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FRV "Goldseeker"
Cruise 7/88

7GR88

REPORT

30 May - 18 June 1988

Personnel

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Objectives

1. To investigate the settlement of scallops and queens in the Clyde Sea area, the Sound of Jura and the Sound of Mull.
2. To study the size and age composition of scallop and queen stocks in the same areas.
3. To examine the gonads of both species to determine their maturity stage.
4. To record surface and subsurface water temperature and salinity.

Narrative

Staff joined "Goldseeker" at Troon on 30 May and work commenced in the Clyde Sea area next day. "Goldseeker" spent 2 days in east Clyde and 4 days in west Clyde setting out strings of pectinid spat collectors and dredging for scallops and queens, before spending the first half landing at Tarbert on 6 June. The vessel then made passage through the Crinan Canal to work west of the Mull of Kintyre. The next 5 days were spent settling collectors and dredging around Islay, Jura, Gigha and north to the Firth of Lorne. The second half landing was spent at Oban on 13 June. Further dredge hauls were made and spat collectors set in the Sound of Mull on 14 June. The area covered was then extended northwards from Ardnamurchan Point and the vessel fished towards Kyle of Lochalsh where the cruise ended on 18 June.

Results

1. A total of 106 collector strings were set at 27 stations; 10 in the Clyde, 13 west of the Peninsula of Kintyre and 4 in the Sound of Mull. The collectors will be retrieved in September 1988 (Cruise 11/88)
2. Dredging was undertaken using an array of three 85 cm dredges, two 11 toothed sampling dredges and one standard 9 toothed in the central position. A total of 68 hauls (4 of one hour, 45 of 30 minutes and 19 of 15-20 minutes duration) were made. Results showed that from all areas fished there were signs of good recruitment.

The percentage of 1-4 year old animals varied from 35% in each Clyde and north western areas to 53.5% along the Jurá shore (Table 2). There were signs of good prospective catches in all areas where a high percentage of animals caught were found to be more than 100 mm in length (Tables 2 and 3).

Moderate numbers of queens were caught in the west side of the Clyde. Best catches were in the Kilbrannan Sound and S Sannox in Arran, where 79 and 44 queens were caught respectively in half hour hauls. The majority of the queens caught at north Arran were 3 years old and the outermost growth ring on their shells was probably laid down in May. The mean distance of the outermost growth ring from the edge of the shell was 1 mm (Table 5). Few queens were caught elsewhere.

3. Examination of scallop gonads suggested that spawning had recently commenced in the Clyde Sea area. Most gonads were full (VI) or partially spend (VIIP) in east Clyde and half full (V) or partially spent in west Clyde. Outside the Clyde most of the gonads were at stages V or VI and had yet to spawn (Table 4). It was observed that the further north the samples were taken, gonads were less developed (Table 4).
4. Although recently repaired the temperature/salinity meter was again defective; however, temperature readings were obtained at most stations (Table 7).

D I Fraser
28 June 1988

Seen in draft: A Mair

Table 1

Numbers of scallops caught at each age group.

Growth rings	1	2	3	4	5	6	7	8	9	10	Total
East Clyde	-	4	24	37	31	26	18	15	6	26	187
Arran shore	1	6	31	28	15	11	7	4	3	6	112
Loch Fyne	-	6	15	20	27	15	14	16	12	32	157
Kintyre shore (east)	-	8	5	14	12	9	12	11	2	22	95
West Clyde	1	20	51	62	54	35	33	31	17	60	364
Islay shore	-	6	56	29	32	24	23	22	8	25	225
Kintyre shore (west)	-	16	34	27	23	11	16	15	10	33	185
Jura shore	-	9	66	116	60	39	23	13	7	24	357
Sound of Mull	-	12	41	20	37	14	8	10	3	30	175
North west	-	17	91	49	68	42	49	47	33	58	454

Table 2

Age composition (percentage) of scallop catches.

Growth rings	1	2	3	4	5	6	7	8	9	10
East Clyde	-	2	13	20	17	14	10	8	3	14
Arran shore	1	5	28	25	13	10	6	4	3	5
Loch Fyne	-	4	10	13	17	10	9	10	8	20
Kintyre shore (east)	-	8	5	15	13	9	13	12	2	23
West Clyde	-	5	14	17	15	10	9	9	5	16
Islay shore	-	3	25	13	14	11	10	10	4	11
Kintyre shore (west)	-	9	18	15	12	6	9	8	5	18
Jura shore	-	2.5	18.5	32.5	17	11	6	4	2	7
Sound of Mull	-	7	23	11	21	8	5	6	2	17
North west	-	4	20	11	15	9	11	10	7	13

Table 3

Mean length of scallops caught at each age group (mm).

Growth rings	1	2	3	4	5	6	7	8	9	10	Overall mean
East Clyde	-	81	98	104	115	122	126	128	131	130	115
Arran shore	35	80	83	89	107	114	116	114	115	121	-
Loch Fyne	-	75	89	97	107	113	116	119	118	123	109
Kintyre shore (east)	-	77	92	97.5	107.5	112	110	113	112.5	122	107
West Clyde	35	77	86	93	107	113	114	116	117	122	105
Islay shore	-	77.5	90	103	112	117	124	124.5	126	128	110
Kintyre shore (west)	-	80	94	107	113	110.5	122	120	113	124	109
Jura shore	-	79	83	95	103	111	118	119	121	137.5	101
Sound of Mull	-	74	93	103	106	113	123	119.5	117	123	106
North west	-	76	87.5	100	107	111	116	118	117	120	106

Table 4

Gonad stages of mature scallops.

Gonad stages	East Clyde		West Clyde		Islay		Gigha		Jura		Sound of Mull		North west	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
IV Filling	13	10	16	14	-	-	1	2	1	1	12	13	16	6
V Half full	24	19	48	41	5	5	10	17	21	12	51	54	121	49
VI Full	44	35	9	8	100	93	46	79	149	87	32	34	104	42
VII Partially spent and spent	45	36	43	37	2	2	1	2	1	1	-	-	7	3
Total	126		116		107		58		172		95		249	

Table 5

Age composition of queens.

Rings of growth	Cock of Arran		S Sannox, Arran			Loch Fyne		
	No	%	No	%	Mean growth (mm) laid down in 1988	No	%	Mean growth (mm) laid down in 1988
1	-		14	23	2	3	5	4
2	3	11	5	8	0	8	12	5
3	16	59	39	63	1	23	35	2
4	8	30	4	6.5	1	31	48	1
Total	27		62			65		

Table 6

Length composition of queens.

Length (mm)	Cock of Arran	Sannox	Loch Fyne	Carradale	Sound of Mull
	No	No	No	No	No
15					1
20					1
25		1			1
30		13			1
35		-	2		1
40		1	3	1	1
45		-	3	2	2
50		1	4	-	1
55	1	5	1	4	2
60	7	22	11	15	5
65	7	41	28	33	5
70	10	21	62	59	4
75	12	6	48	41	
80	5		27	13	
85			3	8	
Total	42	111	192	176	23
Mean length (mm)	70	60	70	70	55

Table 7

31/5/88 EC - 18/6/88	Station	Surface T°C	Mid T° C	Bottom T°C
Ardwell Bay	42	11.0	12.0	13.5
S Bennane Head	43	11.0	12.0	13.5
N Carradale	28b	10.5	10.5	11.5
Catacol	32	10.5	10.5	10.5
L Striven	41	11.5	11.5	13.0
Cock of Arran	31	11.5	11.5	13.0
Ardlamont		11.0	11.0	12.0
Kilfinnan	20	10.5	11.0	13.0
Auchalick Bay	21	11.0	11.0	12.5
Lussagiven	3	10.0	10.5	11.0
Tarbert, Jura		10.0	11.0	12.0
Islay, L Indaal	40	11.0	12.0	14.0
Islay, L Indaal		11.0	10.0	11.0
Islay, Texa	11 & 12	12.5	13.5	13.0
Islay, Ardimersay	10	11.0	11.0	12.0
Islay, Claigann Bay	9	11.0	11.0	13.0
Gigha		10.5	11.0	13.0
S of Gigha	14	11.5	12.5	15.0
L Stornoway	18	12.0	12.0	12.5
Fishnish, Mull		11.0	11.0	12.0
Aros Castle, Mull		11.0	11.0	11.5
Arla Rock, Mull		10.5	11.0	12.5
S Side WK Buoy, Mull		11.0	11.0	12.0