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MRV Scotia

Survey 0922S

PROGRAMME

21 July – 5 August 2022

Ports: Aberdeen

Loading: Aberdeen, 19 July 2022
Unloading: Aberdeen, 5 August 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.

Estimated Days per Project: 16 days – C44800 / 20571

Equipment:

- Dropframe camera system
- USBL positioning system with two transponders
- 2 x Hamon grab (0.1m^2 bucket)
- Sieving table
- Seabird 19 CTD

Background:

The West Shetland Shelf marine protected area (WSS) lies in offshore waters to the north of Scotland (Figure 1). WSS has been designated for the protection of the wide variety of sand and gravel habitats (Priority Marine Features) present in the area, providing an important example of the northern extent of their range on the continental shelf in Scottish seas. From coarse gravels to fine-grained sands, the different habitats present provide conditions suitable for a diverse range of animals to thrive in and on the seabed.

WSS overlapped with the Windsock fisheries area which was managed for the recovery of cod stocks from 2004-2019. A series of voluntary management measures between the fishing industries active in the area have been in place at the site since 2019 (Figure 2). Most recently, this has involved an informal rotation of measures allowing the creel fleet access to different target species at different times of the year and that this rotation was organised between the industries directly.

This survey will build on previous surveys to the site in 2011 (1111S) , 2017 (1517S) and 2019 (1219S). Offshore subtidal sands and gravels (OSSG) are the designated feature within the site, which has a conservation objective to achieve and maintain in favourable

condition. The site has an area of 4,083 km^2 and a depth range of 70-150 m and was designated in July 2014 to protect the OSSG habitat feature. WSS has been identified for monitoring survey effort following discussion between JNCC and MSS, considering the JNCC MPA monitoring survey prioritisation process, the Scottish MPA Monitoring Strategy (Scottish Government, 2017) prioritisation principles and logistical considerations.

Objectives:

1. Collect evidence (video and stills imagery and grab samples) to inform monitoring of the condition, and the effectiveness of management measures on: the biological extent, distribution and function within the offshore circalittoral sands associated with the WSS.
2. Collect evidence (video and stills imagery) to inform monitoring of the condition, and the effectiveness of management measures on: the biological extent, distribution and function within the offshore circalittoral coarse sediments associated with the WSS.
3. Collect evidence (environmental data, e.g., temperature, salinity, and turbidity) on the supporting processes relating to offshore subtidal sands and gravels of WSS.
4. To test and calibrate the multibeam system on departure from Aberdeen.

Procedure

All equipment will be loaded on *Scotia* when the previous survey returns to Aberdeen harbour. Marine Scotland personnel will set up equipment and prepare the vessel for surveying in the days leading up to 20 July. All personnel will join the vessel on 20 July in preparation for sailing at 20:00hrs that evening.

On departing Aberdeen, and after all drills have been completed, the vessel will sail to Stonehaven to test and calibrate the multibeam echosounder overnight. Once completed, the vessel will return to Aberdeen to land the instrument technician before commencing the survey programme as detailed below.

Scotia will transit towards the WSS where, weather permitting and in consultation with ship officers, operations will begin.

The survey boxes (shown in Figure 1 and described in Table 1) will be visited in the following order of priority: G, H, A, F, K, B, E and J. A total of 30 stations per box will be sampled using the drop camera system (all boxes) with environmental sensors attached (CTD). The imagery and environmental data collected will allow identification and enumeration of the epifauna (including key and characteristic epifauna) furthering our understanding of species distributions and the structure of epifaunal assemblages for the OSSG habitats. The Hamon grab (G, H, A, F and K) will be used to collect samples (infaunal [> 1 mm] and PSA) at each of 30 station in boxes G, H, A, F and K, which will allow the identification and enumeration of infaunal species associated with the site including the biological assemblages, key and influential species and characteristic communities.

In the event of a prolonged period of poor weather necessitating the ship to transit to a more sheltered location, inshore contingency survey locations have been identified following discussion with NatureScot.

Normal contact will be maintained with the laboratory.

Submitted:
D Stirling & T. Tangye
07 July 2022

Approved:
I Gibb
15 July 2022

Figure 1: Map of sampling box locations for 0922S.

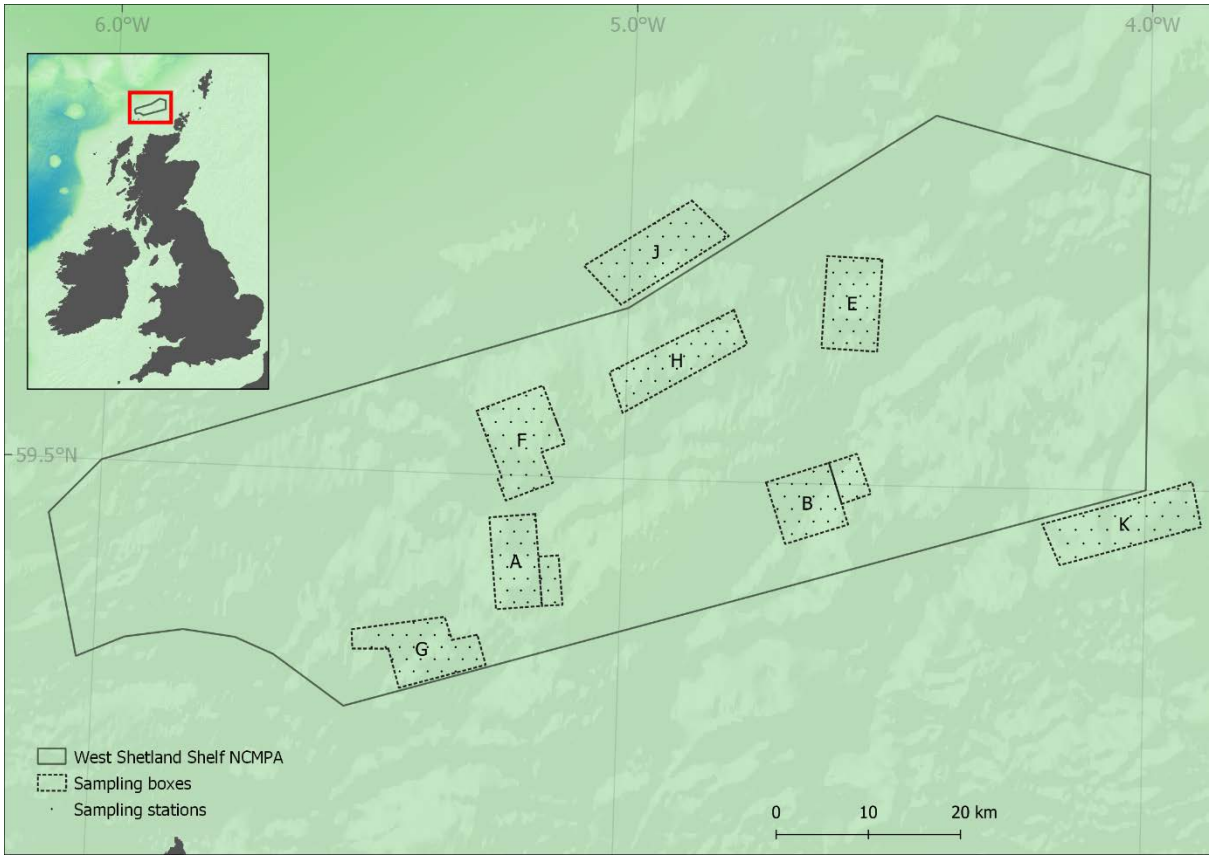
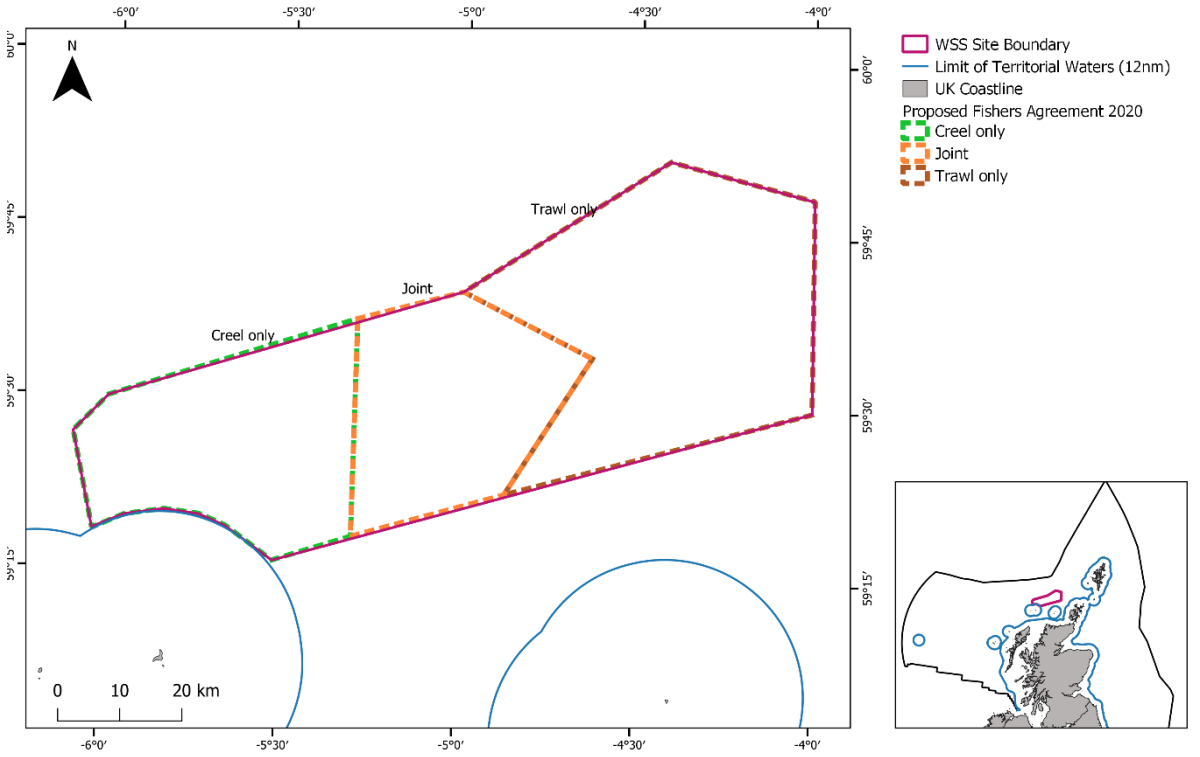


Figure 2: Voluntary Fisheries management areas at WSS for 2020.



Projection: WGS 84 / UTM zone 30N (EPSG: 32630); © JNCC 2021; UK Territorial Sea Limit. Contains UKHO data © Crown copyright. All rights reserved. UK Exclusive Economic Zone © Crown copyright, The exact limits of the EEZ are set out in The Exclusive Economic Zone Order 2013; Shoreline © GSHHG 2.2.2.

Table 1: Summary of survey boxes

Survey Box	Mean Depth (~m)	Predicted substrate (UKSeaMap 2018)	Priority	Comment
A	120	Sand	1	Sampled during 1219S Inside MPA
F	135	Sand	1	Sampled during 1219S Inside MPA
G	90	Sand	1	Inside MPA
H	100	Sand	1	Inside MPA
K	125	Sand	1	Outside MPA
J	120	Coarse	2	Outside MPA
B	90	Coarse	2	Sampled during 1219S Inside MPA
E	70	Coarse	2	Inside MPA