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MRV *Alba na Mara*

Survey 0420A

## **PROGRAMME**

17 - 30 March 2020

### **Ports:**

**Loading:** Fraserburgh, 16 March 2020 (provisional)

**Sailing:** Fraserburgh, 17 March 2020

**Unloading:** Fraserburgh, 30 March 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 survey ending. In the case of the Survey Summary Report a nil return is required, if appropriate.

**Costs to Project: 20491 (C80320) - 14 days.**

### **Equipment:**

BT 201 Prawn net - rigged with separator grid and two 80mm codends  
Trawl doors, sweeps, bridles, backstrops and pennants  
Spare netting and twine  
Safety-Net Technologies light units x 2 (green lights) + Acoustically Controlled light units x 2  
Photosynergy PSL5000 light unit x 2 (green lights)  
10 x 20m side emitting light cables  
LI-COR LI-192SA Underwater Quantum Sensors x 2  
LI-COR LI-250A Light Meter  
LI-COR LI-1500 Light Sensor Logger & U/W Housing  
LI-COR 2222UWB Underwater cables 2 x 10m, 1 x 100m  
RBR Solo<sup>3</sup> Turbidity Sensor  
AquaTec Turbidity Sensor  
Battery pods  
Video Cameras, Flashback recorders and housing  
Pyramid camera frames  
Scanmar units – wing

### **Objectives**

- Investigate whether light influences fish behaviour in the extension of the trawl.
- Obtain video footage of the separator lighting grid.

## Procedure

Equipment will be loaded onto MRV *Alba na Mara* at Fraserburgh on 16 March 2020 (TBC), where the trawl will be rigged onto the net drum. Scientific staff will join *Alba* around 08:30 on 17 March and will then leave harbour after all drills, familiarisation and set-up have been completed. The vessel will thereafter steam, weather permitting, to fishing grounds in the Moray Firth or alternatively the Dog Hole approximately 9 nm east of Aberdeen. A number of short hauls will be carried out to ensure the separator grid in the trawl is rigged correctly through observations with video cameras mounted on the trawl. After the rigging trials are complete, fish behaviour trials will commence. The intention is for *Alba* to work daily from Fraserburgh harbour but may need to change fishing grounds if the fish species composition and size are not suitable. *Alba* will return to Fraserburgh on the evening of 22 and 23 March for exchange of scientific personnel.

*Alba* will return to Fraserburgh on the evening of 29 March to unload equipment and scientific personnel on 30 March.

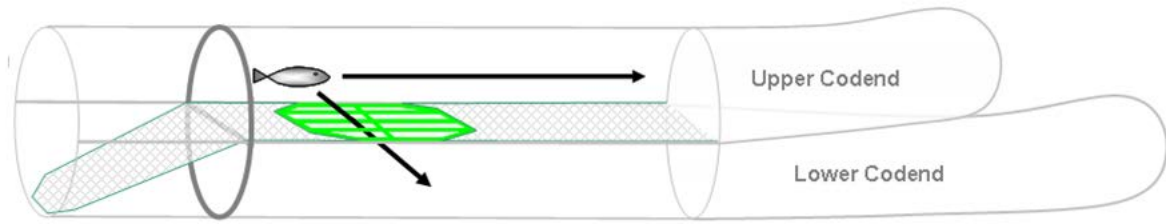
## Fish Behaviour Trials

The BT201 prawn trawl is fitted with a panel of netting that diverts all the fish into the upper half of the extension and then runs between the selvages to the separate 80mm codends. Fish can pass through a grid mounted in the central panel, to be retained in the lower codend (Figure 1). There will be a single light fibre line permanently attached to the grid with a single or dual pod configuration for illuminating the grid. The guiding panel at the front of the separator section can be re-rigged to close off either the top or lower tunnels. The light units and 12V battery pack that illuminate the fibre lines will be mounted on the port selvedge behind the grid. The light pod units will emit green light and hauls will be conducted either with either light at high (Photosynergy dual pod) medium (SNTECH dual/single pod) or low intensity (SNTECH single pod). The grid will also be fished periodically without any lights to show the standard reaction to the grid. Hence four lighting variables will be tested during the trials (High intensity green, medium intensity green, low intensity green, and no light).

The light units and grid cannot be wound onto the net drum as it could damage the equipment. During hauling, the net will be wound onto the drum up to the grid, then the power block used to bring the codends aboard. Large bins will be used on deck to receive and store the catch from the separate codends. The catch will be sorted into key species, weighed and individual total length measurements recorded.

The vessel 12-hour period of operation will be provisionally 07:00 to 19:00 hours for the behaviour trials, so that all hauls will be conducted in daylight. Around four fishing hauls will be carried out each day, with the last haul being heaved up at 17:00-17:30 hours. Hauls will be between 60 and 90 minutes duration initially, with the potential to be adjusted depending on the catch volume. The net will be towed at three knots with a set of Scanmar distance units used to monitor wing spread during each haul.

A provisional breakdown of the hauls during the survey is provided in table 1.



**Figure 1:** The netting panel separator and grid arrangement with the light fibre

| Date          | Test Case 1                      | Test Case 2 | Test Case 3    | Test Case 4 |
|---------------|----------------------------------|-------------|----------------|-------------|
| 17 March 2020 | Gear set up and test deployments |             |                |             |
| 18 March 2020 | HIGH                             | MEDIUM      | LOW            | NO LIGHT    |
| 19 March 2020 | NO LIGHT                         | HIGH        | MEDIUM         | LOW         |
| 20 March 2020 | MEDIUM                           | LOW         | NO LIGHT       | HIGH        |
| 21 March 2020 | LOW                              | NO LIGHT    | HIGH           | MEDIUM      |
| 22 March 2020 | HIGH                             | MEDIUM      | LOW            | NO LIGHT    |
| 23 March 2020 | NO LIGHT                         | HIGH        | MEDIUM         | LOW         |
| 24 March 2020 | MEDIUM                           | LOW         | NO LIGHT       | HIGH        |
| 25 March 2020 | LOW                              | NO LIGHT    | HIGH           | MEDIUM      |
| 26 March 2020 | HIGH                             | MEDIUM      | LOW            | NO LIGHT    |
| 27 March 2020 | NO LIGHT                         | HIGH        | MEDIUM         | LOW         |
| 28 March 2020 | MEDIUM                           | LOW         | NO LIGHT       | HIGH        |
| 29 March 2020 | 2 hauls of choice                |             | Strip down net |             |
| 30 March 2020 | UNLOADING                        |             |                |             |

**Table 1:** Provisional schedule of hauls and test cases examined.

Normal contacts will be maintained with the laboratory.

Submitted:  
A Edridge  
04 March 2020

Approved:  
I Gibb  
12 March 2020