

The 1983 Roe Herring Charter Vessel Monitoring and Sampling Program

R.W. Armstrong

Field Services Branch
Department of Fisheries and Oceans
Nanaimo, British Columbia V9T 1K3

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SAMPLING PROGRAM

BY

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Field Services Branch
Department of Fisheries and Oceans
3225 Stephenson Point Road
Nanaimo, B.C. V9T 1K3

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CONTENTS

	Page
List of Figures.....	iii
List of Tables.....	iii
List of Appendices.....	v
Abstract/Résumé.....	vi
Introduction.....	1
Historical review of the roe herring charter program	2
Methods and materials.....	3
Results.....	14
Acknowledgements.....	14
Appendix Tables.....	80
Appendix Figures.....	86

LIST OF FIGURES

Figure

1. Herring divisions 1-6 and 1983 management areas A-C.....	6
2. Statistical Areas in British Columbia.....	8
3. Herring sections in northern British Columbia.....	9
4. Herring sections in southern British Columbia.....	10

LIST OF TABLES

Table

1. Roe herring charter payment summary, B.C., 1982 and 1983.....	4
2. Roe herring charter vessels by location and time period, B.C., 1983.....	5
3. Herring divisions and sections in British Columbia.....	11

Table (cont'd)	Page
4. Number of seine sets and roe tests by charter vessel, B.C., 1983.....	15
5. Seine set data and roe yield information from charter vessel "Snow Queen", Stat. Area 2E, 1983.....	16
6. Length frequency distribution of herring from charter vessel "Snow Queen", Stat. Area 2E, 1983.....	19
7. Seine set data and roe yield information from charter vessel "Ocean Marauder", Stat. Area 2W, 1983.....	21
8. Length frequency distribution of herring from charter vessel "Ocean Marauder", Stat. Area 2W, 1983.....	24
9. Seine set data and roe yield information from charter vessel "Christav", Stat. Areas 3-5, 1983.....	27
10. Length frequency distribution of herring from charter vessel "Christav", Stat. Areas 3-5, 1983.....	30
11. Seine set data and roe yield information from charter vessel "Fisher Lassie II", Stat. Areas 6 and 7, 1983.....	33
12. Length frequency distribution of herring from charter vessel "Fisher Lassie II", Stat. Areas 6 and 7, 1983.....	37
13. Seine set data and roe yield information from charter vessel "Intrepid I", Stat. Areas 6 - 8, 1983.....	40
14. Length frequency distribution of herring from charter vessel "Intrepid I", Stat. Areas 6 - 8, 1983.....	43
15. Seine set data and roe yield information from charter vessel "Westview No. 1", Stat. Areas 13 - 17, 1983.....	45
16. Length frequency distribution of herring from charter vessel "Westview No. 1", Stat. Areas 13 - 17, 1983.....	49
17. Seine set data and roe yield information from charter vessel "Pacific Quest", Stat. Areas 12 - 17, 1983.....	53
18. Length frequency distribution of herring from charter vessel "Pacific Quest", Stat. Areas 12 - 17, 1983.....	56
19. Seine set data and roe yield information from charter vessel "Pacific Ocean", Stat. Area 13 - 15, 1983.....	59
20. Length frequency distribution of herring from charter vessel "Pacific Ocean", Stat. Area 13 - 15, 1983.....	62

Table (cont'd)	Page
21. Seine set data and roe yield information from charter vessel "Argent Fisher", Stat. Areas 17 and 18, 1983.....	64
22. Length frequency distribution of herring from charter vessel "Argent Fisher", Stat. Areas 17 and 18, 1983.....	67
23. Seine set data and roe yield information from charter vessel "Pachena I", Stat. Area 23, 1983.....	70
24. Length frequency distribution of herring from charter vessel "Pachena I", Stat. Area 23, 1983.....	72
25. Seine set data and roe yield information from charter vessel "Ocean Horizon", Stat. Area 24, 1983.....	73
26. Length frequency distribution of herring from charter vessel "Ocean Horizon", Stat. Area 24, 1983.....	75
27. Seine set data and roe yield information from charter vessel "Bernice C", Stat. Areas 23 and 25, 1983.....	77
28. Length frequency distribution of herring from charter vessel "Bernice C", Stat. Areas 23 and 25, 1983.....	79

LIST OF APPENDICES

Appendix Table

1. Onboard sampling instructions.....	80
2. The 1983 roe herring cutoff lengths used to separate age 3 herring from older fish.....	82
3. Instructions for estimating percent roe yield by volume.....	83
4. Instructions for estimating percent roe yield by weight.....	84
5. Formula used to adjust roe yields assuming a 50:50 male/female sex ratio.....	85

Appendix Figure

1a. Wheelhouse and Sample Log - roe yield by volume.....	86
1b. Wheelhouse and Sample Log - roe yield by weight.....	87
2. Standard length measurement used for measuring herring	88

ABSTRACT

Armstrong, R.W., 1985. The 1983 roe herring charter vessel monitoring and sampling program. Can. Ind. Rep. Fish. Aquat. Sci. 164: 88 p.

Twelve charter vessels made 343 sample sets on the British Columbia coast in order for fishery managers to assess the stock abundance, recruitment and state of sexual maturity of the Pacific herring (Clupea harengus pallasii). These data were used to determine the location, timing and estimated duration of the 1983 commercial roe herring fishery openings.

In addition, laboratory samples were retained after each sample set for Fisheries Research Branch scientists as part of the data base for the computer modelling system used to estimate the escapement and predict the available surplus for the 1983/1984 Pacific herring fishery. Field data, including hydroacoustic stock estimates and onboard field analysis data, are contained in this report.

Key words: Pacific herring (Clupea harengus pallasii), charter vessels, stock abundance, sexual maturity, roe yield, standard length.

RÉSUMÉ

Armstrong, R.W., 1985. The 1983 roe herring charter vessel monitoring and sampling program. Can. Ind. Rep. Fish. Aquat. Sci. 164: 88 p.

Douze bateaux affrétés ont recueilli 343 séries d'échantillons sur la côte de la Colombie-Britannique pour permettre aux gestionnaires des pêches d'évaluer l'importance des stocks, le recrutement et la maturité sexuelle du hareng du Pacifique (Clupea harengus pallasii). Ces données ont servi à déterminer l'emplacement, la date et la durée approximative des périodes d'ouverture de la pêche commerciale du hareng plein en 1983.

En outre, après le prélèvement de chaque série d'échantillons, on a conservé, à l'intention des scientifiques de la Direction de la recherche sur les pêches, des échantillons pour analyse en laboratoire qui feront partie de la base de données pour le système de modélisation informatisé utilisé pour évaluer le nombre de rescapés et prédire les surplus disponibles pour la pêche du hareng du Pacifique en 1983-1984. Le présent rapport renferme des données recueillies sur le terrain, notamment une estimation hydroacoustique des stocks, et des données d'analyses faites à bord.

Mots-clés: hareng du Pacifique (Clupea harengus pallasii), bateaux affrétés, importance des stocks, maturité sexuelle, production d'oeufs, longueur standard.

INTRODUCTION

During the 1982/83 herring season, 12 herring seiners were chartered for the 1983 roe herring test fishing operation and two seiners were chartered in September 1982 for survey work.

The roe herring charter objectives were as follows:

1. In-season management

- a) to estimate the overall herring biomass in each fishing location and to identify a fishable stock to meet the Fixed Quota requirement,
- b) to determine roe yields,
- c) to determine if the available herring size (length and weight) was suitable for a herring fishery,
- d) to determine roe quality, ie. incidence of abnormal roe,
- e) to measure incoming year class strength and compare it with predicted returns,
- f) to ensure "on the grounds" input from Industry via the charter vessel masters and
- g) to use the charter program as a training platform for the Department of Fisheries and Oceans (DFO) field staff.

2. Research

- a) to obtain biological samples for the Fisheries Research Branch (FRB) from as many herring spawning stocks as possible. The resulting information along with samples from commercial fisheries is used to forecast the stock strength and potential catch for the following year.

In order to fulfill the above objectives, it is mandatory that the fishing master be an experienced and successful herring fisherman who is ready and able to pass on his experience to the DFO staff, and who is respected by fishermen participating in the commercial fishery.

This report contains the results of the 1983 roe herring charter program. The 1982 fall survey is also mentioned briefly because roe herring were used as payment in the fall charter program. The fall program provided information on catches and fish observations from a herring cruise conducted in northern B.C. during September 16 to 29, 1982. The objective of this survey were:

- a) to determine the age composition of stocks, particularly the occurrence of age 3 and 4 fish as possible recruits and

- b) to determine the proportion of each age group which is actively maturing and may be spawning in 1983.

The Snow Cloud (Capt. D. Dawson) and Snow Queen (Capt. H. Hardy) were chartered to sample herring populations in both offshore and inshore areas in the North Coast (Areas 1 - 10). Offshore areas surveyed were the Horseshoe Grounds, and northern end of the Queen Charlotte Islands and the Browning Entrance area. Inshore areas surveyed were the major bays and inlets of the Central Coast (ie. Queen Sound, Milbanke Sound, Laredo Channel) and Prince Rupert area (ie. Pearse Canal, Wales Channel, Chatham Sound). Further information on the 1982 fall charter will be provided in a later report by D. Hay, P.E. Sprout and B. McCarter (MS in prep'n).

HISTORICAL REVIEW OF THE ROE HERRING CHARTER PROGRAM

Successful management of roe herring fisheries depends on the manager getting timely and accurate information on stock movement, abundance and sexual maturity.

Before 1980, seine vessels were only chartered for the period preceding fishery openings and could participate in the commercial fishery. This meant that just when the fishery managers most urgently needed the information on roe yields and abundance, they lost one of their key sources of data. This may have resulted in lost fishing opportunities and lost revenue to the Industry.

These vessels were not chartered for the entire fishing season because the cost of buying an experienced and successful fisherman out of the roe herring fishery was prohibitive, especially during the late 1970 boom years. An estimated cost of chartering 12 seine vessels was in excess of \$1,000,000. The dramatic increase in value of roe herring, combined with the Industry requirement of a minimum roe yield of 10%, increased the need for more timely and accurate information on stock movement, abundance and sexual maturity.

During the "Bonanza Year" of 1979, million dollar seine sets were made and cash buyers were paying up to \$5,000/ton on the fishing grounds. This activity resulted in additional pressure on the resource and on fishery managers, thus further confirming that test vessels were required throughout the roe fishery season.

The present chartering system is the result of consultation with fisheries staff and representatives from the Industry. It was decided that Industry would get involved in providing in-season management information through the charter vessel masters. Seiners with experienced skippers would be chartered to conduct test fishing throughout the fishing season under authority of Section 4 of the Fisheries Act and Section 3 of the Fisheries Development Act. The charter seiners would carry out the test fishing operation and would be given permission to catch a specified quantity of roe herring in tons/day for the 26-day duration of the charter. As part of the Charter Agreement, the charter seiner would not participate in the roe herring fishery during the year of the charter.

In this way, the charter program was paid out of the resource, Industry was involved during the fishing season in developing the fisheries through the

charter vessel masters, and a number of seiners were bought out of the open fishery thereby reducing fleet size.

This report summarizes the seine set data, roe yield information and length frequency distribution data collected from the 12 charter seiners. In order to simplify data tabulation, interpretation and comparison with previous years, all tonnage is given in short tons (907.18 kg), the distances are shown in nautical miles (1.85 km) and herring length is given in centimeters. The present report is one of a series of publications by the DFO aimed at providing the annual summary of roe herring charter vessel monitoring and sampling program.

METHODS AND MATERIALS

In 1983, 12 herring seine vessels were chartered for the roe herring fishery on the B.C. coast. The charter vessels were used to assess the herring stocks in each area by echo sounding for biomass estimates and by seining for biological samples to estimate recruitment and roe yield. The normal procedure was to hydroacoustically sound the fishing grounds and then obtain seine samples from a cross-section of the herring schools in each location.

Invitations to tender were mailed to all licenced roe herring seiners, and 12 charter vessels were selected (Table 1). The selection was based on a combination of low bids (tons of roe herring per day) and a point rating system which takes into account the experience of the vessel master and the condition of the vessel and equipment. All vessels were chartered for a minimum of 26 days with provisions made for extensions of up to 5 days, if required. Bids for the successful vessels ranged between 4.0 tons/day and 5.0 tons/day for a total tonnage requirement of 1,489.5.

The actual tonnage caught for payment was 1,555.34 tons and included 14 days extension for charter vessels Christav and Fisher Lassie II. The combined total payment for the 1983 roe herring and 1982 fall charters was 1,678.84 tons. The total catch was 1,885.98 tons giving 207.14 tons excess. This represents an average excess of 14.79 tons per vessel for the 14 vessels chartered. Roe maturities of the herring charter payment ranged between 10.4% and 15.0%.

The 207.14 ton excess was sold at the Union agreed price of \$830.00 per ton for a total value of \$171,927.03. Of this total, \$60,986.75 were paid for herring packing charges and \$110,940.28 were forwarded to the Receiver General of Canada. The excess was relatively low because herring could be moved from vessel to vessel. For example, the Snow Queen caught 505.83 tons in one set which were used as payment for three vessels, the Snow Queen, Intrepid I and Pacific Ocean, thus reducing the effect of a large excess catch.

The charter timing was set to ensure that a particular charter vessel was available prior to and during the major spawnings in each area (Table 2). The 12 vessels were assigned to the three herring management areas (Fig. 1) as follows:

Table 1. Roe herring charter payment summary, B.C., 1982 and 1983.

Vessel	Charter bid (tons)		Total payment (tons)	Total excess (tons)
	Daily rate	Charter (26 days)		
<u>1983 ROE HERRING CHARTER</u>				
Snow Queen	4.50	117.0	117.00	-
Ocean Marauder	5.35	139.1	139.10	-
Christav	4.50	117.0	148.50 ^a	-
Fisher Lassie II	4.90	127.4	161.70 ^a	-
Intrepid I	5.00	130.0	130.00	-
Westview No. I	4.75	123.5	123.50	-
Pacific Quest	5.00	130.0	130.00	-
Pacific Ocean	4.80	124.8	124.80	-
Argent Fisher	4.00	104.0	104.00	-
Pachena I	4.99	129.7	129.74	-
Ocean Horizon	4.60	119.6	119.60	-
Bernice C	4.90	127.4	127.40	-
Total (roe herring charter)	57.29	1,489.54	1,555.34	
<u>1982 FALL HERRING CHARTER</u>				
Snow Queen	4.50	63.0	63.00	-
Snow Cloud	4.32	60.5	60.50	-
Total (fall herring charter)	8.82	123.5	123.50	
Combined total (roe herring and fall charters)	66.11	1,613.04	1,678.84	207.14
			Mean = 14.79 ^b	
			Total Catch = 1,885.98	

^a Includes seven-day extension.

^b Excess catch per vessel not available since excess fish were distributed among charter vessels.

Table 2. Roe herring charter vessels by location and time period, B.C., 1983.

Vessel	Fishing master	Location (Area)	Charter timing	Charter duration (days)
Snow Queen	H. Hardy	2E	Mar. 6 - 31	26
Ocean Marauder	J. Lenic	2W	Mar. 1 - 26	26
Christav	G. Stava	3 - 5	[Mar. 10 - Apr. 4 Apr. 11 - 17]	33 ^a
Fisher Lassie II	V. Wilson	6 & 7	[Mar. 1 - 21 Apr. 10 - 16]	33 ^a
Intrepid I	T. Mosely	6 - 8	Mar. 6 - 31	26
Westview No. I	M. Aleksich	13 - 17	Feb. 22 - Mar. 19	26
Pacific Quest	J. Polonio	12 - 17	Feb. 22 - Mar. 19	26
Pacific Ocean	A. Sorenson	13 14 & 15	[Feb. 14 - 26 Feb. 26 - Mar. 16]	26
Argent Fisher	J. Malatestinic	17 & 18	Feb. 22 - Mar. 19	26
Pachena I	S. Bunten	23	Feb. 24 - Mar. 21	26
Ocean Horizon	J. Reid	24	Feb. 24 - Mar. 21	26
Bernice C	W. Cadwallader	23, 25 - 27	Feb. 24 - Mar. 21	26

Fall Herring Charters 1982

Snow Queen	H. Hardy	1 - 10	Sep. 16 - 29	14
Snow Cloud	D. Dawson	1 - 10	Sep. 16 - 29	14

^a The charter duration for the 1983 program was 26 days; however, the vessels Christav and Fisher Lassie II had their charter duration extended each by 7 days.

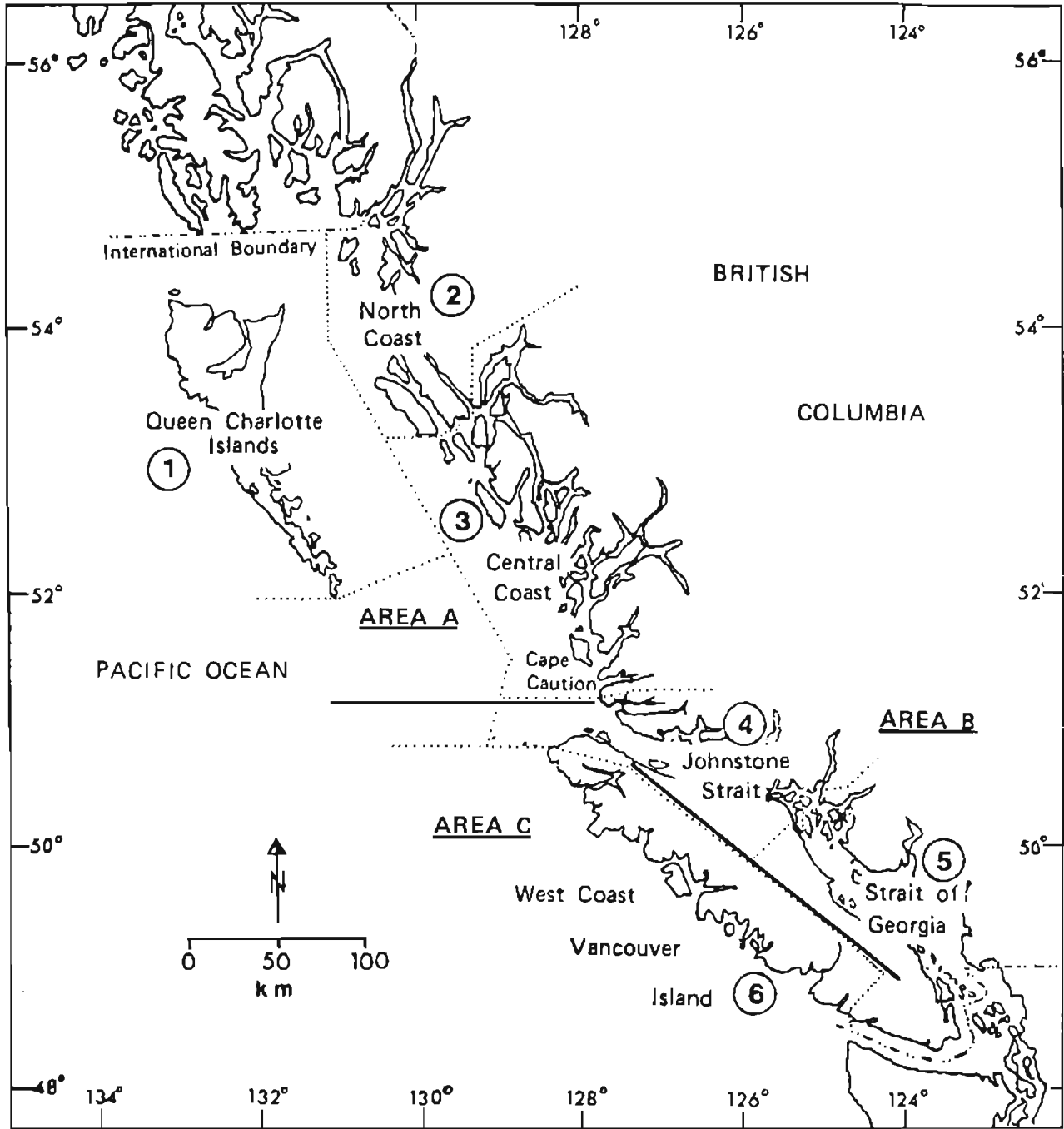


Fig. 1. Herring divisions 1-6 (circled numbers, dotted lines) and 1983 management areas A - C (solid lines).

Area A (North of Cape Caution) - 5 vessels

Area B (Strait of Georgia - Johnstone Strait) - 4 vessels

Area C (West Coast Vancouver Island) - 3 vessels

The charter vessels were assigned to specific sampling locations within each management area and were given general directions by the fishery manager on where samples were required in each district. Each set location was recorded by Statistical Area (Fig. 2) and herring section (Figs. 3 and 4, Table 3). The onboard direction on sampling procedure was given by the DFO fishery officer, technician or biologist assigned to the vessel.

Specific sampling instructions, similar to those used in previous years, were placed onboard each vessel (Appendix Table 1).

Onboard Sampling Procedure

Seine sample sets were made on all large bodies of herring, and samples of about 150 lb (68 kg) were brought aboard from the set using a small meshed dipnet or brailer. A Wheelhouse and Sample Log sheet, which doubles as a length measurement data sheet, was completed after every set (Appendix Figs. 1a & b). Another random sample of approximately 40 lb (18 kg) was taken from the same set for further laboratory analysis at FRB. Samples were also retained for special FRB research studies in selected locations along the coast.

The onboard data sheets and sampling procedures are described below.

1. Onboard data records

i) Daily log

The daily log covers all activities of the charter vessel while assessing the herring stocks. This includes a summary of discussions with the vessel master on fish movement and also behaviour patterns. The daily logs from the previous year are also placed aboard the charter vessel as a reference for past fish behavior and distribution patterns in a particular location.

ii) Wheelhouse and Sample Log

This data sheet is completed after every set, including water hauls, and provides a record of the seine set including biomass estimates and roe yield information (Appendix Figs. 1a and 1b). Information from this data sheet is reported to the District Management Coordinator by radio telephone after each set.

iii) Onboard sampling

a) Herring measurement

Standard length measurements (Appendix Fig. 2) obtained from a random sample of 50 herring are recorded directly on a

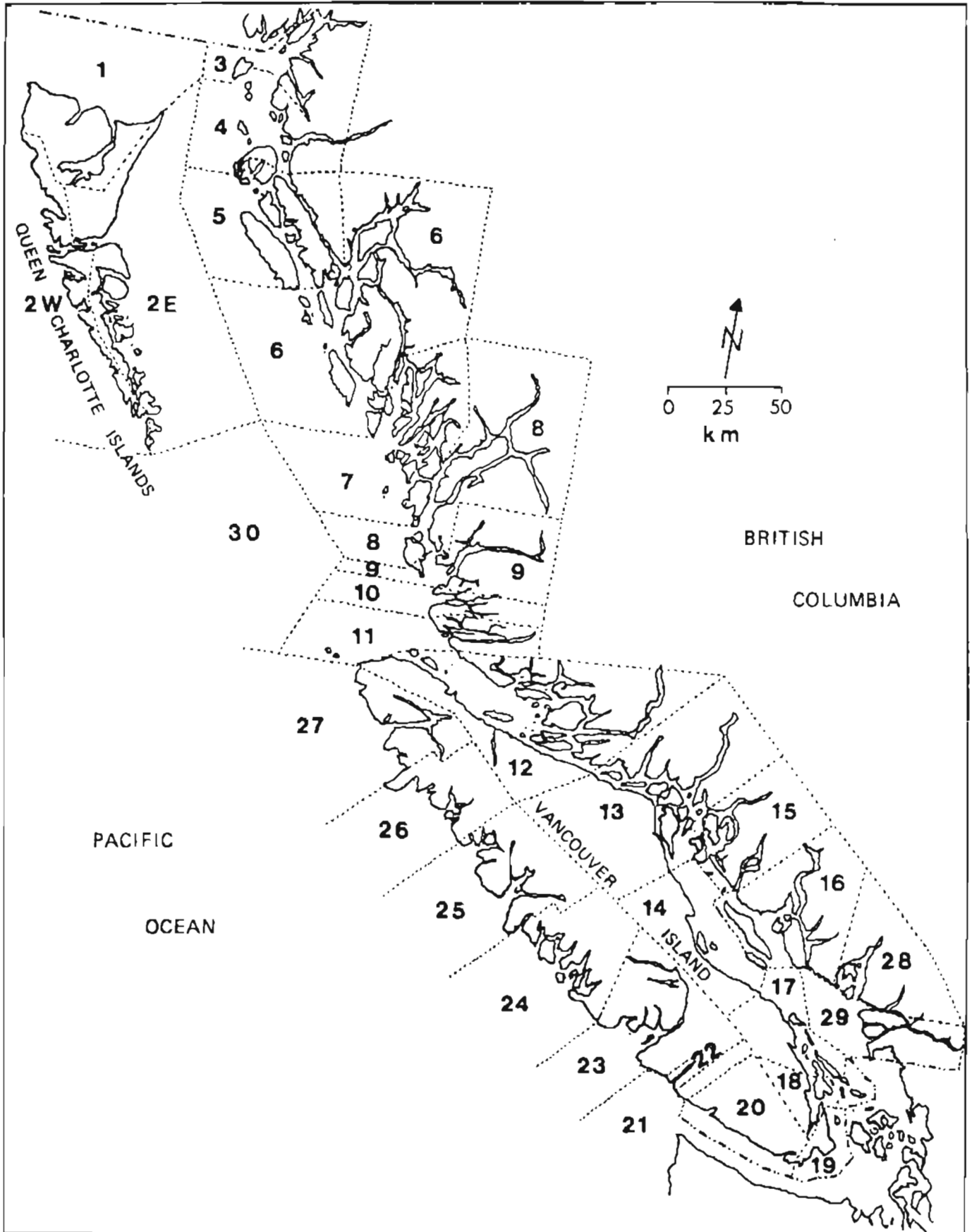


Fig. 2. Statistical Areas in British Columbia.

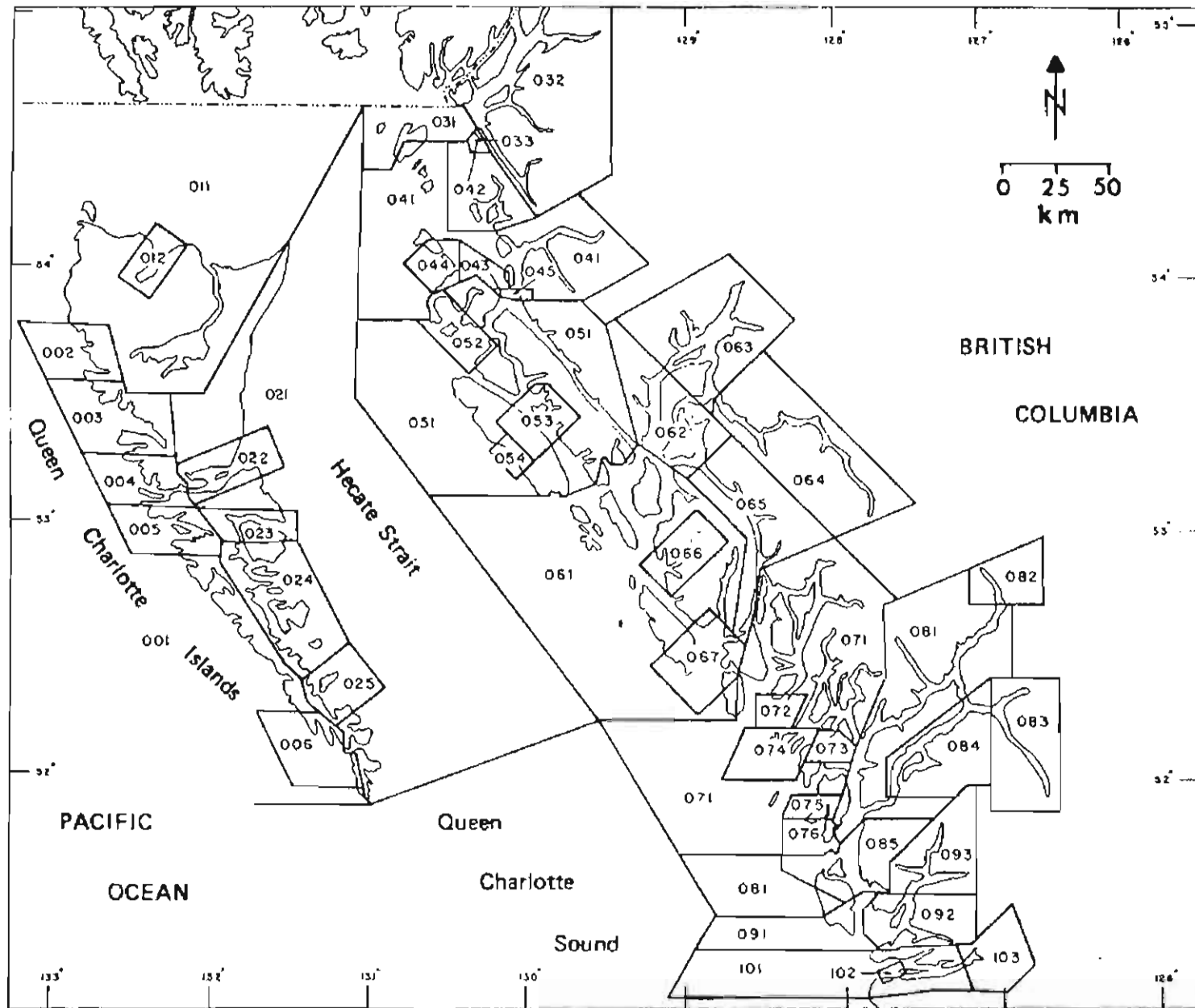


Fig. 3. Herring sections in northern British Columbia.

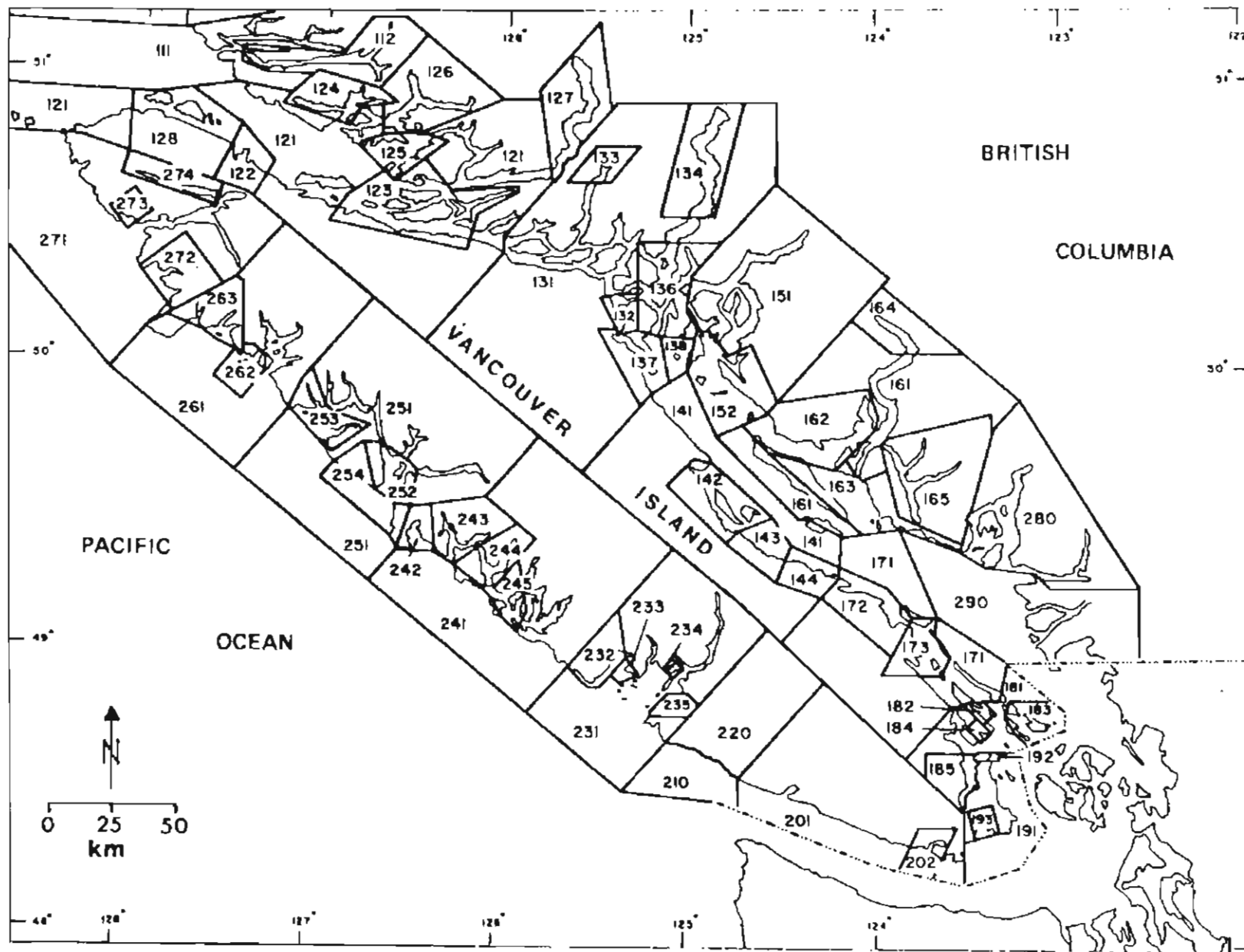


Fig. 4. Herring sections in southern British Columbia.

Table 3. Herring divisions and sections in British Columbia.

DIVISION		SECTION		DIVISION		SECTION			
Code	Name	Code	Name	Code	Name	Code	Name		
1	Queen Charlotte Islands	011	Other Area 1	3	Central (cont'd)	091	Other Area 9		
		012	Naden Harbour			092	Rivers Inlet Mouth		
		006	Louscoone Inlet			093	Rivers Inlet Head		
		001	Other Area 2W			101	Other Area 10		
		002	Port Louis			102	Takush Harbour		
		003	Rennell Sound			103	Smith Inlet Head		
		004	Cartwright Sound			061	Other Area 6		
		005	Englefield Bay			062	Promise Island		
		023	Cumshewa Inlet			063	Kitimat Arm		
		025	Skincuttle Inlet			064	Gardner Canal		
		021	Other Area 2E			065	Princess Royal Channel		
		022	Skidegate Inlet			066	Surf Inlet		
		024	Laskeek Bay			071	Other Area 7		
		2	North Coast			033	Port Simpson	4	Johnstone Strait
042	Big Bay			082	Kimsquit Bay				
043	Malacca Passage			083	Bentinck Arms				
044	Edye Passage			123	Cracroft Island				
045	Gibson Group			124	Watson Island				
052	Kitkatla Channel			125	Eden Island				
031	Other Area 3			126	Kingcome Inlet				
032	Portland Inlet			127	Knight Inlet				
041	Other Area 4			111	Other Area 11				
051	Other Area 5			112	Nugent Sound				
053	Anger Island			121	Other Area 12				
054	Poul Bay			122	Beaver Harbour				
3	Central			067	Kitasu Bay	128	Goletas Channel		
				072	Powell Anchorage	131	Other Area 13 Strait		
		073	Gunboat Passage	132	Kanish Bay				
		074	Thompson Bay	133	Loughborough Inlet				
		075	McNaughton Group	134	Bute Inlet				
		076	Kildidt Sound						
		085	Kwakshua Channel						
		084	Burke Channel						

1
11
1

Table 3 (cont'd). Herring divisions and sections in British Columbia.

DIVISION		SECTION		DIVISION		SECTION	
Code	Name	Code	Name	Code	Name	Code	Name
5	Strait of Georgia	152	Lund	6	West Coast of Vancouver Island	232	Macoah Pass
		162	Stillwater			233	Mayne Bay
		142	Baynes Sound			210	Area 21
		143	Qualicum			218	Offshore Area 21
		144	French Creek			220	Nitinat Lake
		172	Nanoose Bay			231	Other Area 23
		173	Yellow Point			234	Useless Inlet
		182	Ganges Harbour			235	Bamfield Inlet
		183	Plumper Sound			238	Offshore Area 23
		290	Boundary Bay			244	Whitepine Cove
		136	Other Area 13 Gulf			245	Mearns Island
		137	Heriot Bay			241	Other Area 24
		138	Marina Island			242	Hesquiat Harbour
		141	Other Area 14			243	Sydney Inlet
		151	Other Area 15			248	Offshore Area 24
		161	Other Area 16			252	West Nootka
		163	Pender Harbour			254	Bajo Point
		164	Queens Reach			253	Nuchatlitz Inlet
		165	Sechelt Inlet			272	Brooks Bay
		171	Other Area 17			273	Winter Harbour
		181	Other Area 18			251	Other Area 25
		184	Fulford Harbour			261	Other Area 26
		185	Saanich Inlet			262	Clanninick Cove
		191	Other Area 19			263	Checleset Bay
		192	Tsehum Harbour			271	Other Area 27
		193	Victoria Harbour			274	Holberg Inlet
		201	Other Area 20				
		202	Sooke Inlet				
280	Howe Sound						

Wheelhouse and Sample Log (Appendix Figs. 1a and 1b). The herring below a "cutoff" length (predetermined from past year's age/length data) are judged to be recruiting herring (Appendix Table 2). These small herring are less desirable due to having smaller gonads and thus giving lower roe yields. In addition, changes in the percentage of herring below the "cutoff" length could indicate changes in stock composition and may be important in setting fishery boundaries.

2. Roe yield

During the 1984 roe herring fishery, two methods of determining roe yield were used:

- a) Volumetric method - this is the commonly used method and consists of filling a standard 4 imp. gal. (18 l) bucket level to the top with herring, stripping the ripe female roe into a calibrated volumetric cylinder and recording the percentage off the scale (Appendix Table 3).
- b) Weight method - this was used mainly in the Strait of Georgia and West Coast Vancouver Island areas, as a method by itself or combined with the volumetric method for comparative purposes - the actual weight of the herring sample and roe is used to calculate the roe yield (Appendix Table 4).

In this report, the roe yield information tables give volume and adjusted volume or weight and adjusted weight depending on the area sampled. The adjusted roe yield values assume a 50:50 male/female sex ratio and the formula used for this adjustment is shown in Appendix Table 5. Generally, the overall herring population will have a 50:50 male/female sex ratio. However, this may not be the case in sample sets. For example, if the stocks are in a declining phase, two-year-old males may recruit to the spawning stock, rendering males the dominant sex; males breaking off from the main school just prior to spawning could be another factor affecting the overall sex ratio. Therefore, a 50:50 male/female sex ratio should be assumed with caution.

3. Laboratory samples

After each set, a biological sample containing a minimum of 100 herring was placed in a plastic bucket, sealed and either frozen or iced down for delivery to FRB for further analysis. During 1983, additional FRB samples were retained from preselected locations along the coast for determining herring fecundity and the Gonosomatic Index (GSI) used in predicting the rate of herring maturation.

RESULTS

During the 1983 roe herring charter program, the 12 charter seiners made 343 seine sample sets for an average of 28.6 sets per vessel (Table 4). A total of 631 roe tests were carried out onboard the charter vessels and 260 samples were retained for the FRB laboratory (Table 4). Samples were also retained for special research studies, i.e. Gonosomatic Index and fecundity studies. Hydroacoustic biomass estimates, roe yield information, sea surface water temperatures and length frequency distributions of herring were also recorded for each seine sample set (Tables 5-28).

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Appreciation is expressed to the fishery officers, technicians and biologists who ensured that sampling guidelines were followed and the data recorded in a concise manner. Thanks are also extended to Jim Mitchell who monitored the charter payment catch and did an excellent job, to Alvin Sewid who organized the sampling equipment, to Dennis Chalmers and Lloyd Webb who reviewed the text and to Alice Fedorenko who edited and prepared the report for publication. A special thanks is extended to Shiela Dawe for tabulating the data from the raw data sheets and to Valerie Rogers and the staff of the SEP Information/Processing Center for typing the drafts.

Table 4. Number of seine sets and roe tests by charter vessel, B.C., 1983.

Statistical Area	Charter vessel	No. of sets	No. of roe tests	No. of biological samples retained
2E	Snow Queen	26	44	17
2W	Ocean Marauder	38	67	27
3-5	Christav	41	51	30
6&7	Fisher Lassie II	36	86	31
6-8	Intrepid I	22	53	16
13-17	Westview No. I	46	69	30
12-17	Pacific Quest	31	56	23
13-15	Pacific Ocean	28	51	23
17&18	Argent Fisher	31	39	28
23	Pachena I	14	42	8
24	Ocean Horizon	18	43	16
23, 25-27	Bernice C	12	30	11
Total		343	631	260
Average		28.6	53	22
Range		12-46	30-86	8-30

Table 5. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "SNOW QUEEN", STAT. AREA 2E, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Juv. Spnd. or out Immat.	
				In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol.	Adj. vol.	#1	#2	#3		
024 (2E)	1 All Alone Stone	06/03/83	1045		300	50	8.6	1	45	58	33	42	9.0	10.64	28	2	3	Gonads running (M&F)	
								2	47	56	37	44	11.0	12.50	34	2	1		
024 (2E)	2 All Alone Stone	06/03/83	1325			0	8.55												
025 (2E)	3 Section I.	06/03/83	1620		150	0	8.45												
025 (2E)	4 Wanderer I.	06/03/83	1716			0	8.4												
025 (2E)	5 Huxley I.	07/03/83	0500		500	150	8.4	1	42	51	41	49	11.5	11.64	37	1	3		
								3	44	53	39	47	12.0	12.77	36	0	3		
025 (2E)	6 N. End of Huxley I.	07/03/83	0755		200	N/E	8.55	1	50	57	37	43	10.75	12.65	33	1	3		
								2	43	51	42	49	11.5	11.64	38	1	3		
								3	37	43	49	57	14.0	12.28	44	2	3		
025 (2E)	7 Section I.	08/03/83	0935		800	0	8.35												
025 (2E)	8 1 mi N. of Kat I.	08/03/83	1100		900	0	8.3												
025 (2E)	9 1/4 mi S. of Dolomite Pt.	08/03/83	1215		500	300	8.4	1	41	47	46	53	13.0	12.29	39	0	7		
								2	56	62	34	38	8.5	11.24	30	0	4		
								3	52	59	36	41	10.5	12.84	32	1	3		
025 (2E)	10 Huxley I.	09/03/83	0635		60	5-10	8.3	1	40	47	46	53	13.5	12.62	41	0	5		
								2	33	39	52	61	14.5	11.85	45	0	7		
								3	43	43	56	57	14.0	12.37	47	1	8		
025 (2E)	11 Jedway Bay	10/03/83	1225		3500	400	2	8.55	1	50	54	43	46	12.0	12.99	38	2	3	
									2	43	49	44	51	14.0	13.83	42	0	2	
									3	43	46	50	54	15.0	13.94	47	1	2	

Table 5 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "SNOW QUEEN", STAT. AREA 2E, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol.	Adj. vol.	#1	#2	#3		
025 (2E)	12 ^a	Deluge Pt.	11/03/83	0830	150	55	8.5	1	44	48	47	52	14.5	14.05	45	0	2			
									47	53	41	47	13.0	13.95	38	0	3			
									50	54	42	46	12.5	13.68	42	0	0			
025 (2E)	13	S. End of Wanderer I.	12/03/83	0845	60	20	8.75	1	48	52	44	48	9.0	9.41	31	6	7			
									52	55	43	45	7.5	8.28	25	7	11			
									47	47	53	53	8.5	8.02	32	3	18			
025 (2E)	14	1 mi N. of Kat I.	12/03/83	1045	100	100	8.75	1	53	52	48	48	10.5	11.05	34	3	11			
									44	46	51	54	9.0	8.38	32	4	15			
									42	50	42	50	10.0	10.00	36	3	3			
006 (2W)	15 ^a	Louscoone Inlet	13/03/83	0805	700	415	8.3	1	37	45	45	55	15.5	14.12	42	1	2	1		
									40	48	44	52	14.0	13.36	43	0	1			
									41	49	43	51	13.5	13.18	42	0	1			
025 (2E)	16	1 mi E. of Newberry Pt.	16/03/83	1450	100	0	8.85													
025 (2E)	17	1 mi E. of Newberry Pt.	16/03/83	1525	1000	0	8.85													
025 (2E)	18	N. end of Huxley I.	16/03/83	1950	7000- 10,000	50	15	8.7	1	47	52	44	48	11.5	11.88	34	7	3		
									2	58	60	39	40	10.5	13.06	34	1	4		
024 (2E)	19	Sedgewick Bay	17/03/83	1840	600	200	8.85	1	66	64	37	36	10.0	13.93	33	3	1			
									2	49	53	44	47	11.0	11.63	36	8	0		
024 (2E)	20	Powlyco Pt.	19/03/83	1215	500	100	0	9.2												
024 (2E)	21	1/2 mi E. of Ustes Pt.	19/03/83	1340		50	0	9.2												
024 (2E)	22	Takelley Cove	19/03/83	1940	400	100	100	9.3	1	50	56	40	44	10.0	11.26	34	4	2		
									2	54	61	34	39	8.0	10.36	27	3	4		
024 (2E)	23	Selwyn Pt.	21/03/83	1955	3000- 5000	Skim.	5	8.9	1	40	46	47	54	13.0	12.04	45	2	0		
									2	66	63	38	37	11.0	15.07	35	0	3		

Table 5 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "SNOW QUEEN", STAT. AREA 2E, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
023 (2E)	24	Olliver I.	22/03/83	1520		250	200	9.0	1	42	47	48	53	15.0	14.07	48	0	0		
									2	48	52	44	48	14.5	15.17	43	1	0		
023 (2E)	25	3/4 ml E. of Conglomerate Pt.	23/03/83	0725		100	75	8.8	1	50	53	45	47	14.0	14.77	44	1	0		
									2	42	46	49	54	14.5	13.48	48	1	0		
024 (2E)	26	Sewell Pt.	28/03/83	0435	3000	550	175	8.8	1	40	42	56	58	17.0	14.58	56	0	0		
									2	61	57	46	43	13.0	15.12	45	1	0		
									3	51	48	56	52	15.5	14.82	55	1	0		

Some milt and eggs in sample buckets

Seine Opening

Management sub-area 2 - 13 (Juan Perez Sound) opened on March 9 for 40 hours and 30 minutes for a hauled catch of 5,050 tons, tested at 9.5% - 14% roe maturity.

Gillnet Opening

Management sub-area 2 - 14 (the approaches to Poole Inlet and along the Burnaby Island shoreline) opened March 15 for 9 hours for a hauled catch of 1,100 tons, tested at 12% - 14% roe maturity.

^a Charter payment herring.

Table 6. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "SNOW QUEEN", STAT. AREA 2E, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)																Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff										
						12 /	13 /	14 /	15 /	16 /	17 /	18 /	19 /	20 /	21 /	22 /	23 /	24 /	25 /	26 /	27 /					28									
024 (2E)	1	All Alone Stone	06/03/83	1045	1																10	17	17	5	0	1	50	22.9	19.5	0					
024 (2E)	2	All Alone Stone	06/03/83	1325																	Water haul														
025 (2E)	3	Section I.	06/03/83	1620																	Water haul														
025 (2E)	4	Wanderer I.	06/03/83	1716																	Water haul														
025 (2E)	5	Huxley I.	07/03/83	0500	2																3	1	1	2	9	17	13	3	1	50	22.2	19.5	8		
025 (2E)	6	N. End of Huxley I.	07/03/83	0755	3																2	0	2	2	8	16	13	5	1	49	22.0	19.5	6		
025 (2E)	7	Section I.	08/03/83	0935																	Water haul														
025 (2E)	8	1 mi N. of Kat I.	08/03/83	1100																	Water haul														
025 (2E)	9	1/4 mi S. of Dolomite Pt.	08/03/83	1215	4																1	4	1	11	18	13	2		50	22.3	19.5	6			
025 (2E)	10	Huxley I.	09/03/83	0635	5																1	1	0	0	1	10	21	11	2	1	1	49	22.5	19.5	4
025 (2E)	11	Jedway Bay	10/03/83	1225	6																1	0	2	14	22	9	2		50	22.3	19.5	2			
025 (2E)	12	Deluge Pt.	11/03/83	0830	7																1	0	1	2	14	13	18	1		50	22.4	19.5	2		
025 (2E)	13	S. End of Wanderer I.	12/03/83	0845	8																1	2	1	2	18	17	9	2		52	22.0	19.5	6		
021 (2E)	14	1 mi N. of Kat I.	12/03/83	1045	9																4	3	1	3	1	11	18	7	1	1	50	21.4	19.5	20	

Table 6 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "SNOW QUEEN", STAT. AREA 2E, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)																Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff				
						12 / 13	13 / 14	14 / 15	15 / 16	16 / 17	17 / 18	18 / 19	19 / 20	20 / 21	21 / 22	22 / 23	23 / 24	24 / 25	25 / 26	26 / 27	27 / 28								
006 (2W)	15	Louscoone Inlet	13/03/83	0805	10									1	0	2	5	15	18	7	1	1	50	23.0	19.5	2			
025 (2E)	16	1 ml E. of Newberry Pt.	16/03/83	1430										Water haul															
025 (2E)	17	1 ml E. of Newberry Pt.	16/03/83	1525										Water haul															
025 (2E)	18	N. end of Huxley I.	16/03/83	1950	11					4	0	1	2	13	13	11	5	1					50	22.2	19.5	10			
024 (2E)	19	Sedgewick Bay	17/03/83	1840	12					3	2	0	2	5	23	12	3						50	22.2	19.5	10			
024 (2E)	20	Powricco Pt.	19/03/83	1215						Water haul																			
024 (2E)	21	1/2 ml E. of Ustas Pt.	19/03/83	1340						Water haul																			
024 (2E)	22	Takelley Cove	19/03/83	1940	13					3	1	3	14	20	7	2							50	22.0	19.5	6			
024 (2E)	23	Selwyn Pt.	21/03/83	1955	14					1	4	5	8	14	9	5	4						50	22.4	19.5	4			
023 (2E)	24	Oliver I.	22/03/83	1520	15					1	0	0	0	1	15	19	15	3	4				58	22.7	19.5	2			
023 (2E)	25	3/4 ml E. of Conglomerate Pt.	23/03/83	0725	16									4	7	17	11	9	4	1	1	54	22.1	19.5	0				
024 (2E)	26	Sewell Pt.	28/03/83	0435	17					1	1	3	11	15	16	3							50	21.5	19.5	6			

Table 7. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN MARAUDER", STAT. AREA 2W, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Juv. or Immat.
				In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol.	Adj. vol.	#1	#2	#3	
003 (2W)	1 Rennell Id. off Shields Cr.	01/03/83	0650	800	150	80		1	20	31	45	69	0	0	0	0	45	
002 (2W)	2 Port Louls off Solide I.	01/03/83	2123			200		1	37	51	36	49	0	0	1	8	27	
								2	28	39	44	61	0	0	1	4	39	
002 (2W)	3 Port Louls, Ogilvie I.	02/03/83	0704	1000	50	10	8.6	1	27	41	39	59	0	0	1	3	35	2
								2	31	42	43	58	0.5	0.43	2	3	38	2
002 (2W)	4 Port Louls	02/03/83	0805	1000	150	100	8.6	1	21	30	48	70	1.0	0.72	4	3	41	
002 (2W)	5 Port Louls, Klokathill Inlet	03/03/83	0657	2000	1000	50	8.6	1	26	41	37	59	10.0	8.52	26	4	7	
								2	24	37	41	63	10.0	7.92	27	5	9	
002 (2W)	6 Port Louls, Ogilvie I.	03/03/83	0915	2500	200	50		1	15	25	44	75	0		0	1	43	25
								2	19	30	44	70	0		0	0	44	19
002 (2W)	7 N. Shore Port Louls	03/03/83	1402	<u>2000-</u> 3000	200	150		1	31	49	32	51	5.5	5.41	15	5	12	
								2	28	42	39	58	7.0	6.01	17	1	21	
								3	28	43	37	57	6.0	5.27	16	6	15	
002 (2W)	8 Port Louls, Turner Pt.	04/03/83	0949	1500	300	200	7.7	1	30	48	33	52	8.0	7.63	21	3	9	
								2	34	52	31	48	9.5	9.96	23	2	6	
								3	33	48	36	52	10.5	10.06	25	5	6	
002 (2W)	9 Port Louls, Solide I.	04/03/83	2248	3000	20-25	5	8.1	1	8	17	40	83	0	0	0	2	38	21
								2	15	23	51	77	0	0	0	0	51	16
002 (2W)	10 Port Louls, Ogilvie I.	06/03/83	0745		500	0			Water haul									
002 (2W)	11 Port Louls, Ogilvie I.	06/03/83	0815		100	100		1	17	28	44	72	0	0	0	0	44	18
								2	19	31	43	69	0	0	1	0	42	12
002 (2W)	12 Port Louls, Solide I.	06/03/83	1015	<u>3000-</u> 4000	300	50		1	28	45	34	55	10.0	9.12	25	3	6	
								2	31	46	37	54	10.5	9.65	28	4	5	1
								3	37	57	28	43	8.0	9.28	20	2	6	2
005 (2W)	13 Moore Ch., Herbert Hd.	09/03/83	1205	<u>1000-</u> 1500	500	0			Water haul									
005 (2W)	14 Moore Ch., Herbert Hd.	09/03/83	1259	<u>1000-</u> 1500	500	0	8.0		Water haul									
005 (2W)	15 Moore Ch., Herbert Hd.	09/03/83	1409	1000-	100	0	8.0		Water haul									
				1500	150													

Table 7 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN MARAUDER", STAT. AREA 2W, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol.	Adj. vol.	#1	#2	#3		
005 (2W)	16	Off Herbert Hd.	09/03/83	1504	1000- 1500	300	0	8.0		Water haul										
005 (2W)	17	Off Bell Pt.	09/03/83	1645	1500	300	150	8.0	1	61	72	24	28	0	0	0	0	24		
									2	41	49	43	51	0	0	0	0	43	1	
005 (2W)	18	Inside Sangster Pt.	10/03/83	1020	3000	50	30	8.0	1	40	48	43	52	0	0	0	0	43		
									2	45	53	40	47	0	0	0	4	36		
005 (2W)	19	Opposite Herbert Rd.	10/03/83	1930		sklm	150	8.5	1	42	54	36	46	0	0	0	1	35		
									2	44	52	40	48	0	0	0	0	40		
005 (2W)	20	Inskip Ch., Hastings Pt.	11/03/83	1010	3000	100 150	0	8.5		Water haul										
005 (2W)	21	N. Shore - Outside Hastings Pt.	11/03/83	1305	3000	75 100	0	8.5		Water haul										
005 (2W)	22	Outside Hastings Pt.	11/03/83	1600	3000	150	0	8.5		Water haul										
005 (2W)	23	Outside Hastings Pt.	11/03/83	1914	3000	75	75	8.5	1	46	58	34	42	0	0	2	6	26		
									2	51	58	37	42	0	0	1	4	32		
									3	40	48	44	52	2.0	1.91	7	5	32		
									4	48	52	44	48	0	0	3	2	39		
005 (2W)	24	Off Hastings Pt.	12/03/83	0730	3000	100	25	8.0	1	35	38	57	62	0	0	2	0	55		
									2	35	38	58	62	0	0	2	4	52		
005 (2W)	25	Off Sangster Pt.	13/03/83	0830	3000+	500	200- 400	8.0	1	31	36	54	64	1.0	0.79	3	1	50		
									2	35	41	50	59	0	0	1	2	47		
									3	49	54	41	46	0	0	0	4	37		
005 (2W)	26	Between Hastings Pt. & Instructor I.	14/03/83	0810	3000+	200	0	8.0		Water haul										
005 (2W)	27	Between Hastings Pt. & Instructor I.	14/03/83	0855	3000	200	75- 100	8.0	1	34	43	46	57	1	0.87	5	6	35		
									2	39	45	48	55	0	0	3	0	45		
005 (2W)	28	Between Hastings Pt. & Instructor I.	15/03/83	0750	3000	100	50	8.0	1	52	59	36	41	1.0	1.22	5	2	29		
									2	38	42	53	58	3.0	2.58	10	6	37		
									3	51	60	34	40	2.0	2.50	8	7	19		

Table 7 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN MARAUDER", STAT. AREA 2W, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol.	Adj. vol.	#1	#2	#3		
003 (2W)	29	Rennell Id., Rockrun Cr.	15/03/83	1910	700- 800		50	8.0	1	26	38	42	62	13.5	10.92	42	0	0		
									2	26	38	43	62	15.0	12.04	40	3	0		
									3	27	40	41	60	14.5	12.02	40	0	1		
003 (2W)	30	Off Rockrun Cr.	16/03/83	0745	700- 800	100	50	8.0	1	18	29	44	71	16.5	11.62	42	2	0		
									2	21	34	40	66	17.0	12.96	40	0	0		
									3	25	36	44	64	19.0	14.89	43	1	0		
005 (2W)	31	Inskip Ch., between Hastings Pt. & Instructor I.	17/03/83	0740	3000	400	400	8.0	1	34	44	43	56	8.0	7.17	31	6	6		
									2	30	37	52	63	11.0	8.68	35	3	14		
									3	40	48	44	52	8.0	7.63	30	5	9		
005 (2W)	32	Off Hastings Pt.	18/03/83	0800	3500		0	8.0	Water haul											
005 (2W)	33	1/4 ml E. Hastings Pt.	18/03/83	0905	3500	200	25	8.0	1	52	61	33	39	6.5	8.38	23	1	9		
									2	56	64	31	36	4.0	5.62	15	4	12		
									3	52	55	43	45	9.0	9.93	30	3	10		
005 (2W)	34	Inside Hastings Pt.	19/03/83	0845	3500	150	50	8.0	1	49	55	40	45	9.0	10.02	33	2	5		
									2	62	67	30	33	5.0	7.67	20	2	8		
									3	55	66	28	34	6.0	8.90	18	1	9		
005 (2W)	35	Opposite Hastings Pt.	20/03/83	0805	3500	200	0	8.0	Water haul											
005 (2W)	36	1/2 ml E. Hastings Pt.	20/03/83	0910	3500	300	200	8.5	1	34	44	43	56	12.5	11.20	41	0	2		
									2	34	39	54	61	14.0	11.40	49	3	2		
									3	47	54	40	46	11.0	11.96	37	1	2		
005 (2W)	37	Between Leopold I. & Hastings Pt.	20/03/83	1540	3500	150-	150-	8.5	1	29	35	55	65	15.5	11.83	52	2	1		
						200	200		2	50	57	37	43	11.0	12.94	33	1	3		
									3	48	53	43	47	11.0	11.63	36	2	5		
003 (2W)	38 ^a	Clonard Bay	23/03/83	0515		200	150	8.0	1	35	51	34	49	12.0	12.17	34	0	0		
									2	27	40	41	60	14.0	11.61	41	0	0		
									3	30	43	39	57	14.0	12.39	39	0	0		

Seine Opening

Management sub-areas 2 - 37 and 2 - 38 (Inskip Channel) opened on March 21 for 10 hours and 46 minutes for a hauled catch of 1,470 tons.

^a Charter payment herring.

Table 8. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN MARAUDER", STAT. AREA 2W, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)														Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff								
						12	13	14	15	16	17	18	19	20	21	22	23	24	25					26	27	28					
						/	/	/	/	/	/	/	/	/	/	/	/	/	/					/	/	/					
003 (2W)	1	Rennell Id. off Shields Cr.	01/03/83	0650	1																11	23	33	15	6	1	89	23.3	20.0	0	
002 (2W)	2	Port Louis off Solide I.	01/03/83	0704	2																1	6	10	18	13	2	50	23.3	20.0	0	
002 (2W)	3	Port Louis, Ogilvie I.	02/03/83	0704	3																3	6	18	17	6	1	51	22.9	20.0	0	
002 (2W)	4	Port Louis	02/03/83	0805	4																5	12	17	15	1	50	23.4	20.0	0		
002 (2W)	5	Port Louis, Klokathill Inlet	03/03/83	0657	5																6	12	22	11	51	23.2	20.0	0			
002 (2W)	6	Port Louis, Ogilvie I.	03/03/83	0915	6					3	3	1	4	8	10	16	5										50	22.1	20.0	14	
002 (2W)	7	N. Shore Port Louis	03/03/83	1402	7					1			1	2	18	23	4			1							50	23.0	20.0	2	
002 (2W)	8	Port Louis, Turner Pt.	04/03/83	0949	8									1	11	26	10	2									50	23.5	20.0	0	
002 (2W)	9	Port Louis, Solide I.	04/03/83	2248	9					2		2	2	7	14	19	3										49	22.5	20.0	8	
002 (2W)	10	Port Louis, Ogilvie I.	06/03/83	0745	-																										
002 (2W)	11	Port Louis, Ogilvie I.	06/03/83	0815	10									1	1		2	6	10	15	15							50	23.0	20.0	4
002 (2W)	12	Port Louis Solide I.	06/03/83	1015	11																							50	23.3	20.0	0

Table 8 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN MARAUDER", STAT. AREA 2W, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Blot. sample No.	Length Frequency (cm)													Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff			
						12	13	14	15	16	17	18	19	20	21	22	23	24					25	26	27
						/	/	/	/	/	/	/	/	/	/	/	/	/					/	/	/
005 (2W)	13	Moore Ch., Herbert Hd.	09/03/83	1205	-															-	-	-			
005 (2W)	14	Moore Ch., Herbert Hd.	09/03/83	1259	-															-	-	-			
005 (2W)	15	Moore Ch., Herbert Hd.	09/03/83	1409	-															-	-	-			
005 (2W)	16	Off Herbert Hd.	09/03/83	1504	-															-	-	-			
005 (2W)	17	Off Bell Pt.	09/03/83	1645	12					1	7	9	17	12	2				48	21.3	20.0	17			
005 (2W)	18	Inside Sangster Pt.	10/03/83	1020	13						1	7	25	9	5	2	1		50	21.9	20.0	2			
005 (2W)	19	Opposite Herbert Hd.	10/03/83	1930	14						1	9	18	14	8	1			51	21.9	20.0	2			
005 (2W)	20	Inskip Ch., Hastings Pt.	11/03/83	1010	-															-	-	-			
005 (2W)	21	N. Shore - Outside Hastings Pt.	11/03/83	1305	-															-	-	-			
005 (2W)	22	Outside Hastings Pt.	11/03/83	1600	-															-	-	-			
005 (2W)	23	Outside Hastings Pt.	11/03/83	1914	15							9	20	13	1	4	2		49	22.0	20.0	0			
005 (2W)	24	Off Hastings Pt.	12/03/83	0730	16					1	3	7	25	11	2	1			50	21.5	20.0	8			
005 (2W)	25	Off Sangster Pt.	13/03/83	0830	17						2	12	18	13	4	1			50	21.7	20.0	4			

Table 8 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN MARAUDER", STAT. AREA 2W, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)																Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff	
						12 /	13 /	14 /	15 /	16 /	17 /	18 /	19 /	20 /	21 /	22 /	23 /	24 /	25 /	26 /	27 /					
005 (2W)	26	Between Hastings Pt. & Instructor I.	14/03/83	0810	-														Water haul	-	-	-	-			
005 (2W)	27	Between Hastings Pt. & Instructor I.	14/03/83	0855	18									8	18	17	7	1				51	22.0	20.0	0	
005 (2W)	28	Between Hastings Pt. & Instructor I.	15/03/83	0750	19					1	2	7	25	4	8	2							49	21.7	20.0	6
003 (2W)	29	Rennell Id., Rockrun Cr.	15/03/83	1910	20						2		12	14	17	4		1					50	22.7	20.0	4
003 (2W)	30	Off Rockrun Cr.	16/03/83	0745	21									2	8	25	14	1					50	23.6	20.0	0
005 (2W)	31	Inskip Ch., between Hastings Pt. & Instructor I.	17/03/83	0740	22						3	7	20	15	5								50	21.7	20.0	6
005 (2W)	32	Off Hastings Pt.	18/03/83	0800	-																		-	-	-	-
005 (2W)	33	1/4 ml E. Hastings Pt.	18/03/83	0905	23					1	1	6	15	17	5	4							49	22.1	20.0	4
005 (2W)	34	Inside Hastings Pt.	19/03/83	0845	24						3	14	22	8	2	1							50	21.4	20.0	6
005 (2W)	35	Opposite Hastings Pt.	20/03/83	0805	-																		-	-	-	-
005 (2W)	36	1/2 ml E. Hastings Pt.	20/03/83	0910	25							6	15	17	8	3	1						50	22.3	20.0	0
005 (2W)	37	Between Leopold I. & Hastings Pt.	20/03/83	1540	26							8	15	13	11	2	1	1					51	22.3	20.0	0
003 (2W)	38	Clonard Bay	23/03/83	0515	27							2	10	18	16	4							50	22.7	20.0	0

Table 9. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 3 - 5, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
					In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol.	Adj. vol.	#1	#2	#3		
032 (3)	1	Union Inlet	10/03/83	1400	50	40-	40-	5	1	70	64	39	36	0	0	0	0	39		
						50	50		2	55	53	48	47	0	0	0	0	48		
032 (3)	2	Upper Steamer Pass	11/03/83	1515	100	70	15	7.2	1	82	53	73	47	0	0	0	0	73	9	
						100			2	91	54	78	46	0	0	0	0	78		
032 (3)	3	Sommerville Bay	12/03/83	0730	25	25	15	6.7	1	8	33	16	67	0	0	0	0	16	42	
032 (3)	4	Outside Sommerville Bay	13/03/83	0645		50	0	6.7	Water haul											
032 (3)	5	Nasoga Gulf	13/03/83	0930	500-	75	20	6.7	1	91	80	23	20	0	Small herring	0	0	23	344	
					600															
032 (3)	6	Upper Steamer Pass	13/03/83	1750	500-	80-	10	6.7	1	36	55	30	45	0	Small herring	0	0	30	346	
					600	100														
032 (3)	7	Elliot Pt.	14/03/83	0945	600-	200	0	7.2	Water haul											
					700															
032 (3)	8	1 mi N. Elliot Pt.	14/03/83	1015	700	500	0	7.2	Water haul											
032 (3)	9	1 mi Elliot Pt.	14/03/83	1345	1500-	500	0	7.2	Water haul											
					2000															
052 (5)	10	W. Gurd I.	17/03/83	0630	1500	Jumpers	10	6.7	1	77	61	50	39	0	0	1	8	41	9	11
									2	59	47	67	53	0	0	4	1	62	26	
033 (3)	11	Halda Bay	17/03/83	1900	200	200	50-	7.8	1	64	58	46	42	0.5	0.60	4	3	39		
							60		2	56	51	53	49	0.5	0.51	4	5	44		
033 (3)	12	Stumaun Bay	18/03/83	0745	1000	400	200	6.7	1	65	63	38	37	2.5	3.39	10	3	25		
									2	65	59	45	41	3.5	4.24	14	4	27		
033 (3)	13	Stumaun Bay	18/03/83	1045	1000-	500	300-	6.7	1	59	63	34	37	2.0	2.73	11	6	17		
					1500		400		2	52	51	49	49	2.0	2.06	10	9	30		
032 (3)	14	Wales Pass & Manzanita Cove	18/03/83	1530	2000	400	200-	6.7	1	58	58	42	42	3.0	3.57	12	7	23		
							300		2	57	52	52	48	2.0	2.08	11	16	25		

Table 9 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 3 - 5, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. or out	Juv. or Immat.
					In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol.	Adj. vol.	#1	#2	#3		
033 (3)	15	Cunningham Pass	19/03/83	1620	1500	150	150	6.9	1	57	49	59	51	2.5	2.46	15	16	28		
									2	48	43	64	57	4.0	3.50	19	20	25	#1 roe grade	
033 (3)	16	Stumaun Bay	21/03/83	1145	5000+	2000	<u>500-</u> 600	6.7	1	51	53	46	47	2.5	2.64	12	21	13		
									2	57	55	47	45	3.0	3.32	16	23	8	close to	
042 (4)	17	Pearl Harbour	22/03/83	0900	<u>200-</u> 300	<u>70</u> 80	40	6.7	1	51	49	54	51	5.5	5.35	27	15	12	#2 roe grade	
									2	64	60	43	40	5.5	6.84	23	12	8		
042 (4)	18	Pearl Harbour	23/03/83	0900	1000	1000	300	6.7	1	53	49	55	51	8.0	7.86	41	9	5		
									2	47	46	55	54	10.0	9.28	43	8	4		
052 (5)	19	Outside Freeman (2 ml off Hecate Straits)	24/03/83	0530	1000	300	100	7.5	1	48	41	70	59	7.0	5.90	36	12	22		
									2	62	50	62	50	5.5	5.50	29	15	18		
052 (5)	20	Snass Pt., Kitkatla Inlet	24/03/83	1930	300	50	20	7.5	1	68	54	57	46	9.87	10.82	42	7	8		
									2	61	50	60	50	9.58	9.66	44	6	10		
052 (5)	21	Gurd Pt.	25/03/83	0600	<u>200-</u> 300	100	100	7.2	1	58	52	53	48	11.0	11.53	46	3	4		
									2	54	51	52	49	13.0	13.24	47	1	4		
052 (5)	22	East Side of Gurd I.	25/03/83	0845	2000+	200	150	7.5	1	64	57	49	43	11.0	12.67	46	0	3		
									2	54	47	61	53	14.0	13.21	54	6	1		
052 (5)	23	East Side of Gurd I.	25/03/83	1945	<u>200-</u> 300	50	25	7.2	1	43	41	62	59	12.8	10.85	57	3	2		
									2	68	59	48	41	14.5	17.51	44	2	2		
033 (3)	24	Stumaun Bay	27/03/83	1000	1000	50	50	7.2	1	56	41	80	59	9.5	8.08	54	9	17		
									2	71	51	68	49	5.0	5.11	35	9	24		
033 (3)	25	Cunningham Pass	27/03/83	1115	300	50	50	7.2												
042 (4)	26	Outside Pearl Hbr.	27/03/83	1240		100	0	7.2		Water haul										
033 (3)	27	Cunningham Pass	27/03/83	1440		50	50	7.8	1	82	54	71	46	4.5	4.85	31	10	30		4
033 (3)	28	Stumaun Bay	27/03/83	1600		30	10	7.4	1	59	52	55	48	4.5	4.67	24	8	23		8

Table 9 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 3 - 5, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
				In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol.	Adj. vol.	#1	#2	#3		
052 (5)	29 ^a Robert I.	28/03/83	0700	1000	500	80	7.2	1	51	50	51	50	12.0	12.00	49	1	1		
052 (5)	30 Wilcox Group	28/03/83	1745	3000	10	10		1	53	52	48	48	13.0	13.68	47	0	1		
052 (5)	31 Robert I.	28/03/83	1900		50	0	7.5		Water haul										
052 (5)	32 ^a Serpentine Inlet	29/03/83	0800		25	250	7.8	1	59	54	51	46	12.0	12.93	51	0	0		
								2	43	40	65	60	15.5	12.87	62	1	2		
052 (5)	33 Sparrowhawk Pt.	31/03/83	1315	300	300	0	7.5		Water haul										
044 (4)	34 Edge Passage	02/04/83	0830	100	10	10	7.8	1	33	31	72	69	0		0	0	72		
044 (4)	35 Edge Passage	03/04/83	1645	100	50	50	8.1	1	63	68	29	32	0		0	0	29	16	
053 (5)	36 Wilson Inlet	13/04/83	0830	surface-finning		0			Water haul										
053 (5)	37 W. Side of Tangent I.	13/04/83	0930	300	150	100		1	39	35	71	65	16.0	12.40	70	0	1		
								2	60	49	63	51	14.0	13.67	62	0	1		
053 (3)	38 Head of Wilson Inlet	13/04/83	1330	500	100+	100+	8.9	1	56	44	70	56	15.0	13.49	68	1	1		
								2	62	51	59	49	14.5	14.86	58	1	0		
043 (4)	39 Arthur Pass off Bottom Kennedy I.	15/04/83	0800		25	0			Water haul										
033 (3)	40 Stumaun Bay	16/04/83	1330	1000	25	20 lb		1	26	63	15	37			10	0	5	1	
033 (3)	41 Stumaun Bay	16/04/83	1545	1000	75	75		1	64	53	56	47	9.0	9.64	38	1	17		43

No commercial fishery openings in Areas 3 - 5.

^a Charter payment herring.

There was no fishery in the Prince Rupert area in 1983.

Table 10. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 3 - 5, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)														Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff		
						12	13	14	15	16	17	18	19	20	21	22	23	24	25					26	27
						/	/	/	/	/	/	/	/	/	/	/	/	/	/					/	/
032 (3)	1	Union Inlet	10/03/83	1400	1						4	6	17	13	6	2	2	50	21.0	18.5	0				
032 (3)	2	Upper Steamer Pass	11/03/83	1515	2			1	2	5	10	13	11	6	1	0	1	50	18.5	18.5	50				
032 (3)	3	Sommerville Bay	12/03/83	0730	3	1	6	10	23	5	2	1						48	15.2	18.5	100				
032 (3)	4	Outside Sommerville Bay	13/03/83	0645	-													-	-	-	-				
032 (3)	5	Nasoga Gulf	15/03/83	0930	4	8	15	19	7	1	0	1						51	14.1	18.5	98				
032 (3)	6	Upper Steamer Pass	13/03/83	1750	5	1	7	22	11	5	3	1						50	15.0	18.5	100				
032 (3)	7	Elliot Pt.	14/03/83	0945	-													-	-	-	-				
032 (3)	8	1 mi N. Elliot Pt.	01403/83	1015	-													-	-	-	-				
032 (3)	9	1 mi North Elliot Pt.	14/03/83	1345	-													-	-	-	-				
032 (5)	10	W. Gurd I.	17/03/83	0630	6			1	2	0	4	8	6	8	15	3	3	50	20.1	18.5	22				
033 (3)	11	Halda Bay	17/03/83	1900	7						4	2	8	20	13	3		50	21.4	18.5	4				
033 (3)	12	Stumaun Bay	18/03/83	0745	8						2	4	12	19	10	2	2	51	21.4	18.5	0				
033 (3)	13	Stumaun Bay	18/03/83	1045	9						4	5	10	12	13	6	2	50	21.6	18.5	4				
032 (3)	14	Wales Pass & Manzanita Cove	18/03/83	1530	10						1	3	11	10	17	8		50	21.8	18.5	2				

Table 10 (cont'd). Length frequency distribution of herring, ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 3 - 5, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)													Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff			
						12	13	14	15	16	17	18	19	20	21	22	23	24					25	26	27
						/	/	/	/	/	/	/	/	/	/	/	/	/					/	/	/
033 (3)	15	Cunningham Pass	19/03/83	1620	11						2	2	6	10	15	10	6	0	1	50	21.3	18.5	4		
033 (3)	16	Stumaun Bay	21/03/83	1145	12							3	4	8	21	11	3			50	21.3	18.5	0		
042 (4)	17	Pearl Harbour	22/03/83	0900	13					2	3	7	12	11	9	4	1	0	1	50	21.1	18.5	8		
042 (4)	18	Pearl Harbour	23/03/83	0900	14					1	2	3	9	13	18	4				50	21.5	18.5	4		
052 (5)	19	Outside Freeman- (2 mi off Hecate Straits)	24/03/83	0530	15				1	2	8	4	5	19	7	3	1			50	20.8	18.5	12		
052 (5)	20	Snass Pt., Kitkatla Inlet	24/03/83	1930	16				1	2	7	7	7	15	10	1				50	20.6	18.5	10		
052 (5)	21	Gurd Pt.	25/03/83	0600	17						5	5	9	18	8	4	1			50	21.2	18.5	6		
052 (5)	22	East Side of Gurd I.	25/03/83	0845	18				1	0	5	6	5	18	12	3				50	21.1	18.5	8		
052 (5)	23	East Side of Gurd I.	25/03/83	1945	19					1	7	3	10	17	10	2				50	21.0	18.5	6		
033 (3)	24	Stumaun Bay	25/03/83	1000	20			1	0	2	13	12	3	8	8	3				50	20.2	18.5	20		
033 (3)	25	Cunningham Pass	27/03/83	1115	21			2	4	8	20	10	4	1	0	0	1			50	17.6	18.5	82		
042 (4)	26	Outside Pearl Hbr., Cunningham Pass	27/03/83	1240	-															-	-	-	-		
033 (3)	27	Cunningham Pass	27/03/83	1440	22				5	12	8	14	6	1	4					50	19.0	18.5	46		
033 (3)	28	Stumaun Bay	27/03/83	1600	22					2	6	3	8	5	1	2	1			28	20.4	18.5	11		

Table 10 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "CHRISTAV", STAT. AREAS 3 - 5, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)																	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
						12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27					
						/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/					
052 (5)	29	Robert I.	28/03/83	0700	23				1	0	0	0	4	6	19	12	6	2				50	21.7	18.5	2	
052 (5)	30	Wilcox Group	28/03/83	1745	24					2	5	1	7	19	10	4	1	1				50	21.4	18.5	4	
052 (5)	31	Robert I.	28/03/83	1900	-																					
052 (5)	32	Serpentine Inlet	29/03/83	0800	25				3	4	5	6	7	11	11	3						50	20.5	18.5	18	
052 (5)	33	Sparrowhawk Pt.	31/03/83	1315	-																					
044 (4)	34	Edye Passage	02/04/83	0830	26						2	3	7	10	15	9	2	2				50	22.1	18.5	2	
044 (4)	35	Edye Passage	03/04/83	1645	27						2	4	5	12	11	11	3	2				50	22.1	18.5	0	
053 (5)	36	Wilson Inlet	13/04/83	0830	-																					
053 (5)	37	W. Side of Tangent I.	13/04/83	0930	27				1	1	6	6	7	14	12	5						50	20.9	18.5	10	
053 (5)	38	Head of Wilson Inlet	13/04/83	1330	28				1	0	3	4	7	14	11	8	1					49	20.5	18.5	14	
043 (4)	39	Arthur Pass off Bottom Kennedy I.	15/04/83	0800	-																					
033 (3)	40	Stumaun Bay	16/04/83	1330	29	1	4	5	9	11	12	2	3	2	1							50	16.6	18.5	84	
033 (3)	41	Stumaun Bay	16/04/83	1545	30		2	2	5	14	6	3	6	4	2	4	1		1			50	19.1	18.5	54	

Table 11. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 and 7, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield \$		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
				In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3		
074 (7)	1 Clarie I.	01/03/83	1950	1000	1000	500	7.5	1	37	41	53	59	0	0	0	0	53		
								2	42	43	55	57	0	0	0	0	55		
074 (7)	2 Boddy Narrows	01/03/83	2130	1000	1000	300	7.3	1	45	51	44	49	0	0	0	0	44		
074 (7)	3 Idol Pt.	02/03/83	0720	<u>400-</u> 500	<u>400-</u> 500	0	6.8		Water haul										
072 (7)	4 Berry Inlet	02/03/83	0900	500	400	300	6.9	1	38	44	49	56	0	0	0	0	49		
								2	46	52	42	48	0	0	0	0	42		
074 (7)	5 Thompson Bay	02/03/83	1915	<u>2000-</u> 3000	1500	300	7.6	1	40	44	50	56	0	0	0	0	50		
								2	42	48	45	52	0	0	0	0	45		
074 (7)	6 West Waskasu	02/03/83	2050	<u>1200-</u> 1500	1000	200	7.7	1	44	53	39	47	0	0	0	0	39		
								2	40	45	48	55	0	0	0	0	48		
074 (7)	7 Thompson Bay	03/03/83	0740	200	100	60	7.1	1	37	44	48	56	0	0	2	0	46		
								2	29	34	57	66	0	0	0	0	57		
067 (6)	8 Kitasu Bay	03/03/83	1820	1000	1000	7	7.6	1	23	24	71	76	0	0	0	0	71		
								2	29	30	67	70	0	0	0	0	67		
067 (6)	9 Kitasu Bay	04/03/83	0745	1000	400	300	7.2	1	45	44	57	56	0	0	2	0	55		
								2	49	51	47	49	0	0	1	3	43		
074 (7)	10 Joassa Ch.	04/03/83	1615		70	60	7.3	1	27	30	63	70	0	0	0	0	63		
								2	43	39	67	61	0	0	0	0	67		
074 (7)	11 Clarie I.	04/03/83	1930	<u>3000-</u> 4000	1000	500		1	38	44	48	56	0	0	3	0	45		
								2	40	44	50	56	0	0	0	0	50		
074 (7)	12 Stryker Bay	06/03/83	1430	300	150	<u>25-</u> 30	7.3	1	36	42	49	58	0	0	5	3	41		
								2	38	42	52	58	1.0	0.87	7	0	45		
074 (7)	13 Thompson Bay	06/03/83	1915	<u>3000-</u> 4000	1000	500	7.7	1	35	39	54	61	0	0	0	0	54		
								2	39	44	50	56	0	0	0	0	50		
067 (6)	14 Thistle Bay	08/03/83	1000	600	500	75	7.4	1	59	54	51	46	0	0	0	0	51		
								2	47	47	52	53	0	0	0	0	52		
													0	0					

Table 11 (cont'd). Seine set data and roe yield information, ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 and 7, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
				In loc.	Set on	Est. catch			M No.	F No.	Vol.	Adj. vol.	#1	#2	#3				
067 (b)	W. Higgins Pass.	09/03/83	1550	500	100	60	7.3	1	48	48	53	52	7.5	7.14	29	2	22		
								2	50	52	46	48	5.0	5.22	20	2	24		
								3	60	61	39	39	5.0	6.35	21	3	15		
067 (6)	W. Higgins Pass.	10/03/83	0830	500- 600	150		7.2	1	60	65	32	35	3.5	5.03	13	3	16	1	
								2	54	56	42	44	4.0	4.57	16	8	18		
								3	42	46	50	54	5.0	4.60	21	10	19		
072 (7)	Berry Hbr.	10/03/83	2000	500	Skim.	4-5	7.5	1	42	42	57	58	4.0	3.47	19	8	30		
								2	34	34	66	66	2.0	1.52	7	9	50		
								3	43	49	53	55	2.0	1.81	11	5	37		
074 (7)	18 (Louise Ch.)	11/03/83	0836	500- 600	200	0	7.8	Water haul											
074 (7)	Clarke I.	12/03/83	1810	400- 500	150	75	7.3	1	40	38	64	62	0	0	3	3	58		
								2	37	45	46	55	0.1	0.09	3	5	38		
								3	38	46	44	54	0.3	0.28	10	3	31		
074 (7)	Stryker Bay	12/03/83	1930	700- 800	300		7.8	1	61	65	33	35	3.0	4.27	13	3	17		
								2	29	43	39	57	2.7	2.35	6	6	27		
								3	45	49	46	51	2.0	1.98	8	10	28		
067 (a)	W. Higgins Pass.	13/03/83	1145	2000- 2500	500	400	7.7	1	49	54	41	46	9.5	10.42	32	4	5		
								2	47	53	41	47	8.0	8.58	32	4	5		
								3	54	55	45	45	9.5	10.44	35	5	5		
								4	32	48	34	52	11.6	11.26	30	2	2		
								5	23	34	45	66	12.2	9.21	28	6	11		
								6	31	48	34	52	10.8	10.33	27	3	4		
067 (6)	W. Higgins Pass.	14/03/83	0645	2000- 2500	100	100	7.8	1	37	54	51	46	9.0	9.87	23	2	6		
								2	33	50	33	50	10.6	10.60	28	2	3		
								3	36	54	31	46	9.6	10.37	24	2	5		
								4	48	52	45	48	9.0	9.30	37	2	6		
								5	64	58	47	42	10.0	11.82	36	1	10		
								6	52	55	43	45	10.0	11.04	35	4	4		

Table 11 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 and 7, 1983

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. or out	Juv. or Immat.	
				In Loc.	Set on	Est. catch			M No. %	F No. %	Vol.	Adj. vol.	#1	#2	#3					
074 (7)	W. Stryker I. (Louise Ch.)	14/03/83	1445	1000	300	200	7.8	1	48	53	43	47	8.5	8.99	29	6	8			
								2	35	40	53	60	6.0	4.98	24	13	16			
								3	42	47	48	53	8.5	7.97	28	9	11			
									No. 2 - very close to #1											
074 (7)	Stryker Bay	14/03/83	1645	<u>1500-</u> <u>2000</u>	1000	<u>400-</u> <u>500</u>	7.8	1	49	51	47	49	6.0	6.12	19	8	20			
								2	40	42	55	58	6.5	5.61	26	7	22			
								3	50	50	51	50	6.0	5.94	25	5	21			
074 (7)	W. Stryker I. (Louise Ch.)	15/03/83	0930	<u>2000-</u> <u>2500</u>	300	50	7.8	1	60	63	35	37	5.0	6.79	20	5	10			
								2	56	55	46	45	7.0	7.76	25	8	13			
								3	36	43	47	57	8.0	7.07	29	11	7			
074 (7)	W. Stryker I. (Louise Ch.)	17/03/83	1323	2000	1500	500	8.2	1	54	57	41	43	11.5	13.31	36	3	2			
								2	47	50	47	50	11.0	11.00	40	3	4			
								3	56	58	40	42	11.0	13.19	37	1	2			
									Gonads running											
074 (7)	W. Stryker I. (Agnew Is.)	17/03/83	1600	<u>2000-</u> <u>3000</u>	<u>2000-</u> <u>3000</u>	<u>75-</u> <u>100</u>	8.1	1	48	50	49	50	12.5	12.38	43	3	3			
								2	60	59	42	41	10.0	12.14	38	1	3			
								3	46	46	53	54	12.0	11.01	45	1	9			
									Gonads running											
074 (7)	Stryker Bay	18/03/83	0620	<u>40-</u> <u>50</u>	<u>40-</u> <u>50</u>	<u>40-</u> <u>50</u>	7.8	1	49	49	50	51	10.0	9.90	40	4	6			
								2	55	51	52	49	10.0	10.29	45	1	6			
								3	51	48	55	52	11.0	10.60	42	3	10			
074 (7)	W. Stryker I. (Louise Ch.)	18/03/83	0710	<u>2000-</u> <u>3000</u>	1000	0			Water haul											
074 (7)	W. Stryker I. (Louise Ch.)	18/03/83	0730	<u>2000-</u> <u>3000</u>	1000	10	8.1	1	54	46	64	54	9.0	8.30	39	1	24			
								Sample not representative - topped school. Herring sounded.												
074 (7)	W. Stryker I. (Agnew Is.)	18/03/83	1810			0			Water haul											

Table 11 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "FISHER LASSIE 11", STAT. AREAS 6 and 7, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.	
				In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol.	Adj. vol.	#1	#2	#3			
074 (7)	32 ^a W. Stryker I. (Louise Ch.)	18/03/83	2010	1000	100	75- 80	8.4	1	47	46	56	54	12.0	11.03	47	1	8			
									2	53	54	45	46	10.0	10.89	35	1	9		
									3	65	58	47	42	8.0	9.52	33	1	13		
									4	41	48	45	52	13.0	12.43	38	0	7		
072 (7)	33 ^a Ivory I. (Powell Anch.)	19/03/83	1120	400- 500	15	15	8.3	1	41	46	49	54	14.0	12.87	46	2	1			
									2	40	47	46	53	14.5	13.55	46	0	0		
									3	54	55	44	45	12.0	13.36	39	2	3		
072 (7)	34 ^a Ivory I. (Reid Pass.)	19/03/83	1440	1000	200	100	8.2	1	49	55	40	45	14.0	15.59	40	0	0			
									2	48	49	50	51	14.0	13.73	48	0	2		
									3	43	44	54	56	14.5	13.02	52	1	1		
071 (7)	35 Lama Pass. (McLoughlin B.)	20/03/83	1745	100- 150	50	50	7.9	1	62	49	64	51	12.0	11.81	60	3	1			
									2	49	43	65	57	13.5	11.84	63	2	0		1
074 (7)	36 Thompson Bay	21/03/83	0900	2000	1000	400- 500	8.0	1	35	39	55	61	15.0	12.27	54	0	1			
									2	45	46	53	54	15.0	13.86	51	0	2		1
									3	45	45	56	55	14.5	13.09	54	0	2		

Seine Opening

Management sub-area 7-19 (East Houghton Islands) opened on March 15 for 15 minutes for a halled catch of 2,150 tons, tested at 12% roe maturity.

Gillnet Opening

Management sub-areas 6-16, 6-18 and that part of 7-1 comprising the west coast of Price Island (Wilby Point to Day Point) opened on March 21 for 4 hours and 30 minutes for a halled catch of 2,500 tons.

Management sub-areas 7-1, 7-2, 7-9, 7-18, 7-19, 7-20 and 7-23 opened on March 23 for 3 hours for a halled catch of 1,600 tons, tested at 13.5% roe maturity.

^a Charter payment herring.

Table 12. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 and 7, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)														Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
						12 /	13 /	14 /	15 /	16 /	17 /	18 /	19 /	20 /	21 /	22 /	23 /	24 /	25 /				
074 (7)	1	Clarke I.	01/03/83	1950	1						1	7	8	10	13	11			50	20.7	18.5	12	
074 (7)	2	Boddy Narrows	01/03/83	2130	2					2	3	6	10	11	13	3			48	21.1	18.5	8	
074 (7)	3	Idol Pt.	02/03/83	0720	-					Water haul										-	-	-	-
072 (7)	4	Berry Inlet	02/03/83	0900	3				1	1	4	7	22	11	3	1			50	21.5	18.5	4	
074 (7)	5	Thompson Bay	02/03/83	1915	4					1	4	7	23	15	1				51	21.5	18.5	0	
074 (7)	6	West Waskasu	02/03/83	2050	5							1	3	17	23	6			50	22.1	18.5	0	
074 (7)	7	Thompson Bay	03/03/83	0740	6				1	1	3	6	19	15	6				51	21.7	18.5	2	
067 (6)	8	Kitasu Bay	03/03/83	1820	7				1		3	3	12	16	11	3	1		50	21.3	18.5	8	
067 (6)	9	Kitasu Bay	04/03/83	0745	8				1	1	1	7	24	12	3	1			50	21.6	18.5	2	
074 (7)	10	Joassa Ch.	04/03/83	1615	9				1	4	3	6	11	15	9	1			50	20.7	18.5	10	
074 (7)	11	Clarke I.	04/03/83	1930	10				1	2	3	8	14	23	5				56	21.7	18.5	4	
074 (7)	12	Stryker Bay	06/03/83	1430	11					1	1	3	12	22	9	2			50	22.3	18.5	2	
074 (7)	13	Thompson Bay	06/03/83	1915	12							3	7	17	17	5	1		50	21.8	18.5	0	
067 (6)	14	Thistle Pass.	08/03/83	1000	13				1		2	14	18	12	2	1			50	21.4	18.5	2	

Table 12 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 and 7, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Blol. sample No.	Length Frequency (cm)																	Sample size	Average length (cm)	Cutoff (cm)	%	Below cutoff
						12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27						
						/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/						
067 (6)	15	W. Higgins Pass	09/03/83	1550	14										3	6	16	12	9	3		1	50	22.1	18.5	0	
067 (6)	16	W. Higgins Pass	10/03/83	0830	15										1	9	22	15	3				50	21.7	18.5	0	
072 (7)	17	Berry Hbr.	10/03/83	2000	16				2	2	9	5	1	14	15	2							50	20.8	18.5	16	
074 (7)	18	W. Stryker I. (Louise Ch.)	11/03/83	0836	-																		-	-	-	-	
074 (7)	19	Clarke I.	12/03/83	1810	17					1	8	10	6	13	10	2							50	20.7	18.5	8	
074 (7)	20	Stryker Bay	12/03/83	1930	18				1	1		6	6	12	18	5	1						50	21.6	18.5	4	
067 (6)	21	W. Higgins Pass	13/03/83	1145	19										9	15	19	4	2	1			50	22.1	18.5	0	
067 (6)	22	W. Higgins Pass	14/03/83	0645	20							1	9	20	10	10							50	21.9	18.5	0	
074 (7)	23	W. Stryker I. (Louise Ch.)	14/03/83	1445	21						1	2	7	13	15	9	1	2					50	22.1	18.5	0	
074 (7)	24	Stryker Bay	14/03/83	1645	22					1	1	4	5	14	17	7		1					50	21.8	18.5	2	
074 (7)	25	W. Stryker I. (Louise Ch.)	15/03/83	0930	23					1	7	2	3	15	15	4	2	1					50	21.5	18.5	12	
074 (7)	26	W. Stryker I. (Louise Ch.)	17/03/83	1323	24						1	4	10	16	12	7							50	21.6	18.5	2	
074 (7)	27	W. Stryker I. (Agnew I.)	17/03/83	1600	25					1		1	2	7	15	19	6	1					50	21.8	18.5	4	
074 (7)	28	Stryker Bay	18/03/83	0620	26					1		2	5	11	19	8	4						50	21.2	18.5	4	

Table 12 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "FISHER LASSIE II", STAT. AREAS 6 and 7, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)														Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
						12 / 13	13 / 14	14 / 15	15 / 16	16 / 17	17 / 18	18 / 19	19 / 20	20 / 21	21 / 22	22 / 23	23 / 24	24 / 25	25 / 26				
074 (7)	29	W. Stryker I. (Louise Ch.)	18/03/83	0710		Water haul														-	-	-	- (7)
074 (7)	30	W. Stryker I. (Louise Ch.)	18/03/83	0730		5	4	11	2	6	6	12	3	1					50	20.2	18.5	24	
074 (7)	31	W. Stryker I. (Agnew I.)	18/03/83	1810		Water haul														-	-	-	-
074 (7)	32	W. Stryker I. (Louise Ch.)	18/03/83	2010	27	1		4	3	9	13	15	5						50	21.4	18.5	4	
072 (7)	33	Ivory I. (Powell Anch.)	19/03/83	1120	28					1	5	5	11	21	6	1			50	21.9	18.5	0	
072 (7)	34	Ivory I. (Reid Pass.)	19/03/83	1440	29	1				3	6	18	18	3	1				50	21.7	18.5	2	
071 (7)	35	Lama Pass (McLoughlin B.)	20/03/83	1745	30		2	3	5	7	18	10	4	1		1			49	20.0	18.5	10	
074 (7)	36	Thompson Bay	21/03/83	0900	31		1	1			3	7	18	12	8				50	21.6	18.5	4	

Table 13. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "INTREPID I", STAT. AREAS 6-8, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.	
				In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol.	Adj. vol.	#1	#2	#3			
085 (8)	Kwakshua Ch.	06/03/83	1115	3000	500	200	7.6	1	62	57	46	43	0	0	0	0	46			
								2	57	51	54	49	0	0	0	0	54			
								3	57	53	51	47	0	0	0	1	50			
074 (7)	Thompson Bay	08/03/83	1925	3000- 4000	1000	150- 200	8.0	1	43	56	34	44	0	0	0	0	34			
								2	34	49	35	51	0	0	0	1	34			
								3	41	53	37	47	0	0	0	1	36			
074 (7)	Stryker Bay	09/03/83	0945	2000	200- 300	50- 60	7.9	1	21	28	55	72	1.5	1.04	7	3	45			
								2	43	52	39	48	1.5	1.58	5	1	33			
								3	35	45	42	55	0.5	0.46	2	4	36			
074 (7)	Boddy Narrows	09/03/83	1400	3000	400- 600	0														
								Water haul												
074 (7)	Boddy Narrows	09/03/83	1930	2500- 3000	400	300	7.8	1	34	44	43	56	0.5	0.45	2	0	41			
								2	34	42	47	58	0.5	0.43	3	0	44			
								3	38	49	40	51	0	0	0	2	38			
074 (7)	Thompson Bay	10/03/83	1925	1500- 2000	700	300- 400	8.1	1	31	38	51	62	0	0	1	5	45			
								2	39	48	42	52	0	0	2	3	37			
								3	52	68	34	32	0	0	1	2	31			
074 (7)	Little Thompson Bay	11/03/83	0800	1000- 1500	1000	300- 400	8.0	1	30	39	46	61	3.5	2.89	11	5	30			
								2	35	41	50	59	2.5	2.13	8	3	39			
								3	33	41	47	59	3.0	2.55	10	4	33			
074 (7)	Stryker Bay, Alleyne I.	11/03/83	1700	150	100		8.2	1	36	38	59	62	3.0	2.42	11	12	36			
								2	33	35	61	65	3.0	2.31	11	6	44			
								3	43	46	50	54	3.5	3.25	12	11	27			
074 (7)	Boddy Nar., Clarke I.	12/03/83	0730		400	0														
								Water haul												
074 (7)	Boddy Nar., Clarke I.	12/03/83	0930	400- 500	300- 400	0	7.9		Water haul											

Table 13 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "INTREPID I", STAT. AREAS 6-8, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Juv. or Immat.	
				In loc.	Set on	Est. catch			M No.	M %	F No.	F %	Vol. vol.	Adj. wt.	#1	#2	#3		Spnd. out
074 (7)	11 Boddy Nar., Clarke I.	12/03/83	1030			0	7.9		Water haul										
074 (7)	12 Little Thompson Bay	12/03/83	1925		300	150	8.1	1	36	39	57	61	7.0	5.71		26	3	28	
								2	55	58	40	42	3.5	4.16		14	4	22	
								3	40	42	55	58	7.0	6.04		26	8	21	
074 (7)	13 Thompson Bay, E. Houghton I.	12/03/83	1800		200	150	8.1	1	44	47	50	53	2.0	1.88		7	10	33	
								2	41	44	52	56	2.0	1.79		9	9	34	
								3	47	47	52	53	2.0	1.90		8	8	36	
074 (7)	14 Thompson Bay, W. Wakesu	13/03/83	1930	2000+	300	<u>150</u> - 200	8.1	1	53	58	38	42	5.0	5.98		16	6	16	
								2	59	61	37	39	5.5	7.14		19	7	11	
								3	51	55	41	45	7.0	7.85		23	7	11	
								4	57	59	39	41	6.0	7.39		23	4	12	
074 (7)	15 Thompson Bay, E. Houghton I.	14/03/83	0750		200	60		1	50	54	43	46	6.5	7.03		23	8	12	
								2	38	41	54	59	7.0	5.96		26	11	17	
								3	46	48	49	52	8.0	7.75		27	9	13	
074 (7)	16 Thompson Bay, E. Houghton I.	14/03/83	1015	5000	200	0	8.1		Water haul										
074 (7)	17 Thompson Bay, E. Houghton I.	14/03/83	1800			<u>400</u> - 500	8.1	1	30	33	61	67	9.5	7.09		33	5	23	
								2	37	41	53	59	11.0	9.34		38	5	10	
								3	39	41	55	59	10.0	8.55		34	2	19	
								4	36	38	59	62	11.5	9.26		41	3	15	
								5	32	48	35	52			10.8	10.34	26	1	8
								6	37	52	34	48			10.4	10.86	24	1	9
								7	27	41	39	59			11.4	9.64	28	3	8

Table 13 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "INTREPID I", STAT. AREAS 6-8, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.	
				In loc.	Set on	Est. catch			M		F		Vol.	Adj. vol.	#1	#2	#3			
074 (7)	Thompson Bay, E. Houghton I.	15/03/83	0810		2000	100	8.0	1	36	38	59	62	12.0	9.66	44	5	10			
									41	42	56	58	11.8	10.23	41	5	10			
									3	40	40	60	60	14.0	11.67	48	3			9
									4	39	39	60	61	13.0	10.73	43	5			12
									5	38	41	55	59	11.0	9.31	38	5			12
									6	49	48	53	52	11.0	10.57	42	3			8
067 (6)	W. Higgins Pass.	16/03/83	1910		<u>3000-</u> 3500	200	100	8.3	1	41	42	56	58	14.0	12.13	49	3	4		
									2	48	48	51	52	12.0	11.65	43	2	6		
									3	51	52	47	48	13.5	14.06	43	0	4		
067 (6)	W. Higgins Pass.	17/03/83	0745		3500+	500	<u>200-</u> 300	8.3	1	57	56	45	44	11.0	12.47	40	3	2		
									2	51	51	49	49	11.0	11.22	42	2	5		
									3	47	47	52	53	13.0	12.38	48	3	1		
067 (6)	21	Kitatu Bay	18/03/83	0925			0	8.2	Water haul											
071 (7)	22	Spiller Ch., Shingle Rk.	22/03/83	2015	Skimmer				Juvenile herring											

Information on fishery (Table 11).

Table 14. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "INTREPID I", STAT. AREAS 6-8, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)														Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff				
						12	13	14	15	16	17	18	19	20	21	22	23	24	25					26	27		
						/	/	/	/	/	/	/	/	/	/	/	/	/	/					/	/		
085 (8)	1	Kwakshua Ch.	06/03/83	1115	1					4	5	4	12	7	16	3								51	19.9	18.5	20
074 (7)	2	Thompson Bay	08/03/83	1925	2								1	3	5	13	16	12						50	22.0	18.5	0
074 (7)	3	Stryker Bay	09/03/83	0945	3					1	2	2	8	15	18	5	3							54	21.8	18.5	6
074 (7)	4	Boddy Narrows	09/03/83	1400	-					Water haul														-	-	-	-
074 (7)	5	Boddy Narrows	09/03/83	1930	4					2	3	3	8	16	13	7								52	21.4	18.5	6
074 (7)	6	Thompson Bay	10/03/83	1925	5					1			7	4	22	12	3							49	21.9	18.5	2
074 (7)	7	Little Thompson Bay	11/03/83	0800	6								2		9	23	16	3						53	21.6	18.5	0
074 (7)	8	Stryker Bay, Alleyne I.	11/03/83	1700	7					1	4	2	1	13	18	6	6							51	21.0	18.5	12
074 (7)	9	Boddy Nar., Clarke I.	12/03/83	0730	-					Water haul														-	-	-	-
074 (7)	10	Boddy Nar., Clarke I.	12/03/83	0930	-					Water haul														-	-	-	-
074 (7)	11	Boddy Nar., Clarke I.	12/03/83	1030	-					Water haul														-	-	-	-
074 (7)	12	Little Thompson Bay	12/03/83	1525	8									7	15	19	8							49	22.1	18.5	0
074 (7)	13	Thompson Bay, E. Houghton I.	12/03/83	1800	9								1	2	6	20	19	3						51	21.7	18.5	2
074 (7)	14	Thompson Bay, W. Waskesu	13/03/83	1930	10					1	1	3	2	19	21	3								50	21.7	18.5	2

Table 14 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "INTREPID I", STAT. AREAS 6-8, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Blot. sample No.	Length Frequency (cm)													Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff										
						12	13	14	15	16	17	18	19	20	21	22	23	24					25	26	27							
						/	/	/	/	/	/	/	/	/	/	/	/	/					/	/	/							
074 (7)	15	Thompson Bay, E. Houghton I.	14/03/83	0750	11							4	7	21	15	3										50	21.6	18.5	0			
074 (7)	16	Thompson Bay, E. Houghton I.	14/03/83	1015	-																					-	-	-	-			
074 (7)	17	Thompson Bay, E. Houghton I.	14/03/83	1800	12						1	3	5	23	14	2	2										50	21.7	18.5	0		
074 (7)	18	Thompson Bay, E. Houghton I.	15/03/83	0810	13					1			5	9	15	12	8										50	21.6	18.5	2		
067 (6)	19	W. Higgins Pass.	16/03/83	1910	14								3	9	10	15	5	1										51	21.8	18.5	0	
067 (6)	20	W. Higgins Pass.	17/03/83	0745	15						1		3	15	22	8	6		1										56	21.5	18.5	2
067 (6)	21	Klitasu Bay	18/03/83	0925	-																						-	-	-	-		
071 (7)	22	Spiller Ch., Shingle Rk.	22/03/83	2015	16				2	4	7	13	13	6	3	3	1										52	18.1	18.5	64		

Table 15. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1", STAT. AREAS 13-17, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
				In loc.	Set on	Est. catch			M No.	%	F No.	%	Wt.	Adj. wt.	#1	#2	#3		
152 (15)	1 Lund	23/02/83	0730	2000- 3000	150	40	7.9	1	30	33	61	67	0	0	0	0	61		
152 (15)	2 Powell River	24/02/83	0745	3000	200	40	7.7	1	40	40	61	60	0	0	0	0	61		
162 (16)	3 Myrtle Creek	24/02/83	1330	500	300	30	8.4	1	32	39	50	61	0	0	0	1	49		
162 (16)	4 Grief Pt.	25/02/83	0700		60	0	7.1	-	Water haul										
152 (15)	5 Powell River	25/02/83	1040			0	7.3	-	Water haul										
152 (15)	6 Lund	25/02/83	1315	3000		?	7.8	1	56	57	42	43	0	0	0	0	42		
162 (16)	7 Grief Pt.	26/02/83	0600	400+	70	5	7.6	1	45	58	32	42	3.0	3.61	16	4	12	Few running males	15
								2	44	56	34	44	3.0	3.44	13	7	14		
152 (15)	8 1 ml E. of Powell River	26/02/83	0720	400	80	0	7.6	-	Water haul										
162 (16)	9 1/2 way between Powell River & Westview	26/02/83	0810	400	100	30	7.6	1	37	45	46	55	1.0	0.90	4	6	36		
								2	41	49	43	51	0.8	0.78	2	2	39		
152 (15)	10 Bluff E. of Lund	26/02/83	1300	3500	500	2	8.0	1	37	39	57	61	1.6	1.32	8	2	47		
								2	42	44	54	56	1.8	1.60	8	4	42		
152 (15)	11 Hurtado Pt.	27/02/83	0745	7000+	200	5	7.75	1	19	20	74	80	0.3	0.19	2	0	72		
152 (15)	12 Lund	27/02/83	0930	7000	3000	40- 50	7.8	1	57	62	35	38	1.0	1.32	4	4	27		
								2	46	51	44	49	0.5	0.51	2	2	40		
152 (15)	13 Powell River	27/02/83	1635	3000	150	60	7.8	1	42	52	39	48	4.8	4.99	17	8	14		
								2	44	56	35	44	3.8	4.29	14	4	17		
								3	42	51	40	49	4.8	4.92	16	5	19		
143 (14)	14 1 ml N. of Bowser	01/03/83	0815	1000	5	5	7.85	1	41	68	19	32	6.5	10.25	17	0	2	16	
								2	30	54	26	46	9.5	10.24	21	2	3	13	
142 (14)	15 Chrome I.	01/03/83	1025		100	0	7.9	-	Water haul										

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1", STAT. AREAS 13-17, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.	
				In loc.	Set on	Est. catch			M No.	M %	F No.	F %	Wt.	Adj. wt.	#1	#2	#3			
162 (16)	Westview	02/03/83	0835	2000	400	70	7.6	1	24	28	61	72	5.8	4.04	24	10	27			
								2	43	45	53	55	4.6	4.17	19	9	25			
								3	35	39	55	61	5.6	4.58	20	5	30			
152 (15)	Sillammon	02/03/83	1150	400- 500	100	50	7.65	1	47	54	40	46	5.4	5.87	23	6	11			
								2	43	50	43	50	6.6	6.60	26	6	11			
								3	42	50	42	50	5.0	5.00	23	4	15			
152 (15)	18	1/2 ml W. of Sillammon	02/03/83	1545		100	0	-	Water haul											
152 (15)	19	1/2 ml W. of Powell River	03/03/83	0615	4000	70- 100	5	7.7	1	40	46	47	54	8.0	7.41	31	2	14		
									2	38	45	47	55	7.5	6.78	29	5	13		
									3	43	50	43	50	8.0	8.00	30	3	10		
152 (15)	20	Powell River	03/03/83	0840	4000	150	50	7.7	1	42	44	53	56	7.8	6.99	29	4	20		
									2	45	47	50	53	7.0	6.65	30	5	15		
									3	52	57	40	43	5.5	6.32	23	1	16		
152 (15)	21	Sillammon	03/03/83	1105	500	100	0	8.0	Water haul											
152 (15)	22	Powell River	03/03/83	1320	100	3- 4	7.9	1	40	42	55	58	4.4	3.80	21	5	29			
								2	52	47	59	53	5.0	4.70	24	5	30			
								3	35	38	57	62	8.8	7.10	34	4	19			
152 (15)	23	Powell River	04/03/83	0630	3000- 4000	150	50	7.3	1	44	51	43	49	8.2	8.30	26	3	14		
									2	40	47	46	53	9.5	8.88	31	3	12		
									3	47	56	37	44	8.8	10.00	24	1	12		
152 (15)	24	1 ml SE. of Sillammon	04/03/83	0745	150	70	7.9	1	40	49	42	51	11.2	10.94	34	1	7			
								2	45	56	35	44	10.2	11.64	35	0	0			
								3	41	51	40	49	10.8	10.93	36	1	3			
162 (16)	25	Westview	04/03/83	1045	4000+	300- 400	100+	8.0	1	50	48	55	52	6.2	5.92	28	2	25		
									2	44	45	53	55	7.2	6.59	31	4	18		
									3	39	40	58	60	6.6	5.52	28	2	28		
152 (15)	26	Powell River (E. of Breakwater @ Mill)	04/03/83	1320	3000- 4000	200	0	8.1	Water haul											

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1", STAT. AREAS 13-17, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.	
				In loc.	Set on	Est. catch			M No.	F No.	M %	F %	Vol. vol.	Adj. wt.	#1	#2	#3			
152 (15)	Powell River off Hulks	04/03/83	1420	4000+	200	25- 50	8.1	1	45	48	49	52	6.4	6.14	22	4	23			
								2	46	49	47	51	7.0	6.93	30	6	11	1		
								3	50	53	45	47	7.2	7.59	29	2	14			
152 (15)	Powell River, W. of River Inside Boundary	04/03/83	1555	100+	30		8.1	1	46	45	56	55	6.0	5.46	27	3	26			
								2	46	46	53	54	7.0	6.54	30	6	17	1		
								3	49	49	50	51	3.2	3.17	20	5	25	1		
152 (15)	Powell River	05/03/83	0600		70- 100	15- 20	7.5	1	30	32	63	68	3.2	2.36	14	3	46	2		
								2	44	47	50	53	2.4	2.26	14	2	34	2		
152 (15)	Sillammon	06/03/83	0845	2000+	200	3	6.1	1	41	41	58	59	8.4	7.17	36	8	14			
								2	52	51	50	49	6.2	6.33	33	7	10			
152 (15)	Sillammon	06/03/83	1815	100		0.5		1	47	53	41	47	9.3	9.98	35	1	5			
								2	49	59	34	41	9.4	11.46	32	2	0			
								3	42	50	42	50	10.4	10.40	38	1	3	1		
152 (15)	Sillammon	07/03/83	0715	3000+	150	70	7.85	1	45	47	51	53	7.0	6.59	26	3	22	2		
								2	41	42	56	58	8.0	6.93	29	2	25	1		
								3	41	46	48	54	8.5	7.88	28	2	18	2		
152 (15)	Sillammon (1 ml SE.)	07/03/83	1050	2000	200	0	-	Water haul												
152 (15)	West of Sillammon	07/03/83	1302	2000	100	0	-	Water haul												
162 (16)	1/4 ml E. of Westview	08/03/83	0800	10,000+	600- 800	100	8.2	1	50	46	58	54	8.4	7.82			39	3	16	
								2	51	50	50	50	8.7	8.79			41	0	9	
								3	56	52	52	48	8.2	8.52			35	4	13	2
152 (15)	1/2 ml NW. of Mill	09/03/83	1300	3000+	100	50	7.9	1	32	33	66	67	2.4	1.78			13	0	53	21
152 (15)	1/2 ml W. of Dinner Rock	09/03/83	1700	1000	150	0	7.7	-	Water haul											
162 (16)	Off Westview Docks	04/03/83	unknown				-	1	40	39	63	61	7.0	5.72	32	3	28			
152 (15)	1 ml W. of Dinner Rock	09/03/83	1750	1000	150	5	7.7	-	No Information											

Table 15 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1", STAT. AREAS 13-17, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Juv. or Immat.		
				In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol. vol.	Adj. wt.	#1	#2	#3		Spnd. out	
152 (15)	40 Thulin Passage	10/03/83	0802	300+	100	0	-	-	Water haul											
152 (15)	41 NW. top end Harwood	10/03/83	1052		150	2	8.2	1	40	47	46	53	8.2	7.66	34	1	11	2		
								2	47	55	39	45	5.8	6.40	27	3	9	3		
								3	46	53	41	47	6.0	6.37	26	4	11	5		
152 (15)	42 NW. tip of Harwood	10/03/83	1202		100	0	8.2	-	Water haul											
173 (17)	43 Fraser Pt., Thetis I.	12/03/83	0550		100	50	8.7	1	49	61	31	39	8.8	11.34			30	0	1	19
								2	36	51	35	49	10.3	10.45			35	0	0	12
173 (17)	44 ^a Miami Islets	12/03/83	1315	200	150	100	8.6	1	41	49	43	51	11.0	10.74			41	2	0	4
152 (15)	45 Off Hulks MB Mill	16/03/83	1450	1000+	100	100	8.8	-	All spawned out											
152 (15)	46 Lund	17/03/83	0525	1000	100	100	8.7	-	All spawned out											

Seine Opening

A portion of management sub-area 14 - 11 opened on February 27 for 6 hours and 55 minutes for a hauled catch of 1,600 tons tested at 12% roe maturity.

Management sub-area 15 - 2 (vicinity of Powell River Mill) opened on March 4 for 5 hours and 33 minutes for a hauled catch of 900 tons, and on March 5 for 1 hour and 40 minutes for a hauled catch of 2,300 tons tested at 9.5 % or better roe maturity.

Management sub-area 17 - 7 (Nanoose Bay) opened on March 2 for 6 hours for a hauled catch of 1,800 tons, tested at 11% roe maturity.

Gillnet Opening

Management sub-areas 14 - 7 and 14 - 10 opened from February 27 to March 1 for 44 hours for a hauled catch of 8,833 tons.

^a Charter payment herring.

Table 16. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1", STAT. AREAS 13-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Blot. sample No.	Length Frequency (cm)																Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff								
						12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27												
						/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/												
152 (15)	1	Lund	23/02/83	0730	1						2	8	14	18	7	1										50	20.0	19.5	32				
152 (15)	2	Powell River	24/02/83	0745	2						2	12	10	11	10	4	1										50	20.1	19.5	44			
162 (16)	3	Myrtle Creek	24/02/83	1330	3								9	12	16	11	2										50	21.2	19.5	10			
162 (16)	4	Grief Pt.	25/02/83	0700	-													Water haul	-	-	-	-	-	-	-	-	-	-	-	-			
152 (15)	5	Powell River	25/02/83	1040	-													Water haul	-	-	-	-	-	-	-	-	-	-	-	-			
152 (15)	6	Lund	25/02/83	1315	4				1	1	6	8	9	14	7	3	0	1										50	19.8	19.0	32		
162 (16)	7	Grief Pt.	26/02/83	1600	5								11	13	15	7	3	1										50	20.1	19.0	22		
152 (15)	8	1 ml E. of Powell River	26/02/83	0720	-													Water haul	-	-	-	-	-	-	-	-	-	-	-	-			
162 (16)	9	1/2 way between Powell River & Westview	26/02/83	0810	6				1	0	0	6	12	16	10	5											50	20.3	19.0	14			
152 (15)	10	Bluff E. of Lund	26/02/83	1300	7						6	6	15	11	9	3											50	19.9	19.0	24			
152 (15)	11	Hurtado Pt.	27/02/83	0745	8						2	10	14	9	10	4	1											50	20.1	19.0	24		
152 (15)	12	Lund	27/02/83	0930	9					1	3	9	7	17	8	2	2											49	20.1	19.0	27		
152 (15)	13	Powell River	27/02/83	1635	10								1	8	15	16	9	1											50	21.0	19.0	2	
143 (14)	14	1 ml N. of Bowser	01/03/83	0815	11								3	7	10	14	11	4	1	1										51	21.4	19.0	6

Table 16 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1", STAT. AREAS 13-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)																Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
						12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27				
						/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/				
142 (14)	15	Chrome I.	01/03/83	1025	-																Water haul	-	-	-	- (14)
162 (16)	16	Westview	02/03/83	0835	12				1	1	2	13	15	10	7	1						50	19.6	19.0	34
152 (15)	17	Sillammon	02/03/83	1150	13							6	15	14	11	3	1					50	20.4	19.0	12
152 (15)	18	1/2 ml W. of Sillammon	02/03/83	1545	-																Water haul	-	-	-	-
152 (15)	19	1/2 ml W. of Powell River	03/03/83	0615	14					2	3	7	18	14	6							50	20.6	19.0	10
152 (15)	20	Powell River	03/03/83	0840	15					3	13	15	8	9	2							50	19.8	19.0	32
152 (15)	21	Sillammon	03/03/83	1105	-																Water haul	-	-	-	-
152 (15)	22	Powell River	03/03/83	1320	16					5	15	10	8	8	3	1						50	19.7	19.0	40
152 (15)	23	Powell River	04/03/83	0630	17				1	2	6	3	11	20	2	1	1	1				50	20.7	19.0	18
152 (16)	24	1 ml. SE. of Sillammon	04/03/83	0745	18				1	1	7	8	9	15	8	2						51	20.7	19.0	18
162 (16)	25	Westview	04/03/83	1045	19					1	16	18	8	7								50	19.6	19.0	32
152 (15)	26	Powell River (E. of Breakwater @ Mill)	04/03/83	1320	-																Water haul	-	-	-	-
152 (15)	27	Powell River off Hulks	04/03/83	1420	20					2	8	15	12	13								50	20.0	19.0	20
152 (15)	28	Powell River, W. of River Inside Boundary	04/03/83	1555	21				1	3	16	13	7	9	1							50	19.6	19.0	40

Table 16 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1", STAT. AREAS 13-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)																	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff	
						12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28						
152 (15)	29	Powell River	05/03/83	0600	22						2	13	15	13	5	2					50	19.7	19.0	30			
152 (15)	30	Sillammon	06/03/83	0845	23		No information																	50	19.3	19.0	38
152 (15)	31	Sillammon	06/03/83	1815	24						4	6	17	18	4	1					50	20.8	19.0	8			
152 (15)	32	Sillammon	07/03/83	0715	25				2	2	9	14	11	10	2						50	19.9	19.0	26			
152 (15)	33	Sillammon (1 ml SE.)	07/03/83	1050	-		Water haul																	-	-	-	-
152 (15)	34	West of Sillammon	07/03/83	1302	-		Water haul																	-	-	-	-
162 (16)	35	1/4 ml E. of Westview	08/03/83	0800	26				3	6	11	13	11	2	3	0	1				50	19.4	19.0	40			
152 (15)	36	1/2 ml NW. of Mill	09/03/83	1300	27			2	0	7	15	17	4	4	1						50	19.1	19.0	48			
152 (15)	37	1/2 ml W. of Dinner Rock	09/03/83	1700	-		Water haul																	-	-	-	-
162 (16)	38	Off Westview Docks	04/03/83	-	-			1	2	12	14	12	8	1							50	19.7	19.0	30			
152 (15)	39	1 ml W. of Dinner Rock	09/03/83	1750	-		No information																	-	-	-	-
152 (15)	40	Thulin Passage	10/03/83	0802	-		Water haul																	-	-	-	-
152 (15)	41	NW. tip end Harwood	10/03/83	1052	28					3	12	15	16	4							50	20.6	19.0	6			
152 (15)	42	NW. tip of Harwood	10/03/83	1202	-		Water haul																	-	-	-	-

Table 16 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "WESTVIEW NO. 1", STAT. AREAS 13-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)																Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff			
						12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27							
						/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/							
173 (17)	43	Fraser Pt., Thetis I.	12/03/83	0550	29					2	3	8	3	7	5	13	5	4							50	20.0	19.0	32
173 (17)	44	Miami Islets	12/03/83	1315	30					1	2	4	9	10	11	9	3	1							50	20.8	19.0	14
152 (15)	45	Off Hulks MB Mill	16/03/83	1450	-					All spawned out											-	-	-	-				
152 (15)	46	Lund	17/03/83	0525	-					All spawned out											-	-	-	-				

Table 17. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 12-17, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %			Roe Grade (Pcs)			Juv. or Immat.
				In loc.	Set on	Est. catch			M No.	M %	F No.	F %	Vol. vol.	Adj. wt.	#1	#2	#3	Spnd. out	
142 (14)	1 Deep Bay Hole	23/02/83	0500	1000-	600-	150	6.2	1	40	40	61	60		0	0	0	5	56	
				1500	700			2	42	53	38	47		0	0	0	5	33	
142 (14)	2 Deep Bay	25/02/83	1845	1000-	1000	125	6.0	1	22	29	55	71		4.4	3.08	16	5	34	
				1500	1500			2	36	48	39	52		3.1	2.98	11	11	17	
142 (14)	3 Sandy I. (Inside Baynes Sd.)	26/02/83	0930		200	50	6.3	1	34	32	73	68	8.0	5.87		39	2	32	3
								2	28	33	58	67		8.8	6.53	31	5	22	
142 (14)	4 Comox Harbour (btwn. Goose Spit & Gartlen Pt.)	27/02/83	0540		300	20	6.3	1	38	51	37	49		9.8	9.94	30	2	5	Gonads running
								2	42	53	37	47		9.05	9.67	29	3	5	running
								3	34	47	39	53		10.75	10.07	31	4	4	2
142 (14)	5 Sandy I.	27/02/83	0950	3000-	75	25	6.3	1	24	32	52	68		9.2	6.73	28	5	19	1
				4000				2	35	41	51	59		8.47	7.14	28	2	21	
								3	36	44	46	56		8.1	7.22	23	5	18	2
								4	53	40	81	60	9.0	7.45					
142 (14)	6 Lambert Channel & Chrome I.	28/02/83	1500			10	6.2	1	32	35	60	65		2.75	2.11	9	11	40	9
								2	45	45	54	55		1.10	1.01	7	7	40	7
142 (14)	7 Chrome I.	28/02/83	1615			75	6.2	1	33	34	63	66	11.0	8.38		43	3	17	12
								2	26	37	45	63		10.0	7.89	30	2	13	7
								3	32	46	37	54		8.5	7.93	26	4	7	6
142 (14)	8 Lambert Channel (Gravelly Bay)	28/02/83	1730	3000-	15	200	6.3	1	45	38	72	62	12.0	9.76		57	3	12	
				4000				2	31	42	42	58		7.75	6.74	24	2	16	3
								3	35	50	35	50		7.9	7.90	27	1	7	4
								4	48	42	66	58	8.0	6.91		39	8	19	6
142 (14)	9 Lambert Channel (off Ford Cove)	01/03/83	0620		sklm	15	6.3	1	48	44	60	56	8.0	7.19		38	4	18	16
								2	36	46	43	54		6.2	5.70	19	2	12	11
172 (17)	10 Nanoose (Deep Hole)	01/03/83	1450			10	6.5	1	45	54	39	46		5.2	5.60	17	4	18	2
								2	54	53	47	47		5.5	5.91	24	3	20	8
172 (17)	11 Nanoose Bay	01/03/83	1525			0			Water haul										
172 (17)	12 Nanoose	02/03/83	0705		150	40	6.4	1	38	47	43	53		11.95	11.25	39	0	4	2
								2	47	57	35	43		8.8	10.30	31	1	3	2
								3	30	35	55	65		13.45	10.39	48	2	5	

131

Table 17 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 12-17, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Juv. or Immat.	
				In loc.	Set on	Est. catch			M No.	M %	F No.	F %	Vol. vol.	Wt. wt.	#1	#2	#3		Spnd. out
144 (14)	13 NW. Bay	02/03/83	1150			0.1	6.4	1	42	71	17	29	7.0	12.15		16	0	1	1
144 (14)	14 NW. Bay, Cottam Pt.	02/03/83	1310		200	<u>75-</u> 100	6.4	1	24	59	17	41	5.4	6.51		14	1	2	34
142 (15)	15 Deep Hole	03/03/83	0530		(skimmer)	10	6.3	1	35	43	46	57	0	0		1	9	36	58
162 (16)	16 Between Grief Pt. & Westview	03/03/83	1230			<u>50-</u> 75	6.5		Water haul										
162 (16)	17 1/4 ml NE. of Grief Pt.	03/03/83	1545			30	6.6		Water haul										
162 (16)	18 1/2 ml off Hulks Breakwater	04/03/83	0555			<u>10-</u> 15	6.2	1	45	50	45	50	8.9	8.90		39	1	5	1
								2	34	39	53	61	8.6	6.57		32	4	17	
								3	36	40	54	60	8.7	7.25		38	1	15	
162 (16)	19 Off Breakwater (Hulks)	05/03/83	0550	15-7fm	skim	75	6.3	1	51	53	45	47	6	6.40		30	0	15	
								2	49	46	57	54	7.2	6.69		42	0	15	
								3	43	46	51	54	7	6.44		34	0	17	
162 (16)	20 Stillwater Bay	09/03/83	0810	50	30	0.1		1	43	40	64	60	8.3	6.94		48	1	15	
162 (16)	21 Lang Bay	09/03/83	0910	50		5	7.2	1	53	51	51	49	4.5	4.59		29	3	19	2
								2	52	50	53	50	6.2	6.14		36	0	17	3
								3	49	47	55	53	6.6	6.24		35	2	18	1
144 (14)	22 Northwest Bay	10/03/83	0940	75	75	20	6.8	1	45	62	28	38	8.9	11.59		27	1	0	5
								2	40	56	32	44	7.8	8.78		32	0	0	15
								3	27	38	44	62	11.2	9.03		42	0	2	13
								4	33	46	38	54	9.6	8.97		38	0	0	14
173 (17)	23 Miami I.	12/03/83	0625			100 lb		1	48	67	24	33	6.9	10.36		24	0	0	26
173 (17)	24 Miami I.	12/03/83	0850		30- 40	5		1	46	57	35	43	8.5	9.84		35	0	0	20
173 (17)	25 North Cove	12/03/83	1050			0			Water haul										

Table 17. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC OCEAN", STAT. AREAS 12-17, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp Test (°C) No.	Sex Ratio				Roe Yield %			Roe Grade (Pcs)			Spnd. out	Juv. or Immat.			
				In loc.	Set on	Est. catch		M No.	%	F No.	%	Vol. vol.	Adj. wt.	#1	#2	#3						
173 (17)	26 ^a Pilikey Pt.	12/03/83	1305		250	115		1	34	40	51	60		13.2	11.00	50	0	1	5			
								2	39	47	44	53		11.4	10.75	41	1	2	3			
								3	45	56	35	44		8.4	9.59	32	2	1	11			
								4	37	46	44	54		9.86	9.08	40	3	1	7			
										mid pumping	5	67	56	53	44	10.0	11.31		50	2	1	6
										end pumping	6	42	51	41	49		8.9	9.01	38	0	3	7
								7	30	36	53	64		11.7	9.15	49	3	1	14			
126 (12)	27 Wakeman Sd.	15/03/83	1230		200- 300	100	0		Water haul													
126 (12)	28 Moore Bay	15/03/83	1610		150	100	0	Juveniles														
123 (12)	29 Clio Channel, Bennett Pt.	17/03/83	0515	V. light	sklm	2-3	6.3	1	29	45	36	55	3.0	2.71	10	6	20	4				
132 (13)	30 Deepwater Bay	18/03/83	0550	V. light	sklm	2-3	6.9	No information														
142 (14)	31 Lambert Channel	18/03/83	2000		600- 800	sklm	10	7.3	All fish spawned out													

Fishery information (Table 15).

^a Charter payment herring.

Table 18. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 12-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Blot. sample No.	Length Frequency (cm)																	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
						12 / 13	13 / 14	14 / 15	15 / 16	16 / 17	17 / 18	18 / 19	19 / 20	20 / 21	21 / 22	22 / 23	23 / 24	24 / 25	25 / 26	26 / 27	27 / 28					
142 (14)	1	Deep Bay Hole	23/02/83	0500	1						1	3	1	14	16	10	5					50	21.3	19.0	8	
142 (14)	2	Deep Bay	25/02/83	1845	2				1		4	3	4	12	12	11	2	1					50	20.8	19.0	16
142 (14)	3	Sandy I. (Inside Baynes Sd.)	26/02/83	0930	3				1	2	4	9	15	6	7	4	1	1					50	19.8	19.0	32
142 (14)	4	Comox Harbour (Btwn. Goose Spit & Gartlen Pt.)	27/02/83	0540	4									10	4	12	16	6	2				50	21.7	19.0	0
142 (14)	5	Sandy I.	27/02/83	0950	5				1	1	3	2	5	8	15	8	6	1					50	21.0	19.0	14
142 (14)	6	Lambert Channel & Chrome I.	28/02/83	1500	6					3	3	6	12	8	11	4	2	1					50	20.2	19.0	24
142 (14)	7	Chrome I.	28/02/83	1615	7						5	11	12	13	8	3							52	20.8	19.0	10
142 (14)	8	Lambert Channel (Gravelly Bay)	28/02/83	1730	8				1	1	2	3	13	15	10	4		1					50	21.3	19.0	8
142 (14)	9	Lambert Channel (off Ford Cove)	01/03/83	0620	9					2	2	5	8	12	13	7	2						51	20.5	19.0	18
172 (17)	10	Nanoose (Deep Hole)	01/03/83	1450	10				2	4	7	4	4	5	5	7	7	4	1				50	19.5	19.0	42
172 (17)	11	Nanoose Bay	01/03/83	1525	-																		-	-	-	-
172 (17)	12	Nanoose	02/03/83	0705	11					4			7	17	11	10		1					50	20.8	19.0	8
144 (14)	13	NW. Bay	02/03/83	1150	12									1	13	16	16	4	1				51	22.7	19.0	0
144 (14)	14	NW. Bay, Cottam Pt.	02/03/83	1310	13					1	1	5	14	13	11	5	1						51	21.4	19.0	4

Table 18 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 12-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)														Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
						12 / 13	13 / 14	14 / 15	15 / 16	16 / 17	17 / 18	18 / 19	19 / 20	20 / 21	21 / 22	22 / 23	23 / 24	24 / 25	25 / 26				
142 (14)	15	Deep Hole	03/03/83	0530	14				4	11	15	10	6	1	2			1	50	17.9	19.0	80	
162 (16)	16	Between Grief Pt. & Westview	03/03/83	1230	-				Water haul										-	-	-	-	
162 (16)	17	1/4 mi NE, of Grief Pt.	03/03/83	1545	-				Water haul										-	-	-	-	
162 (16)	18	1/2 mi off Hulks Breakwater	04/03/83	0555	15					2	5	11	19	9	3	1			50	20.3	19.0	14	
162 (16)	19	Off Breakwater (Hulks)	05/03/83	0550	16				2	2	12	9	14	10	2	1			54	19.9	19.0	32	
162 (16)	20	Stillwater Bay	09/03/83	0810	17				3	4	4	12	8	13	8	2	1		55	19.4	19.0	42	
162 (16)	21	Lang Bay	09/03/83	0910	18				2	1	3	14	20	10				50	19.1	19.0	40		
144 (14)	22	Northwest Bay	10/03/83	0940	19					3	8	9	15	7	5	3		50	20.3	19.0	22		
173 (17)	23	Miami I.	12/03/83	0625	-				No information														
173 (17)	24	Miami I.	12/03/83	0850	19				No information														
173 (17)	25	North Cove	12/03/83	1050	-				Water haul														
173 (17)	26	Pilkey Pt.	12/03/83	1305	20				No information														
126 (12)	27	Wakeman Sd.	15/03/83	1230	-				Water haul														

Table 18 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC QUEST", STAT. AREAS 12-17, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)																Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
						12 /	13 /	14 /	15 /	16 /	17 /	18 /	19 /	20 /	21 /	22 /	23 /	24 /	25 /	26 /	27 /				
126 (12)	28	Moore Bay	15/03/83	1610	-	Juveniles																-	-	-	-
123 (12)	29	Clio Channel, Bennett Pt.	17/03/83	0515	21					4	6	6	7	8	10	6	1	1	49	21.0	19.0	20			
132 (13)	30	Deepwater Bay	18/03/83	0550	22	No information																-	-	-	-
142 (14)	31	Lambert Channel	18/03/83	2000	23	All fish spawned out																-	-	-	-

Table 19. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC OCEAN", STAT. AREAS 13-15, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
				In loc.	Set on	Est. catch			M No.	%	F No.	%	Wt.	Adj. wt.	#1	#2	#3		
132 (13)	1 Deepwater Bay	15/02/83	1300		200	3		1	47	46	55	54	0	0	0	0	55		
152 (15)	2 Lund	16/02/83	1000	<u>3000-</u> 4500	<u>3000-</u> 4500	50	7.6	1	45	38	74	62	0	0	0	0	74		
142 (14)	3 Deep Bay	18/02/83	2100	700+	700+	100		1	48	45	58	55	0	0	0	0	58		
132 (13)	4 Deepwater Bay	26/02/83	1945	4000	4000	50	8.3	1	57	53	50	47	0	0	0	0	50		
142 (14)	5 Deep Bay	27/02/83	1930	1200	50	5	7.1	1	43	46	50	54	6.3	5.86	21	27	2		
								2	39	45	47	55	6.4	5.85	16	31	0		
152 (15)	6 Powell Mill	28/02/83	1030	3000+	300	200	7.4	1	39	44	50	56	2.6	2.31	12	11	27		
								2	40	44	50	56	3.6	3.24	13	9	28		
152 (15)	7 Lund	28/02/83	1500	5000+	200+	100	8.2	1	52	55	42	45	2.4	2.68	13	2	27		
								2	43	54	36	46	3.2	3.51	15	6	25		
152 (15)	8 Britton I's.	28/02/83	1900		300	100	8.1	1	65	57	50	43	0		0	0	50		
136 (13)	9 Evans Bay	01/03/83	0530	1500	skimmer	100	7.7	1	56	54	47	46	0.5	0.55	3	3	41		
152 (15)	10 North of Atrevida Reef	01/03/83	1050		1100	0			Water haul										
152 (15)	11 Powell River Mill	01/03/83	1230		75	75	7.5	1	31	32	65	68	2.4	1.77	17	4	44		
								2	38	40	58	60	4.0	3.31	15	2	41		
								3	46	46	53	54	3.2	2.99	11	3	39		
152 (15)	12 Lund	01/03/83	1645		500	80	7.7	1	48	56	38	44	3.2	3.62	16	0	22		
								2	50	59	35	41	5.2	6.31	18	0	17		
								3	41	46	48	54	6.2	5.75	20	3	25		
152 (15)	13 Btwn. Lund & Thulln Pass	02/03/83	0645	3000+	500	100	7.0	1	45	51	44	49	5.2	5.26	21	1	22		
								2	43	51	41	49	6.2	6.35	22	0	19		
								3	51	58	37	42	5.8	6.90	19	2	16		

Table 19 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC OCEAN", STAT. AREAS 13-15, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.	
				In loc.	Set on	Est. catch			M No.	F No.	%	%	Vol. vol.	Adj. wt.	#1	#2	#3			
152 (15)	14 Lund	03/03/83	0730			0	-	-	(15)	Water haul										
152 (15)	15 Lund	03/03/83	0830			0	7.8	-	(15)	Water haul										
152 (15)	16 Lund	03/03/83	0900	2000	500	100	7.8	1	45	51	44	49	3.8	3.85	18	2	24			
								2	49	53	44	47	4.8	5.07	20	6	18			
								3	38	47	43	53	4.0	3.77	14	7	22	1		
152 (15)	17 Lund	03/03/83	1810		75	50	8.1	1	48	44	61	56	2.6	2.32	16	5	40			
								2	43	43	56	57	3.8	3.36	16	4	36			
								3	41	41	58	59	3.0	2.56	16	2	40			
152 (15)	18 Lund	04/03/83	0630				7.8	1	81	43	108	57	1.4	1.23	71	0	37			
152 (15)	19 Lund	04/03/83	0745	1500+	400	75	7.8	1	37	46	43	54	5.8	5.39	21	5	17			
								2	42	46	49	54	7.6	7.06	26	5	18			
								3	37	45	45	55	6.2	5.65	20	5	20			
152 (15)	20 Sillammon	05/03/83	0630		800- 1000	60	7.2	1	42	48	45	52	9.6	9.28	41	0	4			
								2	48	58	35	42	8.6	10.19	28	0	7			
								3	41	59	42	51	11.4	11.26	39	0	3			
152 (15)	21 Sillammon Village	06/03/83	0700			1	-	1	34	28	87	72	6.5	4.52				41	9	37
152 (15)	22 Sillammon Village	06/03/83	0800	1000		100	-	1	65	53	58	47	7.0	7.42				49	2	7
								2	65	52	59	48	8.0	8.40				53	0	6
								3	53	48	58	52	9.0	8.60				51	2	5
								4	?		50		9.5	N/A				40	0	10
								5	45	49	46	51	8.0	7.92				36	5	5
152 (15)	23 Sillammon Village	07/03/83	0745		200	30	7.9	1	42	49	43	51	9.6	9.49	32	1	10			
								2	36	41	52	59	9.8	8.29	32	4	16		1	
								3	38	41	55	59	7.4	6.26	24	2	29		2	

Table 19 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACIFIC OCEAN", STAT. AREAS 13-15, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Dep. fa	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or Immat.
						In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol. vol.	Adj. wt.	#1	#2	#3		
152 (15)	24	Sillammon Village	07/03/83	1100			0.5	1		51	55	41	45	8.9	9.98	32	3	6	4		
							Sun Ylp	2		51	50	50	50	9.0	9.09	38	2	10			
152 (15)	25	S. of Sillammon Village	07/03/83	1430	1000		200	40	8.2	1	38	39	60	61	6.1	4.98	28	3	29		
152 (15)	26	Mill area Powell River	09/03/83	0700			300	0	7.8		Water haul										
152 (15)	27	Sillammon	09/03/83	0845			100	15	8.1	1	48	46	56	54	4.1	3.81	21	3	32	13	
										2	52	44	66	56	3.7	3.31	18	2	46	7	
137 (13)	28	Herlot Bay	14/03/83	1300	3000- 4000		400	50	8.3	1	57	55	47	45	8.3	9.18	40	0	7	6	
										2	90	53	79	47	6.5	6.96	61	4	14	4	
							Sun Ylp Sample Method	3		55	52	50	48	No information		41	2	7			

Fishery Information (Table 15).

Table 20. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACIFIC OCEAN", STAT. AREAS 13-15, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)																Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
						12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27				
						/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/				
132 (13)	1	Deepwater Bay	15/02/83	1300	1						2	6	7	18	9	2	6					50	21.6	19.0	4
152 (15)	2	Lund	16/02/83	1000	2				1	5	6	16	4	9	6	2						49	20.1	19.0	25
142 (14)	3	Deep Bay	18/02/83	2100	3						1	1	13	10	18	5						48	21.7	19.0	2
132 (13)	4	Deepwater Bay	26/02/83	1945	4				4	9	19	10	4	1								47	18.6	19.0	68
142 (14)	5	Deep Bay	27/02/83	1930	5			2	4	4	7	7	5	14	4	3						50	18.9	19.0	48
152 (15)	6	Powell Mill	28/02/83	1030	6						3	5	7	21	7	7						50	20.4	19.0	16
152 (15)	7	Lund	28/02/83	1500	7				1	3	9	8	17	3	7	2						50	20.2	19.0	26
152 (15)	8	Briton I's.	28/02/83	1900	8				1	7	11	17	12	2								50	19.3	19.0	38
136 (13)	9	Evans Bay	01/03/83	0530	9			1	1	8	13	10	14	3	1							51	19.2	19.0	46
152 (15)	10	North of Atrevida Reef	01/03/83	1050	-						Water haul										-	-	-	-	
152 (15)	11	Powell River Mill	01/03/83	1230	10				1	3	10	15	16	3	2							50	19.7	19.0	28
152 (15)	12	Lund	01/03/83	1645	11						6	17	13	7	4	3						50	20.4	19.0	12
152 (15)	13	Btwn. Lund & Thulln Pass	02/03/83	0645	12				1	2	8	10	13	7	7	1	1					50	20.3	19.0	22
152 (15)	14	Lund	03/03/83	0730	-						Water haul										-	-	-	-	

Table 21. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 17 and 18, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %			Roe Grade (Pcs)			Juv. or Immat.
				In loc.	Set on	Est. catch			M No.	M %	F No.	F %	Vol. vol.	Adj. wt.	#1	#2	#3	Spnd. out	
173 (17)	1 Off Ruxton Pass (near Valdes I. side)	22/02/83	1945	1500	500	150	-	1	69	51	65	49	0	0	0	0	65		
171 (17)	2 Porlier Pass	23/02/83	0520-	10,000 15,000	100	15- 20	6.4	1	64	58	47	42	0	0	1	0	46	1	
173 (17)	3 Pylades Channel	23/02/83	1915	3000	500	60- 70	6.7	1	45	54	38	46	0	0	1	5	32		
171 (17)	4 Chivers Pt.	23/02/83	2335-	10,000 15,000 2000- 3000		10	6.5	1	51	41	72	59			0	2	70		13
183 (18)	5 Plumper Sound	24/02/83	1855-	200 300	30	5	6.7	1	43	52	40	48	0	0	0	8	32		
181 (18)	6 Bottom end Satellite Ch.	25/02/83	0550-	2000 3000	150	30- 40	6.5	1	36	49	37	51	0	0	0	9	28		
171 (17)	7 Porlier Pass	25/02/83	1955	10,000	300	2	6.3	1	55	56	44	44	0	0	2	21	21		
173 (17)	8 Pylades Channel	26/02/83	0515	1500	120	40	6.2	1	52	58	37	42	0	0	8	9	20		
172 (17)	9 Nanoose Bay	26/02/83	1900	900	400	300	6.4	1	55	53	49	47		3.0	3.18	16	8	25	
173 (17)	10 Pylades Channel	27/02/83	1910	1000	250	100	6.5	1 2	63 61	62 62	39 38	38		2.2 3.8	2.88 4.95	8 12	4 4	27 22	3
173 (17)	11 Cardale Pt. (N. of Porlier Pass)	27/02/83	2155	10,000	400	200	6.4	1	46	55	38	45		2.2	2.43	6	6	26	
172 (17)	12 Nanoose Bay	01/03/83	0400	3000	300	200	6.2	1 2 3	47 46 48	55 60 56	38 31 37	45 40 44		7.0 8.4 8.6	7.83 10.42 9.89	22 25 25	2 2 2	14 4 10	
172 (17)	13 Nanoose Bay	01/03/83	0600	3000	300	200	6.0	1 2 3	27 35 48	38 47 65	45 39 26	62 53 35		11.2 9 6.4	8.96 8.54 9.12	32 26 17	4 6 2	9 7 7	1

Table 21 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 17 and 18, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %				Roe Grade (Pcs)			Spnd. out	Juv. or Immat.	
				In loc.	Set on	Est. catch			M No.	M %	F No.	F %	Vol. vol.	Adj. wt.	Wt. Adj. wt.	#1	#2	#3				
172 (17)	14 Nanoose Bay	01/03/83	1520	3000+		200	6.2	1	40	48	44	52			10.8	10.31	30	3	11			
								2	40	44	51	56			9.8	8.75	33	4	14	3		
172 (17)	15 Nanoose Bay	02/03/83	0320	3000		5	6.2	1	63	57	47	43			0.4	0.47	5	3	39	14		
								Two layers of herring - mature on bottom														
172 (17)	16 Nanoose Bay	02/03/83	0530	3000		20	6.2	1	48	49	50	51			0.4	0.39	4	3	43	23		
173 (17)	17 Pylades Channel	02/03/83	2000		50	40	6.3	1	54	59	37	41			2.6	3.19	12	5	21			
								2	61	48	65	52	4.25	4.12	5.1	4.94	24	11	30			
173 (17)	18 Head of Pylades Channel	03/03/83	0600	500- 600	300- 400	2- 3	6.2	1	63	50	63	50	4.25	4.25	5.36	5.36	27	12	24	6		
171 (17)	19 Porlier Passage	03/03/83	1915	6000- 8000	L. Skim	40	6.3	1	57	46	68	54			0.69	0.63	7	12	49	8		
171 (17)	20 Porlier Pass	04/03/83	0400	8000- 10,000	6	5	6.15	1	52	47	59	53			0.5	0.47	2	5	52	33		
172 (17)	21 Northumberland Channel	04/03/83	1730	1000	100	1	6.1	1	57	47	64	53	8.0	7.56	8.0	7.56	46	7	11	21		
								2	68	53	60	47	7.75	8.26	7.9	8.42	43	7	10	12		
								3	79	61	50	39	6.0	7.73	5.9	7.60	36	2	12	24		
172 (17)	22 Northumberland Channel	08/03/83	0825			0	6.5	Water haul														
171 (17)	23 Porlier Passage	09/03/83	0612			0	Corkline broke															
171 (17)	24 Porlier Passage	09/03/83	2005		7	5		1	14	36	25	64	0	0			2	4	19	34		
181 (18)	25 Satellite Ch. (off Fulford Harbour)	10/03/83	1850	Skimmer		20	7.0	1	5	56	4	44	0	0			0	0	4	92		
173 (17)	26 North Cove	11/03/83	1134		100	7	6.9	1	34	45	42	55	9.0	8.14	11.36	10.27	42	0	0	6		
								2	30	41	44	59	8.5	7.14	10.07	8.46	39	2	3	5		
								3	35	46	41	54	8.2	7.61	11.64	10.80	39	2	0	1		

Table 21 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 17 and 18, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Spnd. out	Juv. or immat.
				In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol. vol.	Wt. wt.	#1	#2	#3		
171 (17)	Porlier Pass	13/03/83	0602	30	30	1	6.8	1	41	Spawned out		0	0	2	7	5	55		
								2	29					1	2	11	59		
173 (17)	Stuart Channel, Telegraph Harbour	14/03/83	0431	200	<u>30-</u> 40		6.7			Juvenile herring									
173 (17)	Stuart Channel (off Tent Island)	14/03/83	0542	<u>200-</u> 300	skimmer	<u>1-</u> 2	6.5		7	Spawned out		0	0	1			104		
183 (18)	Plumper Sound	16/03/83	1930	20	20	10	7.3	1	5	Spawned out		0	0				95		
171 (17)	Porlier Pass	18/03/83	0550		<u>5-</u> 10	2	6.6	1	19	70	8	30	Spawned out		0	0	8	62	

Fishery Information (Table 15).

106

Table 22. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 17 and 18, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Blot. sample No.	Length Frequency (cm)																	Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff		
						12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27							
						/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/							
173 (17)	1	Off Ruxton Pass (near Valdes I. side)	22/02/83	1945	1					1	2	4	8	15	13	3	3								49	20.5	19.0	14
171 (17)	2	Porlier Pass	23/02/83	0520	2				1	1	1	4	7	4	10	7	11	4							50	21.4	19.0	14
173 (17)	3	Pylades Channel	23/02/83	1915	3				3	2	3	8	12	11	5	5	2								51	20.7	19.0	16
171 (17)	4	Chivers Pt.	23/02/83	2335	4			1	3	1	10	11	5	7	9	4									51	18.2	19.0	61
183 (18)	5	Plumper Sound	24/02/83	1855	5					2	3	4	6	5	8	13	6	3							50	21.2	19.0	18
181 (18)	6	Bottom end Satellite Ch.	25/02/83	0550	6				1	0	1	1	7	8	11	13	8								50	21.4	19.0	6
171 (17)	7	Porlier Pass	25/02/83	1955	7					3	4	2	6	13	11	5	1	3	2						50	20.7	19.0	18
173 (17)	8	Pylades Channel	26/02/83	0515	8				1	2	4	6	7	19	6	3	3								51	21.0	19.0	14
172 (17)	9	Nanoose Bay	26/02/83	1900	9			1	1	2	8	6	12	6	5	6	3								50	19.7	19.0	36
173 (17)	10	Pylades Channel	27/02/83	1910	10			1	1	6	1	2	6	9	10	9	5								50	20.4	19.0	22
173 (17)	11	Cardale Pt. (N. of Porlier Pass)	27/02/83	2155	11				1	2	0	4	5	11	19	6	2	1							51	20.8	19.0	14
172 (17)	12	Nanoose Bay	01/03/83	0400	12				2	1	5	4	10	13	7	5	3	0	1						51	21.2	19.0	16
172 (17)	13	Nanoose Bay	01/03/83	0600	13							4	6	8	14	10	7	1							50	21.4	19.0	8
172 (17)	14	Nanoose Bay	01/03/83	1520	14				4	1	9	4	10	13	7	2									50	20.3	19.0	28

Table 22 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 17 and 18, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Bot. sample No.	Length Frequency (cm)																Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
						12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27				
						/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/				
172 (17)	15	Nanoose Bay	02/03/83	0320	15			1	8	13	9	8	6	3	0	1	1				50	17.7	19.0	78	
172 (17)	16	Nanoose Bay	02/03/83	0530	16			No length data													50		19.0	76	
173 (17)	17	Pylades Channel	02/03/83	2000	17			1	3	5	3	5	14	6	6	6	1	1				51	19.5	19.0	33
173 (17)	18	Head of Pylades Channel	03/03/83	0600	18				1	4	3	2	10	9	14	5	1					49	20.2	19.0	20
171 (17)	19	Porlier Passage	03/03/83	1915	19				1	2	6	15	9	7	5	4	1					50	20.4	19.0	18
171 (17)	20	Porlier Pass	04/03/83	0400	20			1	0	1	8	12	6	5	7	9						49	18.7	19.0	57
172 (17)	21	Northumberland Channel	04/03/83	1730	21				4	8	10	4	10	8	5	1						50	19.6	19.0	44
172 (17)	22	Northumberland Channel	08/03/83	0825	-				Water haul													-	-	-	-
171 (17)	23	Porlier Passage	09/03/83	0612	-				Corkline broke													-	-	-	-
171 (17)	24	Porlier Passage	09/03/83	2005	22						5	3	12	6	9	6	4	1	1			47	21.7	19.0	11
181 (18)	25	Satellite Ch. (off Fulford Harbour)	10/03/83	1850	23				2	5	3	11	13	11	4	0	1					50	20.2	19.0	20
173 (17)	26	North Cove	11/03/83	1134	24				1	0	3	9	16	7	6	2	4	2				50	21.1	19.0	8
171 (17)	27	Porlier Pass	13/03/83	0602	25			1	0	1	4	8	5	11	10	3	4	1	1	1		50	19.5	19.0	38
173 (17)	28	Stuart Channel, Telegraph Harbour	14/03/83	0431	-				Juvenile herring													-	-	-	-

Table 22 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "ARGENT FISHER", STAT. AREAS 17 and 18, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)														Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff				
						12	13	14	15	16	17	18	19	20	21	22	23	24	25					26	27		
						/	/	/	/	/	/	/	/	/	/	/	/	/	/					/	/		
173 (17)	29	Stuart Channel (off Tent Island)	14/03/83	0542	26				1	7	4	4	7	13	4	8	2							50	19.8	19.0	32
183 (18)	30	Plumper Sound	16/03/83	1930	27					3	1	1	14	12	15	2	3	1						50	20.5	19.0	10
171 (17)	31	Porlier Pass	18/03/83	0550	28				1	2	3	8	8	11	4	10	3							50	20.2	19.0	22

Table 23. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACHENA I", STAT. AREA 23, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %			Roe Grade (Pcs)			Spnd. out	Juv. or Immat.				
					In loc.	Set on	Est. catch			M		F		Vol. vol.	Adj. wt.	Adj. wt.	#1	#2	#3						
232 (23)	1	Forbes I.	24/02/83	1615		50	40	9.0	1	34	50	34	50	6.0	7.50	9.4	9.40	22	5	7					
										2	35	53	31			47	7.6	8.09	20	5			6		
										3	39	55	32			45	8.6	9.53	20	2			10		
										4	60	60	40			40			20	3			17		
232 (23)	2	St. Ines I.	26/02/83	1530	1000	200	150	8.6	1	30	46	35	54			9.3	8.64	26	2	7					
										2	40	55	33			45	9.8	10.84	26	2			5		
										3	38	51	36			49	8.9	9.16	23	1			12		
232 (23)	3	Forbes I.	27/02/83	0740			0	-	-	Water haul															
232 (23)	4	Shears I's.	27/02/83	1645			7	8.0	1	36	57	27	43			9.6	11.19	25	1	1					
										2	29	43	38			57	13.7	12.08	34	1			3		
										3	31	46	37			54	10.9	10.02	30	1			6		
231 (23)	5	Pipestem Inlet	27/02/83	2130	1500-	800-	300			1	22	33	44	67			12.3	9.22	36	4	4				
					2000	1000					2	34	55	32			45	9.6	9.90	25	4			3	
											3	29	45	36			55	13.7	12.36	32	3			1	
232 (23)	6	1/2 ml S. of Forbes I.	28/02/83	1145		40	40	8.6	1	33	43	44	57			6.3	5.52	22	2	20					
										2	34	43	45			57	7.6	6.67	23	1			21		
										3	32	40	49			60	7.6	6.28	24	2			23		
232 (23)	7	Forbes I.	28/02/83	1335	1000	400	75		1	46	57	35	43					20	7	8					
										2	31	44	40					56					24	2	14
										3	38	53	34					47					22	3	9
232 (23)	8	Spilling Islet	01/03/83	0545		300	80	8.2	1	43	50	43	50	11.0	11.00	11.26	11.26	34	2	7					
										2	50	52	46	48	10.5	10.96	10.6	11.06	35	1			10		
										3	51	52	48	48	10.0	10.31	10.1	10.41	38	4			6		
232 (23)	9	Shears I.	02/03/83	0947		100	40		1	33	43	43	57			13.2	11.66	33	5	5					
										2	34	48	37			52	13.3	12.76	30	3			4		
										3	40	52	37			48	9.6	9.98	30	2			5		
232 (23)	10	Spilling Islet	02/03/83	1300			0	-	-	Water haul															

Table 23 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "PACHENA I", STAT. AREA 23, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %			Roe Grade (Pcs)			Snd. out	Juv. or immat.
					In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol. vol.	Adj. wt.	Vol. wt.	Adj. wt.	#1	#2		
232 (23)	11	Barkley Sd./ Spilling Islet	02/03/83	1550	500-	150-	30		1	38	54	33	46		11.7	12.58	31	2	0		
					1000	200			2	27	43	36	57		15.6	13.66	36	0	0		
232 (23)	12	Spilling Islet	02/03/83	1650	500-	200	60-	8.2	1	43	50	43	50		10.2	10.20	34	4	5		
					1000		70		2	35	43	47	57		14.2	12.39	41	3	3		
232 (23)	13	Hermit Islet	02/03/83	1810	1000	100			1	46	62	28	38		10.8	14.29	26	1	1		
									2	30	42	42	58		14.0	12.01	35	3	4		
									3	34	47	38	53		15.0	14.20	35	1	2		
									4	33	47	37	53		9.96	9.41	33	2	2		
									5	32	43	42	57		10.02	8.82	41	0	1		
232 (23)	14 ^a	Barkley Sd. (Toquant Bay)	05/02/83	1030	5000-	150	230		1	26	41	38	59	net	13.8	11.62	37	0	1		
					7000				2	39	51	37	49	net	11.7	12.01	33	0	4		
									3	37	47	41	53	net	11.6	11.03	33	4	4		
									4	36	46	43	54	pump	12.2	11.21	39	1	3		
									5	46	55	37	45	pump	9.8	10.99	33	0	4		
									6	40	50	40	50	pump	11.2	11.20	37	0	3		
									7	39	53	35	47	pump	13.0	15.86	34	0	1		
									8	34	48	37	52	pump	14.2	13.63	37	0	0		

Seine Opening

Management sub-area 23 - 10 opened on March 1 for 3 hours and 26 minutes for a hauled catch of 5,100 tons, tested at 14% roe maturity.

^a Charter payment herring.

Table 24. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "PACHENA 1", STAT. AREA 23, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)																	Average length (cm)	Cutoff (cm)	% Below cutoff
						12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27				
						/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/				
232 (23)	1	Forbes I.	24/02/83	1615	1					1	0	1	1	3	10	18	9	4	3		50	22.4	19.0	4	
232 (23)	2	St. Ines I.	26/02/83	1530	2					3	1	4	5	7	6	14	7	2	1		50	21.3	19.0	16	
232 (23)	3	Forbes I.	27/02/83	0740	-	Water haul																-	-	-	-
232 (23)	4	Shears I.	27/02/83	1645	3							1	2	6	8	21	10	1	1		50	22.2	19.0	2	
231 (14)	5	Pipestem Inlet	27/02/83	2130	4					2	1	0	3	7	16	13	5	3			50	21.6	19.0	6	
232 (23)	6	1/2 mi S. of Forbes I.	28/02/83	1145	5					1	1	2	5	10	13	10	6	0	2		50	21.4	19.0	8	
232 (23)	7	Forbes I.	28/02/83	1535	6					1	6	2	9	5	11	10	6	0	1		51	20.9	19.0	18	
232 (23)	8	Spilling Islet	01/03/83	0545	7								5	8	12	14	9	3			51	22.0	19.0	0	
232 (23)	9	Shears I.	02/03/83	0947	8					3	6	2	10	6	9	7	4	3			50	20.6	19.0	22	
232 (23)	10	Spilling Islet	02/03/83	1550	-	Water haul																-	-	-	-
232 (23)	11	Barkley Sd./ Spilling Islet	02/03/83	1550	-	No information - large fish																-	-	-	-
232 (23)	12	Spilling Islet	02/03/83	1650	-	No information																-	-	-	-
232 (23)	13	Hermit Islet	02/03/83	1810	-	No information																-	-	-	-
232 (23)	14	Barkley Sd. (Toquant Bay)	05/03/83	1030	-	No information																-	-	-	-

Table 25. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN HORIZON", STAT. AREA 24, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp (°C)	Test No.	Sex Ratio				Roe Yield %			Roe Grade (Pcs)			Spnd. out	Juv. or Immat.								
				In loc.	Set on	Est. catch			M No.	%	F No.	%	Vol. vol.	Adj. wt.	Wt. wt.	#1	#2	#3										
243 (24)	1 2 ml N. of Sharp Pt. - Sydney Inlet	26/02/83	0810	100	75	-	1	58	50	59	50	8.5	8.43				45	1	13									
								2	32	44	41						56	7.8	6.94			23	15	3				
								3	38	44	48						56	6.5	5.82			33	0	15				
								4	34	41	48						59	10.3	8.80			32	0	16				
								5	53	46	62						54	8.0	7.42			40	2	20				
244 (24)	2 Miller Channel, 1.5 ml NW. of McKay I.	26/02/83	1235	500- 600	200	30	7.6	1	25	28	64	72				2.6	1.81	8	0	56								
								2	21	24	68	76				1.5	0.98	7	3	58								
244 (24)	3 Clifford Pt.	26/02/83	1625	200	75	75	8.5	1	34	47	39	53				6.9	6.46	21	1	17								
								2	38	50	38	50				7.4	7.40	21	2	15								
								3	48	43	64	57				8.0	7.01	32	3	29								
243 (24)	4 Steamer Cove	27/02/83	1410	50- 100	15	15	8.5	1	41	38	67	62				2.8	2.26	13	0	54								
242 (24)	5 Hesquiat Harbour - Leclair Pt.	28/02/83	1415	1000	20	15	9.1	1	34	59	24	41				Gonads running	12.1	14.61	23	3			1	4				
								2	28	49	29	51				12.5	12.28	27	0	2	4							
								3	27	44	35	56	Small spn.	12.5	11.06	29	0	6	5									
243 (24)	6 Sydney Inlet	02/03/83	0750	300- 400	60- 70	10	7.6	1	56	47	64	53	9.5	8.91														
								2	25	32	52	68											11.9	8.81	35	0	17	2
								3	30	40	45	60											8.8	7.33	28	2	15	6
								4	36	43	48	57											8.8	7.71	32	2	14	1
244 (24)	7 Miller Channel	02/03/83	1530	300	40	10	8.9	1	51	45	63	55	12.5	11.30														
								2	58	50	58	50											9.0	9.00	38	0	20	
								3	51	48	56	52											12.2	11.66	43	4	9	
245 (24)	8 Ressler Pt.	03/03/83	0925	1000	175	75	9.35	1	55	39	86	61	8.5	6.97														
								2	60	41	88	59											12.0	10.08	65	7	16	
								3	67	47	75	53											9.2	8.71	45	4	26	
245 (24)	9 Ressler Pt.	04/03/83	0955	1000	80	25	8.7	1	62	52	58	48	13.2	13.66														
								2	57	44	72	56											11.5	10.30	51	3	18	
								3	67	55	54	45											11.5	12.89	44	0	10	
245 (24)	10 Hecate Bay	04/03/83	1335	1000	70	5	8.8	1	48	44	61	56	13.8	12.32														
								2	47	43	62	57											15.0	13.18	57	2	3	

Table 25 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "OCEAN HORIZON", STAT. AREA 24, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp Test (°C) No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Juv. or Immat.		
				In loc.	Set on	Est. catch		M No. %	F No. %	Vol.	Adj. vol.	#1	#2	#3	Spnd. out				
243 (24)	11 Sydney Inlet	05/03/83	1730	300-	100	100	8.6	1	49	49	51	51	15.0	14.71	49	0	2		
				500					45	46	52	54	15.5	14.46	49	0	3		
									44	46	51	54	13.5	12.57	45	0	6		
245 (24)	12 Maurus Channel (Robert Pt.)	07/03/83	1020	2000	80	80	9.2	1	63	56	50	44	11.1	12.56	42	0	8		
									2	52	45	63	55	14.2	12.96	57	0		6
245 (24)	13 Maurus Channel (3/4 mi N. of Rassler Pt.)	07/03/83	1625	2000- 2500	70- 80	5	9.3	1	74	52	67	48	9.0	9.47	47	4	16		
245 (24)	14 Hecate Bay	09/03/83	0905		40	10	8.7	1	49	47	55	53	14.5	13.71	53	1	1		
									2	33	35	62	65	16.0	12.25	60	0		2
245 (24)	15 Saranac I.	09/03/83	1540		30	0			Water haul										
245 (24)	16 Welcome I.	09/03/83	1720		200	100	9.0	1	57	57	43	43	8.0	9.30	39	0	4		
									2	51	48	55	52	12.5	12.04	52	0		3
									3	44	47	49	53	10.5	9.96	44	0		5
243 (24)	17 Bottom of Sydney Inlet	11/03/83	0825	Few crates		0			Water haul										
245 (24)	18 Rassler Pt.	12/03/83	1100	1000-	175	30	9.0	1	41	46	49	54	12.5	11.49	48	0	1		
				1500					47	45	58	55	15.5	14.04	56	0	2		
									43	46	51	54	14.0	12.89	48	0	3		

No commercial fishery opening in Area 24.

Table 26. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN HORIZON", STAT. AREA 24, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Blol. sample No.	Length Frequency (cm)																Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff
						12 / 13	13 / 14	14 / 15	15 / 16	16 / 17	17 / 18	18 / 19	19 / 20	20 / 21	21 / 22	22 / 23	23 / 24	24 / 25	25 / 26	26 / 27	27 / 28				
243 (24)	1	2 ml N. of Sharp Pt. - Sydney Inlet	06/02/83	0810	1					1		5	6	12	12	10	1	3		50	21.0	19.0	12		
244 (24)	2	Millar Channel, 1.5 ml NW. of McKay I.	26/02/83	1235	2				3	3	2	12	14	8	2	4	2			50	20.4	19.0	16		
244 (24)	3	Clifford Pt.	26/02/83	1625	3				3	1	4	8	9	15	7	3				50	21.6	19.0	8		
243 (24)	4	Steamer Cove	27/02/83	1410	4				8	17	11	7	2	2	2	0	1			50	18.5	19.0	72		
242 (24)	5	Hesquiat Harbour - Leclair Pt.	28/02/83	1415	5							4	3	12	15	12	3	1		50	22.3	19.0	0		
243 (24)	6	Sydney Inlet	02/03/83	0750	6				1	2	2	3	9	14	13	2	4			50	21.4	19.0	10		
244 (24)	7	Millar Channel	02/03/83	1530	7				2	3	1	3	11	9	13	7	1			50	21.3	19.0	12		
245 (24)	8	Rassler Pt.	03/03/83	0925	8			1	7	9	7	10	9	3	3	0	0	1		50	19.1	19.0	48		
245 (24)	9	Rassler Pt.	04/03/83	0955	9			1	5	5	1	5	9	12	8	4				50	20.4	19.0	24		
245 (24)	10	Hecate Bay	04/03/83	1335	10				1	0	1	3	9	14	12	7	3			50	21.7	19.0	4		
243 (24)	11	Sydney Inlet	05/03/83	1730	11				1	2	8	15	8	9	6	2	1			50	21.3	19.0	6		
245 (24)	12	Maurus Channel (Robert Pt.)	07/03/83	1020	12				2	3	2	12	6	9	8	6	2			50	20.9	19.0	14		
245 (24)	13	Maurus Channel (3/4 ml N. of Rassler Pt.)	07/03/83	1625	13			2	1	5	5	11	9	9	5	3				50	20.1	19.0	26		
245 (24)	14	Hecate Bay	09/03/83	0905	14				1	1	3	8	8	13	13	3				50	22.0	19.0	4		

Table 26 (cont'd). Length frequency distribution of herring. ROE HERRING CHARTER SEINER "OCEAN HORIZON", STAT. AREA 24, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Blot. sample No.	Length Frequency (cm)													Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff	
						12 / 13	13 / 14	14 / 15	15 / 16	16 / 17	17 / 18	18 / 19	19 / 20	20 / 21	21 / 22	22 / 23	23 / 24	24 / 25					25 / 26
245 (24)	15	Saranac I.	09/03/83	1540	-															-	-	-	-
245 (24)	16	Welcome I.	09/03/83	1720	15			2	3	2	5	9	6	11	8	4				50	20.3	19.0	24
243 (24)	17	Bottom of Sydney Inlet	11/03/83	0825	-															-	-	-	-
245 (24)	18	Ressler Pt.	12/03/83	1100	16			4	0	1	7	7	6	12	8	2	2			49	21.5	19.0	10

Table 27. Seine set data and roe yield information. ROE HERRING CHARTER SEINER "BERNICE C", STAT. AREA523 and 25, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp Test (°C) No.	Sex Ratio				Roe Yield %				Roe Grade (Pcs)			Spnd. out	Juv. or Immat.				
				In loc.	Set on	Est. catch		M No. %	F No. %	Vol. vol.	Adj. wt.	Wt. wt.	Adj. wt.	#1	#2	#3								
252 (25)	1 Red Light across from Resolution Cove	25/02/83	0757			0.1	6.4	1	72	53	65	47	6.0	6.41			37	7	21					
									2	51	55	42					45	7.6	8.41			27	3	12
									3	37	39	57					61	10.0	8.25			40	2	15
									4	38	41	55					59	Males running	9.8			8.29	35	4
251 (25)	2 Espinosa	25/02/83	1437	1000	1000	300	9.0	1	26	37	45	63	9.0	10.39	9.2	10.62	28	5	9					
									2	39	53	35					47	9.2	9.73			24	0	11
									3	55	57	42					45	9.2	10.62			28	5	9
253 (25)	3 6 cables S. of Double I.	25/02/83	2000	1000	500- 600	10	8.4	1	27	34	53	66			0		2	2	49					
253 (25)	4 Esperanza (off Centre I. light Mid-Channel)	26/02/83	0952	1500	150	80- 100	8.3	No sample taken																
253 (25)	5 Top end Centre I.	26/02/83	1449	2000- 3000	50	30	8.8	1	32	48	34	52	8.0	7.34	9.2	8.93	21	3	10					
									2	36	50	36					50	8.6	8.60			22	5	9
									3	51	46	61					54	8.2	7.52			38	4	19
253 (25)	6 Rosa Harbour towards Centre I.	27/02/83	0800	2500- 3000	200- 300	15	7.8	1	39	57	29	43	9.5	9.79	7.0	8.22	22	2	5					
									2	32	44	40					56	10.0	8.99			31	6	3
									3	50	52	47					48	10.0	10.31			41	5	1
									4	40	56	31					44	8.0	9.15			24	6	1
253 (25)	7 3 cables S. off top of Centre I.	27/02/83	1151	2500- 3000	50- 60	0	8	Water haul																
253 (25)	8 3 cables S. off top of Centre I.	27/02/83	1223	2500- 3000	50 60	15	8	1	35	49	36	51	11.0	10.20	9.8	9.66	27	4	5					
									2	40	57	30					43	8.8	10.26			25	2	3
									3	47	46	55					54	11.4	10.58			43	4	8
253 (25)	9 Mouth of Port Langford (N. of Colwood Rocks)	03/03/83	1722	4000- 5000	10	3- 4	8.8	1	33	51	32	49	11.0	10.20	13.2	13.41	30		2					
									2	37	51	35					49	8.6	8.85			29	4	2
									3	38	52	35					48	9.4	9.81			33	0	2
253 (25)	10 2 cables N. of Port Langford	03/03/83	1955		20	2- 3	8.8	1	28	37	47	63			13.2	10.53	42	2	3					
									2	27	42	38					58	14.0	11.97			37	0	1

Table 27 (cont'd). Seine set data and roe yield information. ROE HERRING CHARTER SEINER "BERNICE C", STAT. AREAS 23 and 25, 1983.

Section Set (Area) No.	Location	D/M/Y	Time	Tonnage			Temp Test (°C) No.	Sex Ratio				Roe Yield %		Roe Grade (Pcs)			Juv. or Immat.		
				In loc.	Set on	Est. catch		M No. %	F No. %	Vol. Adj. vol.	Wt. Adj. wt.	#1	#2	#3	Spnd. out				
232 (23)	11 Macoah Passage	05/03/83	0142	1000	30- 40	25		1	39	61	25	39		11.2	14.32	25	0	0	
								2	37	57	28	43		11.4	13.23	27	1	0	
								3	50	53	45	47	14.5	15.30	42	2	1		
232 (23)	12 ^a Stopper Is., Macoah Pass.	05/03/83	0310				8.2	1	30	42	42	58		14.6	12.52	35	1	6	
								2	39	55	32	45		13.5	14.97	29	0	3	
								3	48	47	55	53	11.2	10.49	43	5	7		
								4	37	53	33	47		12.2	12.95	30	0	3	

Fishery information for Area 23 (Table 23).

Gillnet opening

Management sub-areas 25 - 13 and 25 - 14 opened on March 3 for 14 hours for a hauled catch of 2,450 tons, tested at 10.5% - 13% roe maturity.

Winter Harbour in Area 27 opened between February 28 and March 4 for 88 hours for a hauled catch of 190 tons, tested at 12% - 17% roe maturity.

^a Charter payment herring.

Table 28. Length frequency distribution of herring. ROE HERRING CHARTER SEINER "BERNICE C", STAT. AREA 23 and 25, 1983.

Section (Area)	Set No.	Location	D/M/Y	Time	Biol. sample No.	Length Frequency (cm)													Sample size	Average length (cm)	Cutoff (cm)	% Below cutoff	
						12 /	13 /	14 /	15 /	16 /	17 /	18 /	19 /	20 /	21 /	22 /	23 /	24 /					25 /
252 (25)	1	Red Light across from Resolution Cove	25/02/83	0757	1						3	8	8	7	10	8	4	1		49	20.7	19.5	29
251 (25)	2	Esplanosa	25/02/83	1437	2					1	1	9	14	16	8	1			50	20.9	19.5	12	
253 (25)	3	6 Cables S. of Double I.	25/02/83	2000	3			1	1	2	1	5	17	13	9	1			50	20.7	19.5	12	
253 (25)	4	Esperanza (off Centre I. light Mid-Channel)	26/02/83	0952	4														-	-	-	-	
253 (25)	5	Top end Centre I.	26/02/83	1449	5						2	5	7	20	10	4	2		50	21.5	19.5	6	
253 (25)	6	Rosa Harbour towards Centre I.	27/02/83	0800	6			1	0	3	2	9	13	13	9				50	21.6	19.5	8	
253 (25)	7	3 cables S. off top of Centre I.	27/02/83	1151															-	-	-	-	
253 (25)	8	3 cables S. off top of Centre I.	27/02/83	1223	7							2	7	12	23	5	1		50	22.0	19.5	2	
253 (25)	9	Mouth of Port Langford (N. of Colwood Rocks)	03/03/83	1722	8					1	2	10	10	20	4				47	21.7	19.5	6	
253 (25)	10	2 cables N. of Port Langford	03/03/83	1955	9			1	0	0	4	9	13	15	7	1			50	21.7	19.5	4	
232 (23)	11	Macoah Passage	05/03/83	0142	10							1	7	12	11	7	5		43	22.2	19.0	0	
232 (23)	12	Stopper I., Macoah Pass.	05/03/83	0310	11			6	1	3	7	14	12	7					50	21.2	19.0	14	

Appendix Table 1. Onboard sampling instructions.

1. Selection of sample sites

- (a) A list of priority sites will be supplied to charter masters by the district Herring Management Coordinator.
- (b) While the onboard Fisheries Service representative is in charge of all charter operations, consultation with the vessel master is necessary to determine if it is possible to set in any given location at any given time.

2. Number of sample sets

- (a) For each important fishing location, secure 1 or 2 sample sets per visit. (e.g. from Mayne Bay secure one set in the evening and one in the morning, then travel to another location). Each such major location should be resampled at regular intervals.
- (b) If it is evident from echosounding that few fish are present in the major fishing location, immediately go on to the next site.
- (c) Try not to make large sets if the vessel master is confident a good cross section of available fish can be taken in a smaller set.
- (d) Do not set twice on immature (young herring) stocks unless doubt exists that the first set was not representative of stocks in that location.
- (e) Whether or not fish are caught, complete the Wheelhouse and Sample Log after each set; also, note the set in the Daily Log (Black Book).

3. Taking a random sample from the pursed seine

- (a) Dry up the seine only as necessary to obtain samples; push the dip net or brailer vertically deep into the seine, then pull up quickly through a "BOIL" of fish so as to give no advantage to larger, faster fish. Some vessel masters may prefer to pump samples, eliminating much of the "drying up" process.
- (b) Assure yourself of enough fish by taking at least 100 lb (45 kg , 2 or 3 buckets) from each set.
- (c) After obtaining a representative sample, immediately release the remaining fish to minimize scale damage.
- (d) Fill one sample bucket with a random sample of herring; place one completed shipping/sample lable inside and on top of the fish and affix the other to the bucket handle. If sampling is delayed, cover the fish with a tarp to prevent loss to birds.

Appendix Table 1 (cont'd).

-
- (e) Keep samples refrigerated (on ice or in chilled seawater).
 - (f) Caution the vessel master to instruct the crew not to throw any fish overboard until Fisheries Service samples have been processed.

4. Processing onboard charter vessel samples

- (a) Sample for roe yield using standard volumetric procedures as detailed in the instructions included with the ROE SAMPLE KIT.
- (b) Subsample the fish
 - i) Subsample from herring on deck by filling several buckets with a shovel or dipnet - do not pick out fish individually.
 - ii) The sampler should face away from the bucket containing fish and drop his hand into it. The first fish touched must be sampled, and each fish thereafter is selected by the same method until the sample is complete (50 fish). If a fish is not suitable for sampling (damaged), discard it and continue.
- (c) Measure the fish
 - i) Tack the waterproof Wheelhouse and Sample Log to the measuring board.
 - ii) Pencil in the appropriate "cut off" line on the measuring sheet.
 - iii) Before measuring a fish, use a sharp knife to remove scales from the tail section. This is very important since the length measurement goes to the end of the silvery colour on the skin of the fish and not to the end of the scales which cover the silvery colour on the skin and extend beyond that point.
 - iv) Measure 50 fish, each from the tip of the lower jaw to the end of the silvery colour on the tail. Every fish length should be recorded by marking the interval it falls into.
- (d) IMPORTANT - Please attempt to send the biological samples to Vancouver and Nanaimo before they decompose. Advise by B.C. telephone or radio telephone (to XL177) of when and how the samples are sent, i.e. commercial carrier destination and estimated time of arrival.

Appendix Table 2. The 1984 roe herring cutoff lengths used to separate age 3 herring from older fish.

Statistical Area	Cutoff length
<u>NORTH COAST</u>	
Area 2E	190 mm
2W	200 mm
5	180 mm
6 - 10	185 mm
<u>STRAIT OF GEORGIA</u>	
Areas 14 - 18	190 mm
<u>WEST COAST VANCOUVER ISLAND</u>	
23	190 mm
24	190 mm
25	190 mm
27	190 mm

NOTE: It should be noted that these cutoff lengths are used as reference points only in order to compare different test samples. They are derived from the average lengths of three-year-old fish from the previous year and may or may not reflect the average length this year. In addition, there can be a considerable overlap in size between fish of different ages, so there is no definite length that can be used to separate the two groups of fish. Generally, these cutoff lengths provide additional information on size distribution of the stocks.

An example of the usefulness of these cutoff lengths would be when comparing test sets made at the same location on different days. A large difference in the percentage of fish below the cutoff length may indicate that two different stocks of fish are present or that new fish have moved into the area. This is additional information used to determine the overall stock status.

Appendix Table 3. Instructions for estimating percent roe yield by volume.

This KIT contains:

- one clear plastic volumetric cylinder
- one 4 imp. gal. (18 l) bucket with lid
- instruction sheet with photographs at maturity stages

Determination of roe maturity:

1. Randomly obtain approximately 75 lb (34 kg) of herring from the set or load.
2. Fill the roe test bucket with fish to the top of the bucket.
Note - The bucket should be filled to overflowing.
3. Determine sex of all fish in the bucket (by squeezing or stripping).
4. Record numbers of each sex on sampling sheet.
5. Strip all roe from females.
6. Record condition of all roe on sampling sheet.

Condition 1 - acceptable by fishing companies for the Japanese market (bright yellow translucent eggs, few blood vessels) shown as **MATURE 1** in photograph appended to the ROE SAMPLE KIT.

Condition 2 - may be 2-3 days from acceptability (unclear and pinkish in colour, becoming translucent, too many blood vessels) shown as **IMMATURE 2** in photograph appended to the ROE SAMPLE KIT.

Condition 3 - may be 10 days from acceptability (very opaque with prominent blood vessels) shown as **IMMATURE 3** in photograph appended to the ROE SAMPLE KIT.

7. Deposit all Mature 1 roe into volumetric cylinder. Record the percent recovery from the scale on the side of the cylinder. Also record the number of females in conditions 1, 2 and 3, and record the number of males.
8. Repeat the above procedure with a second sample and average the results. If the results of the two samples are very different, a third test may be required.

Also, record the number of spawned out and juvenile/immature herring.

Appendix Table 4. Instructions for estimating percent roe yield by weight.

1. Obtain a random sample of approximately 75 lb (34 kg) of herring from the set or load.
2. Hang the plastic container on the scale and tare the scale.
3. Fill the container with 22 lb (10 kg) of herring.
4. Strip all roe from the females.
5. Record condition of all the roe on the sampling sheet:

Condition 1 - acceptable by fishing companies for the Japanese market (bright yellow translucent eggs, few blood vessels) shown as **MATURE** in photograph appended to ROE SAMPLE KIT.

Condition 2 - may be 2-3 days from acceptability (unclear and pinkish in colour, becoming translucent, too many blood vessels) shown as **IMMATURE 2** in photograph appended to ROE SAMPLE KIT.

Condition 3 - may be 10 days from acceptability (very opaque with prominent blood vessels) shown as **IMMATURE 3** in photograph appended to ROE SAMPLE KIT.
6. Tare the scale and deposit all Mature 1 roe into the weighing container; record the weight. If the $\frac{1}{2}$ roe weight is 870 g, the roe yield is 8.7%; if 950 g, the roe yield is 9.5%, etc.
7. Record the number of females with conditions 1, 2 and 3 maturity and record the number of males.
8. Repeat the above procedure with a second sample and average the results. If the results of the two samples are very different, a third test may be required.

Also, record the number of spawned out and juvenile/immature herring.

Important: Check the scale for accuracy periodically using a known weight.

Appendix Table 5. Formula used to adjust roe yields assuming a 50:50 male/female sex ratio.

1. Determine the number of males and females in the roe test sample i.e. 42F, 56M.
2. Determine the % of females in the roe test sample i.e. 42.8% females.
3. Determine the % roe yield i.e. 9%.

To convert the roe yield to a 50:50 male/female ratio, use the following formula:

$$\frac{\% \text{ roe} \times 50}{\% \text{ females}} \quad \text{i.e.} \quad \frac{9 \times 50}{42.8} = 10.51\%$$

In this example, the roe yield was actually 10.5% assuming a 50:50 male/female sex ratio for the herring stocks in the area.

This information can be passed to the Management Coordinator over the R.T. if requested. The normal procedure is to make reference to the fact that the sample is heavy on males or females. It should be remembered that the sex ratio can be heavy on males especially in the first maturing wave of spawners. Thus, adjusting the roe yield assuming a 50:50 sex ratio can be deceiving.

Appendix Fig. 1a. Wheelhouse and Sample Log - roe yield by volume.

WHEEL HOUSE & SAMPLE LOG

SET INFORMATION

1. Vessel OCEAN MARAUDER Captain LEWIS
 2. Area 211 (INSHIP CAN) Location 4 miles E. Hastings Pt.
 3. Date: Day 20 Month 3 Year 53
 4. Set No. 36 7. Sample No. 25 8. Trawl Set 0910
 9. Sample: a) is b) is not representative
 10. Est. Tons in school net on 300 11. In catch 700
 12. Est. Tons in Location 3500 13. Set Area On net beam
 14. a) Wind Direction & Velocity 0 b) sky 100% clear
 c) water d) Sea Surface Temp. 9.5°C
 15. Herring School Behaviour Fast moving schools

ROE TEST INFORMATION

	TEST 1	TEST 2	TEST 3	
a) No. Females cont. 1 Roe	<u>41</u>	<u>49</u>	<u>39</u>	
b) No. Females cont. 2 Roe	<u>0</u>	<u>3</u>	<u>1</u>	
c) No. Females cont. 3 Roe	<u>2</u>	<u>2</u>	<u>2</u>	
d) TOTAL FEMALES	<u>43</u>	<u>54</u>	<u>40</u>	
e) No. of Males	<u>34</u>	<u>34</u>	<u>43</u>	Average
f) Roe Yield (VOL.)	<u>12.5%</u>	<u>14.0%</u>	<u>11.0%</u>	<u>12.5%</u>
g) Roe Yield (WT.)	<u> %</u>	<u> %</u>	<u> %</u>	
h) Total sample weight	<u> </u> gm./lb.	<u> </u> gm./lb.	<u> </u> gm./lb.	
i) Total roe weight	<u> </u> gm./lb.	<u> </u> gm./lb.	<u> </u> gm./lb.	

20. Comments RE: Maturity (e.g. Maturity ignored roeing or found spawning, bird and Sea Lion activity etc.)

Some females were running - the males were also
running

16. Incidence of other species 7-4 Dogfish

17. Summary of On Board Size Measurements

- a) Caudal length used 200
 b) standard 50
 c) No. Fish less than caudal length 0%
 d) Average Size 22.4

Comments RE: HERRING SIZE

Measuring seen to have larger
girths than normal - taller



Reporting officer:

Joe Blow

Date Reported:

0 M Yr
20 March 53

Trawl 1030

Reported to:

C. R. Smith

Appendix Fig. 1b. Wheelhouse and Sample Log - roe yield by weight.

WHEELHOUSE & SAMPLE LOG

SET INFORMATION

1. Vessel PACIFIC GUNN 2. Captain JOHN POLONIA
 3. Area 14 (North) 4. Location LOMA HARBOUR
 5. Date: Day 27 Month Feb Year 83
 6. Set No. 4 7. Sample No. 4 8. Time Set 0510
 9. Sample: a) b) c) representative
 10. Est. Tons in school set on 300 11. In catch 20
 12. Est. Tons in Location 1500 13. Star Area 3000
 14. a) Wind Direction & Velocity S.W. 10-12 kts
 b) other _____ d) Sea Surface Temp 6.3°C
 15. Herring School Behaviour Tight Pa. hatter

ROE TEST INFORMATION

	TEST 1	TEST 2	TEST 3	
a) No. Females used / Row	<u>30</u>	<u>29</u>	<u>31</u>	
b) No. Females used / Row	<u>2</u>	<u>3</u>	<u>4</u>	
c) No. Females used / Row	<u>5</u>	<u>5</u>	<u>4</u>	
d) SOLE FEMALES	<u>39</u>	<u>33</u>	<u>39</u>	
e) No. of Males	<u>35</u>	<u>42</u>	<u>34</u>	Average
f) Roe Yield (gms)	<u>7</u>	<u>4</u>	<u>8</u>	
g) Roe Yield (WT %)	<u>9.8%</u>	<u>9.65%</u>	<u>10.25%</u>	<u>9.9%</u>
h) Total sample weight	<u>10000 gm/10</u>	<u>10,000 gm/10</u>	<u>10,000 gm/10</u>	
i) Total roe weight	<u>780 gm/10</u>	<u>905 gm/10</u>	<u>1035 gm/10</u>	

20. Comments RE: Maturity (i.e. Maturity ignored (missing or from spawning, bird and Sex Link activity etc.

Many of the females are running - Males also running.

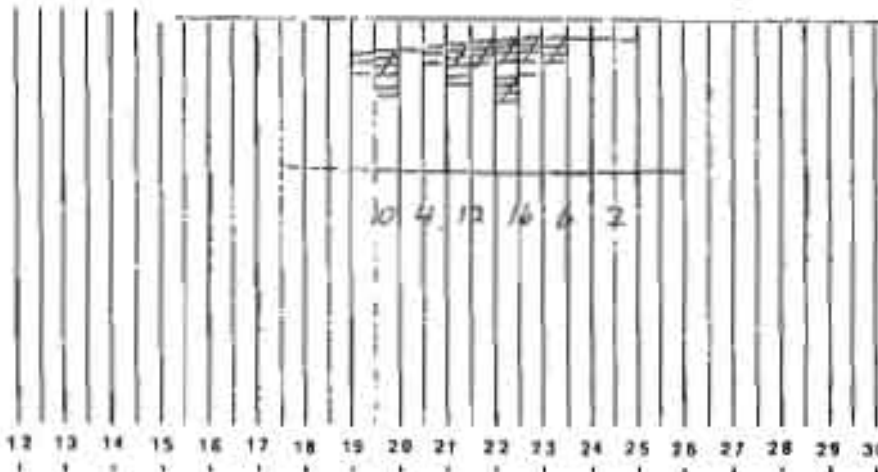
16. Incidents of other species 3 Dogfish

17. Summary of On Board Size Measurements:

- a) Cutoff length used 190
 b) measured 50
 c) No. Fish less than cutoff length 0
 d) Average Size 21.7 cm

Comments RE: HERRING SIZE

Herring are larger than normal



Reporting officer:

Ken Murray

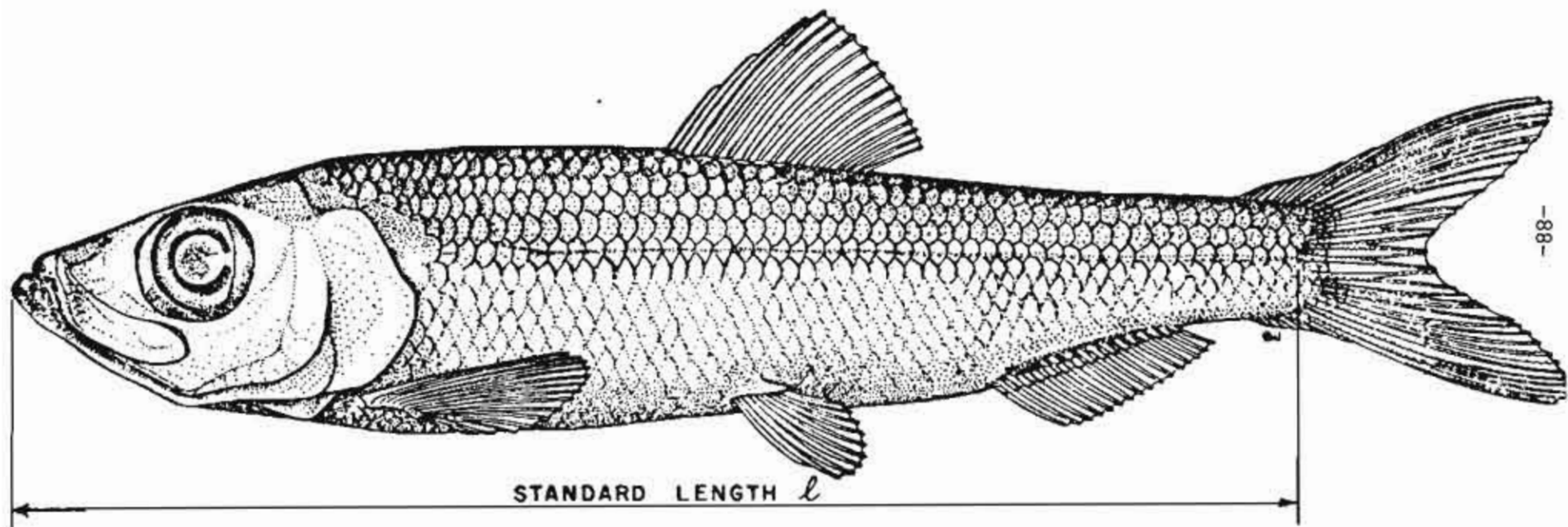
Date Reported:

27 Feb 1983

Time: 0600

Reported to:

Lyle Jackson



Appendix Fig. 2. The standard length measurement l used for measuring herring. This length is defined as the distance from the anterior tip of the fish with the mouth closed, to the end of the silver skin on the caudal peduncle. It is important to scrape the scales off the peduncle area to find the end of the silvery portion of the skin.