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MV *Sunbeam*

Survey 0816H

## REPORT

14-23 November 2016

### Ports

**Loading:** Fraserburgh, 10 November 2016

**Departure:** Fraserburgh, 14 November 2016

**Arrival and unloading:** Fraserburgh, 23 November 2016

**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 (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

### Personnel

E. Armstrong	(SIC - MSS)
S. O'Connell	MSS
P. Fernandes	(Aberdeen University)
A. J. Fenwick	(Aberdeen University)
M. Dziedzicka	(Aberdeen University)
J. Horne	(Aberdeen University)

**Days by project:** 10 days – SU02NP (20158)

### Sampling Gear

Edgetech broadband towed system  
EK60 Towed body  
Portable EK60 system  
2 X Tow cables

### Overall Objectives

- To investigate the use of a broadband system as a means to determine mackerel size.
- To estimate mackerel density and abundance.

## Specific Objectives

1. Calibration of Broadband system.
2. Obtain acoustic data from mackerel using the broadband system.
3. Obtain echosounder recordings of mackerel schools and map their distribution.
4. Obtain biological samples of mackerel from schools by trawling.
5. Calibrate Sv and TS gains on the Simrad EK60.
6. Deploy a Go-Pro camera system with additional sensors into the mackerel schools to observe behaviour.

## Procedure

All gear was loaded in Fraserburgh on 10 November. Personnel joined the vessel on the evening of 13 November, departed on the morning of 14 November and made passage for Fair Isle, where reports had indicated that mackerel were to be found.

At around mid-day on the 14<sup>th</sup>, prior to the commencement of the survey, one of the Aberdeen University staff lost his grip on a handrail and fell, hurting his back and head. The *Sunbeam* then made passage to Lerwick to get him medical attention and to have him returned to Aberdeen. After confirming that he would be looked after, the *Sunbeam* departed Lerwick. As the weather was forecast to bring quite strong winds from the west, we proceeded to conduct a survey on the east coast of Shetland in search of fish schools, with acoustic data being collected at three frequencies (38, 120 and 200 kHz).

As no fish were detected during this part of the survey and with the weather improving *Sunbeam* made her way to the south west of Foula where other boats were fishing on significant mackerel schools.

A number of grids of high density were conducted to assess the size and distribution of the schools. These were followed by a number of passes with the broadband system to gather data to be used in potential fish sizing and identification. A total of 7 trawls were conducted to provide biological information on the schools. For 2 of the trawls, rod and lines were also used to compare the captured distributions with the corresponding trawls.

A rod mounted Go-Pro camera/sensor system was deployed into a number of mackerel schools while the vessel drifted over them.

On 20<sup>th</sup> November passage was made to Saint Magnus Bay to perform calibrations on the EK60 and the broadband echo sounder systems. On completion of this work, *Sunbeam* proceeded south towards Fraserburgh, following a search pattern to attempt to locate fish schools of a different size distribution or other species.

*Sunbeam* returned to Fraserburgh on Wednesday 23 November when all scientific gear was unloaded.

Submitted:  
*E. Armstrong*  
22 June 2017.

Approved:  
*I. Gibb*  
23 June 2017.

**Figure 1:** Acoustic Survey track of Sunbeam survey 0816H.

