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MRV *Scotia*

Survey 0612S

PROGRAMME

25 May – 13 June 2012

Loading: Aberdeen 22 May 2012
Sailing: Aberdeen 25 May 2012
Half landing: Greenock (flexible)
Unloading: Aberdeen 13 June 2012

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

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

Personnel

A Weetman	(SIC)
C Shand	
L Allan	
C Mesquita	
G Jones	
M Inglis	
J Hunter	
H Dobby	(Part 1)
A McLay	(Part 2)
D Moore*	(Part 2, 7-13 June 2012)
A N Other*	(Part 2, 7-13 June 2012)

Estimated days by project: 7 days, RV1204 20088 (North Sea)
13 days, RV1205 20089 (West Coast)
1 day, 20134 (Environmental Impact – if this work goes ahead then 1 day will be reduced from either project 20088 or 20089)*

Gear

2 x Scotia BT175 60mm prawn trawls (one with 8" hoppers)
2 x Day grabs and 1 x sieving table
Towed UWTV sledge and the UWTV drop frame (larger version)
2 x 600m umbilical towing cables and associated TV equipment (including back up)
100 x 5ml. vials containing ethanol
*reverser bottles

Objectives

1. To obtain estimates of the abundance and distribution of *Nephrops* burrow complexes at Fladen, in the North Minch, the South Minch, the Firth of Clyde and at Devil's Hole. If time and weather permits, stations in the Sound of Jura and the Noup may also be surveyed.

2. To use the TV footage to record the occurrence of other benthic fauna as well as evidence of commercial trawl activity.

3. To collect sediment samples at each station.

4. To carry out trawling for *Nephrops*, based on one haul in each sediment stratum in each of the main survey areas, to obtain samples of *Nephrops* for size composition analysis.

5. To collect samples of *Nephrops* for comparison of reproductive condition and morphometrics in each of the different survey areas (functional units).

6. To collect samples of *Nephrops* stomachs for evidence of the parasite *Stichocotyle nephropis*).

7. *To carry out environmental impact sampling in and around the Elgin gas field. This will include water samples, sediment samples and trawling using the BT175.

Procedures

The main areas in which the survey will take place have been surveyed on annual basis for a number of years and are shown in Figure 1. A combination of two approaches will be used to derive the survey positions. The majority of stations will be generated by employing the traditional stratified random technique in all areas except the North Minch, where stations will be created using commercial effort based data obtained from the Vessel Monitoring System. The location of all TV stations will be provided ahead of the cruise.

Weather permitting, it is planned that the vessel will first steam to the deep water in the Southern Trench (in the East of the Moray Firth) where a training session in deploying the sledge and approximately 450 m of cable will be carried out. The sledge will then be recovered and when this procedure is carried out to the satisfaction of all involved, the vessel can then progress on to the first of the *Nephrops* burrow TV stations at the SW edge of the Fladen ground. Once the work at Fladen has been completed, the vessel will then steam around to the west coast and survey stations in the North and South Minches and the Firth of Clyde before calling into Greenock for the half landing.

At this time, there will be a change of scientific staff. On leaving Greenock any remaining stations in the Clyde will be completed before surveying the Sound of Jura (if time and weather permits). The remaining South and North Minch stations will then be completed whilst working north. Any additional stations in Fladen (if required), or those not covered on the first leg of the cruise, will be completed before heading to the final survey area at the Devils Hole.

*There maybe a requirement to then carry out hydrocarbon testing at the Elgin gas field, but this has yet to be confirmed. See last paragraph below.

When on station, sledge deployments and TV observations will be made 24 hours a day by three teams of two people. Each team will work eight hour shifts and will be involved in

deploying and recovering the TV equipment, recording data and liaising with the ship's compliment. There will be a requirement for staff to review video footage at sea outwith their shift period, as well as assisting in working up trawl catches and data entry.

At each TV station a video camera mounted on the sledge will be towed along the seabed for approximately ten minutes – the ship's dynamic positioning will be required for this. Observed *Nephrops* burrows, surfaced *Nephrops* and other benthic fauna will be recorded onto DVD for analysis. The depth and distance travelled by the sledge, as well as camera height from the sea bed, will be recorded automatically. Where practical sediment samples will be taken using the mini van Veen grab mounted on the sledge. However it may be necessary to use the Day Grab on occasion, if the mini van Veen fails. All sediment samples will be frozen.

Trawl caught samples of *Nephrops* will be collected and information on size composition, maturity and morphometrics will be recorded. Up to five trawls may be made in each of the main areas surveyed, although this will be greatly reduced if work at the Elgin gas field is to be carried out (see next paragraph). Trawls will be no longer than one hour long. There will be a requirement for the trawl to be cleaned by 'streaming' it behind the vessel for 15 minutes between the main fishing areas. Up to 1000 *Nephrops* stomachs will be collected and preserved in ethanol and returned to Marine Scotland Science for analysis after the survey. All COSHH paperwork will be available prior to sailing.

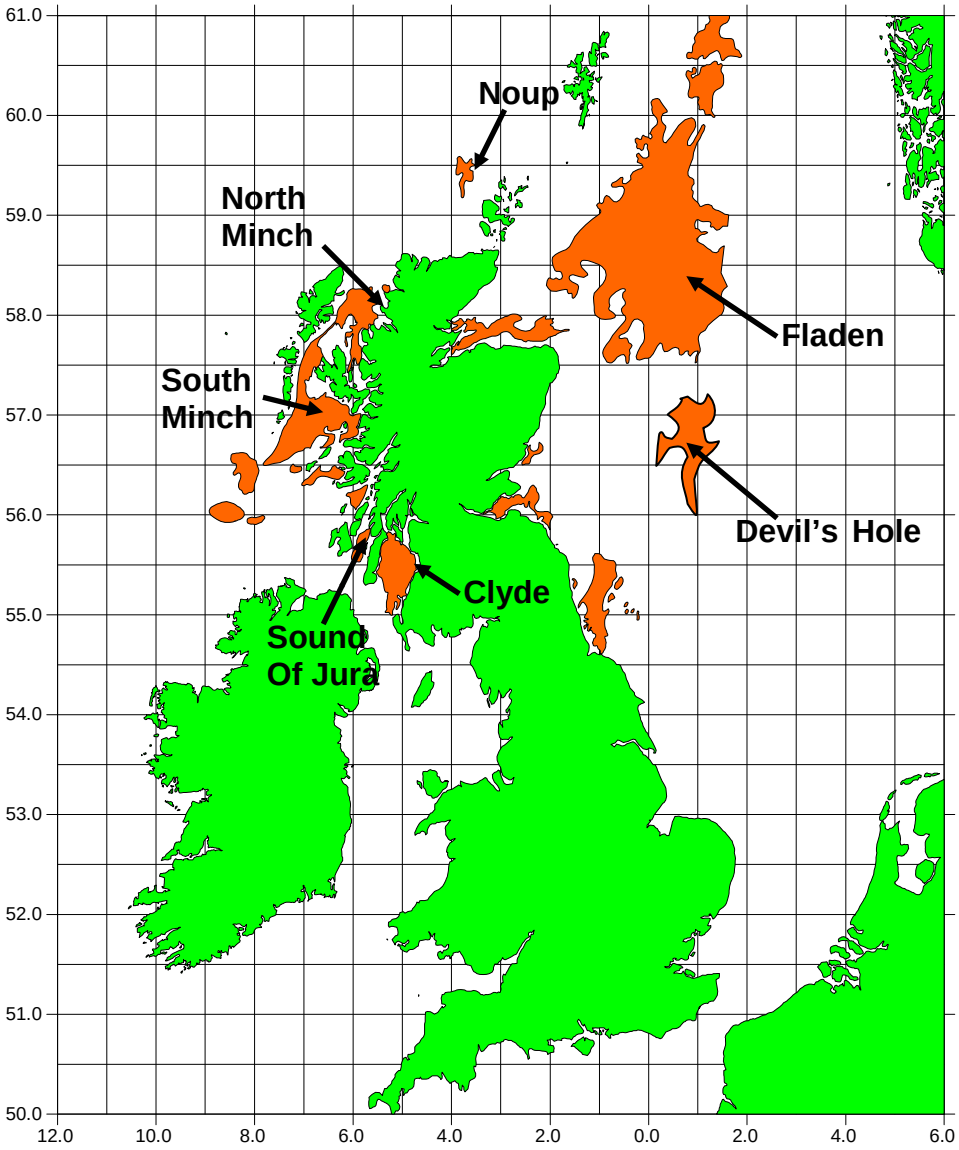
*There may be a requirement to carry out environmental sampling in and around the Elgin gas field (to the east of Devils Hole), continuing the work previously carried out by *Alba*-na-*Mara* following the gas leak in March 2012. This work has yet to be confirmed but there is a high probability that it will be undertaken on this survey. Details on the precise location and quantity of sampling have yet to be finalised, but it is likely that the grounds sampled by Alba-*na*-*Mara* will be revisited. This information will be provided prior to arriving in the area, and may be corrected whilst undertaking the work in response to the status of the total exclusion zone and political directives. To ensure the work is carried out to specific standards and to provide guidance whilst at sea, two additional staff will be required. It is anticipated that these staff will arrive on *Scotia* by small boat transfer at Scrabster as *Scotia* returns to the east coast after completing TV operations on the west coast. After all the TV sites in Fladen and the Devils Hole have been completed the environmental work will be carried out. It is anticipated that this work will take approximately 15 hours with the vessel working 24 hours a day. Water samples will be collected using reverser water bottles deployed from the ship's starboard crane; sediment samples will be collected using the Day grab; and biological samples will be collected following the recovery of the trawl after a 30 minute deployment. It is possible that dichloromethane will be used to 'rinse' out the Day grab between samples. A risk assessment for handling this chemical will be provided by the SIC. To accommodate this additional work, trawling on the *Nephrops* TV leg of the survey will be reduced.

Normal contacts will be maintained with the Laboratory.

Submitted:
A Weetman
18 May 2012

Approved:
I Gibb
21 May 2012

Survey areas for Scotia 0612S



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MRV Scotia

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25 May – 13 June 2012

PROGRAMME AMENDMENT

H. Dobby will not be joining the vessel for survey 0612S.

I Gibb
22 May 2012