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MRV *Alba na Mara*

Survey 0820A

PROGRAMME

27 November – 18 December 2020

Loading: Fraserburgh, 24 November 2020

Crew Change: Fraserburgh, 3-5 December 2020

Unloading: Fraserburgh, 18 December 2020

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.

Out-turn days per project: 20589 - 19 days

Equipment

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

Minilogger.

Objectives

1. To determine the abundance, length and age of sandeels in the sediment from regions east of the Firth of Forth and around Turbot bank.
2. To collect and preserve samples of *A. marinus*, 30-50 fish from each of two sites (Wee Bankie, Turbot Bank) for further genetic analyses.
3. To determine the sex and maturity stage of all sandeels selected for ageing.

Procedure

All required gear will be loaded onto the vessel on 24 November. The SIC will join the vessel in Fraserburgh on 27 November.

Two regions of historical importance for sandeel fishing will be surveyed (see Figure 1). In the period 27 November - 2 December, weather permitting, Northern stations and possibly West Turbot Bank stations will be sampled. A modified scallop dredge will be used to catch sandeels buried in the substrate at the priority stations given in Table 1 and Figure 2. Further stations in this region will be sampled if time permits. After the crew change, on December 6, *Alba Na Mara* will be heading south to Montrose harbour as this period (6th and the following days) is favourable (high tides: 6.33 am/6.42pm on the 7th) to get in and out of the harbour at times compatible with a 7am-7pm working day. Southern stations (stations 3,4, 7-10,12 and 19,

Table 1, Figure 2) will be sampled. Including steam time, a 12 hour shift would allow the sampling of a station each day. Once the southern stations have been sampled, *Alba Na Mara* will head back to Fraserburgh harbour and resume the sampling of Northern stations.

Ideally five repeat tows will be conducted at each station although this may be reduced to a minimum of two if catch quantities are low or available time is limited. Dredge duration will be approximately ten minutes at a towing speed between two and three (ideally 2.5) knots.

In addition if time and weather allows, new stations will be considered in the Moray Firth.

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 (objective 1).

All 0-group sandeels will be retained and frozen individually for later analysis. Sub-samples of 100 age-1 (size to be determined from age-length keys of sampled catches) *A. marinus* will be taken from the northerly (latitude > 57°N) and southerly (latitude < 57°N) sub-regions (objective 2).

Sandeels selected for ageing will be hand stripped and assigned a maturity stage based on a simple three-point scale (I = immature/indeterminate sex; MM= mature male; MF = mature female). Immature individuals will be individually frozen for further dissection and assigned to 1 of 2 stages (IM =Immature male or IF= Immature Female). (Objective 3).

All operations on board will be performed in compliance with the required regulations and guidance associated with the Covid-19 pandemic.

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

Normal contacts will be maintained with the laboratory.

Submitted:
T Regnier
18 November 2020

Approved:
I Gibb
25 November 2020

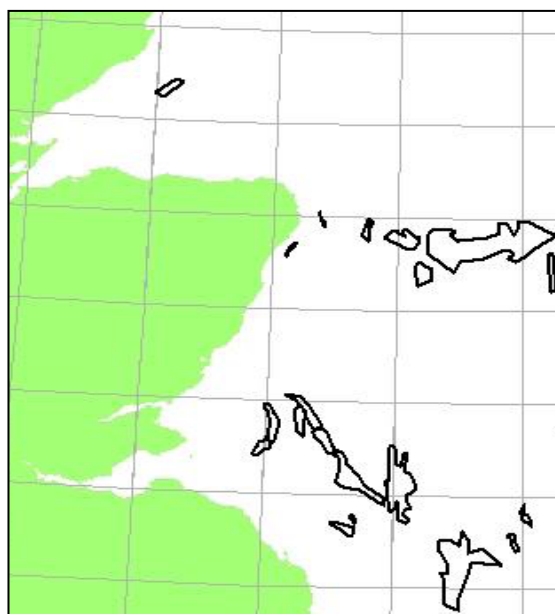


Figure 1: Location of important sandeel fishing areas.

Station	Latitude	Longitude	Bank/Area	Region
3	56°13.488'N	2°3.366'W	Wee Bankie	FOF
4	56°14.541'N	2°2.42'W	Wee Bankie	FOF
7	56°24.947'N	2°26.231'W	Bell Rock	FOF
8	56°24.965'N	1°58.659'W	NW Marr Bank	FOF
9	56°28.079'N	1°44.11'W	N Marr Bank	FOF
10	56°22.048'N	1°41.795'W	Marr Bank	FOF
12	56°14.769'N	1°58.875'W	Wee Bankie	FOF
19	56°39.895'N	1°48.336'W	Scalp Bank	FOF
20	57°18.95'N	1°6.978'W	Turbot Bank West	TUR
21	57°42.744'N	1°13.064'W	Aeroplane Bank	TUR
22	57°44.398'N	1°25.772'W	Belgar Head	TUR
23	57°46.452'N	1°28.713'W	Belgar Head	TUR
26	57°23.242'N	1°47.2'W	Cruden Bay	TUR
27	57°42.786'N	1°35.594'W	Rattray Head	TUR
28	57°41.134'N	1°35.042'W	Rattray Head	TUR
29	57°43.192'N	2°12.926'W	Aberdour Bay	TUR
30	57°22.266'N	0°41.349'W	Turbot Bank East	TUR
31	57°24.195'N	0°48.642'W	Turbot Bank Central	TUR
32	57°21.921'N	0°50.717'W	Turbot Bank Central	TUR
33	57°21.969'N	0°57.094'W	Turbot Bank West	TUR
34	57°24.876'N	0°52.792'W	Turbot Bank Central	TUR
35	57°25.549'N	1°6.985'W	Turbot Bank West	TUR
36	57°24.037'N	1°2.59'W	Turbot Bank West	TUR

Table 1: Location of dredge stations.

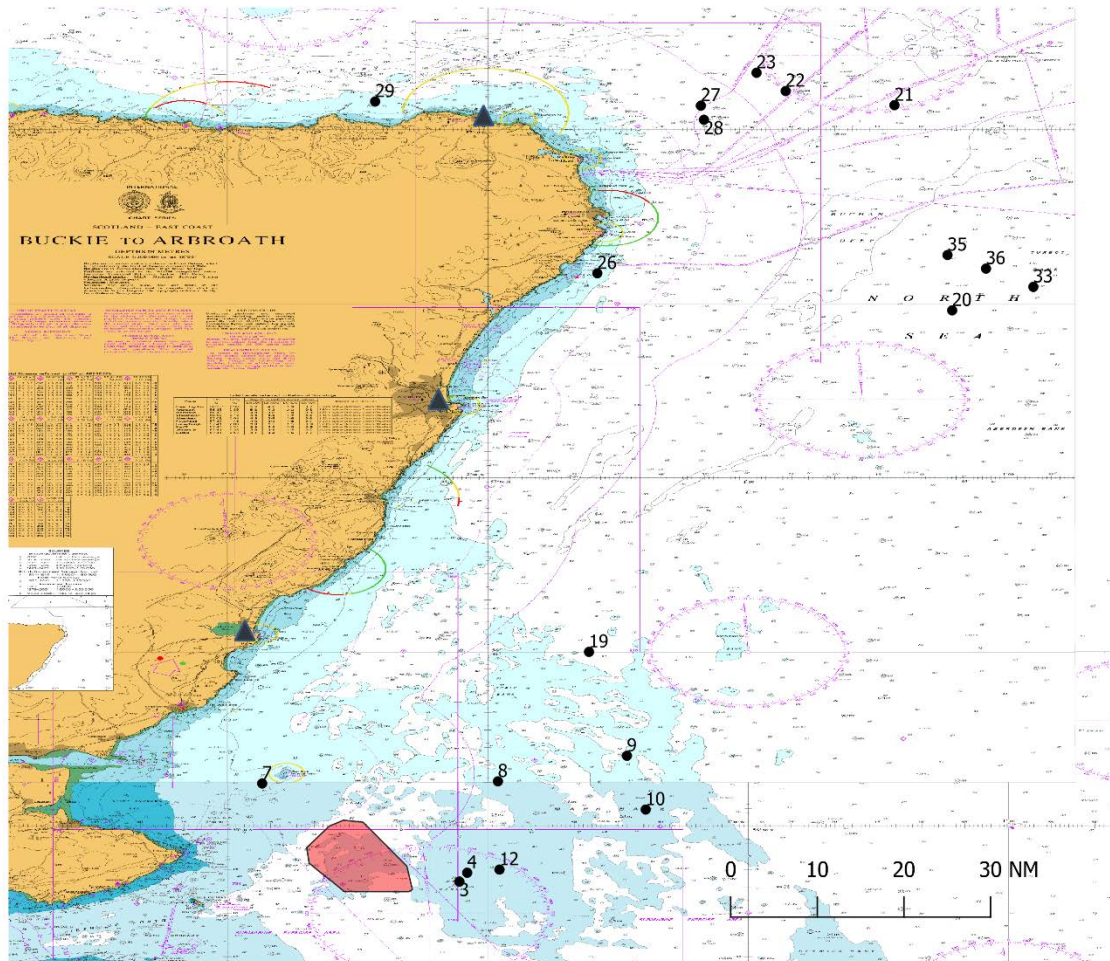


Figure 2: Chart of dredge stations to be sampled in 0820A.