The 1980 Roe Herring Charter Vessel Monitoring and Sampling Program

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Canadian Data Report of

Department of Fisheries and Oceans

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ABSTRACT

Mitchell, J.L. & Webb, L.A. 1981. The 1980 Roe Herring Charter Vessel Monitoring and Sampling Program. Can. Data Report of Field Services Branch, Department of Fisheries and Oceans, Number 328 65 p.

Eight charter vessels made 145 sample sets on the British Columbia coast in order for fishery managers to assess the stock abundance, age composition and state of sexual maturity of the Pacific Herring (Clupea harengus pallasi).

Sample data from the field and laboratory analysis is contained in this report.

Key words: Clupea harengus pallasi, Charter Vessels, Samples, stock abundance, sexual maturity, age composition.

RÉSUMÉ

Huit bateaux affrétés ont pris 145 groupes d'échantillons sur la côte de la Colombie-Britannique afin de permettre aux gestionnaires des pêches d'évaluer l'abondance des stocks, la composition par âge et l'état de la maturité sexuelle du hareng du Pacifique (Clupea harengus pallasi).

Ce rapport renferme les données provenant de l'analyse des échantillons sur le terrain et en laboratoire.

Mots-clés: Clupea harengus pallasi, bateaux affrétés, échantillons abondance des stocks, maturite sexuelle, composition par age.

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INTRODUCTION

In 1980 a herring charter vessel monitoring and sampling program was carried out to provide pre-fishery herring stock information for fishery managers and research scientists. One objective of the program was to assess incoming year class strengths then compare these assessments with predicted returns. Such comparisons enable fishery managers, if necessary, to adjust catch limits. A second objective was to estimate herring stock tonnages on the fishing grounds using sonar/sounder techniques. Estimates of roe maturity were made to determine if stocks were maturing at a predictable rate. If stocks were maturing abnormally, fishery opening dates could then be adjusted since market demands require fully mature ovaries. A third benefit is that these vessels may be used as training platforms for field staff.

METHODS AND MATERIALS

In 1980, eight seine vessels were chartered to monitor stocks on the B.C. coast.

The chartered vessels were directed in each of their respective areas by a technician or fishery officer. Echo sounder surveys were made to estimate the abundance of herring stocks and sets were made on any notable bodies of fish. Samples of about 150 lbs. of herring were brought on board from the seine net by a small meshed dipnet. Length frequency roe maturity and roe yields were established from each deck sample (Appendix 3). Another random sample taken from the same set was placed in a plastic bucket, sealed, then sent to the Herring Sampling Laboratory in North Vancouver for further analysis.

RESULTS

In the 1980 charter vessel program a total of 171 charter days resulted in 145 sample sets. Percentages of roe recovery from random samples taken in the field were estimated by Volumetric methods and recorded in Tables 15 to 28.

In the field, a specific fish length for each management unit (a cut-off length) was determined from previous years length-age data to be the length which would isolate age 3 or less fish from the larger age 4 and older herring (see tables 1 to 8). The age 3 herring were assumed to be recruits entering the fishery for the first time. A comparison of the field measurements and actual length[1] and age 3 as determined from scales can be seen in Appendix Table

ACKNOWLEDGEMENTS

The authors would like to thank the fishing vessel masters and crews of the M.V. Pachena #1, M.V. Snowdrift, M.V. C Venture, M.V. Olympiad, M.V. Caamano Sound, M.V. Confidence, M.V. Venturous and the M.V. Franciscan #1 for their cooperation, high degree of knowledge and expertise in achieving stock estimates and obtaining samples. Appreciation is expressed to the fishery officers, technicians and biologists involved whose diligent work ensured the programs successful completion. Thanks also to K. Berry, R.S.K. Isaacson, Y. Yole and J. Gwiazda for an excellent job of determining fish ages through scale reading.

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[1] An important factor to consider when comparing fish lengths is shrinkage caused by freezing. Most laboratory samples are frozen while field samples are processed fresh. The formula for converting resh to frozen is:

$$L\ frozen = \frac{(L\ Fresh - 4.907)}{.9939} + .501$$

(Hourston, Nash 1973).

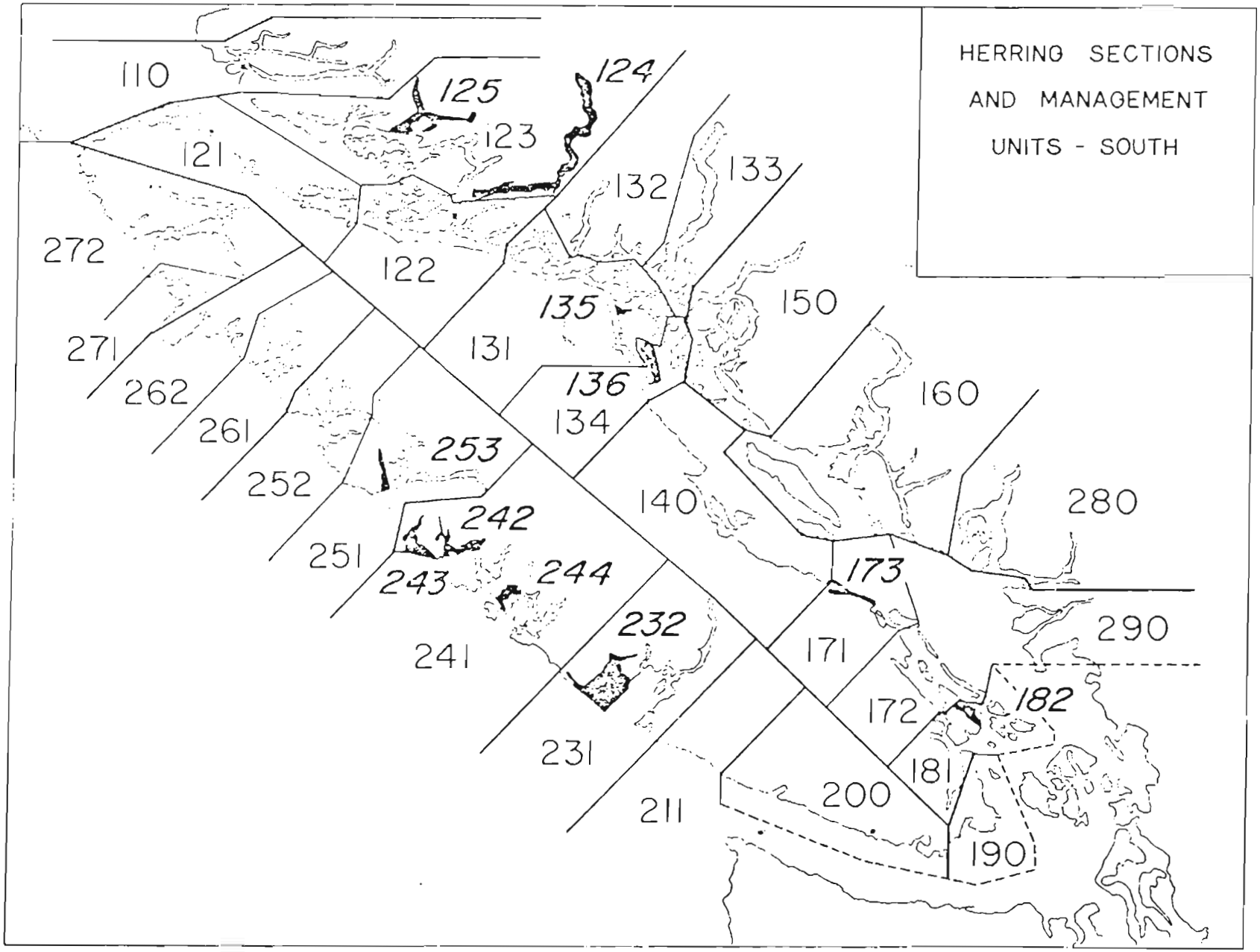

FIGURE 1. Herring statistical groupings showing the relationship between statistical areas and management units (or sections) in southern British Columbia.

TABLE II. The relationship between herring sub-districts, statistical areas and management units (or sections) in Southern British Columbia.

Division	Stat. Area.	Sections: Management Units		Sections: Other	
Johnstone St.	11			Seymour-Belize	110
	12			Queen Charlotte St.	121
				Upper Johnstone St.	122
		Knight Inlet	124		
		Kingcome Inlet	125		
	13	Kanish Bay	135	Other Lower Johnstone	131
				Phillips-Loughborough	132
				Bute Inlet	133
G. of Georgia*	13	Heriot Bay	136	Other Area 13 Gulf	134
	14			Comox-Qualicum	140
	15			Toba Inlet	150
	16			Jervis Inlet	160
	17	Nanoose Bay	173	Other Upper Area 17	171
				Lower Area 17	172
	18	Ganges-Long Hbr.	182	Other Gulf Islands	181
	19			Inner Juan de Fuca	190
	20			Outer Juan de Fuca	200
	28			Howe Sound	280
	29			Boundary Bay	290
West Coast Van. Island	21			Nitinat	211
	23	Barkley Sound West	232	Other Barkley Sound	231
	24	Sydney Inlet	242	Other Clayoquot Sd.	241
		Hesquiat Harbour	243		
		Hecate Bay	244		
	25	McKay Passage	253	Other Nootka Sound	251
				Esperanza Inlet	252
	26			Kyuquot Sound	261
				Checleset Bay	262
	27			Brooks Bay	271
				Quatsino Sound	272

*As defined in Fisheries Regulations. Includes part of Area 13 in Johnstone Strait and all of Juan de Fuca Strait.

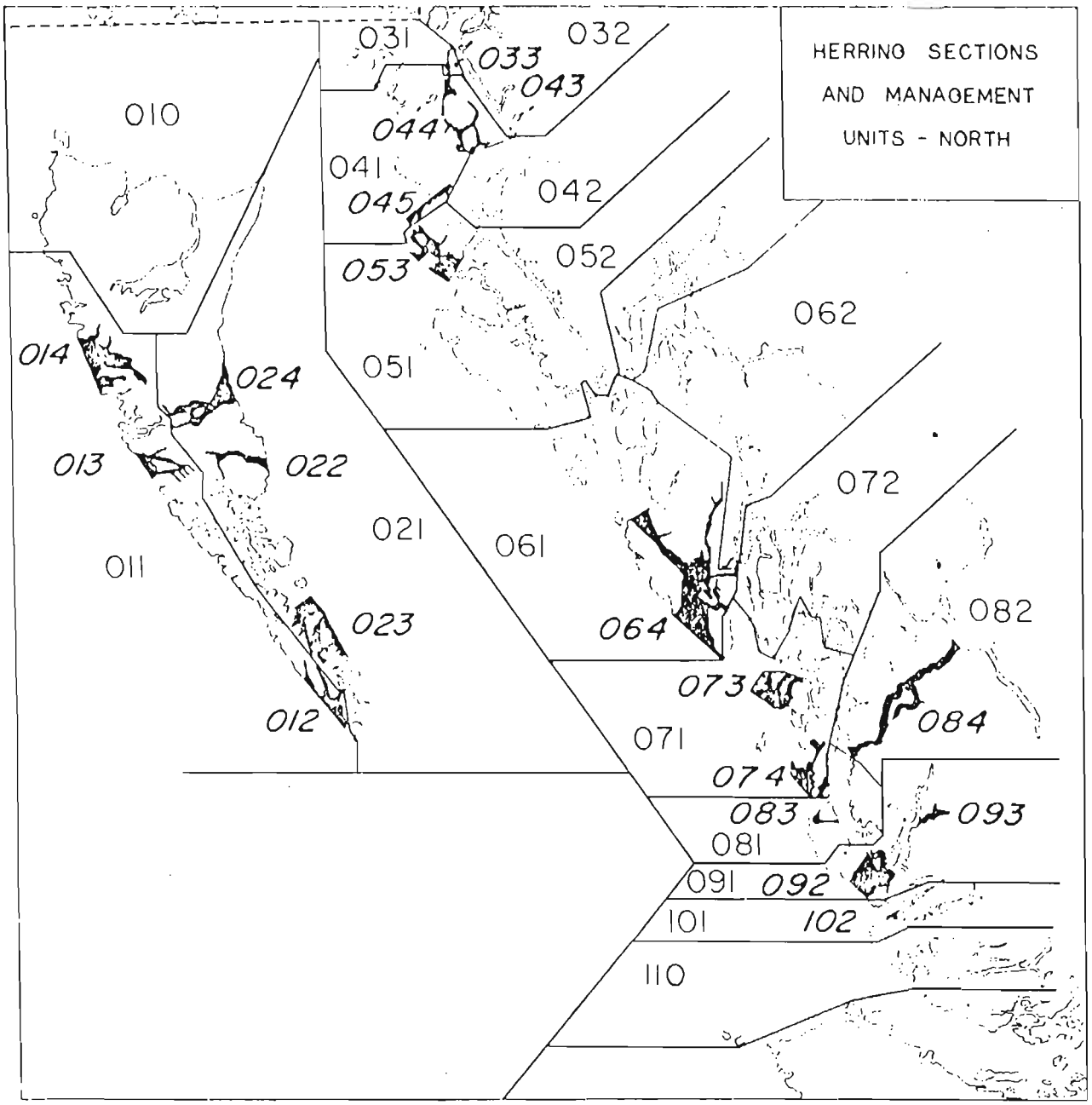

FIGURE 2. Herring statistical groupings showing the relationship between statistical areas and management units (or sections) in northern British Columbia.

TABLE I. The relationship between herring sub-districts, statistical areas and management units (or sections) in Northern British Columbia.

Division	Stat. Area	Sections: Management Units		Sections: Other	
Q.C.I.	1			North Coast Q.C.I.	010
	2 WEST*	Louscoone	012	Other West Coast Q.C.I.	011
		Inskip	013		
		Rennell Sound	014		
	2 EAST	Cumshewa	022	Other East Coast Q.C.I.	021
		Skincuttle	023		
		Skidegate	024		
Northern	3	Port Simpson	033	Other Area 3 Outside	031
				Area 3 Inside	032
	4	Big Bay	043	Other Area 4 Outside	041
		Digby Island	044		
		North Porcher	045		
				Area 4 Inside	042
				Other Area 5 Outside	051
				Area 5 Inside	052
Central	6	Laredo	064	Other Area 6 Outside	061
				Douglas Channel	062
				Other Area 6 Inside	063
		Thompson Bay	073	Other Area 7 Outside	071
		Kildidt	074		
				Area 7 Inside	072
	8	Kwakshua	083	Other Area 8 Outside	081
		Burke Channel	084	Other Area 8 Inside	082
	9	Mouth of Rivers	092	Other Rivers	091
		Head of Rivers	093		
	10	Takush Harbour	102	Other Smith	101

*Area 2 WEST compiled with Area 1 in Section 10 series.

Table 1 Fishery Seine Charter Areas 2E and 2W, March 10 to March 21, 1980.

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	Percent Below Cutoff	Cutoff (cm)
006 (2W)	Louscoone	10/03/80	1805	3000	Field							3	21	53	18	4	1					100	24.0	19.0
					Lab							2	56	26	8	3		3		1	1	100	58.0	19.0
006 (2W)	Louscoone	11/03/80	0658	3000	Field							1	4	46	15	4	6	3	7	9	6	101	5.0	19.0
					Lab						1	14	37	12	11	8	8	3	1	5		100	52.0	19.0
006 (2W)	Louscoone	11/03/80	0845	3000	NO SAMPLE																			
006 (2W)	Louscoone	11/03/80	0920		NO SAMPLE																			
006 (2W)	Louscoone	11/03/80			NO SAMPLE																			
071 (2E)	Swan Island	11/03/80	2210	No. Est.	Field								12	55	12	3	7	5	7	1		102	11.8	19.0
					Lab							11	41	20	7	5	7	5	3			100	52.0	19.0
025 (2E)	Bolkus Island	12/03/80	0850	2000	Field								23	41	31	2	3					100	23.0	19.0
					Lab						1	5	37	45	6	3	0	3				100	43.0	19.0
025 (2E)	Deluge Point	12/03/80	2050	No. Est.	Field							1	30	27	12	5	3	4	3	1		86	36.0	19.0
					Lab				1			11	42	19	3	7	6	10		1		100	54.0	19.0
025 (2E)	Skincuttle	13/03/80	1020		NO SAMPLE																			
025 (2E)	Pelican Point	13/03/80	1205	1000+	Field							1	15	37	10	8	5	6	8	3	1	94	17.0	19.0
					Lab						1	14	24	9	7	14	12	12	4	3	1	100	39.0	19.0
025 (2E)	Harriet Harbour	13/03/80	2303	5000	Field							1	29	46	18	2	2	1				99	30.0	19.0
					Lab						2	9	47	27	6	6	2	3	1			100	85.0	19.0
006 (2W)	Crooked Point	14/03/80	2040	4000	Field							1	11	31	23	6	3	10	4	8	2	99	12.0	19.0
					Lab							15	26	27	4	9	4	8	5	2		100	41.0	19.0
006 (2W)	Skindas Keen Isl.	15/03/80	0905	No. Est.	Field								9	40	17	1	8	8	4	11	4	102	8.8	19.0
					Lab							4	24	25	8	5	5	11	9	6	3	100	28.8	19.0
006 (2W)	Flamingo	15/03/80	1737	1400	Field							3	22	46	16	3	4	8	1	1		104	24.0	19.0
					Lab						2	14	55	23	3	2		1				100	71.0	19.0
006 (2W)	Etches Point	17/03/80	0940	No. Est.	Field								8	50	30	3	4	3	2	1		101	8.0	19.0
					Lab																			

Table 1 Fishery Seine Charter M.V. "Confidence", March 10 to March 31, 1980. Areas 2E and 2W. (Continued)

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	Percent Below Cutoff	Cutoff (cm)
006	Tuga	17/03/80	1125	No Est.	Field							1	17	36	19	3	1	5	8	7	3	100	18.0	19.0
(2W)	Point				Lab					1		15	34	23	6	1	4	4	8	3	1	100	50.0	19.0
006	Tuga	18/03/80	1600	No Est.	Field								2	20	18	2	6	12	12	20	6	99	2.0	19.0
(2W)	Point				Lab				1	0	0	2	16	13	6	7	10	14	12	13	1	99	20.0	19.0
025	Huxley	20/03/80	0855	No Est.	Field							3	32	44	16	3	2					100	35.0	19.0
(2E)	Isl.				Lab						1	25	54	16	2	1	1					100	80.0	19.0
025	Huxley	21/03/80	1512	4500	Field							2	34	55	5	2	5					103	35.0	19.0
(2E)	Isl.				Lab						1	17	52	19	2	3	3	3				100	70.0	19.0
025	Kat Isl.	21/03/80	1630	4500	Field							7	43	34	6	1	3	2	2			98	51.0	19.0
(2E)					Lab						3	26	64	2	2	1	0	1	1			100	93.0	19.0
025	Pelican Pt.	22/03/80	1010	3000	Field							3	49	37	6	1	3	1				100	52.0	19.0
(2E)					Lab						2	29	46	16	3	3	1					100	77.0	19.0
025	Huston	22/03/80	1430	No Est.	Field							3	37	40	16	1	2			1		100	40.0	19.0
(2E)	Inlet				Lab						1	22	56	15	4		2					100	79.0	19.0
025	King Fisher	23/03/80	0948	No Est.	Field							7	33	45	11	1	3		1			101	39.6	19.0
(2E)	Cove				Lab							19	47	23	4	2	4	1				100	66.0	19.0
025	Harriet	24/03/80	1805	800+	Field							3	36	44	7	5	2	1	1			99	39.4	19.0
(2E)	Island				Lab						2	14	42	29	5	2	2	1	0	2	1	100	58.0	19.0
025	Huston	26/03/80	1246	No Est.	Field							3	30	46	10	3	1	4	3			100	33.0	19.0
(2E)	Inlet				Lab							11	51	25	6	2	2	1	2			100	62.0	19.0
003	Shields	30/03/80	1314	No Est.	Field						1	6	9	37	27	6	1	5	4	1		97	16.5	19.0
(2W)	Rock				Lab							7	21	43	14	5	2	4	1	3		100	28.0	19.0
003	Seal	31/03/80	1052	No Est.	Field						1	9	30	42	13		5					100	40.0	19.0
(2W)	Inlet				Lab																			
003	Seal	31/03/80	1403	No Est.	Field							1	16	28	28	8	4	5	5	5		100	17.0	19.0
(2W)	Inlet				Lab																			

Table 2 Fishery Seine Charter Area 3X, 3Y, 3Z, March 17 to March 25, 1980.

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	% Below Cutoff	Cutoff (cm)
033 (3)	Stumaun Bay	17/03/80	1730	1000	Field							5	28	26	12	5	5	10	3	3	1		98	34	19.0
					Lab														No Sample						
033 (3Y)	Grassy Point	18/03/80	1805	350	Field						1	11	23	34	9		2	7	5	1			98	41	19.0
					Lab														No Sample						
033 (3Y)	Cunningham Pass	19/03/80	1000	400	Field				1	1	16	34	30	15	4	1							102	80	19.0
					Lab														No Sample						
033 (3Y)	Haida Bay	23/03/80	1030	1500	Field						2	12	41	28	4	5	6	1	3				102	54	19.0
					Lab					2	10	34	29	10	5	5	1	2			2		100	75	19.0
033 (3Z)	Emma Pass	23/03/80	1300	175	No Sample																				
032 (3Z)	Steamer Bay	23/03/80	1430	55	Field					1	6	7	31	37	8	2	3	3	1				99	46	19.0
					Lab		1		1	3	3	28	39	9	6	4	3	3					100	75	19.0
033 (3Y)	Stumaun Bay	24/03/80	0825	-	Field						4	17	27	23	4	3	8	4	2	3	4	1	100	48	19.0
					Lab					3	14	33	14	12	6	4	3	4	5	2			100	48	19.0
033 (3Y)	Port Simpson	24/03/80	1025	-	No Sample																				
033 (3Y)	Port Simpson	24/03/80	1145	-	No Sample																				
033 (3Y)	Cunningham Pass	25/03/80	1045		No Sample																				
033 (3Y)	Cunningham Pass	25/03/80	1215		No Sample																				

Table 3 Fishery Seine Charter Area 5, March 19 to March 31, 1980.

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	Percent Below Cutoff	Cutoff (cm)
052	Gurd	19/03/80	1800	400	Field				1	3	11	16	26	17	7	4	6	4	3				98	58	19.0
(5)	Island				Lab							No Sample													
052	Kitkatla	20/03/80	0900	200	Field							1	24	26	16	4	13	7	7	2			100	25	19.0
(5)	Inlet				Lab							No Sample													
051	Browning	20/30/80	1845	No Est.	Field									5	19	23	18	17	15	3	2	3	105	0	19.0
(5)	Entrance				Lab							No Sample													
052	Robert	26/03/80	0745	800	Field							11	41	33	8	2	1	2	2				100	52	19.0
(5)	Island				Lab				1		9	36	36	10	1	1	3	3					100	82	19.0

Table 3 Fishery Seine Charter Area 5, March 19 to March 31, 1980.

Section (Area)	Location	D/M/Y	Time	Est. Tons in Location	Sample	11 12	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	No. In Sample	% Below Cutoff	Cutoff (cm)
052	Gurd	26/03/80	0930	250	Field							14	26	25	6	3	7	8	4	1	3		97	41	19.0
(5)	Point				Lab						10	28	34	11	1	5	7	2	2				100	38	19.0
052	Coquitlam	27/03/80	1900	1000	Field							6	31	27	9	4	7	2	2				97	38	19.0
(5)	Island				Lab					1	8	32	35	7	4	5	2	5	1				100	76	19.0
052	Clamshell	28/03/80	0545	3500	Field							6	33	33	8	7	4	4	3				98	40	19.0
(5)	Island				Lab			1	1		7	29	41	9	1	6	4	1					100	79	19.0
052	Gurd	28/03/80	0910	75	Field						2	1	20	22	11	5	10	12	12	4	2	1	102	23	19.0
(5)	Point				Lab						No Sample														
052	Wilcox	28/03/80	1300	No Est.	Field						1	8	37	36	11	3	2		1	1	1		101	46	19.0
(5)	Group				Lab						8	31	44	10	2	2	1	1		1			100	83	19.0
052	Gurd	28/03/80	1730	No Est.							No Sample														
(5)	Island																								
052	Clamshell	29/03/80	0645	-	Field						1	8	40	30	11	3	3	3	2				101	49	19.0
(5)	Island				Lab					3	8	39	27	14	2	2	3	2					100	77	19.0
052	Gurd	30/03/80	0930	2500	Field							7	40	32	11	1	1						92	51	19.0
(5)	Island				Lab					4	24	42	24	6									100	94	19.0
052	Gurd	31/03/80	0800	250	Field						2	8	39	33	7	2	4	2	2				99	50	19.0
(5)	Island				Lab					3	10	33	34	10	3	5		1	1				100	80	19.0
052	Dries	31/03/80	1230	250	Field							9	36	43	9	3	10	6	4				120	38	19.0
(5)	Inlet				Lab						No Sample														

Table 4 Fishery Seine Charter Area 6 , March 14 to March 23, 1980.

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	Percent Below Cutoff	Cutoff (cm)
067	Meyers	14/03/80	0547	900	Field				1	1	6	21	32	12/13	10		3	1					100	74	19.5
(6)	Pass				Lab					3	22	45	21	6/0	1	2							100	91	19.0
067	Kitasu	14/03/80	1953	450	Field						8	39	29	8/0	3	2	5	5			1		100	76	19.5
(6)	Bay				Lab																				
067	Thistle	15/03/80	0720	200	No Sample																				
(6)	Passage																								
067	Higgins	22/03/80	0606	900	Field					2	6	23	33	7/18	5			1	2	1		1	99	83	19.5
(6)	Pass				Lab					2	7	33	29	5/8	3	3	1	1	5		1	2	100	79	19.5
067	Weeteem	23/03/80	0509	1300	Field						2	12	42	11/18	10	1	1	3	1				101	73	19.5
(6)	Bay				Lab						5	26	35	9/16	3	1		3		2			100	82	19.0
067	Kitasu	23/03/80	2138	1500	No Sample																				
(6)	Bay																								

Table 5 Fishery Seine Charter Area 7, March 4 to March 26, 1980

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	Percent Below Cutoff	Cutoff (cm)
074	Thompson	04/03/80	1930	1500+	Field					1		4	13	23	18	16	13	5	6	1		100	18	19.0
(7)	Bay				Lab				1	0	4	11	23	26	16	9	5	4	0	1		100	39	19.0
074	Houghton	05/03/80	1935	1000	Field						2	5	15	34	19	9	11	3	1	1		100	22	19.0
(7)	Island				Lab						1	18	33	23	11	7	5	2				100	52	19.0
074	Thompson	06/03/80	0605	300	Field					1	3	2	11	10	13	5	4		1			50	34	19.0
(7)	Bay				Lab				1	2	2	6	23	33	13	8	6	4	2			100	34	19.0
074	Boddy	06/03/80	0925	-	Field				1	17	29	12	9	18	7	3						96	70.8	19.0
(7)	Pass				Lab				14	76	46	22	30	10					2			200	94.0	19.0
074	Dundivan	07/03/80	1120	-	Field							2	8	24	9	2	5					50	20.0	19.0
(7)	Inlet				Lab					1	2	11	36	35	6	6	2	1				100	50.0	19.0
074	Reba	07/03/80	1925	1000	Field					8	9	3	15	24	18	8	6	3	3	1	1	99	35.4	19.0
(7)	Point				Lab				3	8	4	19	28	22	5	7	2	1	1			100	62.0	19.0
075	Cultus	08/03/80	1710		No Sample																			
(7)	Sound																							
075	Cultus	08/03/80	1745	750	Field						2	8	27	24	12	18	5		3			99	37.4	19.0
(7)	Sound				Lab					1	2	14	23	37	11	12	4			1		100	40.0	19.0
076	Spider	09/03/80	1045	500	No Sample																			
(7)	Anchorage																							
076	Spider	09/03/80	1930	500	Field							5	19	22	20	20	9	3	2			100	24	19.0
(7)	Anchorage				Lab						2	20	42	46	44	26	12	4	4			200	32	19.0
074	Houghton	17/03/80	1747	2500	Field						4	23	45	22	4		1		1			100	27	19.0
(7)	Island				Lab				1	5	24	35	21	7	4	2	1					100	65	19.0
074	Dundivan	18/03/80	1227	-	Field					1	7	21	40	13	5	4	4	2		3		100	29	19.0
(7)					Lab				1	4	26	37	16	6	5	4	1					100	68	19.0
075	Cultus	18/03/80	1843	900	Field				1	2	13	26	35	17	5	1						100	42	19.0
(7)	Sound				Lab				1	4	19	31	25	11	5	3		1				100	55	19.0
074	Houghton	20/03/80	1925	-	Field						10	31	30	5	9	6	3	4		1		99	41	19.0
(7)	Island				Lab					1	20	26	26	7	10	5	2	2		1		100	47	19.0
076	Mustang Bay	26/03/80	0730	-	Field				2	7	14	26	26	10	8	5	1			1		100	49	19.0
(7)																								

Table 6 Fishery Seine Charter Area 8, March 11 to March 26, 1980.

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	Percent Below Cutoff	Cutoff (cm)
085	Kwakshua	11/03/80	0540	No Est.	Field					2	3	11	29	26	13	7	6	3				100	45	19.0
(8)	Channel				Lab						7	23	27	21	15	7						100	57	19.0
085	Kwakshua	12/03/80	1755	No Est.	Field			4	20	25	18	16	9	4	2	1	3					102	90	19.0
(8)	Channel				Lab		1	4	14	22	11	24	15	4		4			1			100	91	19.0
085	Kwakshua	12/03/80	1955	3000	Field						6	20	28	26	13	4	3	1				101	54	19.0
(8)	Channel				Lab																			
085	Kwakshua	19/03/80	1751	4500	Field					1	6	21	28	22	13	7	3	2				103	54	19.0
(8)	Channel				Lab					3	5	25	24	8	7	2	1					100	57	19.0
085	Fairmile	26/03/80	1815		Field						3	15	19	17	16	16	9	5				100	37	19.0
(8)	Pass				Lab						6	10	20	23	9	15	11	5	1			100	36	19.0

Table 7 Fishery Seine Charter Area 14, February 27 to March 13, 1980

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	Percent Below Cutoff	Cutoff (cm)
144	Northwest Bay	27/02/80	1730	4000	Field							1	5	15/11	19	17	20	6	2			100	17	19.5
					Lab							1	7	7/11	38	21	12	2	1			100	19	
142	Baynes Sound	29/02/80	1915	8-12000	Field					1	2	9	16	4/3	16	20	19	8	2			100	31	19.5
					Lab	1			1	1	1	15	19	12/12	13	14	8	3				100	50	19.5
144	Parksville	01/03/80	2200	3- 5000	Field							1	3	6/1	9	12	26	25	7	3		93	5.4	19.5
					Lab								7	5/2	21	17	27	14	6	1		100	9	19.5
144	Parksville	02/03/80	0715	5- 8000	Field								4	3/3	10	15	9	6				50	14	19.5
					Lab							5	8	9/7	21	17	18	14	1			100	20	19.5
144	Chrome Island	02/02/80	1330	2700								NO SAMPLE												
144	Lambert Channel	02/03/80	1545	3500								NO SAMPLE												
142	Baynes Sound	02/03/80	2100	6- 8000	Field						2	8	22	8/14	14	16	8	6	2			100	46	19.5
					Lab					2	11	19	24	8/11	13	5	3	2	2			100	67	19.5
144	Northwest Bay	04/03/80	0645	3- 5000	Field						3	12	22	16/11	9	16	6	2	1	1		89	53	19.5
					Lab					4	8	19	21	9/8	17	9	2	3				100	60	19.5
143	Qualicum Beach	04/03/80	1115	5000	NO SAMPLE																			
144	Parksville Bay	05/03/80	0700	2000	Field							9	18	5/10	15	11	12	12	7	1		100	37	19.5
					Lab							NO SAMPLE												
143	Qualicum	05/03/80	0900	5- 6000	Field						1	3	23	7/12	16	15	10	7	4	1		99	39	19.5
					Lab						5	16	33	11/3	16	8	3	4	1			100	57	19.5

Table 7 Fishery Seine Charter Area 14, February 27 to March 13, 1980.

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	Percent Below Cutoff	Cutoff (cm)
142	Comox	04/03/80	1018	2000	Field					1		2	4	4/5	16	23	17	20	5	1		98	12	19.5
(14)					Lab							3	5	5/2	9	22	26	25	3			100	10	19.5
142	Repulse	04/03/80	1339	15000	Field								7	3/5	13	19	8	25	4	1		85	14	19.5
(14)	Point				Lab						1	2	7	11/5	10	23	22	15	4			100	15	19.5
142	Repulse	05/03/80	0755	-	Field					2	5	18	40	4/16	11	5	1					100	64	19.5
(14)	Point				Lab						1	14	37	7/12	4	8	8	3	1	5		100	79	19.5
142	Chrome	05/03/80	1002	5000	Field						3	14	32	15/12	8	9	3	4				100	61	19.5
(14)	Island				Lab					1	5	21	23	10/8	17	4	7	3	1			100	58	19.5
142	Lambert	05/03/80	1128	-	Field							2	7	5/6	17	25	24	14	2	2		104	14	19.5
(14)	Ch.				Lab					1		3	3	7/8	23	22	18	14	1			100	15	19.5
142	Repulse	05/03/80	1518	2000	Field						2	3	11	13/14	20	20	10	11	4			98	20	19.5
(14)	Point				Lab						2		5	6/3	17	28	30	8	1			100	10	19.5
142	Repulse	05/03/80	1812	-	Field					1	5	21	42	12/5	10	4	5	1				106	70	19.5
(14)	Point				Lab			1			10	30	27	8/15	3	3	2	1				100	84	19.5
142	Deep	06/03/80	0550	2500	Field					1		13	14	5/13	13	14	15	8	4			100	41	19.5
(14)	Bay				Lab					2	12	19	14	7/5	15	10	9	3	3	1		100	52	19.5
142	Lambert	06/03/80	0912	100	No Sample																			
(14)	Ch.																							
142	Lambert	06/03/80	0945	2500	Field							2	5	5/5	9	18	30	18	5	1		98	12	19.5
(14)	Ch.				Lab						1	7	13	9/7	17	19	18	8	1			100	28	19.5

Table 7 Fishery Seine Charter Area 14, February 27 to March 13, 1980.

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	Percent Below Cutoff	Cutoff (cm)
142	Kiomass	26/02/80	1956	-	Field						2	4	12	5/8	22	23	17	6	2			101	26	19.5
(14)	Bluff				Lab					1	2	7	19	17/6	11	12	15	7	3			100	35	19.5
143	Qualicum	05/03/80	1600	2 -5000	Field							6	19	9/13	19	22	7	3	2	1		101	38	19.5
					Lab				1	1	10	16	15	23/9	12	9	4					100	52	19.5
143	Qualicum Beach	06/03/80	0830		NO SAMPLE																			
143	Qualicum Beach	06/03/80	0900		NO SAMPLE																			
14	Lambert	06/03/80	1015	2500	Field						1	5	15	7/8	18	11	9	7	1			82	35	19.5
	Channel				Lab					1	4	9	15	10/9	19	11	19	2		1		100	38	19.5
143	Mistaken	06/03/80	1430	No Est.	Field							1	1	6/2	16	28	21	15	7	1	1	99	4	19.5
	Island				Lab							6	5	4/5	20	22	24	13	1			100	16	19.5
144	N.W. Bay	08/03/80	1015	2500	Field			1			2	6	15	2/7	6	5	4	1				49	63	19.5
(14)					Lab						3	5	27	4/13	11	6	3	1	1			100	74	19.5
142	Englishman	11/03/80	1325	-	Field					4	8	29	24	7/8	11	4	4		1			100	73	19.5
(14)	River				Lab					3	21	19	24	9/5	9	3	3	3	1			94	60	19.5
144	N.W. Bay	13/03/80	0610	-	Field						5	18	24	6/11	22	6	6	5	2			105	55	19.5
(14)					Lab						15	36	22	7/9	5	3	2	1				100	82	19.5
144	N.W. Bay	13/03/80	1518	-	Field						4	29	36	2/14	8	5	1					99	84	19.5
(14)					Lab						13	42	28	3/4	6	3	1					100	87	19.5

Table 8 Fishery Seine Charter Area 15, February 27 to March 12, 1980

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	Percent Below Cutoff	Cutoff (cm)
152	Lund	27/02/80	0640	6000	Field							2	9	3/5	18	26	15	10	6				97	17	19.5
(15)					Lab							7	5	6/13	21	25	17	3	3				100	25	19.5
152	Atrevida	27/02/80	1910	350	Field							2	5	4/6	12	26	23	14	5				97	13	19.5
(15)	Reef				Lab							1	11	5/5	24	25	15	8	5	1			100	17	19.5
157	Hyacinthe	28/02/80	2030	4500	Field						2	8	20	12/11	31	12	1	3	2				102	40	19.5
(15)	Bay				Lab					1	2	21	26	17/6	15	5	5	2					100	56	19.5
152	Lund	01/03/80	0645	3500	Field					1		4	17	9/4	21	14	14	7	1				92	28	19.5
(15)					Lab					2	2	8	15	7/8	24	19	6	9					100	35	19.5
152	Lund	08/03/80	1639	-	No Sample																				
(15)																									
152	Dinner	09/03/80	0648	250	Field								2	4/2	10	14	11	5	2				50	8	19.5
(15)	Rock				Lab							4	4	7/5	30	23	15	7	4	1			100	13	19.5
152	Lund	09/03/80	1403	450	Field					2	4	13	11	4/1	5	5	1	1	1				48	65	19.5
(15)					Lab					3	4	18	23	9/11	15	4	8	4	1				100	59	19.5
152	Lund	12/03/80	0727	1000	Field				1	4	6	14	20	7/11	11	11	3	6					94	60	19.5
(15)					Lab				2	7	15	26	13	5/8	9	6	4	3	1				100	71	19.5

Table 9 Fishery Seine Charter Area 17, March 3 to March 10, 1980

Section (Area)	Location	D/M/Y	Time	Est. Tons in Location	Sample	11 12	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	No. in Sample	% Below Cutoff	Cutoff (cm)
172	Nanoose	03/03/80	1515	2 - 3000	Field					5	10	15	17	0/2	1							50	98	19.5
	Bay				Lab	1		4	1	6	14	51	18	2/1	2							100	95	19.5
172	Nanoose	03/03/80	1815	2 - 3000	Field					2	3	14	29	5/12	16	7	8	3	2			100	60	19.5
	Bay				Lab					2	14	18	24	9/10	14	3	6					100	68	19.5
172	Lantzville	13/03/80	1907	-	Field							3	7	3/6	24	19	18	16	4			100	16	19.5
(17)					Lab						2	13	18	10/11	17	12	10	6	1			100	44	19.5
172	Nanoose	27/02/80	1500	10,000	Field				1		1	10	10	7/10	17	13	7	3				79	40	19.5
					Lab				2		8	32	20	6/6	11	10	4	1				100	68	19.5
172	Maude	09/03/80	2200	8 - 10000	Field							1	3	2/0	5	10	12	15	3			51	8	19.5
	Island				Lab						1	5	6	5/7	23	13	26	14				100	19	19.5
172	Icarus	10/03/80	2005	-	Field							2	3	8/5	9	9	6	6	2			50	20	19.5
(17)	Point				Lab	1			2	7	15	26	13	5/8	9	6	4	3	1			100	71	19.5

Table 10 Fishery Seine Charter Area 18, February 26 to March 7, 1980

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	Percent Below Cutoff	Cutoff (cm)
181	Swanson	26/02/80	1530	No. Est.	Field											2	5	12	12	16	2	50	0	19.5
	Channel				Lab									1/0	3	15	27	23	20	8	3	100	0	19.5
183	Plumper	26/02/80	2030	15000 +	Field							8	15	8/4	5	7		2				49	54	19.5
	Sound				Lab			1		4	18	30	24	4/4	10	3	0	2				100	81	19.5
183	Plumper	07/03/80	1955	5000 +	Field							15	16	3/5	6	4	1					50	72	19.5
(18)	Sound				Lab					1	12	25	38	4/11	7	2						100	87	19.5

Table 11 Fishing Seine Charter Area 23, February 26 to March 12, 1980

Section (Area)	Location	D/M/Y	Time	Est. Tons in Location	Sample	11 12	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	No. in Sample	% Below Cutoff	Cutoff (cm)
231 (23)	Mayne Bay	26/02/80	1030		NO SAMPLE																				
232 (23)	Forbes Isl.	26/02/80	1340	-	Field				2	5	9	15	23	11/3	11	8	5	6	1	1			100	57	19.5
					Lab																				
231 (23)	Folger Isl.	26/02/80	1950	6000	Field						1	8	9	7/4	9	14	18	17		1			99	25	19.5
					Lab					1	1	4	9	3/2	10	9	18	25	12	5	1		100	17	19.5
232 (23)	David Isl.	27/02/80	1900	350	Field						7	23	13	0/3	1	2	1						50	92	19.5
					Lab					3	2	20	38	5/16	7	4	2	3					100	63	19.5
232 (23)	Stopper Isl.	28/02/80	2000	500	Field							1	2	5/1	12	10	10	7	1	1			50	8	19.5
					Lab																				
232 (23)	Forbes Isl.	29/02/80	2010	6000	Field					3	6	23	12	2/3									50	96	19.5
					Lab					2	6	58	76	8/18	12	8	2	8	0	2			200	80	19.5
231 (23)	Swale Rock	01/03/80		-	Field						2	6	8	6/8	5	7	5	3					50	48	19.5
					Lab			1				20	24	4/15	19	6	2	7	1	1			100	60	19.5
232 (23)	Stopper Isl.	02/03/80	1050	150	Field							4	10	2/4	4	10	8	6	2				50	36	19.5
					Lab																				
231 (23)	Meares Bluff	04/03/80	2100	-	Field						7	30	12	0/1									50	100	19.5
					Lab					3	8	40	31	5/11		2							100	93	19.5
232 (23)	Stopper Isl.	05/03/80	1100	-	Field						3	2	12	3/5	7	6	5	1	3	1	1	1	50	44	19.5
					Lab						No data														
232 (23)	Chrow Isl.	05/03/80	2100	1700	Field								4	1/1	2	9	13	11	10				51	10	19.5
					Lab						No data														
232 (23)	Pinnacle Isl.	07/03/80	2100	9000	Field						5	15	23	0/3	2								48	96	19.5
					Lab	1				2	5	28	48	3/9	3	1							100	92	19.5
232 (23)	St. Innes Isl.	08/03/80	1520	300	Field						2	7	6	5/0	4	7	4	14	1				50	30	19.5
					Lab						5	19	13	5/4	15	8	17	10	4				100	41	19.5
232 (23)	Chrow Isl.	08/03/80	2022	-	Field						2	9	20	1/7	7	2				1			49	78	19.5
					Lab					1	7	31	25	6/13	6	3	5	2	1				100	77	19.5
232 (23)	Forbes Isl.	10/03/80	1340	-	Field						1	4	6	0/10	9	5	9	4	2				50	42	19.5
					Lab						No data														

Table 11 (Con't)

Section Area	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. in Sample	% Below Cutoff	Cutoff (cm)
232 (23)	Chrow Isl.	10/03/80			No Sample																				
232 (23)	Forbes Isl.	10/03/80	2000		No Sample																				
232 (23)	Stopper Isl.	11/03/80	30		No Sample																				
232 (23)	David Isl.	11/03/80	1950		Field						2	7	11	8/2	5	11	1	2					47	47	19.5
					Lab						10	19	27	4/4	11	9	8	5	3				100	60	19.5
232 (23)	Stopper Isl.	12/03/80	0645		Field							5	11	6/0	6	10	6	5	2				51	32	19.5
					Lab																				
232	Stopper Island	12/03/80	0700		Field							2	5	6/11	7	2	6	6	4	1			50	36	19.5
					Lab				1	3	9	24	21	3/8	15	6	5	4	1				100	66	19.5
232	Toquart Bay	12/03/80	1215		Field							2	6	3/5	4	6	10	5	8	1			50	26	19.5
					Lab					2	1	11	14	7/9	14	16	16	9	3	3			100	37	19.5
232	Toquart Bay	12/03/80	1530		Field						1	4	10	1/8	8	1	4	7	6				50	46	19.5
					Lab					1	4	12	26	8/5	12	6	11	8	2	5			100	48	19.5
233	Mayne Bay	12/03/80	1125		Field							2	5	2/7	4	4	7	7	9	2	1		50	28	19.5
					Lab						1	16	22	7/8	9	9	10	10	6	2			100	47	19.5

Table 12 Fishery Seine Charter Area 24, March 11, 1980

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	& Below Cutoff	Cutoff (cm)
245 (24)	Dunlop Island	11/03/80	0710		Field						NO SAMPLE													19.0
					Lab																			
244 (24)	S. McKay Island	11/03/80	1120		Field								1	7	11	17	22	14	13	6	1	92	1	19.0
					Lab						NO SAMPLE													

Table 13 Fishery Seine Charter Area 25, February 28 to March 4, 1980

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	% Below Cutoff	Cutoff
251	Discovery Point	28/02/80	1145	600	Field							2	6	7	12	17	5	1				50	16	19.0
					Lab						6	11	26	16	22	14	3	1	1			100	43	19.0
251	Mooyah Bay	28/02/80	1440	100	Field							1	7	12	11	9	7	2		1		50	16	19.0
					Lab							16	34	22	17	9	2					100	50	19.0
251	Discovery Point	29/02/80	1500	12-1500	Field							NO SAMPLE												
					Lab																			
251	Discovery Point	01/03/80	0630		Field							NO SAMPLE												
					Lab																			
251	Discovery Point	01/03/80	0700	150	Field					1		3	11	14	8	7	6					50	30	19.0
					Lab					1	5	19	29	26	11	7		1	1			100	54	19.0
251	Discovery Point	01/03/80	0935	150	Field					1		9	24	28	20	8	4	4	2			100	34	19.0
					Lab					3	3	17	35	32	7	2	1					100	58	19.0
251	Nootka Light	01/03/80	1555	350	Field							3	15	28	28	13	8	1	1		1	98	18	19.0
					Lab						1	7	17	24	22	20	4	3	2			100	25	19.0
251	Nootka Light	04/03/80	0750	250	Field							NO SAMPLE												
					Lab																			
251	Discovery Point	04/03/80	1200		Field					1		2	18	31	16	9	1	1	1			98	21	19.0
											4	9	24	25	19	12	6	1				100	37	19.0

Table 14 Fishery Seine Charter Area 27, March 6, 1980

Section (Area)	Location	D/M/Y	Time	Est. Tons In Location	Sample	11 12	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	No. In Sample	% Below Cutoff	Cutoff (cm)
272 (27)	Klaskish	06/03/80	0830	400	Field Lab							1	7	15	12	10	5					50	16	19.0
272 (27)	Klaskish	06/03/80	1100	400	Field Lab							2	15	17	16	1	1					52	34	19.0
272 (27)	Klaskish	06/03/80	1230	400	Field							3	6	21	15	2	3					50	60	19.0

TABLE 15

FISHERY SEINE CHARTER AREA 2E and 2W MARCH 10 to MARCH 31, 1980

SEX RATIOS, PERCENT ROE RECOVERIES AND ROE GRADES

Area	Location	D/M/Y	Time	Est. Tons in Catch	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Percent Roe Recovery	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3
2W	Louscoone	10/03/81	1805	60	131	47	148	53	6.8	88	8	52
2W	Louscoone	11/03/80	0658	200	92	46	110	54	10.8	86	4	20
2E	Swan Is.	11/03/80	2210	50	112	46	131	54	10.2	95	15	21
2E	Bolkus Is.	12/03/80	0850	100	149	54	129	46	8.8	104	9	16
2E	Deluge Pt.	12/03/80	2050	25	38	44	49	56	2.0	21	9	19
										50 spawned out		
2E	Pelican Pt	13/03/80	1205	70	69	61	45	39	5.0	21	10	14
2E	Harriet Hbr	13/03/80	2303	15	71	56	55	44	4.5	31	5	19
										16 spawned out		
2W	Crooked Pt.	14/03/80	2040	50	171	49	179	51	10.7	145	14	20
2W	Skindas	15/03/80	0905	150	89	45	111	55	13.3	104	2	5
2W	Keen Flamingo	15/03/80	1737	5	57	44	74	56	6.5	42	11	21
										6 spawned out		
2W	Etches Pt.	17/03/80	0940	20	51	38	84	62	4.0	27	4	53
										5 spawned out		
2W	Tuga Pt.	17/03/80	1125	2	123	52	115	48	7.0	10 spawned out		
2W	Tuga Pt.	18/03/80	1600	400	103	40	152	60	14.7	145	1	6
2E	Huyley Isl.	20/03/80	0855	150	134	45	164	55	9.5	118	23	23
2E	Huyley Isl.	21/03/80	1512	90	193	48	207	52	8.0	177	10	21
2E	Kat Isl.	21/03/80	1630	100	140	51	137	49	8.8	123	8	6
2E	Pelican Pt.	22/03/80	1010	150	146	51	138	49	8.2	123	8	7
2E	Houston Inl.	22/03/80	1430	45	128	45	159	55	10.0	137	7	15
2E	King Fisher Cove	23/03/80	0948	65	204	49	217	51	9.4	196	11	10
2E	Harriet Is.	24/03/80	1805	45	143	54	123	46	9.4	113	3	7
2E	Huston In.	26/03/80	1246	200	126	47	140	53	10.0	126	5	9
										3 spawned out		
2W	Shields Rock	30/03/80	1314	70	120	51	117	49	10.5	116	0	1
										2 spawned out		
2W	Seal In.	31/03/80	1052	30	114	41	162	59	13.5	161	1	0
2W	Seal In.	31/03/80	1403	55	127	55	104	45	10.5	104	0	0

TABLE 16

FISHERY SEINE CHARTER AREA 3X, 3Y, 3Z MARCH 17 to MARCH 24, 1980

SEX RATIOS AND PERCENT ROE RECOVERIES AND ROE GRADES

Area	Location	D/M/Y	Time	Est. Tons in Catch	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Percent Roe Recovery	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3
3	Stumaun Bay	17/03/80	1730	100	119	56	95	44	3.6	45	7	43
3Y	Grassy Point	18/03/80	1805	50	148	49	152	51	4.5	76	15	61
3Y	Cunningham Pass	19/03/80	1000	1	101	58	72	42	.5	14	2	56
3Y	Haida Bay	23/03/80	1030	250	225	50	221	50	7.3	177	15	29
3Z	Steamer Pass	23/03/80	1430	30	242	55	199	45	4.8	130	11	58
3Y	Stumaun Bay	24/03/80	0825	< 1	200	65	110	35	0.8	29	2	79

TABLE 17

FISHERY SEINE CHARTER AREA 5 MARCH 19 to MARCH 31, 1980

SEX RATIOS AND PERCENT ROE RECOVERIES AND ROE GRADES

Area	Location	D/M/Y	Time	Est. Tons in Catch	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Percent Roe Recovery	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3
5	Gurd Isl.	19/03/80	1800	20	167	62	102	38	4.2	52	8	53
5	Kitkatla Inl.	20/03/80	0900	2	138	57	103	43	6.2	76	13	14
5	Browning Ent.	20/03/80	1845	2	35	35	64	65	0.0	0	0	64
5	Robert Isl.	26/03/80	0745	100	248	56	193	44	7.0	165	15	13
5	Gurd Point	26/03/80	0930	100	148	51	140	49	6.5	107	11	22
5	Coquitlam Isl.	27/03/80	1900	100	243	60	163	40	7.0	148	4	11
5	Clamshell Isl.	28/03/80	0545	<1	249	53	222	47	7.2	185	8	29
5	Gurd Isl.	28/03/80	0910	<1	210	58	152	42	8.2	128	3	21
5	Wilcox Group	28/03/80	1300	45	185	41	264	59	11.0	239	1	24
5	Clamshell Isl.	29/03/80	0645	65	324	52	295	48	8.1	250	17	28
5	Gurd Isl.	30/03/80	0930	20	275	56	220	44	8.3	202	7	11
5	Gurd Isl.	31/03/80	0800	7	151	49	160	51	10.0	133	8	19
5	Dries Inl.	31/03/80	1230	45	174	50	171	50	9.6	131	11	30

TABLE 18

FISHERY SEINE CHARTER AREA 6 MARCH 14 to MARCH 23, 1980

SEX RATIOS AND PERCENT ROE RECOVERIES AND ROE GRADES

Area	Location	D/M/Y	Time	Est. Tons In Catch	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Percent Roe Recovery	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3
6	Meyers Pass.	14/03/80	0547	9	92	57	69	42	1.0	25	3	41
6	Kitasu Bay	14/03/80	1953	10	73	55	60	45	5.5	37	4	19
6	Thistle Bay	15/03/80	0720	35	59	49	61	51	10.0	47	10	4
6	Higgins Pass	22/03/80	0509	8	72	50	73	50	7.0	54	14	5
6	Weeteeam Bay	23/03/80	0606	30	164	54	140	46	8.0	110	22	8
6	Kitasu	23/03/80	0509	25	188	44	244	56	7.4	176	46	24

TABLE 19

FISHERY SEINE CHARTER AREA 7 MARCH 4 to MARCH 26, 1980

SEX RATIOS, PERCENT ROE RECOVERIES AND ROE GRADES

Area	Location	D/M/Y	Time	Est. Tons In Catch	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Percent Roe Recovery	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3
7	Thompson Bay	04/03/80	1930	150	48	49	50	51	1.0	10	17	23
7	Houghton Is.	05/03/80	1935	50	60	55	49	45	2.5	10	11	28
7	Thompson Bay	06/03/80	0605	20	53	40	81	60	3.3	24	29	28
7	Boddy Pass	06/03/80	0925	20	80	48	86	52	1.0	3	1	82
7	Dundivan Inl.	07/03/80	1120	7	54	48	59	52	3.5	24	13	22
7	Reba Point	07/03/80	1925	20	60	46	72	54	4.5	23	6	43
7	Cultus Sd.	08/03/80	1745	75	77	55	62	45	3.0	18	5	29
7	Spider Anch.	09/03/80	1740	80	60	51	58	49	5.8	29	7	22
7	Houghton Isl.	17/03/80	1747	20	248	57	187	43	8.5	165	5	17
7	Dundivan Inl	18/03/80	1227	75	223	52	202	48	8.1	145	20	36
7	Cultus Ch.	18/03/80	1843	85	210	50	208	50	9.6	171	8	29
7	Houghton Is.	20/03/80	1925	100	171	46	202	54	10.1	187	6	9
7	Mustang	26/03/80	0730	65	146	50	146	50	10.3	134	3	9

TABLE 20

FISHERY SEINE CHARTER AREA 8 MARCH 11 TO MARCH 26, 1980

SEX RATIOS, PERCENT ROE RECOVERIES AND ROE GRADES

Area	Location	D/M/Y	Time	Est. Tons In Catch	Sex Ratio M No.	M %	F No.	F %	Percent Roe Recovery	Roe Grade (Pcs) #1	#2	#3
8	Kwakshua Ch.	11/03/80	0540	75	65	48	70	52	1.0	8	10	52
8	Kwakshua Ch.	12/03/80	1755	10	68	44	85	56	0	3	0	82
8	Kwakshua Ch.	12/03/80	1955	450	64	45	78	55	1.5	11	7	60
8	Kwakshua Ch.	19/03/80	1751	75	83	54	71	46	4.3	33	4	34
8	Fairmile Pass	26/03/80	1815	8	158	42	219	58	11.3	217	1	1

TABLE 21

FISHERY SEINE CHARTER AREA 14 FEBRUARY 26 to MARCH 13, 1980

SEX RATIOS, PERCENT ROE RECOVERIES AND ROE GRADES

Area	Location	D/M/Y	Time	Est. Tons In Catch	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Percent Roe Recovery	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3
14	Komass Bluff	26/02/80	1956	Cl	41	36	74	64	0	0	4	70
14	North West Bay	27/02/80	1730	200	55	55	45	45	.5	6	5	24
14	Baynes Sound	29/02/80	1915	3-400	68	61	43	39	1.0	8	8	6
14	Parksville Bay	01/03/80	2200	175	43	47	49	53	4.0	8	11	20
14	Parksville	02/03/80	0715	30	49	48	53	52	4.5	23	4	26
14	Baynes Sound	02/03/80	2100	200	65	51	62	49	1.5	16	8	11
14	North West Bay	04/03/80	0645	40	106	40	162	60	1.0	21	15	126
14	Comox	04/03/80	1018	300	38	38	61	62	4	22	28	11
14	Repulse Point	04/03/80	1339	300	44	46	51	54	5	24	18	9
14	Repulse Point	04/03/80	0755	200	74	48	79	52	0	6	2	71
14	Parksville	05/03/80	0645	80	107	53	97	48	1.5	17	28	52
14	Qualicum Beach	05/03/80	0900	600	115	50	115	50	2.5	32	27	51
14	Chrome Island	05/03/80	1002	200	62	45	75	55	1.5	17	6	52
14	Lambert Ch.	05/03/80	1128	75	116	43	157	57	8.6	107	20	30
14	Repulse Pt.	05/03/80	1518	300	73	42	103	58	11.25	85	5	13
14	Qualicum Beach	05/03/80	1600	100	165	47	185	53	3.3	56	42	85
14	Repulse Pt.	05/03/80	1812	No Est.	85	57	63	43	.5	10	5	48
14	Deep Bay	06/03/80	0550	Cl	71	60	48	40	6	30	5	13
14	Lambert Ch.	06/03/80	0945	12	115	42	162	58	10.75	132	17	13
14	Lambert Ch.	06/03/80	1050	150	149	44	187	56	9.8	130	19	38
14	Mistaken Isl.	06/03/80	1415	150	162	61	102	39	7	92	2	8
14	N.W. Bay	08/03/80	1015	175	31	40	46	60	0	5	2	39
14	Englishman R.	11/03/80	1325	75	68	46	79	54	4.25	53	3	23
14	N.W. Bay	13/03/80	0610	55	16	55	13	45	0	2	1	10
										140-spawned		out
14	N.W. Bay	13/03/80	1518	12	44	43	59	57	1	18	2	39
										77-spawned		out
14	Lantzville	13/03/80	1907	25	31	45	38	55	6	31	0	7
										63-spawned		out

TABLE 22

FISHERY SEINE CHARTER AREA 15 FEBRUARY 27 to MARCH 12, 1980

SEX RATIOS AND PERCENT ROE RECOVERIES AND ROE GRADES

Area	Location	D/M/Y	Time	Est. Tons In Catch	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Percent Roe Recovery	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3
15	Lund	27/02/80	0640	22	55	51	52	49	0	0	7	45
15	Atrevida Reef	27/02/80	1910	15	52	50	53	50	0	0	10	43
15	Hyacinthe Bay	28/02/80	2030	15	105	63	62	37	0	0	3	59
15	Lund	01/03/80	0645	100	61	53	55	47	0	0	18	37
15	Lund	08/03/80	1639	100	175	53	153	46	7.3	115	12	26
15	Dinner Rock	09/03/80	0648	6	23	54	20	46	2	11	7	2
15	Lund	09/03/80	1403	20	39	45	48	55	0	0	5	43
15	Lund	12/03/80	0727	5	13	25	39	75	0	7	10	22
										101-spawned out		

TABLE 23

FISHERY SEINE CHARTER AREA 17 FEBRUARY 27 to MARCH 9, 1980

SEX RATIOS, PERCENT ROE RECOVERIES AND ROE GRADES

Area	Location	D/M/Y	Time	Est. Tons In Catch	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Percent Roe Recovery	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3
17	Nanoose Bay	27/02/80	1500	400 +	71	54	60	46	0	1	3	19
17	Nanoose Bay	03/03/80	1515	10	18	45	22	55	0	1	2	19
17	Nanoose Bay	03/03/80	1815	60	194	70	85	31	1.5	8	5	30
17	Maude Isl.	09/03/80	2200	200	22	45	27	55	2	20	3	5

TABLE 24

FISHERY SEINE CHARTER AREA 18 FEBRUARY 26 to MARCH 10, 1980

SEX RATIOS AND PERCENT ROE RECOVERIES AND ROE GRADES

Area	Location	D/M/Y	Time	Est. Tons In Catch	Sex Ratio M No.	M %	F No.	F %	Percent Roe Recovery	Roe Grade (Pcs) #1	#2	#3
18	Swanson Ch.	26/02/80	1530	1	39	56	31	44	0	0	0	1
18	Plumper Sound	26/02/80	2030	200	70	51	65	48	0	0	0	0
18	Plumper Sound	07/03/80	1955	200	100	62	62	38	0	-	-	-
18	Icarus Is.	10/03/80	2005	5	4	18	18	82	1.5	16	1	1
									107-spawned out			

TABLE 25

FISHERY SEINE CHARTER AREA 23 FEBRUARY 26 to MARCH 12, 1980

SEX RATIOS, PERCENT ROE RECOVERIES AND ROE GRADES

Area	Location	D/M/Y	Time	Est. Tons In Catch	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Percent Roe Recovery	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3
23	Forbes Isl.	26/02/80	1340	.05	45	50	46	50	3	19	14	13
23	Folger Isl.	26/02/80	1950	-	42	49	44	51	5	41	19	59
										2-spawned out		
23	David Isl.	27/02/80	1900	30	53	54	46	46	0	2	1	43
23	Stopper Isl.	28/02/80	2000	500	48	48	52	52	10.5	78	5	14
23	Forbes Isl.	29/02/80	2010	6000	79	58	58	42	0	8	10	40
23	Swale Rock	01/03/80	2118	55	49	41	70	59	7	36	15	19
23	Stopper Isl.	02/03/80	1050	150	119	49	124	51	8.5	92	10	22
23	Meares Bluff	04/03/80	2100	100	44	40	66	60	0	2	3	61
										21-Immature		
23	Stopper Isl.	05/03/80	1100	50	49	49	51	51	9.8	39	2	10
23	Chrow Isl.	05/03/80	2100	45	37	47	41	53	10.5	38	2	1
23	Pinnacle Rock	07/03/80	2100	75	58	51	55	49	1	7	4	44
										6-Immature		
23	St. Innes Isl.	08/03/80	1530	150	89	43	120	57	14	107	4	9
23	Chrow Isl.	08/03/80	2022	100	127	48	137	52	8.8	109	8	20
23	Forbes Isl.	10/03/80	1340	400	131	52	119	48	9.5	107	4	8
23	David Isl.	11/03/80	1950	30	117	46	137	54	10.5	108	6	23
23	Stopper Isl.	12/03/80	0645	-	156	43	210	57	10.5	183	13	14
23	S. Stopper Isl.	12/03/80	0700	130	60	47	67	53	12.8	59	2	6
23	Toquart Bay	12/03/80	1215		83	48	90	52	12	87	0	3
23	Toquart Bay	12/03/80	1530	35	151	46	176	54	10.3	158	8	11
23	Mayne Bay	12/03/80	1125	50	150	47	170	53	9.7	144	5	21

TABLE 26

FISHERY SEINE CHARTER AREA 24 MARCH 11, 1980

SEX RATIOS AND PERCENT ROE RECOVERIES AND ROE GRADES

Area	Location	D/M/Y	Time	Est. Tons in Catch	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Percent Roe Recovery	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3
24	S. McKay Isl.	11/03/80	1120	35	41	44	53	56	14.8	50	0	3

TABLE 27

FISHERY SEINE CHARTER AREA 25 FEBRUARY 28 to MARCH 12, 1980

SEX RATIOS AND PERCENT ROE RECOVERIES AND ROE GRADES

Area	Location	D/M/Y	Time	Est. Tons In Catch	Sex Ratios M No.	Sex Ratios M %	Sex Ratios F No.	Sex Ratios F %	Percent Roe Recovery	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3
25	Center Island	28/02/80	0945	250	60	38	97	62	0	0	13	84
25	Discovery Pt.	28/02/80	1145	50	78	57	58	43	4.0	No Data		
25	Mooyah Bay	28/02/80	1440	50	66	49	69	51	4.3	28	12	29
25	Port Langford	29/02/80	1000	100	99	47	111	53	7.5	71	30	10
25	Port Langford	29/02/80	1445	200	108	48	119	52	10.5	102	7	10
25	Discovery Pt.	01/03/80	0700	5	80	53	70	47	2.5	18	16	36
25	Discovery Pt.	01/03/80	0935	70	72	46	84	54	3.0	19	12	53
25	Nootka Lt.	01/03/80	1555	150	57	46	68	54	9.3	51	5	12
25	Langford Hrbr.	01/03/80	1700	No Est.	285	49	299	51	12.5	272	11	16
25	Maquinna Pt.	04/03/80	1050	30	70	50	69	50	9.9	65	1	3
25	Discovery Pt.	04/03/80	1200	5	63	48	69	52	8.8	51	4	14
25	Nootka Sound	12/03/80	0545	30	168	50	166	50	4.5	76	27	44

TABLE 28

FISHERY SEINE CHARTER AREA 27 MARCH 6, 1980

SEX RATIOS AND PERCENT ROE RECOVERIES AND ROE GRADES

Area	Location	D/M/Y	Time	Est. Tons In Catch	Sex Ratio M No.	Sex Ratio M %	Sex Ratio F No.	Sex Ratio F %	Percent Roe Recovery	Roe Grade (Pcs) #1	Roe Grade (Pcs) #2	Roe Grade (Pcs) #3
27	Klaskish	06/03/80	0830	10	76	49	79	51	3.0	25	9	22
27	Klaskish	06/03/80	1000	10	68	43	91	57	2.0	30	25	20
27	Klaskish	06/03/80	1230	5	89	53	79	47	0	1	5	33

TABLE 29

AREA 2E & 2W. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less.

Area	Location	Date	% Below Cutoff-Field	% Below Cutoff-Lab	% Age 111 or Less
2W	006	10/03/80	24	58	85
2W	006	11/03/80	5	52	85
2E	071	11/03/80	12	52	64
2E	025	12/03/80	23	43	78
2E	025	12/03/80	36	54	51
2E	025	13/03/80	17	39	44
2E	025	13/03/80	30	85	69
2W	006	14/03/80	12	41	61
2W	006	15/03/80	9	28	53
2W	006	15/03/80	24	71	88
2W	006	17/03/80	8		
2W	006	17/03/80	18	50	85
2W	006	18/03/80	2	20	29
2E	025	20/03/80	35	80	92
2E	025	21/03/80	35	70	80
2E	025	21/03/80	51	93	81
2E	025	22/03/80	52	77	74
2E	025	22/03/80	40	79	82
2E	025	23/03/80	40	66	76
2E	025	24/03/80	39	58	78
2E	025	26/03/80	33	62	81
2W	003	30/03/80	16	28	58
2W	003	31/03/80	40		
2W	003	31/03/80	17		

TABLE 30

Area 3X, 3Y, 3Z. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less.

Area	Section	Date	% Below Cutoff-Field	% Below Cutoff-Lab	% Age 111 or Less
3Y	033	17/03/80	33.7	No data	No data
3Y	033	18/03/80	40.8	No data	No data
3Y	033	19/03/80	80.4	No data	No data
3Y	022	23/03/80	53.9	75.0	73.0
3Z	032	23/03/80	45.5	75.0	77.0
3Y	033	24/03/80	48.0	48.0	50.0

TABLE 31

Area 5. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less.

Area	Section	Date	% Below Cutoff-Field	% Below Cutoff-Lab	% Age 111 or less
5	052	19/03/80	58.2	No data	No data
5	052	20/03/80	25.0	No data	No data
5	051	20/03/80	0.0	No data	No data
5	052	26/03/80	52.0	82.0	75.0
5	052	26/03/80	41.2	38.0	69.0
5	052	27/03/80	38.1	76.0	77.0
5	052	28/03/80	39.8	79.0	75.0
5	052	28/03/80	22.5	No data	No data
5	052	28/03/80	45.5	83.0	87.0
5	052	29/03/80	48.5	77.0	93.0
5	052	30/03/80	51.1	94.0	90.0
5	052	31/03/80	49.5	80.0	82.0
5	052	31/03/80	37.5	No data	No data

TABLE 32

Area 6. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less.

Area	Section	Date	% Below Cutoff-Field	% Below Cutoff Lab	% Age 3 or less
6	067	14/03/80	74.0	91.0	74.0
6	067	22/03/80	82.8	79.0	80.0
6	067	23/03/80	73.3	82.0	84.0

TABLE 33

Area 7. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less.

Area	Section	Date	% Below Cutoff-Field	% Below Cutoff-Lab	% Age 111 or Less
7	074	04/03/80	18.0	39.0	47.0
7	074	05/03/80	22.0	52.0	63.0
7	074	06/03/80	34.0	34.0	56.0
7	074	06/03/80	70.8	94.0	83.0
7	074	07/03/80	20.0	50.0	75.0
7	074	07/03/80	35.4	62.0	75.0
7	075	08/03/80	37.4	40.0	61.0
7	076	09/03/80	24.0	32.0	44.0
7	074	17/03/80	27.0	65.0	75.0
7	074	18/03/80	29.0	68.0	76.0
7	075	18/03/80	42.0	55.0	100.0
7	074	20/03/80	41.4	47.4	66.0
7	076	26/03/80	49.0		

TABLE 34

Area 8. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less

Area	Section	Date	% Below Cutoff-Field	% Below Cutoff-Lab	% Age 3 or less
8	085	11/03/80	45.0	57.0	57.0
8	085	12/03/80	90.2	91.0	73.0
8	085	12/03/80	53.5		
8	085	19/03/80	54.4	57.0	58.0
8	085	26/03/80	37.0	36.0	35.0

TABLE 35

Area 14. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less.

Area	Section	Date	% Below Cutoff-Field	% Below Cutoff-Lab	% of Age 3 or Less
14	142	26/02/80	25.9	35.0	55
14	142	26/02/80	15.9	35.0	
14	144	27/02/80	7.0	19.0	25
14	142	29/02/80	31.0	50.0	47
14	144	01/03/80	5.4	9.0	14
14	144	02/03/80	14.0	20.0	29
14	142	02/03/80	46.0	67.0	70
14	144	04/03/80	53.9	60.0	52
14	142	04/03/80	12.2	10.0	
14	142	04/03/80	14.1	15.0	
14	142	04/03/80	12.2	10.0	29
14	142	04/03/80	14.1	15.0	36
14	142	05/03/80	79.4	64.0	74
14	142	05/03/80	61.0	58.0	71
14	142	05/03/80	14.4	15.0	36
14	142	05/03/80	20.4	10.0	92
14	142	05/03/80	69.8	84.0	84
14	144	05/03/80	37.0		

TABLE 35

Area 14. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less.

Area	Section	Date	% Below Cutoff-Field	% Below Cutoff-Lab	% of Age 3 or Less
14	142	26/02/80	25.9	35.0	55
14	142	26/02/80	15.9	35.0	
14	144	27/02/80	7.0	19.0	25
14	142	29/02/80	31.0	50.0	47
14	144	01/03/80	5.4	9.0	14
14	144	02/03/80	14.0	20.0	29
14	142	02/03/80	46.0	67.0	70
14	144	04/03/80	53.9	60.0	52
14	142	04/03/80	12.2	10.0	
14	142	04/03/80	14.1	15.0	
14	142	04/03/80	12.2	10.0	29
14	142	04/03/80	14.1	15.0	36
14	142	05/03/80	79.4	64.0	74
14	142	05/03/80	61.0	58.0	71
14	142	05/03/80	14.4	15.0	36
14	142	05/03/80	20.4	10.0	92
14	142	05/03/80	69.8	84.0	84
14	144	05/03/80	37.0		

TABLE 35 Con't

Area	Section	Date	% Below Cut-off-Field	% Below Cutoff-Lab	% of Age 3 or less
14	143	05/03/80	39.0	57.0	51
14	143	05/03/80	38.0	52.0	
14	142	05/03/80	79.4	64.0	
14	142	05/03/80	61.0	58.0	
14	142	05/03/80	14.4	15.0	
14	142	05/03/80	20.4	10.0	
14	142	05/03/80	69.8	84.0	
14	142	06/03/80	41.0	52.0	
14	142	06/03/80	12.2	28.0	
14	142	06/03/80	25.4	38.0	
14	142	06/03/80	41.0	52.0	60
14	142	06/03/80	12.2	28.0	43
14	142	06/03/80	35.4	38.0	54
14	143	06/03/80	4.0	16.0	12
14	144	08/03/80	63.3	74.0	
14	144	08/03/80	63.3	74.0	79
14	142	11/03/80	73.0	72.0	
14	142	11/03/80	73.0	72.0	72
14	144	13/03/80	55.2	82.0	81
14	144	13/03/80	83.8	87.0	92
14	144	13/03/80	55.2	82.0	
14	144	13/03/80	83.8	87.0	

TABLE 36

Area 15. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less.

Area	Section	Date	% Below Cutoff-Field	% Below Cutoff-Lab	% Age 3 or Less
15	152	27/02/80	16.5	25.0	42
15	152	27/02/80	13.4	17.0	22
15	137	28/02/80	40.2	56.0	55
15	152	01/03/80	28.3	35.0	41
15	152	09/03/80	8.0	13.0	30
15	152	09/03/80	64.6	59.0	63
15	152	09/03/80	8.0	13.0	
15	152	09/03/80	64.6	59.0	
15	152	12/03/80	59.6	71.0	66
15	152	12/03/80	59.6	71.0	

TABLE 37

Area 17. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less.

Area	Section	Date	% Below Cutoff-Field	% Below Cutoff-Lab	% Age 3 or Less
17	172	27/02/80	40.5	68.0	70
17	172	03/03/80	98.0	95.0	86
17	172	03/03/80	60.0	68.0	70
17	172	10/03/80	20.0	71.0	66
17	172	13/03/80	16.0	44.0	

TABLE 38

Area 18. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less

Area	Section	Date	% Below Cutoff-Field	% Below Cutoff-Lab	% Age 3 or Less
18	181	26/02/80	0.0	0.0	70
18	183	26/02/80	54.0	81.0	74
18	183	07/03/80	72.0	87.0	87

TABLE 39

Area 23. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less

Area	Section	Date	% Below Cut-off Field	% Below Cut-off-Lab	% of Age 3 or Less
23	232	26/02/80	57.0	No data	
23	231	26/02/80	25.0	17	23
23	232	27/02/80	92.0	63	79
23	232	28/02/80	8.0	No data	
23	232	29/02/80	96.0	80	63
23	231	01/03/80	48.0	60	52
23	232	02/03/80	36.0	No data	
23	231	04/03/80	100.0	93	83
23	232	05/03/80	44.0	No data	
23	232	05/03/80	9.8	No data	
23	232	07/03/80	95.8	92	77
23	232	08/03/80	30.0	41	35
23	232	08/03/80	77.6	77	42
23	232	10/03/80	42.0	No data	
23	232	11/03/80	36.8	60	50
23	232	12/03/80	31.8	No data	
23	232	12/03/80	26.0	37	30
23	232	12/03/80	46.0	48	38
23	232	12/03/80	36.0	66	46
23	233	13/03/80	28.0	47	43

TABLE 40

Area 24. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less

Area	Section	Date	% Below Cutoff-Field
24	244	11/03/80	1.1

TABLE 41

Area 25. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less

Area	Section	Date	% Below Cutoff-Field	% Below Cutoff-Lab	% Age 3 or Less
25	251	28/02/80	16	43	43
25	251	28/02/80	16	50	60
25	253	28/02/80	34	50	57
25	253	29/02/80	8	16	25
25	253	29/02/80	3	8	19
25	253	01/03/80	5	34	26
25	251	01/03/80	30	54	61
25	251	01/03/80	34	58	75
25	251	01/03/80	18	25	37
25	252	04/03/80	31	55	50
25	251	04/03/80	21	37	

TABLE 42

Area 27. Percent Below Cutoff Field and Lab Samples and Percent Age 3 or Less

Area	Section	Date	% Below Cutoff-Field	% Below Cutoff-Lab	% Age 3 or Less
27	272	06/03/80	16	No data	
27	272	06/03/80	34	No data	
27	272	06/03/80	60	No data	
27	251	12/03/80	28	39	70

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Webb L.A., R.O. Boyd and B.J. Lockner. Data record series 1977. The 1977 Herring Roe Pre-Fishery Charter Vessel Monitoring and Sampling Program. Department of Fisheries and Environment, Pacific region. No. PAC/D-77-7.

Hourston, A.S. and F.W. Nash. M.S. 1973. Computer Programs for Population Analysis of B.C. Herring from Catch, Sampling and Spawn Deposition Data. Fish. Res. Board, Can. Tech. Rep. 399: 334 p.

HERRING

DATE 28/2/80

AREA 23

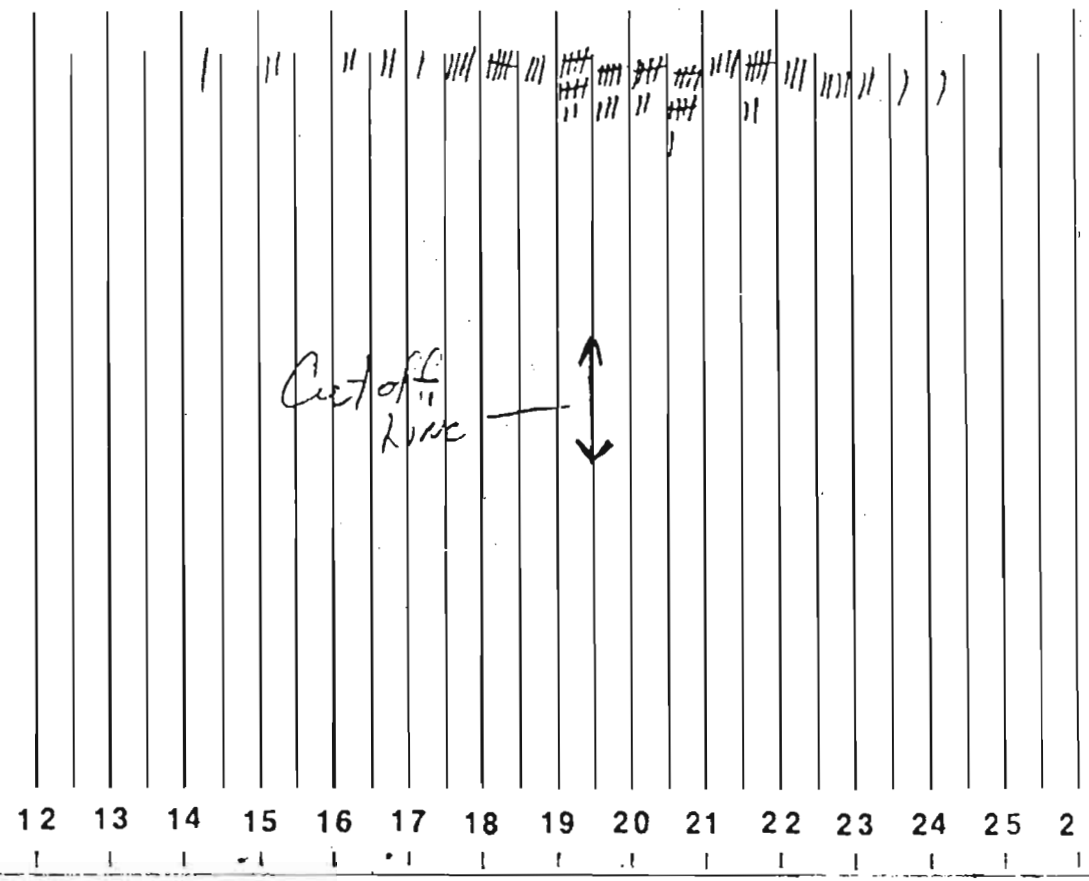
LOCATION David Isl.

TIME OF SET 1600

VESSEL Pachena #1

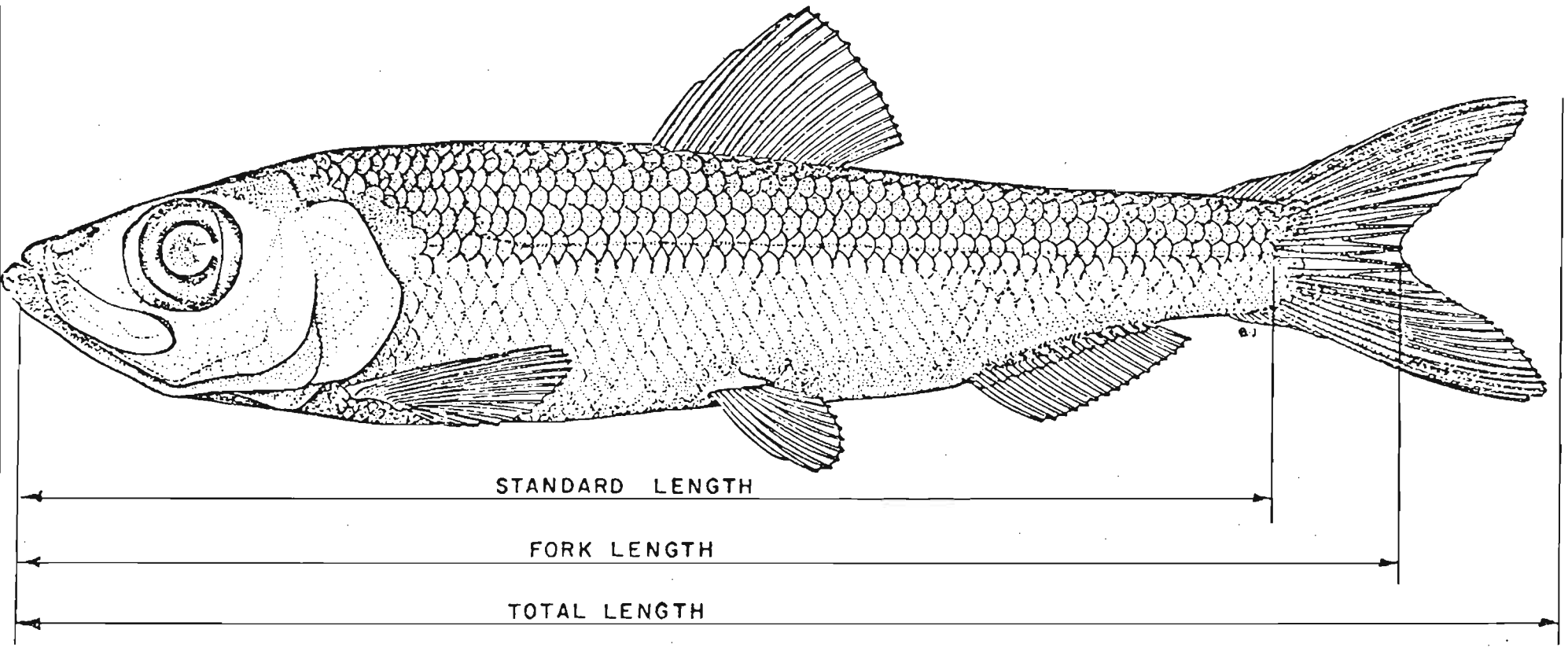
GEAR Seine

SAMPLE NO 17



Appendix Figure 3 . Waterproof paper measuring sheet for recording herring lengths.

LENGTH MEASUREMENT DESCRIPTIONS OF PACIFIC HERRING

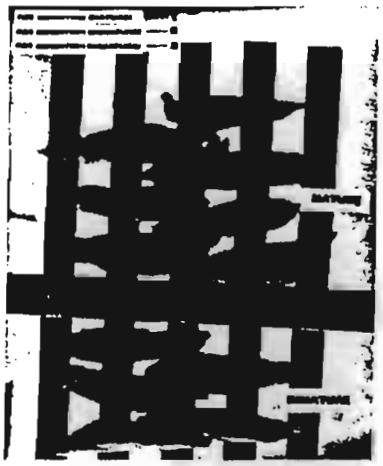


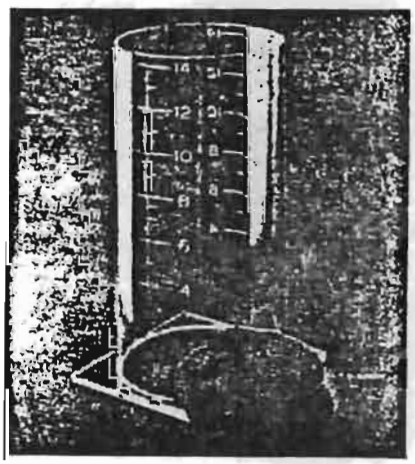
APPENDIX figure 5

CAPILANO PLASTICS

HERRING ROE TEST KIT

- APPROVED KIT USED TO DETERMINE ROE YIELD
- DESIGNED FOR "ON BOARD" USE
- ALL MATERIALS FDD APPROVED





CAPILANO PLASTICS

INSTRUCTIONS TO ESTIMATE % HERRING ROE YIELD

The kit contains:

- one clear plastic volumetric cylinder
- one CAPILANO ROE TEST bucket with lid
- instruction sheet/photographs of maturity stages
- plastic scouring pad

Step:

(1) randomly select about 75 lbs. of herring from the set or load

(2) randomly fill (level to top) the ROE TEST bucket with herring

(3) determine sex of all fish in the bucket (by squeezing or stripping) – note number of each sex

(4) strip all roe from females

(5) note condition of roes considering:

Condition 1 – is acceptable by fishing companies for the Japanese market (bright yellow translucent eggs, few blood vessels) shown as MATURE - 1 in photograph.

Condition 2 – may be 2-3 days from acceptability (unclear and pinkish in color, becoming translucent, too many blood vessels) shown as IMMATURE - 2 in photograph.

Condition 3 – may be 10 days from acceptability (very opaque with prominent blood vessels) shown as IMMATURE - 3 in photograph.

(6) deposit all MATURE – 1 roe in the volumetric cylinder - note % recovery from the scale on the side of the cylinder. Also note number of females in conditions 1, 2 and 3.

(7) repeat above procedure with a second sample and average results. If results of two tests are very different a third test may be required.

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