

R1/6

Not to be cited without prior reference to the FRS Marine Laboratory, Aberdeen

FRV *Alba na Mara*

Cruise 1408A

REPORT

4–18 December 2008

Personnel

R Watret (SIC)
I Gibb (5-10 December)
M Gault
M Burns

Objectives

1. To determine the abundance, length and age of sandeels in the sediment in regions East of the Firth of Forth and Turbot Bank.
2. To collect and preserve frozen samples of sandeels for analysis of age and maturity.

Out-turn days per project: 15 days, MFO1TA

Narrative

Scientific staff joined *Alba na Mara* in Fraserburgh at 1500 on Friday 5 December. Sailing was delayed due to repairs needed on the ship's echosounder as well as poor weather. *Alba na Mara* sailed from Fraserburgh at 0800 hours on Saturday 6 December and made way for St Andrews Bay, where the dredging and camera gear were trialed. The vessel anchored at St Andrews bay at 2100.

Alba na Mara steamed out from St. Andrews Bay at 0800 on Sunday 7 December. The vessel arrived on station 3 at Wee Bankie and began the survey at 1100. The location of all stations is shown in Figure 1. Five repeats were done on each of stations 3 and 4.

After sampling, *Alba na Mara* steamed towards Pease Bay to anchor. Stations 1,2,17 and 18 were completed the following day. Sandeels were scarce enough at these four stations to warrant less than 5 repetitions each, which aided their rapid completion. *Alba na Mara* anchored in the vicinity of Eyemouth on the evening of 8 December.

On the morning of 9 December the vessel sailed towards the Wee Bankie area and station ten. Upon arrival the weather was judged to be poor and *Alba na Mara* moved west towards a more sheltered locality. Station 7 was completed in five tows. *Alba na Mara* anchored in Lunan Bay that night.

On the morning of 10 *Alba na Mara* steamed to Montrose to drop off scientific staff member I Gibb and to have a lab member of staff recommend action on the RoxAnn system which had not functioned properly since the first day of the survey. RoxAnn did not record the values expected of it on such a variety of bottom surfaces, thus no substrate differentiation was displayed. A re-calibration of the RoxAnn system during the survey was advised. The re-calibration was performed but the software did not behave any differently. The rest of the survey was done without use of the Roxann although the data it logged was still recorded.

The mini-logger (depth/temp measurements) and some spare camera equipment were also delivered during this port call. The mini-logger was used on all hauls from this date onwards.

On 11 December *Alba na Mara* sailed from Montrose with a view to completing Stations 8, 9 and 10. Station 10 was repeated five times. At this point the camera used for surveying the bottom terrain started losing focus and was replaced with a fixed focus camera.

Stations 8 and 9 were repeated twice each as sandeel numbers encountered were low. The boat anchored once more at St. Andrews bay that evening.

On the morning of 12 December *Alba na Mara* sailed east towards Stations 11, 12 and 13. Weather was, at this point worsening and Objective 2 had not been addressed yet due to the dearth of sandeel abundance in any one locality. Thus Stations 11, 12 and 13 were done only once and efforts were concentrated on Station 3 where we had encountered abundant sandeel numbers previously.

Three tows were performed at Station 3 and sufficient numbers of *A. marinus* were collected for biological sampling. Two of these were done for 15 minutes to ensure a good catch of *A. marinus* of all required sizes.

Alba na Mara steamed towards Aberlady Bay, west of North Berwick to anchor for the night and shelter from deteriorating weather. *Alba na Mara* remained at this location on Saturday 13 December as weather put a halt to operations.

Weather conditions improved enough on Sunday 14 December to steam north and sample at Station 19 on the way. On arrival at Station 19 bad weather conditions allowed only one tow. This concluded the pre-set half of the survey in the Wee Bankie/Marr Bank area. *Alba na Mara* continued north and secured a berth at Fraserburgh harbour.

On Monday 15 December the exploratory part of the survey commenced with our vessel steaming towards localities in Turbot Bank. Once a position of workable depth had been found the grab was deployed and was followed with the dredge. This initial dredge proved unsatisfactory so *Alba na Mara* moved east where a more suitable location was found and two more exploratory dredges were performed.

Due to poor weather we halted operations and made way towards Peterhead where *Alba na Mara* berthed for the night. High winds and big swells prevented surveying on Tuesday 16 December, *Alba na Mara* remained berthed at Peterhead.

Alba na Mara steamed from Peterhead to Buchan Ness, Station 26, in order to perform grabs and exploratory dredges. On arrival at the grounds the grab was deployed and retrieved with suitable sand for sandeels and 9 sandeels contained within. It was not possible to shoot the dredge in this locality as there were too many prawn creels close by. The vessel steamed 3

miles to avoid catching creels and the dredge was shot twice on the same ground. A grab was also attempted at the new location to investigate the type of substrate but all attempts were fruitless and weather was already very poor. A halt was called to operations and an end to the survey. *Alba na Mara* started steaming towards Fraserburgh at 1315.

Alba na Mara arrived at Fraserburgh at 1530 on the afternoon of 17 December. Scientific members and crew started preparing for off-loading on Thursday 18 December.

All survey gear was unloaded and scientific staff disembarked and returned to FRS Aberdeen on 18 December.

Results

1. Between 6 and 18 December, a total of 52 dredge hauls - 41 of which were valid - were made on previously sampled sandeel grounds around Wee Bankie, Marr Bank and Turbot Bank, using a 4' sandeel dredge. Figure 1 illustrates the position and relative quantities caught in valid hauls.

This first objective was composed of two parts. The first comprising a number of previously sampled stations (1-19) and the second an exploratory investigation of known sandeel grounds (stations 20-26).

Stations 1-10 were singled out as of particular importance as they were part of a long running time series. These were all completed. Stations 11-19, with the exception of 14, 15 and 16 were sampled at least once. Weather often prevented a more thorough sampling.

Numbers per hour were very low compared to previous years in all stations. Five otoliths were taken from each area at each length. Further analysis will be done on this age/length data. Table 1. shows a summary of all valid tows with numbers caught and catch per hour at each station.

The exploratory part of this first objective was also hampered by bad weather. Only thirteen grabs were performed in the Northern survey area (Turbot bank). Sufficient amounts of substrate to obtain core samples were found in only four of these grabs.

2. Sufficient numbers of *A. marinus* were collected at Station number 3 located at $56^{\circ}13.58$ N, $2^{\circ} 3.49$ W to cover the southern part (Wee Bankie) of the sandeel biological sampling objective. No biological samples were collected for the northern part (Turbot bank) due to poor weather.

R Watret
5 March 2009

Table 1: Summary data of valid tows.

Station	Haul	Depth	Latitude	Longitude	Region	No sandeels	No sandeels/hr
1	51	43	56° 6.995 N	1° 20.625W	Berwick Bank	18	110
1	52	44	56° 5.677 N	1°20.097W	Berwick Bank	5	30
1	54	44	56° 6.033 N	1°20.54W	Berwick Bank	32	189
2	55	43	56° 6.81 N	1°23.06W	Berwick Bank	3	16
2	56	44	56° 7.581 N	1°23.327W	Berwick Bank	5	29
2	57	45	56° 7.124 N	1°22.809W	Berwick Bank	19	110
3	58	46	56° 13.294 N	2°3.757W	Wee Bankie	53	233
3	59	47	56° 13.786 N	2°2.754W	Wee Bankie	66	350
3	60	46	56° 13.878 N	2°2.619W	Wee Bankie	125	662
3	61	45	56° 13.73 N	2°3.22W	Wee Bankie	66	377
3	62	56	56° 13.971 N	2°2.693W	Wee Bankie	82	469
3	63	53	56° 13.442 N	2°3.212W	Wee Bankie	51	306
3	64	56	56° 13.044 N	2°3.031W	Wee Bankie	166	664
3	65	49	56° 13.39 N	2°3.078W	Wee Bankie	125	500
4	66	49	56° 14.376 N	2°2.707W	Wee Bankie	64	355
4	67	49	56° 14.713 N	2°2.129W	Wee Bankie	49	271
4	68	48	56° 14.405 N	2°2.722W	Wee Bankie	41	234
4	69	52	56° 14.733 N	2°1.882W	Wee Bankie	64	339
4	70	68	56° 14.357 N	2°2.619W	Wee Bankie	16	91
7	71	72	56° 24.002 N	2°25.647W	Bell's Rock	44	260
7	75	32	56° 24.93 N	2°26.882W	Bell's Rock	66	383
7	76	34	56° 25.008 N	2°25.828W	Bell's Rock	33	195
7	77	32	56° 24.986 N	2°26.729W	Bell's Rock	59	348
7	78	32	56° 24.974 N	2°25.708W	Bell's Rock	26	253
8	79	33	56° 25.087 N	1°58.107W	W Marr Bank	2	12
8	80	49	56° 25.102 N	1°59.138W	W Marr Bank	1	6
9	83	48	56° 27.871 N	1°43.641W	Marr Bank	0	0
9	84	49	56° 27.837 N	1°44.634W	Marr Bank	0	0
10	85	48	56° 21.762 N	1°41.903W	Marr Bank	12	71
10	86	51	56° 21.9 N	1°42.19W	Marr Bank	22	134
10	87	57	56° 21.807 N	1°41.3W	Marr Bank	23	140
10	88	48	56° 21.854 N	1°41.175W	Marr Bank	22	134
11	89	50	56° 15.026 N	2°1.571W	Wee Bankie	26	156
12	90	50	56° 14.427 N	1°58.952W	Wee Bankie	0	0
13	92	52	56° 22.665 N	1°55.986W	W Marr Bank	45	270
17	93	48	56° 4.086 N	1°19.371W	Berwick Bank	1	6
17	94	44	56° 3.71 N	1°19.7W	Berwick Bank	3	17
18	95	44	55° 47.69 N	1°19.61W	Rob's hole	13	76
18	96	44	55° 47.209 N	1°19.48W	Rob's hole	4	21
19	97	68	56° 39.649 N	1°48.121W	Scalp Bank	1	5
24	98	69	57° 22.004 N	1°1.871W	Turbot Bank	0	0
25	99	73	57° 22.266 N	0°50.362W	Turbot Bank	4	24
25	100	71	57° 22.184 N	0°50.525W	Turbot Bank	6	36

Figure 1: Logarithm of catch per hour of *A. Marinus* by station

