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FRV *Clupea*

Cruise 1107C

REPORT

11–24 August 2007

Personnel

R Watret (SIC)
O Goudie
M Harding
K Couston (Visitor, University of St Andrews)

Objectives

- 1 To determine the distribution and relative abundance of sandeel on inshore fishing grounds around the Shetland Isles and Fair Isle. With particular emphasis on both *Ammodytes marinus* and *Gymnammodytes semisquamatus*.
- 2 To obtain a length frequency and additional biological parameters for all Angler fish (*L.piscatorius*, *L. budegassa*), caught on Shetland inshore waters during the survey.

Out-turn days per project: 14 days, MFO1TA

Narrative

Scientific staff joined *Clupea* in Fraserburgh at 1030 on Friday 10 August. *Clupea* sailed from Fraserburgh at 1200 hours and made way for Fair Isle, where the vessel anchored at 0130 on the morning of 11 August. Fishing began and the survey commenced at 0705 at the West Fair Isle grounds on the morning of 11 August. The survey continued up and around the Shetland Isles and Foula. Due to adverse weather, some original stations in the West had to be done after the repeated stations in the East were completed in order to maximize the working time of the boat and crew. No gear related difficulties arose during the cruise.

Clupea completed the last survey station on the evening of 21 August at Fair Isle, anchoring overnight before making for Fraserburgh the following morning, finally berthing at Fraserburgh on the evening of 22 August.

All survey gear was unloaded and scientific staff disembarked and returned to FRS on the morning of 23 August.

Results

- 1 Between 11 and 21 August, a total of 57 valid hauls were made on commercially important (historically) sandeel grounds around the Shetland Isles and Fair Isle, using the 'Sunbeam' sandeel trawl (BT 169). All designated grounds were surveyed on three occasions, during different time periods (0700-1100, 1100-1500, 1500-1900) and where practical, on different dates. Repeat tows were carried out at Mousa, Braeside, South Sands (historically most productive), Boddam, Voe, and Grutnes grounds to compare with the results achieved there during the initial tows undertaken at the beginning of the survey. Repeating these stations was a useful exercise as the tides had been strong at these grounds when first surveyed and may have had an effect on sandeel behaviour. The size and species composition was different in some of the repeated tows, perhaps due to the effect of strong winds occurring between the days when original and repeat tows were performed.

Catch rates of up to 7,850 Kg per 30 minute haul for *A. marinus* and up to 1,701 Kg per 30 minute haul for *G. semisquamatus* were achieved at the Shetland grounds. A total of 1751 *A. marinus* were scored for age / length data, with 5639 individuals being scored for length only, 3804 *G. semisquamatus*, 422 *H. lanceolatus* and 8 *H. immaculatus* were also scored for length data. In the Mousa and South Sands grounds there was an increase in *A. marinus* numbers from previous years and a decrease in the Braeside grounds. Overall there was an increase of 8% in the total weight of *A. marinus* caught per 30mins compared to 2006. For *G. semisquamatus* there was an overall decrease in catch by weight per 30 mins of 40% compared to 2006. Further analysis of the data gathered for both *A. marinus* and *G. semisquamatus* will be carried out at FRS.

Figure 1 gives the catch rate by time of day in kilogrammes, raised to a standard 30 minute haul for *A. marinus*. The catch rate for *G. semisquamatus*, in kilogrammes, raised to a standard 30 minute haul can be seen on Figure 2. Grounds surveyed are shown on Figure 3. Age related data will be displayed in a future version of this report as analysis on the *A. marinus* otoliths is still unfinished.

- 2 Angler fish (*L. piscatorius*) were found to be present in 30 of the 57 valid hauls. This yielded a total of 96 individuals 78 (76.096 Kg) of which were scored for length, total weight, gutted weight, sex and maturity. Black bellied angler (*L. Budegassa*) were present in 2 of the 57 hauls for a total of 2 individuals (1.9Kg) and were sampled in the same manner as *L. piscatorius* .
- 3 Cod (*G. morhua*) were found to be present in 19 of the 57 valid hauls. This yielded a total of 317 individuals, 59 of which were scored for length.

Figure 1

A. marinus 'Clupea' August 2007

Kg caught per 30 minute haul during different time periods

<u>Fishing Ground</u>	<u>0700-1100</u>	<u>1100-1500</u>	<u>1500-1900</u>	<u>Total</u>
East Fair Isle	0	0	0	0
West Fair Isle	<1	0	0	0
Grutnes	8	3	0	11
Voe	10	11	3	24
Boddam	152	7	20	179
Mousa	7631	5208	7850	20689
Braeside	1841	796	1260	3897
South Sands	1008	728	370	2106
Balta	0	0	0	0
Brekkin	<1	0	<1	0
Fethaland	0	0	0	0
Sands Voe	3	<1	0	3
North Foula	0	0	<1	0
South Foula	2	11	10	23
Ham O Foula	0	5	<1	5
Trink	<1	51	3	54
Mousa (repeat)	2275	*	2367	4642
Braeside (repeat)	2343	*	1171	3514
S.Sands (repeat)	569	*	4737	5306
Boddam (repeat)	*	159	*	159
Voe (repeat)	*	19	*	19
Grutnes (repeat)	*	4	*	4
	15842	7002	17791	40635

* = No haul undertaken

Figure 2

***G. semisquamatus* 'Clupea' August 2007**

Kg caught per 30 minute haul during different time periods

<u>Fishing Ground</u>	<u>0700-1100</u>	<u>1100-1500</u>	<u>1500-1900</u>	<u>Total</u>
East Fair Isle	0	0	0	0
West Fair Isle	0	0	0	0
Grutnes	<1	<1	0	0
Voe	<1	3	<1	3
Boddam	7	36	5	48
Mousa	29	1091	25	1145
Braeside	473	146	346	965
South Sands	0	2	2	4
Balta	<1	0	0	0
Brekkin	1701	1203	19	2923
Fethaland	0	0	<1	0
Sands Voe	133	<1	0	133
North Foula	<1	7	1	8
South Foula	7	<1	1	8
Ham O Foula	0	<1	<1	0
Trink	<1	3	<1	3
Mousa (repeat)	0	*	767	767
Braeside (repeat)	282	*	574	856
S.Sands (repeat)	<1	*	0	0
Boddam (repeat)	*	31	*	31
Voe (repeat)	*	6	*	6
Grutnes (repeat)	*	1	*	1
	2632	2529	1740	6863

* = No haul undertaken

Figure 3



R Watret
27 December 2007
Seen in draft: A Nicol, OIC *Clupea*