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Cruise Report

Charter Vessel "Vigilant"
Herring Microtagging and Tag Recovery Cruise

10 June - 3 August 1985

Personnel

J Morrison	SSO (In charge)	10-29 June 8-20 July
P Hopkins	SO (In charge)	1-5 July 29 July - 3 August
J Gauld	HSO	29 July - 3 August
D Beveridge	ASO	10 June - 6 July
D Baird	ASO	1 July - 20 July
P Clark	ASO	17 June - 29 June
D Stuart	PTO IV	10 June - 15 June
I Leaver	ASO	14 July - 3 August
A N Other	(Dutch visitors)	10 June - 20 July

Objectives

- 1) To tag herring over a wide area around Shetland using the Northwest Marine Technology microtagging system in liaison with a Norwegian charter vessel.
- 2) To monitor catches of herring for tags released at Shetland in 1983 and 1984.
- 3) To transport herring to Loch Ewe in the ship's RSW tanks for sonar and tag loss experiments and to Aberdeen at the end of the charter for study of herring energetics.
- 4) To investigate the use of anaesthetics in relation to fish transport aboard "Vigilant" and to monitor oxygen consumption in holding tanks during transit.

Narrative

"Vigilant" left Aberdeen on the morning of 10 June and made for Shetland, calling at Fraserburgh en route to pick up its purse seine nets. On arrival at Bressay in Shetland the NMT tag detection system was installed at the fish-meal plant owned by HBP Ltd and "Vigilant" left Bressay to search for herring. The first catch of the cruise was made on 11 June to the west of Flugga and thereafter until 20 June (when microtagging equipment was transferred from a vessel chartered by the Norwegian government to tag herring), all available time was spent in catching herring for screening for microtags.

Initially herring shoals were very dispersed and difficult to catch and "Vigilant" worked both to the east and to the west of Shetland with variable success until 21 June, when she steamed to Peterhead for the weekend. When "Vigilant" returned to Shetland both tagging and monitoring work were carried out in the areas east and north of Shetland until 28 June. The following week

operations were concentrated in the area to the west of Shetland around Foula, where shoals of mixed herring had started to aggregate, and the weekend of 6/7 July was again spent in Peterhead. When "Vigilant" returned to Shetland on 8 July operations were continued in the area around Foula until 13 July.

After a weekend in Lerwick "Vigilant" steamed south-east on 15 July and made a catch of herring south of Bard Head. Approximately 1500 of these fish were brailled into each of 4 keep nets inserted into the ship's RSW tanks and "Vigilant" then steamed to Loch Ewe in Wester Ross, where fish were transferred into 2 keep cages moored in the loch, for use in sonar and tag loss experiments. "Vigilant" returned to Shetland by way of Papa Bank where a catch of herring was made en route. Another catch of herring was made south-east of Balta on 19 July and after discharging "Vigilant" again made for Peterhead for the weekend.

On resumption of work on 22 July 2 purse seine shots were made 20 miles south of Fair Isle in an area of herring concentrations. These fish were identified as being largely recruit fish. "Vigilant" then made for the area to the west of Shetland but was unable to locate suitable herring shoals in that area. The search was continued to the east of Shetland, and dense herring shoals were encountered in the Balta/Fetlar area where good catches were taken, up to the end of monitoring operations on 30 July.

On 31 July, after the catch had been monitored, the tag detection machinery was taken aboard "Vigilant" at Bressay. "Vigilant" then steamed southwards and a small catch of herring was taken 5 miles south-east of Mousa. Fish from this catch were brailled into the net cages in the RSW tanks and "Vigilant" sailed from Loch Ewe, arriving there on the morning of 2 August. Approximately half the herring were unloaded into keep nets as on the previous occasion, and the remainder were retained aboard for transport back to Aberdeen. "Vigilant" left Loch Ewe at 0700 on 2 August and arrived at Aberdeen at 0800 the following day at the end of the charter.

Results

1) Tagging

Tagging equipment was carried on board "Vigilant" from 20 June onwards, but owing to the requirement to maximise the landings of herring for monitoring, tagging was restricted to a relatively small number of occasions between 20 June and 23 July. A total of nearly 13000 herring were tagged, details of which are shown in the table below.

Vigilant		Tagging	June - July	1985
Haul number	date	position tagged	number tagged	cumulative number
13	20.6	60 44N 00 38W	2070	2070
14	25.6	60 42N 00 36W	2596	4666
15	25.6	60 42N 00 41W	1365	6031
16	26.6	60 24N 00 12W	3074	9105
17	27.6	60 55N 00 02W	328	9433
18	28.6	60 34N 01 57W	535	9968
19	28.6	60 21N 02 00W	933	10901
28	08.7	60 22N 02 03W	262	11163
37	22.7	59 15N 01 25W	573	11736
38	23.7	60 42N 00 26W	1232	12968

2) Monitoring

1259 tonnes of herring were monitored for microtags during the course of this charter. From this a total of 48 microtags were recovered, 28 of which were from the 1983 tagging, 4 from the 1984 tagging and the rest from the Scottish or Norwegian taggings in 1985. In addition one Norwegian internal tag was recovered. A table showing details of monitoring is attached.

3) Live herring transportation

Sufficient live herring were transported to Loch Ewe (2000-3000) to enable all the programmed sonar work on in situ target strength of herring to be carried out later at the Loch Duich field site. In addition approximately 500 herring were transported overland to Aberdeen from Loch Ewe for behavioural, energetics and tag loss studies. A limited quantity of live herring were also returned to Aberdeen aboard "Vigilant" at the end of the charter.

4) Anaesthetics and oxygen monitoring work

Most of this work was curtailed because of lack of time but preliminary work was done on investigation of the use of 2-phenoxyethelene as an anaesthetic for fish transportation.

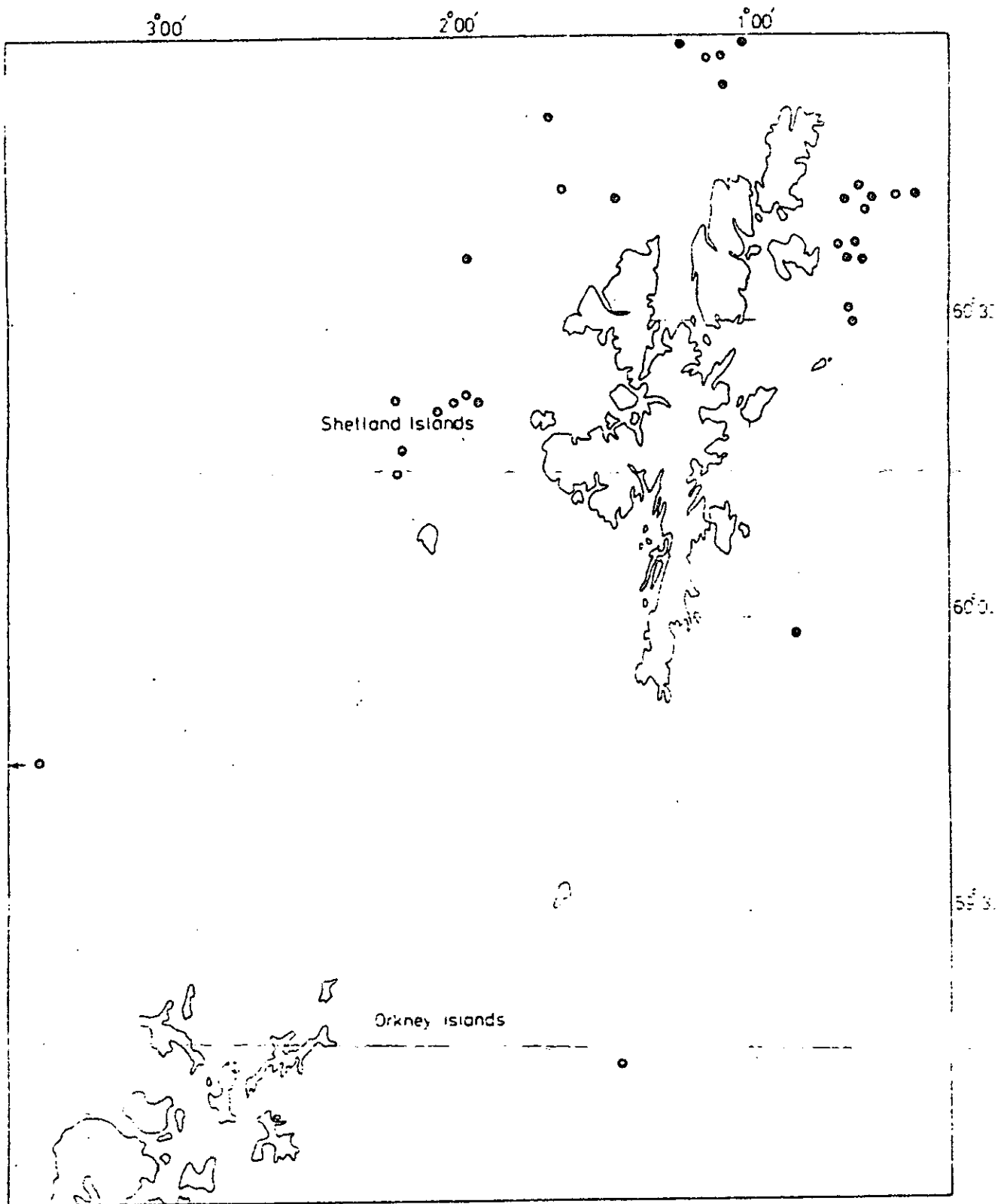
A portable oxygen meter was used to check oxygen saturation levels in the RSW tanks and proved to be invaluable in ensuring suitable stocking densities and regulating water flow to these.

J Morrison

4 February 1986

Tag monitoring by FV "Vigilant" in June-July 1985

Haul number	date	position	tonnage monitored	tags recovered		
				1983	1984	1985
1	10.6	60 54N 01 05W	15			
2	11.6	60 58N 01 05W	10			
5	13.6	60 32N 00 40W	45			
8	14.6	60 44N 00 39W	25			
11	19.6	61 00N 01 01W	74			
13	20.6	60 44N 01 38W	18		1	
14	25.6	60 42N 00 36W	40			
15	25.6	60 42N 00 41W	70			1
18	28.6	60 36N 01 57W	30			1
19	28.6	60 21N 02 00W	15			
20	02.7	60 14N 02 11W	10			
21	02.7	60 24N 02 11W	50	3		
22	02.7	60 23N 01 55W	15			
23	03.7	60 44N 01 26W	16			
24	04.7	60 51N 01 40W	12			
26	04.7	60 58N 01 13W	24			
27	04.7	60 56N 01 09W	40			
28	08.7	60 22N 02 03W	80	8	1	2
30	10.7	60 17N 02 10W	108	5	1	1
32	12.7	60 24N 01 56W	12			
33	15.7	59 58N 00 51W	10			1
34	17.7	59 45N 03 39W	40			
35	18.7	60 41N 00 38W	85	1		3
37	22.7	59 14N 01 25W	10			
38	23.7	60 42N 00 26W	23			1
39	25.7	60 42N 00 31W	45	1		2
40	25.7	60 35N 00 40W	46			1
41	26.7	60 36N 00 38W	14	1		
42	26.7	60 30N 00 40W	107	1		1
43	29.7	60 37N 00 40W	120	3		2
44	30.7	60 36N 00 40W	50	5	1	
Totals			1259	28	4	16



Position of catches taken by FV "Vigilant" in June/July 1985 for tag-monitoring.