter vessel *Audacious* (Tables 2 and 3 respectively).

The aim is for the 30 primary stations to be undertaken on suitable ground as near as to the specified station position, with the midpoint of the tow intersecting with the position. If not possible, then the tow will be conducted within a 5 nm radius. If this is not possible then the nearest suitable alternative station located within the same stratum will be used. Depending on survey progress, additional effort will be conducted in each strata utilising alternative stations to ensure maximum resolution in each of the survey strata where possible.

One trawl of 60 minutes duration will be made at each sampling station unless circumstances dictate. Trawling operations will occur in waters up to a maximum depth of 500 m. The SCANMAR system will be used to monitor wing spread, door spread and distance covered during each haul. The charter vessel *Audacious*' echosounder will be utilised throughout the survey. Bottom contact data from each trawl will also be collected using the NOAA bottom contact sensor which will be mounted in the centre of the ground-gear.

Trawls will not be conducted where possible in highly-sensitive marine protected areas on the advice of JNCC and NatureScot. The nearest suitable alternative station in the same stratum shall be chosen if the trawl cannot be conducted within a 5nm buffer from the position outside the MPA.

## **Fish Sampling**

Catches will be worked up according to the protocols for Marine Scotland Anglerfish surveys which are similar in principle to the protocols as described in the Manual of the IBTS North Eastern Atlantic Surveys. *Series of ICES Survey Protocols SISP 15. 92 pp.* <http://doi.org/10.17895/ices.pub.3519>. The sampling methodology will follow the SIAMISS Fish Sampling V1.0 SOP. In addition to the routine sampling, biological data and samples will be collected for selected ad-hoc species if time allows. The entire catch will be examined for species catch weight and length frequency when possible with biological data collected from the species detailed in Table 1.

## **Post Survey**

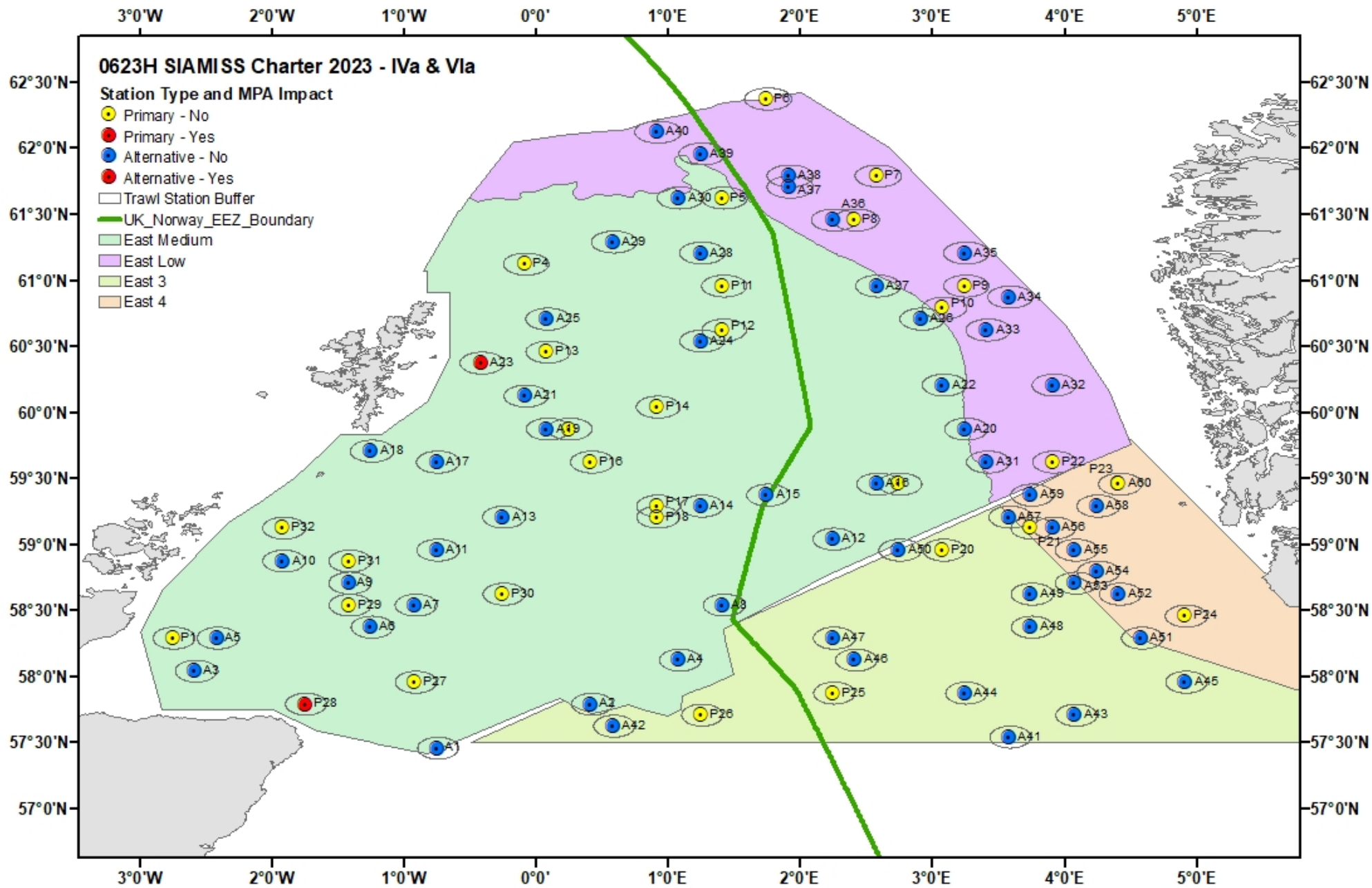
All scientific staff and equipment will be unloaded on 5 May 2023.

Normal contacts will be maintained with the Laboratory.

Submitted:

R Gillespie-Mules  
21 April 2023

Approved:  
I Gibb  
24 April 2023



**Figure 1:** Chart showing the 0623H primary and alternative trawl positions and SIAMISS strata for the North Sea (IVa).

**Table 1:** Biological sampling targets for 0623H. (\* Individual weight, gutted weight, sex, maturity and age; \*\* Individual weight, gutted weight, sex and maturity; \*\*\* Individual weight, sex and maturity – males only)

<b>0623H Biological Sampling Targets</b>	
<b>Species</b>	<b>Target</b>
<i>L. piscatorius</i> (ANG) *	All
<i>L. budegassa</i> (BAN) *	All
<i>L. wiffiagonis</i> (MEG) **	1 / cm
<i>L. boscii</i> (FME) **	1 / cm
<i>G. morhua</i> (COD) *	1 / cm
<i>A. radiata</i> (STY) ***	1 / cm
All other skates and rays ***	All - except CRA, SPY and TRA

<b>0623H Primary (Core) Trawl Stations</b>						
<b>Station Number</b>	<b>Stratum</b>	<b>Depth</b>	<b>Lat (DDM)</b>	<b>Long (DDM)</b>	<b>Lat (DD)</b>	<b>Long (DD)</b>
P1	East.M	0-200	58 17.5N	002 45W	58.2917	-2.75
P57	East.M	0-200	61 7.5N	000 05W	61.125	-0.0833
P58	East.M	0-200	61 37.5N	001 25E	61.625	1.4167
P59	East.L	200-500	62 22.5N	001 45E	62.375	1.75
P60	East.L	200-500	61 47.5N	002 35E	61.7917	2.5833
P61	East.L	200-500	61 27.5N	002 25E	61.4583	2.4167
P62	East.L	200-500	60 57.5N	003 15E	60.9583	3.25
P63	East.L	200-500	60 47.5N	003 05E	60.7917	3.0833
P64	East.M	0-200	60 57.5N	001 25E	60.9583	1.4167
P65	East.M	0-200	60 37.5N	001 25E	60.625	1.4167
P66	East.M	0-200	60 27.5N	000 05E	60.4583	0.0833
P67	East.M	0-200	60 2.5N	000 55E	60.0417	0.9167
P68	East.M	0-200	59 52.5N	000 15E	59.875	0.25
P69	East.M	0-200	59 37.5N	000 25E	59.625	0.4167
P70	East.M	0-200	59 17.5N	000 55E	59.2917	0.9167
P71	East.M	0-200	59 12.5N	000 55E	59.2083	0.9167

Station Number	Stratum	Depth	Lat (DDM)	Long (DDM)	Lat (DD)	Long (DD)
P72	East.M	0-200	59 27.5N	002 45E	59.4583	2.75
P73	East3	0-200	58 57.5N	003 05E	58.9583	3.0833
P74	East4	200-500	59 7.5N	003 45E	59.125	3.75
P75	East.L	200-500	59 37.5N	003 55E	59.625	3.9167
P76	East4	200-500	59 27.5N	004 25E	59.4583	4.4167
P77	East4	200-500	58 27.5N	004 55E	58.4583	4.9167
P78	East3	0-200	57 52.5N	002 15E	57.875	2.25
P79	East3	0-200	57 42.5N	001 15E	57.7083	1.25
P80	East.M	0-200	57 57.5N	000 55W	57.9583	-0.9167
P81	East.M	0-200	57 47.5N	001 45W	57.7917	-1.75
P82	East.M	0-200	58 32.5N	001 25W	58.5417	-1.4167
P83	East.M	0-200	58 37.5N	000 15W	58.625	-0.25
P84	East.M	0-200	58 52.5N	001 25W	58.875	-1.4167
P85	East.M	0-200	59 7.5N	001 55W	59.125	-1.9167

<b>0623H Alternative Trawl Stations</b>						
<b>Station Number</b>	<b>Stratum</b>	<b>Depth</b>	<b>Lat (DDM)</b>	<b>Long (DDM)</b>	<b>Lat (DD)</b>	<b>Long (DD)</b>
A1	East.M	0-200	57 27.5N	000 45W	57.4583	-0.7500
A2	East.M	0-200	57 47.5N	000 25E	57.7917	0.4167
A3	East.M	0-200	58 2.5N	002 35W	58.0417	-2.5833
A4	East.M	0-200	58 7.5N	001 5E	58.1250	1.0833
A5	East.M	0-200	58 17.5N	002 25W	58.2917	-2.4167
A6	East.M	0-200	58 22.5N	001 15W	58.3750	-1.2500
A7	East.M	0-200	58 32.5N	000 55W	58.5417	-0.9167
A8	East.M	0-200	58 32.5N	001 25E	58.5417	1.4167
A9	East.M	0-200	58 42.5N	001 25W	58.7083	-1.4167
A10	East.M	0-200	58 52.5N	001 55W	58.8750	-1.9167
A11	East.M	0-200	58 57.5N	000 45W	58.9583	-0.7500
A12	East.M	0-200	59 2.5N	002 15E	59.0417	2.2500
A13	East.M	0-200	59 12.5N	000 15W	59.2083	-0.2500
A14	East.M	0-200	59 17.5N	001 15E	59.2917	1.2500
A15	East.M	0-200	59 22.5N	001 45E	59.3750	1.7500
A16	East.M	0-200	59 27.5N	002 35E	59.4583	2.5833
A17	East.M	0-200	59 37.5N	000 45W	59.6250	-0.7500
A18	East.M	0-200	59 42.5N	001 15W	59.7083	-1.2500
A19	East.M	0-200	59 52.5N	000 5E	59.8750	0.0833
A20	East.M	0-200	59 52.5N	003 15E	59.8750	3.2500
A21	East.M	0-200	60 7.5N	000 5W	60.1250	-0.0833
A22	East.M	0-200	60 12.5N	003 5E	60.2083	3.0833
A23	East.M	0-200	60 22.5N	000 25W	60.3750	-0.4167
A24	East.M	0-200	60 32.5N	001 15E	60.5417	1.2500
A25	East.M	0-200	60 42.5N	000 5E	60.7083	0.0833
A26	East.M	0-200	60 42.5N	002 55E	60.7083	2.9167
A27	East.M	0-200	60 57.5N	002 35E	60.9583	2.5833

A28	East.M	0-200	61 12.5N	001 15E	61.2083	1.2500
A29	East.M	0-200	61 17.5N	000 35E	61.2917	0.5833
A30	East.M	0-200	61 37.5N	001 5E	61.6250	1.0833
A31	East.L	200-500	59 37.5N	003 25E	59.6250	3.4167
A32	East.L	200-500	60 12.5N	003 55E	60.2083	3.9167
A33	East.L	200-500	60 37.5N	003 25E	60.6250	3.4167
A34	East.L	200-500	60 52.5N	003 35E	60.8750	3.5833
A35	East.L	200-500	61 12.5N	003 15E	61.2083	3.2500
A36	East.L	200-500	61 27.5N	002 15E	61.4583	2.2500
A37	East.L	200-500	61 42.5N	001 55E	61.7083	1.9167
A38	East.L	200-500	61 47.5N	001 55E	61.7917	1.9167
A39	East.L	200-500	61 57.5N	001 15E	61.9583	1.2500
A40	East.L	200-500	62 7.5N	000 55E	62.1250	0.9167
A41	East3	0-200	57 32.5N	003 35E	57.5417	3.5833
A42	East3	0-200	57 37.5N	000 35E	57.6250	0.5833
A43	East3	0-200	57 42.5N	004 5E	57.7083	4.0833
A44	East3	0-200	57 52.5N	003 15E	57.8750	3.2500
A45	East3	0-200	57 57.5N	004 55E	57.9583	4.9167
A46	East3	0-200	58 7.5N	002 25E	58.1250	2.4167
A47	East3	0-200	58 17.5N	002 15E	58.2917	2.2500
A48	East3	0-200	58 22.5N	003 45E	58.3750	3.7500
A49	East3	0-200	58 37.5N	003 45E	58.6250	3.7500
A50	East3	0-200	58 57.5N	002 45E	58.9583	2.7500
A51	East4	200-500	58 17.5N	004 35E	58.2917	4.5833
A52	East4	200-500	58 37.5N	004 25E	58.6250	4.4167
A53	East4	200-500	58 42.5N	004 5E	58.7083	4.0833
A54	East4	200-500	58 47.5N	004 15E	58.7917	4.2500
A55	East4	200-500	58 57.5N	004 5E	58.9583	4.0833
A56	East4	200-500	59 7.5N	003 55E	59.1250	3.9167
A57	East4	200-500	59 12.5N	003 35E	59.2083	3.5833



A58	East4	200-500	59 17.5N	004 15E	59.2917	4.2500
A59	East4	200-500	59 22.5N	003 45E	59.3750	3.7500
A60	East4	200-500	59 27.5N	004 25E	59.4583	4.4167