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MRV *Alba na Mara*

Survey 2314A

## **PROGRAMME**

8-22 December 2014

**Loading:** Leith, 5 December 2014

**Unloading:** Fraserburgh, 22 December 2014

**Staff Changeover:** Montrose / Fraserburgh, 15 December 2014 (provisional)

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 cruise ending. In the case of the Survey Summary Report a nil return is required, if appropriate.

## **Personnel**

J. Clarke	(SIC)
M. Gault	
T. Regnier	
C. Hall	(08 – 15 Dec)
C. Shand	(15 – 22 Dec)

**Out-turn days per project:** SU02ND - 15 days

## **Equipment**

Sandeel dredge × 2 (modified 4' scallop dredge with 6" teeth and spare toothbars) with towing bar and camera attachment.

TV camera.

Minilogger.

## **Objectives**

1. To determine the abundance, length and age of sandeels in the sediment in regions east of the Firth of Forth and around Turbot bank.
2. To collect and preserve samples of *A. marinus* for microchemistry analysis.
3. To collect and fertilise eggs from approximately 10 individual *A. marinus* females.

## Procedure

All required gear will be loaded onto the vessel on 5 December. Scientific staff will be transported to Leith to join the vessel on 8 December.

Two regions of historical importance for sandeel fishing will be surveyed (see Fig. 1). In the first half of the survey a series of 8 dredge stations to the east of the Firth of Forth will be sampled following the protocol established in 1999. A modified scallop dredge will be used to catch sandeels buried in the substrate at the priority stations given in Table 1 and Fig. 2. Further stations in this region will be sampled if time permits. In the second half of the survey, the dredge will be deployed at stations 20 - 36 in the Turbot bank region (Table 1, Fig. 2). Ideally 5 repeat tows will be conducted at each station although this may be reduced to a minimum of 2 if catch quantities are low or available time is limited. Dredge duration will be approximately 10 minutes at a towing speed of approximately 2.5 knots.

At each dredge station, all sandeels will be identified to species level, measured, and otoliths (5, 8 or 10 depending on length strata, per half centimetre) will be taken for age determination. Sub-samples of 100 sandeels  $\leq 8$  cm TL (age 0) will be taken from stations in the Firth of Forth, Turbot Bank and the Moray Firth and frozen individually for later analysis (objective 2). In addition, time permitting, eggs from around 10 female *A. marinus* will be fertilised and stored in isolated clutches before being transferred to the lab at the earliest opportunity.

Following the completion of survey work, *Alba na Mara* will return to Fraserburgh for unloading on 22 December 2014.

Normal contacts will be maintained with the laboratory.

Submitted:

*J. Clarke*

10 November 2014

Approved:

*I. Gibb*

20 November 2014

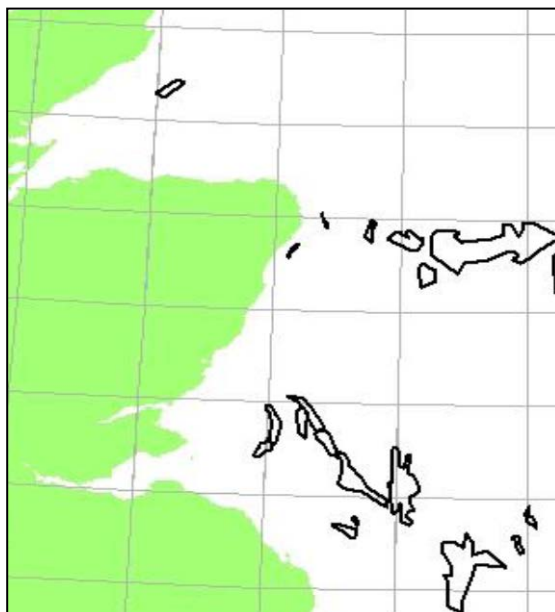


Figure 1: Location of important sandeel fishing areas.

Station	Latitude	Longitude	Depth (m)
1	56°05.880' N	01°20.460' W	46
2	56°07.380' N	01°23.280' W	51
3	56°13.560' N	02°03.240' W	37
4	56°14.580' N	02°02.340' W	41
7	56°24.840' N	02°25.980' W	29
8	56°25.080' N	01°58.800' W	44
9	56°28.020' N	01°43.920' W	49
10	56°21.840' N	01°41.760' W	42
11	56°15.240' N	02°01.440' W	41
12	56°14.940' N	01°58.620' W	44
17	56°03.900' N	01°19.620' W	45
18	55°47.700' N	01°19.680' W	54
19	56°39.960' N	01°48.300' W	60
20	57°19.200' N	01°06.420' W	
21	57°42.780' N	01°13.080' W	
22	57°44.400' N	01°25.620' W	
23	57°46.500' N	01°28.980' W	
24	57°23.940' N	00°42.300' W	
26	57°23.460' N	01°47.340' W	
27	57°42.720' N	01°35.400' W	
28	57°41.100' N	01°35.040' W	
29	57°43.200' N	02°12.960' W	
30	57°22.140' N	00°41.580' W	
31	57°24.300' N	00°48.600' W	
32	57°22.080' N	00°50.280' W	
33	57°21.900' N	00°57.060' W	
34	57°25.020' N	00°53.340' W	
35	57°25.560' N	01°06.960' W	
36	57°24.000' N	01°02.520' W	

Table 1: Location of dredge stations. Priority stations are highlighted.

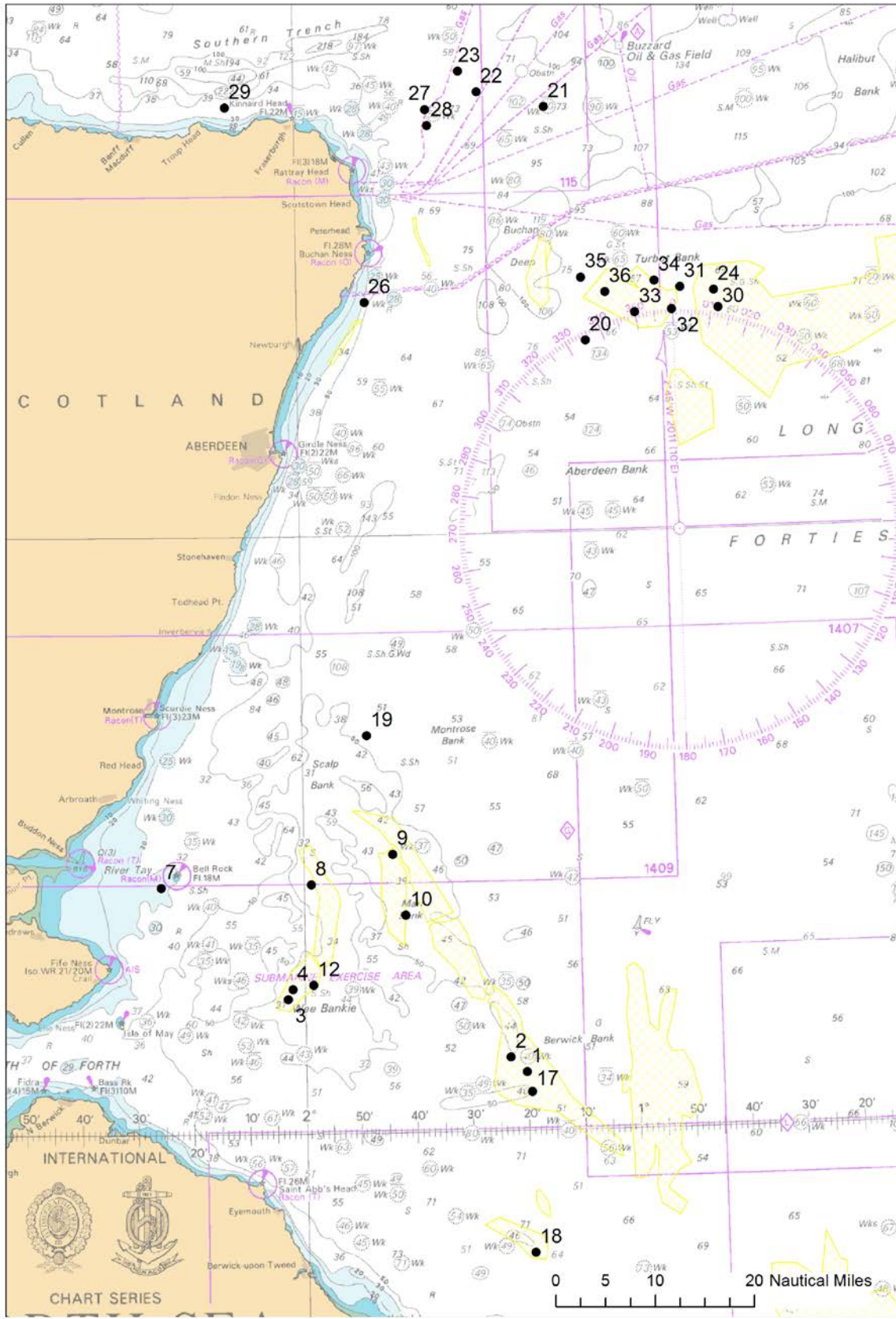


Figure 2: Chart of dredge stations to be sampled in 2314A.