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APPENDICES TO FINAL REPORT RU 695

EARLY LIFE HISTORY OF PACIFIC HERRING IN AUKE BAY, ALASKA: RELATIONSHIPS OF GROWTH AND SURVIVAL TO ENVIRONMENTAL CONDITIONS

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Summary of plankton net tows made in Auke Bay

Appendix A. Summary of plankton net tows made in Auke Bay in 1988.

Date	Sample number	Site	Mesh (um)	Hour In	Hour Out	Diff	Volume Filtered (m^3)	P	Comments
15-Hay-88	001	GOV	333	1406	1421	15		1	
15-May-88	002	ABM	333	1447	1456	9		1	
21-May-88	1	GOV	333	1355	1405	10	52,7010	1	
21-Nay-88	2	GOV	333	1434	1443	10	32,0643	2	
21-Nay-88	3	ABM	333	1656	1707	11	24.8157	1	
21-Hay-88	4	ABM	333	1713	1722	9	24,0103	2	
21-May-88	5	ABM	165	1745	1753	8	25.8490	125%	of sorted plankton accidentally lost
21-Nay-88	6	CSI	333	1857	1906	9	21.9588	1	
21-Nay-88	7	CSI	333	1918	1927	9	26.7912	2	
21-Nay-88	8	CSI	165	1951	2000	9	19,5729	1	
21-Kay-88	9	GOV	165	2034	2044	10	35.985$	1	
24-Hay-88	13	CSI	333	1039	1048	9	50,8015	1	
24-Hay-88	14	CSI	333	1100	1110	10	29,7393”	2	
24-May-88	15	CSI	165	1138	1148	10	34.4806	1	
24-May-88	16	ABM	333	1258	1308	10	26,6392	1	
24-Hay-88	17	ABM	333	1322	1331	9	27,783%	2	
24-May-88	18	ABM	165	1350	1359	9	26.2441	1	
24-Hay-88	19	2?0s	333	1457	1506	9	54.4486	1	
24-May-88	20	NOS	333	1519	1528	9	50.4520	2	
24-Nay-88	21	NOS	165	1549	1558	9	32,7330	1	
27-May-88	25	CSI	333	1122	1132	10	25,4995	1	
27-Hay-88	26	CSI	333	1144	1155	11	23.0377	2	
27-May-88	27	CSI	165	1216	1226	10	26.7152	1	
27-Nay-88	28	ABM	333	1335	1345	10	112.1037	1	
27-Hay-88	29	ABM	333	1359	1408	9	85.8595	2	
27-May-88	30	ABK	165	-	-	-		-	Sample lost during net retrieval
27-May-88	31	GOV	“333	1521	1531	10	109,2315	1	
27-May-88	32	GOV	333	1545	1554	9	94.5518	2	
27-Kay-88	33	GOV	165	1616	1626	10	10.8350	I	
01-Jun-88	37	CSI	505	1358	1408	10	269.8116	1	
01-Jun-88	38	CSI	505	1431	1441	10	262,8061	2	
01-Jun-88	39	ABK	505	1510	1520	10	256.3780	1	
01-Jun-88	40	ABM	505	1543	1554	11	227,8392	2	
01-Jun-88	41	GOV	505	1640	1650	10	365,1081	1	
01-Jun-88	42	GOV	505	2311	2323	12	290.9802	1	Night sample
01-Jun-88	43	CSI	165	1056	1106	10	113.2738	1	
01-Jun-88	44	ABM	165	1128	1137	9	95.9195	1	
01-Jun-88	45	GOV	165	-	-	-		-	Sample lost during net retrieval
01-Jun-88	46	ABM	505	2343	2352	9	269.9940	1	Night sample
05-Jun-88	50	CSI	505	1326	1336	10	248.2936	1	
05-Jun-88	51	CSI	505	1410	1420	10	240.4674	2	
05-Jun-88	52	ABM	505	1526	1537	11	251.1961	1	
05-Jun-88	53	ABM	505	1546	1556	10	222.3533	2	
05-Jun-88	54	GOV	505	1653	1702	9	258.1864	1	
05-Jun-88	55	GOV	505	1709	1720	11	241,8959	2	
05-Jun-88	56	CSI	165	2000	2009	9	70.8911	1	

Appendix A. Summary of plankton net tows made in Auke Bay in 1988,

Date	Sample number	Site	Mesh (urn]	Hour In	Hour Out	Diff	Volume Filtered {m^3}	P	Comments
05-Jun-88	57	ABM	165	2047	2056	9	110,9031	1	
1O-JUD-88	61	CSI	505	1044	1053	9	221.1832	1	
10-Jun-88	62	CSI	505	1109	1118	9	201.3064	2	
10-Jun-88	63	CSI	165	1141	1150	9	86,9688	1	
1O-JUU-88	64	ABM	505	1300	1308	8	212.0502	1	
10-Jun-88	65	ABM	505	1318	1327	9	179.9251	2	
1O-JUU-88	66	ABM	165	1344	1353	9	119.0332	1	
10-Jun-88	67	GOV	505	1449	1457	8	177.0530	1	
10-Jun-88	68	GOV	505	1516	1524	8	144.1528	2	
10-Jun-88	69	GOV	165	1540	1548	8	62.6850	1	
10-Jun-88	?0	GOV	505	2329	2338	8	237.2458	1	Nightsample
15-Jun-88	74	CSI	5%5	1340	1348	8	192,9940	1	
15-Jun-88	75	CSI	505	1358	1406	8	168.2543	2	
15-Jun-88	76	CSI	165	1458	1506	8	72.1372	1	
15-Jun-88	77	ABM	505	1528	1537	9	196,2156	1	
15-Jun-88	78	ABM	505	1544	1553	9	177.9495	2	
15-Jun-88	79	ABM	165	1644	1653	9	75,4652	1	
15-Jun-88	80	GOV	505	1717	1726	9	239.2517	1	
15-Jun-88	81	GOV	505	1735	1743	7	177.3873	2	
15-Jun-88	82	GOV	165	1759	18%7	8	73.1705	1	
20-Jun-88	86	CSI	505	1107	1116	9	249.1598	1	
20-Jun-88	87	CSI	505	1126	1135	9	219.2837	2	
20-Jun-88	88	CSI	165	1200	1208	8	99.597%	1	
20-Jun-88	89	ABM	505	1312	1321	9	255.8917	1	
20-Jun-88	90	ABM	505	1331	1340	9	219,6332	2	
20-Jun-88	91	ABM	165	1352	1400	8	110,7360	1	
20-Jun-88	92	ANC	505	1450	1500	10	248.5975	1	
20-Jun-88	93	ANC	505	1505	1514	9	218,9949	2	
20-Jun-88	94	ANC	165	1528	1536	8	106.5722	1	
20-Jun-88	95	ABM	505	2334	2342	8	259,6908	1	Nightsample
25-Jun-88	99	CSI	505	1041	1048	7	298.4568	1	
25-Jun-88	100	CSI	505	1056	1105	9	264.8576	2	
25-Jun-88	101	CSI	165	1117	1126	9	101.0103	1	
25-Jun-88	102	ABM	505	1310	1318	8	296,6788	1	
25-Jun-88	103	ABM	505	1325	1333	8	270.8754	2	
25-Jun-88	104	ABM	165	1341	1348	7	118,4861	1	
25-Jun-88	105	ANC	505	1438	1447	9	272.1671	1	
25-Jun-88	106	ANC	505	1450	1459	9	254.3113	2	
25-Jun-88	107	ANC	165	1509	1518	9	101.1623	1	
30-Jun-88	111	CSI	505	1035	1043	8	232.5045	1	
30-Jun-88	112	CSI	505	1050	1059	9	232,7173	2	
30-Jun-88	113	CSI	16S	1113	1121	8	104.1559	1	
30-Jun-88	114	ABM	505	1229	1237	8	265.1159	1	
30-Jun-88	115	ABM	505	1242	1250	8	268.1552	2	
30-Jun-88	116	ABM	165	1300	1307	7	106.1467	1	
30-Jun-88	117	ANC	505	1419	1427	8	292.0287	1	

Appendix A. Summary of plankton net tows made in Auke Bay in 1988.

Date	Sample number	Site	Mesh [am]	Hour In	Hour Out	Diff	Volume Filtered (m^3)	P	Comments
30-Jun-88	118	ANC	505	1434	1441	7	264,8272	2	
30-Jun-88	119	ANC	165	1452	1458	7	144.1832	1	
05-Jul-88	123	CSI	505	1105	1115	10	342.9822	1	
05-Jul-88	124	CSI	505	1931	1941	10	288.7159	2	
05-Jul-88	125	CSI	165	1956	2006	10	149,2588	1	
05-Jul-88	126	ABM	505	2047	2057	10	333.0437	1	
06-Jul-88	127	ABM	505	1612	1621	9	328,6368	2	
06-Jul-88	128	ABM	165	1631	1640	9	140.7792	1	
06-Jul-88	129	ANC	505	1720	1729	9	339.0463	1	
06-Jul-88	130	ANC	505	1735	1744	9	320.7803	2	
06-Jul-88	131	ANC	165	1751	1800	9	156s3099	1	
05-Jul-88	132	ABM	505	2330	2340	10	330,0197	1	Night sample.
1O-JU1-88	136	CSI	505	1120	1129	9	384s3467	1	
1O-JU1-88	137	CSI	505	1135	1144	9	369,7734	2	
1O-JU1-88	138	CSI	165	1152	1201	9	132,0565	1	
1O-JUI-88	139	ABM	505	1335	1345	10	369.3327	1	
10-Jul-88	140	ABM	505	1351	1359	8	357.8138	2	
1O-JU1-88	141	ABM	165	1408	1416	8	87.9870	1	
10-Jul-88	142	ANC	505	1518	1527	9	374.4083	1	
1O-JU1-88	143	ANC	505	1533	1542	9	334,4114	2	
17-Jul-88	147	CSI	505	1045	1054	9	275.6014	1	
17-Jul-88	148	CSI	505	1104	1112	8	262.5478	2	
17-Jul-88	149	CSI	165	1128	1136	8	52.8074	1	
17-Jul-88	150	ABM	505	1300	1308	8	299.7637	1	
17-Jul-88	151	ABM	505	1317	1325	8	275.2215	2	
17-Jul-88	152	ABM	165	1335	1344	9	90.9655	1	
17-Jul-88	153	ANC	505	1437	1445	8	301.7848	1	
17-Jul-88	154	ANC	505	1501	1508	7	286.1933	2	
17-Jul-88	155	ANC	165	1515	1523	8	90.2513	1	
17-Jul-88	156	ABM	505	2305	2312	7	265.6782	1	Night sample.
22-Jul-88	160	CSI	505	1015	1023	8	280.6618	1	
22-Jul-88	161	CSI	505	1031	1038	7	283.9443	2	
22-Jul-88	162	CSI	165	1053	1101	9	23.9495	1	
22-Jul-88	163	ABM	505	1238	1246	B	317.7410	1	
22-Jul-88	164	ABM	505	1256	1304	8	303.6539	2	
22-Jul-88	165	ABM	165	1333	1340	7	51.5461	1	
22-Jul-88	166	ANC	505	1422	1430	8	288.6399	1	
22-Jul-88	167	ANC	505	1435	1444	9	311.5561	2	
22-Jul-88	168	ANC	165	1453	1500	7	26.8672	1	
27-Jul-88	172	CSI	505	1032	1040	8	397.5898	1	
27-Jul-88	173	CSI	505	1051	1059	8	316,5101	2	
27-Jul-88	174	CSI	165	1109	1117	8	26.8369	1	
27-Jul-88	175	ABM	505	1236	1245	9	332.4663	1	
27-Jul-88	176	ABM	505	1251	1259	8	299.7181	2	
27-Jul-88	177	ABM	165	1307	1315	8	115.2341	1	
27-Jul-88	178	ANC	505	1429	1437	8	301.1921	!	

Appendix A. Summary of plankton net tows made in Auke Bay in 1988.

Date	Sample number	Site	Mesh (um)	Hour In	Hour Out	Hour Diff	Volume Filtered (m^3)	P	Comments
27-Jul-88	179	ANC	505	1445	1453	8	308.6384	2	
27-Jul-88	180	ANC	165	1500	1508	8	110.9943	1	

Notes:

1. Sites: GOV=off Government dock, ABM=Auke Bay Monitor,
   CSI=between Coghlan and Spuhn Islands, NOS=North Station, ANC=Auke Nu Cove.
2. Preservative: P=1(5% seawater formalin), P=2 (37% isopropyl alcohol).

APPENDIX B

Summary of catches of juvenil herring in Auke Bay

Appendix B. Summary of catches of juvenile herring in Auke Bay in 1988.

Date	Site	Tine	Sample number	Gear type	P	Surface temp (0C)	Comments
14-Aug-88	GOV dock	1400	181	DN	1	14,5	i small school sampled
14-Aug-88	GOV dock	1400	182	DN	2	14,5	1 snail school sampled
15-Aug-88	Spuhn Is.	930	183	BS	1	14,0	taken by Auke Bay Lab personnel
18-Aug-88	GOV dock	1000	184	DN	2	15.0	4 different schools sampled
18-Aug-88	GOV dock	1000	185	DN	1	15.0	4 different schools sampled
19-Aug-88	GOV dock	1400	186	DN	1	15.0	1 large school sampled
19-Aug-88	GOV dock	1400	187	DN	2	15.0	1 large school sampled
25-Aug-88	GOV dock	1000	188	DN	1	17,0	3 large schools sampled
25-Aug-88	GOV dock	1000	189	DN	2	17.0	3 large schools sampled

Notes:
DN=dip-net, BS=beach-seine, P=1 (5% formalin), P=2 (37% isopropyl].

APPENDIX C

Lengths of Pacific herring larvae and juveniles

Appendix C. Lengths of Pacific herring captured in AukeBay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
15-May-88	GOV	1	001	1	1	12.0	1	12,5	12.5
						MEAN		12,5	12,5
						SD			
						N		1	1
15-Kay-88	ABM	1	002	1	1	10.7	1	11,3	11.3
15-Hay-88	ABM	1	002	1	1	10,8	1	11.4	11.4
15-Hay-88	ABM	1	002	1	1	11.4	1	11,9	11.9
15-Hay-88	ABM	1	002	1	1	11.6	1	12.1	12.1
15-Kay-88	ABM	1	002	1	1	11.8	1	12.3	12,3
15-Kay-88	ABM	1	002	1	1	12.0	1	12.5	12.5
15-Nay-88	ABM	1	002	1	1	12.4	1	12,9	12.9
15-Kay-88	ABM	1	002	1	1	12.4	1	12,9	12.9
15-Hay-88	ABM	1	002	1	1	13.8	1	14.2	14,2
						KHAN		12.4	12.4
						SD		0,9	0.9
						N		9	9
2.1-Kay-88	GOV	1		1	2	7.3	2	8.4	8.4
21-May-88	GOV	1		1	2	7.3	2	8.4	8.4
21-May-88	GOV	1		1	2	7,3	2	8.4	8.4
21-Nay-88	GOP	1		1	2	7,7	2	8.7	8.7
21-Hay-88	GOV	1		1	2	7.8	1	8.8	8.8
21-Kay-88	GOV	1		1	2	7.8	2	8.8	8.8
21-May-88	GOV	1		1	2	7.9	2	8.9	8.9
21-Kay-88	GOV	1		1	2	8.0	2	9,0	9.0
21-Kay-88	GOV	1		1	2	8.0	2	9.0	9.0
21-Kay-88	GOV	1		1	2	8.1	1	9.0	9.0
21-Kay-88	GOP	1		1	2	8.2	1	9.1	9.1
21-Hay-88	GOP	1		1	2	8,2	2	9.1	9.1
21-Kay-88	GOV	1		1	2	8.3	1	9.2	9.2
21-May-88	GOV	1		1	2	8.5	1	9.4	9.4
21-May-88	GOV	1		1	2	8.8	1	9.7	9.7
21-May-88	GOV	1		1	2	9.1	1	9.9	9.9
21-Hay-88	GOV	1		1	2	9.2	1	10.0	10.0
21-Hay-88	GOV	1		1	2	9,2	1	10.0	10.0
21-Nay-88	GOV	1		1	2	9.2	1	10,0	10.0
21-Kay-88	GOV	1		1	2	5.3	1	10,1	10.1
21-Hay-88	GOV	1		1	2	9.9	1	10.6	10.6
21-May-88	GOV	1		1	2	10.4	1	11.1	11.1
						MEAN		9.3	9.3
						SD		0.7	0.7

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
				N			22	22
21-Kay-88	GOV 1	11	1		11,6	1	12,1	12.1
21-Kay-88	GOV 1	11	1		12.1	1	12.6	12.6
21-Hay-88	GOV 1	1 1	1		12,3	1	12,8	12,8
21-Kay-88	GOV 1	1 1	1		12.7	1	13.1	13,1
21-Hay-88	GOV 1	1 1	1		13.3	1	13.7	13,7
21-Kay-88	GOV 1	1 1	1		13.4	1	13.8	13,8
21-Hay-88	GOV 1	1 1	1		13,6	1	14,0	14,0
21-Hay-88	GOV 1	11	1		14.1	1	14,4	14.4
21-Kay-88	GOV 1	11	1		15.6	1	15.8	15.8
				MEAN			13.6	13,6
				SD			1.2	1.2
				N			9	9
21-May-88	GOV 1	22	2		6.2	1	7.4	7,2
21-Hay-88	GOV1	22	2		6,8	1	7.9	7.7
21-Kay-88	GOV1	22	2		6.9	1	8.0	7,8
21-Kay-88	GOV1	2 2	2		7.5	1	8.5	8.3
21-Hay-88	GOV 1	22	2		7.5	i	8.5	8,3
21-Hap-88	GOV 1	22	2		7.6	1	8,6	8.4
21-Hay-88	GOV 1	22	2		8.1	2	9.0	8,8
21-Kay-88	GOV1	22	2		8.4	1	9.3	9.0
21-May-88	GOV 1	22	2		8.5	1	9.4	9.1
21-Hay-88	GOV 1	22	2		8.6	1	9.5	9.2
21-Kay-88	GOV 1	22	2		9.0	1	9.8	9.5
21-Hay-88	GOV1	22	2		9.0	1	9.8	9.5
21-May-88	GOV 1	22	2		9.1	1	9.9	9.6
21-Hay-88	GOV 1	22	2		9.2	1	10,0	9.7
21-Hay-88	GOV 1	22	2		9.2	1	1%.0	9.7
21-Hay-88	GOV 1	22	2		9.9	1	10.6	10,3
21-Kay-88	GOV 1	22	2		9.9	1	10.6	10.3
21-Hay-88	GOV1	22	2		10,1	1	10.8	10.5
21-Hay-88	GOV1	22	2		10.1	1	10.8	10.5
21-May-88	GOV 1	22	2		10.7	1	11,3	11.0
21-May-88	GOV 1	22	2		10.8	1	11.4	11.1
21-Hay-88	GOV 1	22	2		11.0	1	11.6	11.2
21-Kay-98	GOV1	22	2		11.1	1	11.7	11.3
21-May-88	GOV 1	22	2		11.1	1	11.7	11.3
				MEAN			9,8	9.6
				SD			1.2	i. 2
				N			24	24

Appendix C. Lengths of Pacific herring captured in Auke Bay,

Date	Site	Sample number	Cohort	Measured length (mm)	Capture-Corrected length (mm)	Preserv-Corrected length [mm]
21-Nay-88	GOV 1	22	1	12,6 1	13.0	12.6
21-May-88	GOV 1	2 2	1	12.9 1	13.3	12,9
21-Hay-88	GOV 1	22	1	12.9 1	13.3	12.9
21-Hay-88	GOV 1	22	1	13.1 1	13.5	13.1
21-Hay-88	GOV 1	22	1	13,2 1	13,6	13.1
21-Hay-88	GOV 1	22	1	13.6 1	14.0	13s5
21-May-88	GOV 1	22	1	14,1 1	14,4	14.0
21-Hay-88	GOV 1	22	1	14,8 1	15,1	14.6
21-May-88	GOV 1	22	1	15.4 1	15.7	15.1
21-May-88	GOV 1	22	1	15,5 1	1S,8	15.2
21-Hay-88	GOV 1	22	1	15,8 1	16.0	15,5
				MEAN	14,3	13,9
				SD	1.1	1,0
				N	11	11
21-Hay-88	ABM 1	31	2	7.2 1	8.3	8.3
21-Kay-88	ABM 1	31	2	7,2 1	8.3	8,3
21-Hay-88	ABM 1	31	2	7.3 2	8.4	8.4
21-May-88	ABM 1	31	2	7.7 2	8,7	8.7
21-Hay-88	ABM 1	31	2	7.8 2	8.8	8.8
21-May-88	ABM 1	31	2	7.8 2	8.8	8,8
21-Hay-88	ABM 1	31	2	7.9 1	8.9	8.9
21-Hay-88	ABM 1	31	2	8.2 2	9,1	9.1
21-May-88	ABM 1	31	2	8,3 1	9.2	9.2
21-Hay-88	ABM 1	31	2	8.3 1	5.2	9.2
21-Hay-88	ABM 1	31	2	8,7 1	9.6	9.6
21-Hay-88	ABM 1	31	2	8,8 1	9.7	9.7
21-Hay-88	ABM 1	31	2	9.0 1	9.8	9.8
21-Hay-88	ABM 1	31	2	9.9 1	10,6	10.6
21-Hay-88	ABM 1	31	2	10,0 1	10.7	10.7
				MEAN	9.2	9.2
				SD	0.7	0.7
				N	15	15
21-May-88	ABM 1	31	1	11.0 1	11.6	11.6
21-May-88	ABM 1	31	1	11,0 1	11.6	11.6
21-Kay-88	ABM 1	31	1	11.1 1	11.7	11.7
21-May-88	ABM 1	3 1	1	11,2 1	11.8	11,8
21-Kay-88	ABM 1	31	1	11.2 1	11.8	11.8
21-Nay-88	ABM 1	31	1	11.3 1	11.9	11.9
21-Kay-88	ABM 1	31	1	11.4 1	11.9	11.9
21-May-88	ABM 1	31	1	11.4 1	11.9	11.9
21-May-88	ABM 1	31	1	11.5 1	12.0	12.0

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample number	Cohort	Measured length [mm]	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
21-Nay-88	ABM 1	31	1	11,6	12.1	12.1
21-May-88	ABM 1	31	1	11.6	12,1	12.1
21-May-88	ABM 1	31	1	11.7	12.2	12.2
21-Nay-88	ABM 1	31	1	11.7	12,2	12.2
21-Kay-88	ABM 1	31	1	11.8	12.3	12.3
21-May-88	ABM 1	31	1	12.1	12.6	12.6
21-Kay-88	ABM 1	31	1	12,2	12,7	12,7
21-Hay-88	ABM 1	31	1	12.6	13.%	13.0
21-Hay-88	ABM 1	31	1	12.7	13.1	13.1
21-May-88	ABM 1	31	1	12.8	13.2	13.2
21-Hay-88	ABM1	31	1	13.3	13.7	13.7
21-Hay-88	ABM 1	31	1	13.4	13.8	13.8
21-Hay-88	ABM 1	31	1	13.4	13,8	13,8
21-May-88	ABM 1	31	1	13.5	13.9	13,9
21-Nay-88	ABM 1	31	1	13.6	14,0	14.0
21-May-88	ABM 1	31	1	13.7	14.1	14,1
21-May-88	ABM 1	31	1	13,8	14.2	14.2
21-May-88	ABM 1	31	1	14,1	14,4	14.4
21-Kay-88	ABM 1	31	1	14,2	14.5	14.5
21-May-88	ABti 1	31	1	14.4	14.7	14.7
21-Hay-88	ABM1	31	1	14,7	15.0	15.0
21-May-88	ABM 1	31	1	15.0	15.3	15.3
21-May-88	ABM 1	31	1	15.1	15,4	15,4
21-May-88	ABM 1	31	1	15.2	15.5	15.5
			MEAN		13.1	13.1
			SD		1.2	1.2
			N		33	33
21-Hay-88	ABM 1	42	2	7,3	8.4	8.1
21-May-88	ABM 1	42	2	8.2	9.1	8.9
21-May-88	ABH 1	42	2	8.4	9.3	9.0
21-Kay-88	ABM 1	42	2	8.5	9.4	9.1
21-May-88	ABM 1	42	2	8.9	9.7	9.5
21-Nay-88	ABM1	42	2	9.1	9.9	9.6
21-May-88	ABM 1	42	2	9.8	10.5	10,2
			MEAN		9,5	9.2
			SD		0.6	0.6
			N		7	7
21-Hay-88	ABM 1	42	1	11.1	11.7	11.3
21-May-88	ABM !	42	1	11,6	12.1	11,7
21-May-88	ABM 1	42	1	11.8	12.3	11.9
21-Hay-88	ABM1	42	1	12.8	13,2	12.8

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
21-Hay-88	ABM	1	4	2	1	13,3	1	13.7	13.2
21-Hay-88	ABM	1	4	2	1	13,6	1	14.0	13.5
21-Kay-88	ABM	1	4	2	1	15.%	1	15s3	14.8
						BEAK		13,2	12.8
						SD		1.3	1.2
						N		7	7
21-May-88	ABM	1	5	1	2	8.2	1	9.1	9.1
21-Hay-88	ABM	1	5	1	2	9.9	1	10,6	10.6
21-Hay-88	ABM	1	5	1	2	9.9	1	10,6	10.6
21-Kay-88	ABM	1	5	1	2	10.6	1	11.2	11,2
						MEAN		10.4	10,4
						SD -		0.9	0.9
						N		4	4
21-Hay-88	ABM	1	5	1	1	11.6	1	12.1	12.1
21-Kay-88	ABM	1	5	1	1	12.0	1	12.5	12.5
21-May-88	ABM	1	5	1	1	12.4	1	12.9	12,9
21-Nay-88	ABM	1	5	1	1	12,4	1	12.9	12,9
21-Hay-88	ABM	1	5	1	1	12,9	1	13,3	13,3
21-Kay-88	ABM	1	5	1	1	12,9	1	13.3	13,3
21-May-88	ABM	1	5	1	1	13.0	1	13.4	13.4
21-Kay-88	ABM	1	5	1	1	13.1	1	13,5	13.5
21-May-88	ABM	1	5	1	1	13.3	1	13.7	13’7
21-May-88	ABM	1	5	1	1	13.7	1	14.1	14.1
21-May-88	ABM	1	5	1	1	13.9	1	14.2	14,2
21-May-88	ABM	1	5	1	1	13,9	1	14.2	14.2
21-Kay-88	ABM	1	5	1	1	14.0	1	14,3	14.3
21-Kay-88	ABM	1	5	1	1	14.0	1	14.3	14.3
21-Nay-88	ABM	1	5	1	1	14.1	1	14.4	14.4
21-May-88	ABM	1	5	1	1	14.2	1	14.5	14.5
21-Hay-88	ABM	1	5	1	1	14.3	1	14.6	14.6
21-Kay-88	ABM	1	5	1	1	14.3	1	14.6	14.6
21-May-88	ABM	1	5	1	1	14,9	1	15.2	15.2
21-May-88	ABM	1	5	1	1	15.0	1	15.3	15.3
21-Kay-98	ABM	1	5	1	1	15.9	1	16.1	16.1
						MEAN		14.0	14,0
						SD		1.0	1.0
						N		21	21
21-May-88	CSI	1	6	1	2	8.3	2	9.2	9.2
21-Hay-88	CSI	1	6	1	2	8.4	2	9.3	9.3

Appendix C. Lengths of Pacific herring captured in Auke Bay,

Date	Site	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
21-May-88	CSI 1	61	2		10.O	1	10.7	10.7
21-May-88	CSI 1	61	2		10.7	1	11.3	11,3
				MEAN			10,1	10.1
				SD			1.0	1.0
				N			4	4
21-Nay-88	CSI 1	61	1		12.1	1	12.6	12.6
21-Nay-88	CSI 1	61	1		13,0	1	13.4	13,4
21-Nay-88	CSI 1	6 1	1		13.9	1	14.2	14,2
				MEAN			13,4	13,4
				SD			0,9	0.9
				N			3	3
21-Nay-88	CSI 1	72	2		9.3	1	10.1	9.8
				MEAN			10,1	9.8
				SD				
				N			1	1
21-Hay-88	CSI 1	7 2	1		10.2	1	10.9	10,5
21-Hay-88	CSI1	72	1		10,7	1	11.3	11,0
21-Kay-88	CSI 1	7 2	1		11,4	1	11.9	11.6
21-Nay-88	CSI1	7 2	1		12.7	1	13,1	12.7
21-Nay-88	CSI 1	7 2	1		12.7	1	13.1	12.7
21-Nay-88	CSI 1	7 2	1		12.8	1	13.2	12,8
21-Kay-88	CSI 1	72	1		13s7	1	14,1	13.6
21-Nay-88	CSI 1	7 2	1		13.9	1	14.2	13.8
21-Kay-88	CSI 1	72	1		14.1	1	14,4	14,%
21-May-88	CSI 1	72	1		15,1	1	15.4	14,9
				MEAN			13.2	12,7
				SD			1.5	1.4
				N			10	10
24-May-88	CSI 1	13 1	2		8.9	1	9.7	9.7
24-May-88	CSI1	13 1	2		9,7	1	10.4	10.4
24-Hay-88	CSI 1	13 1	2		10.2	1	10,9	10.9
				MEAN			10.3	10,3
				SD			0.6	0.6
				N			3	3
24-Nay-88	CSI 1	13 1	1		11.0	1	11.6	11.6

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
24-Hay-88	CSI	1	13	1	11.1	1	11.7	11.7
24-Hay-88	CSI	1	13	1	11,3	1	11.9	11.9
24-Hay-88	CSI	1	13	1	11,6	1	12.1	12.1
24-Hay-88	CSI	1	13	1	11.7	1	12,2	12'2
24-Hay-88	CSI	1	13	1	11.8	1	12.3	12.3
24-Hay-88	CSI	1	13	1	11.9	1	12.4	12.4
24-May-88	CSI	1	13	1	12,0	1	12.5	12.5
24-May-88	CSI	1	13	1	12.2	1	12.7	12.7
24-Nay-88	CSI	1	13	1	12.2	1	12,7	12,7
24-Hay-88	CSI	1	13	1	12.2	1	12.7	12.7
24-May-88	CSI	1	13	1	12.5	1	12.9	12.9
24-Hay-88	CSI	1	13	1	$2.5	1	12.9	12,9
24-Kay-88	CSI	1	13	1	12,6	1	13.0	13.0
24-Hay-88	CSI	1	13	1	12.9	1	13.3	13,3
24-Hay-88	CSI	1	13	1	13.1	1	13,5	13.5
24-May-88	CSI	1	13	1	13,5	1	13.9	13.9
24-May-88	CSI	1	13	1	13,5	1	13.9	13.9
24-May-88	CSI	1	13	1	14,5	1	14.8	14,8
24-May-88	CSI	1	13	1	14,6	1	14.9	14,9
24-May-88	CSI	1	13	1	14.6	1	14,9	14,9
24-Kay-88	CSI	1	13	1	14.8	1	15.1	15.1
24-Hay-88	CSI	1	13	1	15.4	1	15.7	15.7
24-May-88	CSI	1	13	1	16.4	1	16.6	16.6
24-May-88	CSI	1	13	1	16.7	1	16.9	16,9
24-Kay-88	CSI	1	13	1	16.8	1	17.0	17,0
					MEAN		13,6	13.6
					SD		1.6	1.6
					N		26	26
24-Kay-88	CSI	1	14	2	11,1	1	11.7	11,3
24-May-88	CSI	1	14	2	12,0	1	12.5	12,1
24-May-88	CSI	1	14	2	12.9	1	13.3	12.9
24-May-88	CSI	1	14	2	14,4	1	14.7	14.2
					MEAN		13.1	12.6
					SD		1.3	1.3
					N		4	4
24-Kay-88	ABM	1	16	1	10.7	1	11.3	11.3
24-Nay-88	ABM	1	16	1	10.9	1	11.5	11.5
24-Hay-88	ABM	1	16	1	12.0	1	12.5	12.5
24-May-88	ABM	1	16	1	12,3	1	12.8	12.8
24-May-88	ABM	1	16	1	12.3	1	12.8	12.8
24-Kay-88	ABM	1	16	1	12,4	1	12.9	12.9

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample number	Cohort	Measured length (mm)	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
24-Hay-88	ABM	16	1	12,9	13,3	13.3
24-Kay-88	ABM	16	1	13.3	13.7	13.7
24-Hay-88	ABM	16	1	13.6	14.0	14,0
24-Nay-88	ABM	16	1	13.7	14.1	14.1
24-Hay-88	ABM	16	1	14.0	14.3	14.3
24-May-88	ABM	16	1	14,2	14.5	14.5
24-Nay-88	ABM	16	1	14.3	14,6	14.6
24-Kay-88	ABM	16	1	14.3	14,6	14.6
24-Kay-88	ABM	16	1	14,4	14.7	14.7
24-Kay-88	ABM	16	1	14.9	15.2	15.2
24-Nay-88	ABM	16	1	15,3	15.6	15.6
24-May-88	ABM	16	1	15,4	15,7	15.?
24-Nay-88	ABM	16	1	1s.5	15,8	15,8
24-Hay-88	ABM	16	1	15.5	15.8	15.8
24-Hay-88	ABM	16	1	15.5	15,8	15.8
24-Hay-88	ABM	16	1	15.8	16.0	16,0
24-Nay-88	ABM	16	1	16,0	16,2	16.2
24-Kay-88	ABM	16	1	16,5	16,7	16.7
24-May-88	ABM	16	1	16.8	17.0	17.0
24-Kay-88	ABM	16	1	17,0	17.2	17.2
24-Kay-88	ABM	16	1	17.0	17.2	17.2
			MEAN		14.7	14.7
			SD		1.7	1.7
			N		27	27
24-May-88	ABH	17	2	10.5	11.1	10.8
24-May-88	ABN	17	2	10.5	11.1	10.8
24-Hay-88	ABM	17	2	10.5	11.1	10.8
24-Kay-88	ABM	17	2	10.6	11.2	10.9
24-Hay-88	ABM	17	2	10.8	11.4	11.1
24-Nay-88	ABN	17	2	11.2	11.8	11.4
24-May-88	ABM	17	2	12.2	12.7	12.3
24-Nay-88	ABM	17	2	12.3	12.8	12.4
24-Kay-88	ABM	17	2	12,5	12.9	12.5
24-Kay-88	ABM	17	2	12.6	13.0	12.6
24-Nay-88	ABM	17	2	12.8	13.2	12.8
24-Nay-88	ABN	17	2	12.9	13,3	12.9
24-Hay-88	ABM	17	2	13.0	13.4	13.0
24-Nay-88	ABN	17	2	i3.3	13.7	13.2
24-Nay-88	ABM	17	2	13.4	13.8	13,3
24-Hay-88	ABM	17	2	13.6	14.0	13.5
24-Nay-88	ABM	17	2	13.7	14,1	13.6
24-May-88	ABM	17	2	13,7	14.1	13.6
24-Hay-88	ABM	17	1	13.8	14.2	13.7

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample number	Cohort	Measured length (mm)	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
24-May-88	ABM	1	17 2	14,2	14,5	14.0
24-Hay-88	ABM	1	1? 2	14.4	14,7	14.2
24-Hay-88	ABM	1	17 2	14.5	14.8	14.3
24-Hay-88	ABM	1	17 2	14.7	15.0	14.5
24-Kay-88	ABM	1	17 2	14.8	15.1	14.6
24-Hay-88	ABM	1	17 2	14.8	15.1	14.6
24-Kay-88	ABM	1	17 2	14.9	15,2	14.7
24-Kay-88	ABM	1	17 2	14.9	15.2	14.7
24-Hay-88	ABM	1	17 2	15.0	15.3	14,8
24-May-88	ABM	1	17 2	15.0	15,3	14.8
24-May-88	ABM	1	17 2	15.1	15,4	14.9
24-Nay-88	ABM	1	17 2	15.2	15.5	14,9
24-May-88	ABM	1	17 2	15.5	15.8	15,2
24-Nay-88	ABM	1	17 2	15.6	15.8	15.3
24-Hay-88	ABM	1	17 2	15.8	16.0	15.5
24-May-88	ABM	1	17 2	15.9	16.1	15,6
24-Nay-88	ABM	1	17 2	16.0	16.2	15,7
24-Nay-88	ABM	1	17 2	16,1	16,3	15s8
24-May-88	ABM	1	17 2	16.3	16,5	15.9
24-Kay-88	ABM	1	17 2	16,3	16,5	15.9
24-May-88	ABM	1	17 2	17,3	17,5	16,9
24-Hay-88	ABM	1	17 2	18,5	18.6	18,0
				NEAR	14,4	13.9
				SD	1.8	1.7
				N	41	41
24-May-88	ABM	1	18 1	10.9	11,5	11.5
24-May-88	ABM	1	18 1	10,9	11,5	11,5
24-Hay-88	ABM	1	18 1	12.3	12.8	12,8
24-Nay-88	ABM	1	18 1	12.6	13.0	13.0
24-Hay-88	ABM	1	18 1	12,7	13.1	13.1
24-Kay-88	ABM	1	18 1	13.3	13.7	13.7
24-Nay-88	ABM	1	18 1	13.3	13.7	13.7
24-Kay-88	ABM	1	18 1	13.4	13.8	13.8
24-May-88	ABM	1	18 1	13,5	13,9	13.9
24-Hay-88	ABM	1	18 1	13.5	13.9	13.9
24-Nay-88	ABM	1	18 1	14,0	14.3	14.3
24-Kay-88	ABM	1	18 1	14.1	14,4	14.4
24-May-88	ABM	1	18 1	14.9	15.2	15,2
24-Kay-88	ABM	1	18 1	15.8	16.0	16.0
24-May-88	ABM	1	18 1	15.8	16.0	16.0
24-May-88	ABM	1	18 1	16.1	16.3	16.3
24-Hay-88	ABM	1	18 1	17.3	17.5	17.5

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample number	Cohort	Measured length (mm)	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
				MEAN	14.2	14,2
				SD	1.6	1.6
				N	17	17
24-Kay-88	NOS 1	19 1	2	8.1 1	9.0	9.0
24-May-88	NOS 1	19 1	2	8.5 1	9.4	9,4”
				MEAN	9.2	9.2
				SD	0.3	0.3
				N	2	2
24-Nay-88	NOS 1	19 1	1	11,9 1	12,4	12.4
24-May-88	NOS 1	19 1	1	12,4 1	12,9	12,9
24-Hay-88	NOS 1	19 1	1	12.8 1	13,2	13.2
24-May-88	NOS 1	19 1	1	12.9 1	13,3	13.3
24-May-88	NOS 1	19 1	1	13.4 1	13,8	13.8
24-Hay-88	NOS 1	19 1	1	14.5 1	14.8	14,8
24-May-88	NOS 1	19 1	1	14.6 1	14.9	14.9
24-Hay-88	NOS 1	19 1	1	14,7 1	1s.0	15,0
24-Hay-88	NOS 1	19 1	1	15’4 1	15.7	15.7
24-Hay-88	NOS 1	19 1	1	15,6 1	15,8	15,8
24-Hap-88	NOS 1	19 1	1	15.9 1	16,1	16.1
24-Hay-88	NOS 1	19 1	1	16.0 1	16,2	16.2
24-Hay-88	NOS 1	19 1	1	16,7 1	16,9	16.9
24-May-88	NOS 1	19 1	1	16.8 1	17.0	17,0
				MEAN	14,9	14.9
				SD	1.6	1.6
				N	14	14
24-Kay-88	NOS 1	20 2	2	7’2 2	8,3	8.1
				MEAN	8,3	8.1
				SD		
				N	1	1
24-Kay-88	NOS 1	20 2	1	10,7 1	11.3	11.0
24-Hay-88	NOS 1	20 2	1	13.4 1	13.8	13,3
24-Kay-88	NOS 1	20 2	1	13,5 1	13.9	13.4
24-Hay-88	NOS 1	20 2	1	13.7 1	14.1	13,6
24-Kay-88	NOS 1	29 2	1	13.7 1	14.1	13,6
24-May-88	NOS 1	20 2	1	13.9 1	14.2	13.8
24-Hay-88	NOS 1	20 2	1	14.5 1	14,8	14.3
24-Kay-88	NOS 1	20 2	1	15.3 1	15,6	15,0
24-May-88	NOS 1	20 2	1	15.9 1	16.1	15.6

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample Number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
					MEAN		14.2	13.7
					SD		1.4	1.3
					N		9	9
27-May-88	CSI 1	25	1	2	9.9	1	10,6	10.6
27-Kay-88	CSI 1	25	1	2	10.1	1	10.8	10.8
					MEAN		10.7	10,7
					SD		0.1	0.1
					N		2	2
27-May-88	CSI 1	25	1	1	13.4	1	13.8	13,8
27-Kay-88	CSI 1	25	1	1	13,5	1	13.9	13,9
27-Hay-88	CSI 1	25	1	1	13.7	1	14,1	14.1
27-May-88	CSI 1	25	1	1	13.9	1	14,2	14,2
27-May-88	CSI 1	25	1	1	14.0	1	14.3	14,3
27-Kay-88	CSI 1	25	1	1	14.5	1	14.8	14,8
27-May-88	CSI 1	25	1	1	14,6	1	14.9	14.9
					MEAN		14,3	14.3
					SD		%.4	0,4
					N		9	9
27-Hay-88	CSI 1	26	2	2	11.8	1	12.3	11,9
					MEAN		12,3	11.9
					SD			
					N		1	1
27-Kay-88	CSI 1	26	2	1	14,1	1	14.4	14,0
27-Hay-88	CSI 1	26	2	1	14.2	1	14.5	14.0
27-Kay-88	CSI 1	26	2	1	14.7	1	15,0	14,5
27-Kay-88	CSI 1	26	2	1	14.7	I	15.0	14,5
27-Kay-88	CSI 1	26	2	1	14.9	1	15.2	14.7
27-May-88	CSI 1	26	2	1	15.4	1	15,7	15.1
27-Nay-88	CSI 1	26	2	1	15.5	1	15.8	15.2
27-Hay-88	CSI 1	26	2	1	16,4	1	16,6	16.0
27-Kay-88	CSI 1	26	2	1	16.7	1	16.9	16.3
					MEAN		15.5	14.9
					SD		0.8	0.8
					N		9	9
27-Hay-88	ABM1	28	1	2	11.7	1	12.2	12.2

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample number	Cohort	Measured length (mm)	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
27-Hay-88	ABM 1	28	2	12,3	12.8	12.8
27-Nay-88	ABM 1	28	2	12.4	12,9	12.9
27-Hay-88	ABM 1	28	2	12,6	13.0	13.%
27-Nay-88	ABN 1	28	2	13.7	14.1	14,1
				MEAN	13,0	13,0
				SD	0.7	0,7
				N	5	5
27-Nay-88	ABM 1	28	1	15.4	15,7	15,7
27-Kay-88	ABM 1	28	1	15.5	15.8	15.8
27-Nay-88	ABM 1	28	1	16.0	16,2	16,2
27-Kay-88	ABM 1	28	1	16,4	16.6	16,6
27-Nay-88	ABM 1	28	1	17.3	17s5	17,5
27-Hay-88	ABN 1	28	1	18,2	18,3	18.3
				MEAN	16.7	16.7
				SD	1.1	1.1
				N	6	6
27-Hay-88	ABN 1	29	2	11.1	11.7	11,3
27-May-88	ABM 1	29	2	11.6	12,1	11.7
27-Hay-88	ABN 1	29	2	12,3	12,8	12.4
27-Nay-88	ABM 1	29	2	12.5	12.9	12,5
				MEAN	12s4	12.0
				SD	0,6	0.6
				N	4	4
27-Hay-88	ABN 1	29	2	14.2	14.5	14.0
27-Hay-88	ABM 1	29	2	14,3	14,6	14,1
27-Nay-88	ABN 1	29	2	14,3	14.6	14.1
27-Nay-88	ABN 1	29	2	15.6	15.8	15)3
27-Kay-88	ABM 1	29	2	16,3	16.5	15.9
27-Nay-88	ABM 1	29	2	16.5	16.7	16.1
				MEAN	15.5	14.9
				SD	1.0	1.0
				N	6	6
27-May-88	GOV 1	31	2	8.8	9,7	9.7
27-Hay-88	GOV 1	31	2	10.6	11.2	11.2
27-Kay-88	GOV 1	31	2	11.0	11.6	11.6
27-Hay-88	GOV 1	31	2	11.1	11.7	11.7
27-Kay-88	GOV 1	31	2	11.9	12.4	12,4

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (En}	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
27-May-88	GOV	1	31	1	2	12,8	1	13,2	13,2
27-May-88	GOV	1	31	1	2	13.0	1	13,4	13,4
27-May-88	GOV	1	31	1	2	13.0	1	13,4	13,4
27-Nay-88	GOV	1	31	1	2	13.3	1	13.7	13,7
						MEAN		12,3	12.3
						SD		1.4	1.4
						N		9	9
27-Nay-88	GOV	1	31	1	1	13,8	1	14,2	14.2
27-Hay-88	GOV	1	31	1	1	13.9	1	14.2	14.2
27-Nay-88	GOV	1	31	1	1	14.0	1	14,3	14.3
27-Kay-88	GOV	1	31	1	1	14.2	1	14,5	14.5
27-Hay-88	GOV	1	31	1	1	14,8	1	15.1	15.1
27-Hay-88	GOV	1	31	1	1	14.9	1	15.2	15.2
27-Kay-88	GOV	1	31	1	1	15.0	1	15.3	15,3
27-May-88	GOV	1	31	1	1	15,0	1	15,3	15,3
27-Hay-88	GOV	1	31	1	1	15,1	1	15.4	15.4
27-May-88	GOV	1	31	1	1	15,2	1	15,5	15.5
27-Hay-88	GOV	1	31	1	1	15,3	1	15.6	15.6
27-May-88	GOV	1	31	1	1	15.3	1	15.6	15,6
27-Hay-88	GOV	1	31	1	1	15,4	1	15.7	15,7
27-Hay-88	GOV	1	31	1	1	15.5	1	15,8	15.8
27-May-88	GOV	1	31	1	1	15.7	1	15.9	15.9
27-Hay-88	GOV	1	31	1	1	15.7	1	15,9	15.9
27-Hay-88	GOV	1	31	1	1	15.8	1	16.0	16.0
27-Kay-88	GOV	1	31	1	1	15.9	1	16.1	16.1
27-Kay-88	GOV	1	31	1	1	16.0	1	16.2	16.2
27-May-88	GOV	1	31	1	1	16.0	1	16,2	16.2
27-Hay-88	GOV	1	31	1	1	16.0	1	16,2	16,2
27-Hay-88	GOV	1	31	1	1	16.2	1	16,4	16,4
27-May-88	GOV	1	31	1	1	16.3	1	16.5	16.5
27-nay-88	GOV	1	31	1	1	16.4	1	16.6	16.6
27-Hay-88	GOV	1	31	I	1	16.6	1	16,8	16.8
27-Kay-88	GOV	1	31	1	1	17.0	1	17.2	17.2
27-Kay-88	GOV	1	31	1	1	17.2	1	17.4	17.4
27-May-88	GOV	1	31	1	1	17.2	1	17,4	17.4
27-Kay-88	GOV	1	31	1	1	17.2	1	17.4	17.4
27-May-88	GOV	1	31	1	1	17.3	1	17.5	17.5
27-Kay-88	GOV	i	31	1	1	17.4	1	17.6	17.6
27-Kay-88	GOV	1	31	1	1	17.4	1	17.6	17.6
27-Hay-88	GOV	1	31	1	1	17,6	i	17.8	17.8
27-Hay-88	GOV	1	31	1	1	17.6	1	17,8	17.8
27-May-88	GOV	1	31	1	1	17,7	1	17.9	17.9
27-Nay-88	GOV	1	31	1	1	18,2	1	18,3	18.3

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample Number	Cohort	Measured length (mm)	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
27-Hay-88	GOV 1	31 1	1	18.7	18.8	18.8
				MEAN	16,3	16.3
				SD	1.2	1.2
				N	37	37
27-Hay-88	GOV 1	32 2	2	11.2	11.8	11,4
27-May-88	GOV 1	32 2	2	11.4	11,9	11,6
27-Hay-88	GOV 1	32 2	2	12.0	12,5	12,1
27-May-88	GOV 1	32 2	2	12.5	12,9	12.5
27-May-88	GOV 1	32 2	1	12.6	13.0	12,6
27-Hay-88	GOV 1	32 2	2	13,1	13.5	13.1
27-Hay-88	GOV 1	32 2	2	13.1	13,5	13.1
27-Hay-88	GOV 1	32 2	2	13.3	13.7	13.2
27-Kay-88	GOV 1	32 2	2	13.3	13.7	13,2
27-Hay-88	GOV 1	32 2	2	13.4	13,8	13.3
				MEAN	13.0	12,6
				SD	0.7	0.7
				N	10	10
27-Kay-88	GOV 1	32 2	1	13,9	14.2	13.8
27-May-88	GOV 1	32 2	1	14.0	14,3	13,9
27-Nay-88	GOV 1	32 2	1	14.3	14.6	14,1
27-May-88	GOV 1	32 2	1	14,4	14.7	14.2
27-May-88	GOV 1	32 2	1	14.5	14,8	14.3
27-Kay-88	GOV 1	32 2	1	14.7	15,0	14,5
27-May-88	GOV 1	32 2	1	14.9	15.2	14,7
27-May-88	GOV 1	32 2	1	15.0	15.3	14.8
27-Hay-88	GOV 1	32 2	1	15.1	15,4	14,9
27-nay-88	GOV 1	32 2	1	15.1	15.4	14.9
27-May-88	GOV 1	32 2	1	15.2	15,5	14.9
27-Kay-88	GOV 1	32 2	1	15.6	15.8	15.3
27-Hay-88	GOV 1	32 2	1	15,6	15.8	15.3
27-Hay-88	GOV 1	32 2	1	15.7	15,9	15,4
27-May-88	GOV 1	32 2	1	15.7	15.9	15.4
27-May-88	GOV 1	32 2	1	16.3	16,5	15.9
27-May-88	GOV 1	32 2	1	16.3	16,5	15.9
27-Hay-88	GOV 1	32 2	1	16,3	16.5	15,9
27-May-88	GOV 1	32 2	1	16.5	16.7	16.1
27-May-88	GOV 1	32 2	1	16.7	16.9	16,3
27-May-88	GOV 1	32 2	1	17.1	17.3	16.7
27-May-88	GOV 1	32 2	1	17.2	17.4	16.8
27-Hay-88	GOV 1	32 2	1	17.3	17.5	16.9
27-Nay-88	GOV 1	32 2	1	17.4	17.6	17.0

Appendix C. Lengths of Pacific herring captured in Auke Bay,

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
27-Nay-88	GOV	1	32	2	1	17.8	1	18.0	17,3
27-May-88	GOV	1	32	2	1	18.0	1	18.2	17.5
27-Hay-88	GOV	1	32	2	1	18.3	1	18s4	17.8
27-Hay-88	GOV	1	32	2	1	18.3	1	18.4	17.8
27-May-88	GOV	1	32	2	1	18.6	1	18.7	18,1
						MEAN		16,3	15.7
						SD		1.3	1.3
						N		29	29
27-May-88	GOV	1	33	1	2	10.7	1	11.3	11,3
27-Hay-88	GOV	1	33	1	2	11.8	1	12,3	12,3
27-Kay-88	GOV	1	33	1	2	12.4	1	12,9	12,9
27-Hay-88	GOV	1	33	1	2	12,5	1	12,9	12.9
27-Nay-88	GOV	1	33	1	2	12.7	1	13.1	13,1
27-Hay-88	GOV	1	33	1	2	13.1	1	13.5	13.5
27-Hay-88	GOV	1	33	1	2	13.6	1	14.0	14.0
27-Kay-88	GOV	1	33	1	2	14,3	1	14,6	14,6
						MEAN		13,1	13.1
						SD		1.0	1.0
						N		8	8
27-Hay-88	GOV	1	33	1	1	15.4	1	15,7	15,7
27-May-88	GOV	1	33	1	1	15.6	1	15.8	15.8
27-Kay-88	GOV	1	33	1	1	16,9	1	17,1	17,1
27-Nay-88	GOV	1	33	1	1	17,3	1	17.5	17,5
27-Nay-88	GOV	1	33	1	1	17.4	1	17,6	17,6
						MEAN		16.7	16.7
						SD		1.1	1.1
						N		5	5
01-Jun-88	CSI	1	37	1	2	8.9	1	9.7	9,7
01-Jun-88	CSI	1	37	1	2	9.2	1	10.0	10,0
01-Jun-88	CSI	1	37	1	2	13,3	1	13.7	13,7
						KHAN		11,1	11.1
						SD		2.2	2.2
						N		3	3
01-Jun-88	CSI	1	31	1	1	15.5	1	15,8	15.8
01-Jun-88	CSI	1	37	1	1	16.4	1	16,6	16.6
01-Jun-88	CSI	I	37	1	1	18.2	1	18.3	18.3
01-Jun-88	CSI	1	37	1	1	18.5	1	18.6	18,6

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample Number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
01-Jun-88	CSI	1	3?	1	19.7	1	19.8	19.8
					MEAN		17,8	17.8
					SD		1.6	1.6
					N		5	5
01-Jun-88	CSI	1	3a	2	9.5	1	10.3	10.0
01-Jun-88	CSI	1	38	2	9.8	1	10.5	10.2
01-Jun-88	CSI	1	38	2	9,9	1	10,6	10.3
01-Jun-88	CSI	1	38	2	10.4	1	11.1	10,7
01-Jun-88	CSI	1	38	2	12,4	I	12.9	12,4
					MEAN		11,1	10,7
					SD		1s1	1.0
					N		5	5
01-Jun-88	CSI	1	38	2	15,2	1	15.5	14,9
01-Jun-88	CSI	1	38	2	15,3	1	15.6	15,0
01-Jun-88	CSI	1	38	2	17.1	1	17.3	16.7
01-Jun-88	CSI	1	38	2	17.4	1	17,6	17.0
01-Jun-88	CSI	1	38	2	18,1	1	18.2	17.6
01-Jun-88	CSI	1	38	2	18,7	1	18,8	18,2
01-Jun-88	CSI	1	3B	2	19,1	1	19.2	18,5
01-Jun-88	CSI	1	38	2	19,1	1	19s2	18s5
01-Jun-88	CSI	1	38	2	19.2	1	19,3	18.6
01-Jun-88	CSI	1	38	2	19.7	1	19.8	19.1
01-Jun-88	CSI	1	38	2	19.9	1	20.0	19.3
01-Jun-88	CSI	1	38	2	20,0	1	20,1	19.4
01-Jun-88	CSI	1	38	2	20,6	1	20.7	19,9
01-Jun-88	CSI	1	38	2	20.7	1	20,8	20.0
01-Jun-88	CSI	1	38	2	21.0	1	21,1	20.3
					MEAN		18.9	18,2
					SD		1.8	1.7
					N		15	15
01-Jun-88	ABM	1	39	1	6.0	1	7,3	7,3
01-Jun-88	ABM	1	39	1	7.9	1	8.9	8.9
01-Jun-88	ABM	1	39	1	8.3	1	9.2	9.2
01-Jun-88	ABM	1	39	1	9.0	1	9.8	9.8
01-Jun-88	ABM	1	39	1	9.0	1	9.8	9.8
01-Jun-88	ABM	1	39	1	9.0	1	9.8	9.8
01-Jun-88	ABM	1	39	1	9.2	1	10.O	10.0
01-Jun-88	ABM	1	39	i	9.7	1	10,4	10.4
01-Jun-88	ABM	1	39	1	9.9	1	10.6	10,6

Appendix C. Lengths of Pacific herring captured in Auke Bay,

Date	Site	Sample number	Cohort	Measured length (mm)	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
01-Jun-88	ABM	1	2	10.1	10.8	10.8
01-Jun-88	ABM	1	2	10,4	11,1	11.1
01-Jun-88	ABM	1	2	10,6	11.2	11.2
01-Jun-88	ABM	1	2	10.7	11.3	11,3
01-Jun-88	ABM	1	2	10.9	11.5	11.5
01-Jun-88	ABM	1	2	12.3	12s8	12.8
01-Jun-88	ABM	1	2	12.4	12.9	12.9
				NOAH	10,5	10.5
				SD	1.4	1.4
				N	16	16
01-Jun-88	ABM	1	1	14.1	14.4	14.4
01-Jun-88	ABM	1	1	14,6	14.9	14.9
01-Jun-88	ABM	1	1	14,7	15.0	15.0
01-Jun-88	ABM	1	1	15.1	15,4	15.4
01-Jun-88	ABM	1	1	15.3	15,6	15,6
01-Jun-88	ABM	1	1	15,7	15.9	15.9
01-Jun-88	ABM	1	1	16,1	16.3	16.3
01-Jun-88	ABM	1	1	16.9	17,1	17.1
01-Jun-88	ABM	1	1	17.1	1?,3	17.3
01-Jun-88	ABM	1	1	17,4	17,6	17.6
01-Jun-88	ABM	1	1	17.5	17.7	17.7
01-Jun-88	ABM	1	1	17,6	17.8	17.8
01-Jun-88	ABM	1	1	17,6	17.8	17.8
01-Jun-88	ABM	1	1	17,9	18.1	18.1
01-Jun-88	ABM	1	1	18,1	18,3	18.3
01-Jun-88	ABM	1	1	18.3	18.4	18.4
01-Jun-88	ABM	1	1	18.S	18,6	18.6
01-Jun-88	ABM	1	1	18.6	18,7	18.7
01-Jun-88	ABM	1	1	19.0	19.1	19.1
				MEAN	17.0	17.0
				SD	1.4	1.4
				N	19	19
01-Jun-88	ABM	1	2	8.8	9.7	9.4
01-Jun-88	ABM	1	2	9.2	10.0	9.7
01-Jun-88	ABM	1	2	9.7	10.4	10.1
01-Jun-88	ABM	i	2	9.9	10.6	10.3
01-Jun-88	ABM	1	2	10.3	11.0	10.6
01-Jun-88	ABM	i	2	10.7	11.3	11.0
01-Jun-88	ABM	1	2	10.9	11.4	11.1
01-Jun-88	ABM	1	2	11.0	11.6	11.2
01-Jun-88	ABM	i	2	11.3	11.9	11.5

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample Number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length [mm]	Preserv-Corrected length [mm]
01-Jun-88	ABM	1	40	2	11,3	1	11,9	11.5
01-Jun-88	ABM	1	40	2	11,5	1	12,0	11,7
01-Jun-88	ABK	1	40	2	11.6	1	12,1	11,7
01-Jun-88	ABM	1	40	2	11,7	1	12.2	11.8
01-Jun-88	ABM	1	40	2	12.5	1	12.9	12.5
01-Jun-88	ABM	1	40	2	13,1	1	13,5	13.1
01-Jun-88	ABM	1	40	2	13s4	1	13,8	13,3
01-Jun-88	ABM	1	40	2	14.2	1	14,s	14.0
01-Jun-88	ABK	1	40	2	15.0	1	15,3	14.8
					MEAN		12,0	11,6
					SD		1.5	1.4
					N		18	18
01-Jun-88	ABM	1	40	2	16.1	1	16.3	15,8
01-Jun-88	ABM	1	40	2	16,4	1	16.6	16.0
01-Jun-88	ABM	1	40	2	17,0	1	17.2	16.6
01-Jun-88	ABM	1	40	2	17.5	1	17,7	17.1
01-Jun-88	ABM	1	40	2	17.5	1	17.7	17.1
01-Jun-88	ABM	1	40	2	17.7	1	17.9	17.2
01-Jun-88	ABM	1	40	2	17.9	1	18,1	17,4
01-Jun-88	ABM	1	40	2	18,0	1	18,2	17,5
01-Jun-88	ABM	1	40	2	18.7	1	18.8	18.2
01-Jun-88	ABM	1	40	2	19,6	1	19,7	19,0
01-Jun-88	ABM	1	40	2	19.7	1	19.8	19,1
01-Jun-88	ABM	1	40	2	19.8	1	19,9	19.2
01-Jun-88	ABM	1	40	2	20.4	1	20,5	19.8
01-Jun-88	ABM	I	4%	2	21,2	1	21.3	20.5
01-Jun-88	ABM	1	40	2	21,6	1	21.7	20.9
01-Jun-88	ABM	1	40	2	21.6	1	21,7	20,9
					MEAN		18,9	18.3
					SD		1.8	1.8
					N		16	16
01-Jun-88	GOV	1	41	1	8.3	1	9.2	9.2
01-Jun-88	GOV	1	41	1	8.5	1	9,4	9.4
01-Jun-88	GOV	1	41	1	8.7	1	9,6	9.6
01-Jun-88	GOV	1	41	1	9.1	1	9,9	9.9
01-Jun-88	GOV	1	41	1	9.3	1	10.1	10.1
01-Jun-88	GOV	1	41	1	9.4	1	10,2	10.2
01-Jun-88	GOV	1	41	1	9.4	1	10,2	10.2
01-Jun-88	GOV	1	41	1	9.7	1	10.4	10.4
01-Jun-88	GOV	1	41	1	10.0	1	10.7	10.7

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
						MEAN		10,0	10.0
						SD		0.5	0.s
						N		9	9
01-Jun-88	GOV	1	41	1	1	13.1	1	13,5	13,5
01-Jun-88	GOV	1	41	1	1	13.9	1	14,2	14.2
01-Jun-88	GOV	1	41	1	1	15,5	1	15,8	15.8
01-Jun-88	GOV	1	41	1	1	16,2	1	16.4	16,4
						MEAN		15.0	15,0
						SD		1.3	1.3
						N		4	4
01-Jun-88	GOV	2	42	2	2	9.0	1	9.8	9,5
01-Jun-88	GOV	2	42	2	2	9.6	1	10.3	10.0
01-Jun-88	GOV	2	42	2	2	9.9	1	10,6	10,3
01-Jun-88	GOV	2	42	2	2	10,2	1	10.9	10,5
01-Jun-88	GOV	2	42	2	2	11.2	1	11,8	11,4
01-Jun-88	GOV	2	42	2	2	11,4	1	11,9	11,6
01-Jun-88	GOV	2	42	2	2	11.7	1	12.2	11.8
						MEAN		11.1	10,7
						SD		0.9	0.9
						N		7	7
01-Jun-88	GOV	2	42	2	1	15.9	1	16.1	15,6
01-Jun-88	GOV	2	42	2	1	16,1	1	16,3	15.8
01-Jun-88	GOV	2	42	2	1	16.5	1	16.7	16,1
01-Jun-88	GOV	2	42	2	1	16.6	1	16$8	16,2
01-Jun-88	GOV	2	42	2	1	16.7	1	16.9	16.3
01-Jun-88	GOV	2	42	2	1	16.9	1	17.1	16,5
01-Jun-88	GOV	2	42	2	1	17.0	1	17.2	16.6
01-Jun-88	GOV	2	42	2	1	17.2	1	17.4	16,8
01-Jun-88	GOV	2	42	2	1	17.2	i	17,4	16,8
01-Jun-88	GOV	2	42	2	1	17.2	1	17.4	16.8
01-Jun-88	GOV	2	42	2	1	17.4	1	17.6	17.0
01-Jun-88	GOV	2	42	2	1	17.5	1	17,7	17.1
01-Jun-88	GOV	2	42	2	1	17.6	1	17.8	17.1
01-Jun-88	GOV	2	42	2	1	17.6	1	17.8	17.1
01-Jun-88	GOV	2	42	2	1	17.8	1	18.0	17.3
01-Jun-88	GOV	2	42	2	1	17.8	1	18.0	17s3
01-Jun-88	GOV	2	42	2	1	17.9	1	18.1	17,4
01-Jun-88	GOV	2	42	2	1	19.4	1	18,5	17.9
01-Jun-88	GOV	2	42	2	1	18.4	1	18.5	17,9
01-Jun-88	GOV	2	42	2	1	18,6	1	18.7	18.1

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample Tnumber	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
01-Jun-88	GOV	2 42	2	1	18,7	1	18.8	18.2
01-Jun-88	GOV	2 42	2	1	18.7	1	18,8	18.2
01-Jun-88	GOV	2 42	2	1	18.7	1	18.8	18,2
01-Jun-88	GOV	2 42	2	1	18.7	1	18.8	18,2
01-Jun-88	GOV	2 42	2	1	18,9	1	19.0	18.4
01-Jun-88	GOV	2 42	2	1	18.9	1	19,0	18.4
01-Jun-88	GOV	2 42	2	1	19.0	1	19.1	18,4
01-Jun-88	GOV	2 42	2	1	19.1	1	19.2	18,5
01-Jun-88	GOV	2 42	2	1	19.2	1	19,3	18,6
01-Jun-88	GOV	2 42	2	i	19.3	1	19.4	18,7
01-Jun-88	GOV	2 42	2	1	19.4	1	19.5	18.8
01-Jun-88	GOV	2 42	2	1	19,7	1	19.8	19.1
01-Jun-88	GOV	2 42	2	1	19,7	1	19.8	19,1
01-Jun-88	GOV	2 42	2	1	19.8	1	19.9	19.2
01-Jun-88	GOV	2 42	2	1	19.9	1	20.0	19,3
01-Jun-88	GOV	2 42	2	1	19.9	1	20,0	19,3
01-Jun-88	GOV	2 42	2	1	20.0	1	20.1	19,4
01-Jun-88	GOV	2 42	2	1	20,0	1	20.1	19.4
01-Jun-88	GOV	2 42	2	1	20,4	1	20.5	19,8
01-Jun-88	GOV	2 42	2	1	20,5	1	20,6	19,9
01-Jun-88	GOV	2 42	2	1	20.5	1	20.6	19.9
01-Jun-88	GOV	2 42	2	1	20.7	1	20.8	20.0
01-Jun-88	GOV	2 42	2	1	20,9	1	21.0	20,2
01-Jun-88	GOV	2 42	2	1	21.0	1	21,1	20.3
01-Jun-88	GOV	2 42	2	1	21.1	1	21.2	20,4
01-Jun-88	GOV	2 42	2	1	21.3	1	21.4	20.6
					MEAN		18.8	18.2
					SD		1.4	1.4
					N		46	46
01-Jun-88	ABM	2 46	1	2	8.3	1	9,2	9.2
01-Jun-88	ABM	2 46	1	2	9.4	1	10,2	10.2
01-Jun-88	ABM	2 46	1	2	9,4	1	10.2	10.2
01-Jun-88	ABM	2 46	1	2	9.7	1	10,4	10.4
01-Jun-88	ABM	2 46	1	2	10.4	1	11.1	11.1
01-Jun-88	ABM	2 46	1	2	12.1	1	12,6	12.6
					MEAN		10.6	10.6
					SD		1.1	1.1
					N		6	6
01-Jun-88	ABM	2 46	1	1	14s3	1	i4.6	14,6
01-Jun-88	ABM	2 46	1	1	16.3	1	16.5	16.5
01-Jun-88	ABM	2 46	1	1	16.8	1	17.0	17.0

Appendix C. Lengths of Pacific herring captured in AukeBay.

Date	Site	Sample number	Cohort	Measured length (mm)	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
01-Jun-88	ABM	46	1	16.8	17.0	17,0
01-Jun-88	ABM	46	1	17.1	17,3	17,3
01-Jun-88	ABM	46	1	17.2	17.4	17.4
01-Jun-88	ABM	46	1	17.4	17.6	17.6
01-Jun-88	ABM	46	1	18.0	18.2	18.2
01-Jun-88	ABM	46	1	18,2	18,3	18.3
01-Jun-88	ABM	46	1	18.2	18.3	18.3
01-Jun-88	ABM	46	1	18,3	18.4	18,4
01-Jun-88	ABM	46	1	18,4	18.5	18.5
01-Jun-88	ABM	46	1	18.6	18.7	18.7
01-Jun-88	ABM	46	1	18.7	18,8	18,8
01-Jun-88	ABM	46	1	18.8	18,9	18.9
01-Jun-88	ABM	46	1	18.8	18,9	18.9
01-Jun-88	ABM	46	1	18.9	19,0	19.0
01-Jun-88	ABM	46	1	19,0	19.1	19,1
01-Jun-88	ABM	46	1	19.0	19.1	19.1
01-Jun-88	ABM	46	1	19.2	19,3	19.3
01-Jun-88	ABM	46	1	19.3	19.4	19.4
01-Jun-88	ABM	46	1	19.3	19.4	19.4
01-Jun-88	ABM	46	1	19.6	19.7	19,7
01-Jun-88	ABM	46	1	19.8	19.9	19.9
01-Jun-88	ABM	46	1	20,1	20.2	20,2
01-Jun-88	ABM	46	1	20.2	20.3	20.3
01-Jun-88	ABM	46	1	20s2	20.3	20,3
01-Jun-88	ABM	46	1	20.3	20.4	20,4
01-Jun-88	ABM	46	1	20.7	20.8	20.8
01-Jun-88	ABM	46	1	21.0	21.1	21.1
01-Jun-88	ABM	46	1	21,1	21.2	21.2
01-Jun-88	ABM	46	1	22,4	22.5	22.5
				MEAN	18,9	18.9
				SD	1.6	1.6
				N	32	32
05-Jun-88	CSI	50	1	9.6	10.3	10.3
05-Jun-88	CSI	50	1	10,0	10.7	10.7
05-Jun-88	CSI	50	1	10.9	11,5	11.5
05-Jun-88	CSI	50	1	11.2	11,8	11.8
05-Jun-88	CSI	50	1	12.2	12,7	12.7
05-Jun-88	CSI	50	1	13.0	13.4	13.4
05-Jun-88	CSI	50	1	13.1	13.5	13.5
05-Jun-88	CSI	50	1	13.1	13.5	13.5
05-Jun-88	CSI	50	1	13.4	13.8	13.8
05-Jun-88	CSI	50	1	14.3	14.6	14.6
05-Jun-88	CSI	50	1	14.6	14.9	14.9

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
						BEAM		12.8	12,8
						SD		1.5	1.5
						N		11	11
05-Jun-88	CSI	1	50	1	1	16.2	1	16.4	16,4
05-Jun-88	CSI	1	50	1	1	16.2	1	16.4	16,4
05-Jun-88	CSI	1	50	1	1	16,7	1	16.9	16.9
05-Jun-88	CSI	1	50	1	1	17,3	1	17.5	17.5
05-Jun-88	CSI	1	50	1	1	17,3	1	17,5	17.5
05-Jun-88	CSI	1	50	1	1	17.5	1	17.7	17.7
05-Jun-88	CSI	1	50	1	1	17,5	1	17.7	17.7
05-Jun-88	CSI	1	50	1	1	17,9	1	18.1	18.1
05-Jun-88	CSI	1	50	1	1	18,5	1	18.6	18.6
05-Jun-88	CSI	1	50	I	1	18)9	1	19.0	19.0
05-Jun-88	CSI	1	50	1	1	19,0	1	19.1	19.1
05-Jun-88	CSI	1	50	1	i	19.2	1	19.3	19,3
05-Jun-88	CSI	1	50	1	1	20.1	1	20.2	20.2
05-Jun-88	CSI	1	50	1	1	21.7	1	21.8	21,8
						MEAN		18.3	18.3
						SD		1.5	1.5
						N		14	14
05-Jun-88	CSI	1	51	2	2	10.4	1	11.1	10.7
05-Jun-88	CSI	1	51	2	2	10,7	1	11.3	11.O
05-Jun-88	CSI	1	51	2	2	10.7	1	11.3	11.0
05-Jun-88	CSI	1	51	2	2	11,0	1	11.6	11,2
05-Jun-88	CSI	1	51	2	2	11.8	1	12,3	11.9
05-Jun-88	CSI	1	51	2	2	12.0	1	12,5	12.1
05-Jun-88	CSI	1	51	2	2	12,7	1	13.1	12,7
05-Jun-88	CSI	1	51	2	2	13.1	1	13,5	13.1
05-Jun-88	CSI	1	51	2	2	13,7	1	14.1	13,6
05-Jun-88	CSI	1	51	2	2	13,8	1	14,2	13,7
05-Jun-88	CSI	1	51	2	2	14.0	1	14.3	13.9
05-Jun-88	CSI	1	51	2	2	14.0	i	14,3	13.9
05-Jun-88	CSI	1	51	2	2	14.0	1	14.3	i3.9
05-Jun-88	CSI	1	51	2	2	14.2	1	14,5	14.0
05-Jun-88	CSI	1	51	2	2	14.2	1	14.5	14.0
05-Jun-88	CSI	1	51	2	2	14.2	1	14.5	14.0
05-Jun-88	CSI	1	51	2	2	14.7	1	15.0	14.5
05-Jun-88	CSI	1	51	2	2	14.9	1	15.2	14.7
05-Jun-88	CSI	1	51	2	2	15,2	1	15.5	14.9
05-Jun-88	CSI	1	51	2	2	15.4	1	15.7	15.1
05-Jun-88	CSI	1	51	2	2	15,5	1	15.8	15.2

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
05-Jun-88	CSI	1	51	2	2	15.6	1	15.8	15.3
						MEAN		13.8	13.4
						SD		1.5	1.5
						N		22	22
05-Jun-88	CSI	1	51	2	1	15.9	1	16.1	15.6
05-Jun-88	CSI	1	51	2	1	16,0	1	16,2	15,7
05-Jun-88	CSI	1	51	2	1	16.1	1	16,3	15,8
05-Jun-88	CSI	1	51	2	1	16.4	1	16.6	16.0
05-Jun-88	CSI	1	51	2	1	16.6	1	16.8	16,2
05-Jun-88	CSI	1	51	2	1	16.7	1	16,9	16,3
05-Jun-88	CSI	1	51	2	1	16.8	1	17.0	16.4
05-Jun-88	CSI	I	51	2	1	16.9	1	17,1	16.5
05-Jun-88	CSI	1	51	2	1	16.9	1	17,1	16.5
05-Jun-88	CSI	1	51	2	1	17.0	1	17.2	16.6
05-Jun-88	CSI	1	51	2	1	17,0	1	17,2	16.6
05-Jun-88	CSI	1	51	2	1	17.0	1	17.2	16.6
05-Jun-88	CSI	1	51	2	1	17.2	1	17,4	16,8
05-Jun-88	CSI	1	51	2	1	17.7	1	17,9	17.2
05-Jun-88	CSI	1	51	2	1	17.7	1	17,9	17.2
05-Jun-88	CSI	1	51	2	1	18.1	1	18.2	17.6
05-Jun-88	CSI	1	51	2	1	18.2	1	18,3	17.7
05-Jun-88	CSI	1	51	2	1	18.4	1	18.5	17.9
05-Jun-88	CSI	1	51	2	1	18,5	I	18.6	18,0
05-Jun-88	CSI	1	51	2	1	19.1	1	19,2	18.5
05-Jun-88	CSI	1	51	2	1	19.3	1	19,4	18s7
05-Jun-88	CSI	1	51	2	1	19.7	1	19,8	19.1
05-Jun-88	CSI	1	51	2	1	19.9	1	20.0	19.3
05-Jun-88	CSI	1	51	2	1	20.2	1	20,3	19.6
05-Jun-88	CSI	1	51	2	1	20.3	1	20,4	19,7
05-Jun-88	CSI	1	51	2	1	20.5	1	20.6	19,9
05-Jun-88	CSI	1	51	2	1	20.6	1	20.7	19.9
05-Jun-88	CSI	1	51	2	1	20.7	1	20.8	20.0
05-Jun-88	CSI	1	51	2	1	20.8	1	20,9	20.1
05-Jun-88	CSI	1	51	2	1	21.1	1	21.2	20.4
05-Jun-88	CSI	1	51	2	1	21.2	1	21.3	20.5
05-Jun-88	CSI	1	51	2	1	21.7	1	21s8	21.0
05-Jun-88	CSI	1	51	2	1	21.7	1	21,8	21.0
05-Jun-88	CSI	1	51	2	1	21.9	1	22.0	21.2
05-Jun-88	CSI	1	51	2	1	22.2	1	22.3	21.5
						MEAN		18.9	18.2
						so		1.9	1.9
						N		35	35

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
05-Jun-88	ABM	1	52	1	2	8.5	1	9.4	9.4
05-Jun-88	ABM	1	52	1	2	8.5	1	9.4	9.4
05-Jun-88	ABM	1	52	1	2	9.1	1	9.9	9.9
05-Jun-88	ABM	1	52	1	2	9.3	1	10.1	10,1
05-Jun-88	ABM	1	52	1	2	9.4	1	10.2	10.2
05-Jun-88	ABM	1	52	1	2	9.4	1	10.2	10,2
05-Jun-88	ABM	1	52	1	2	9.5	1	10,3	10.3
05-Jun-88	ABM	1	52	1	2	9.7	1	19.4	10.4
05-Jun-88	ABM	1	52	1	2	9.8	1	10.5	10.5
05-Jun-88	ABM	1	52	1	2	9.8	1	10,5	10,5
05-Jun-88	ABM	1	52	1	2	9.9	1	10.6	10.6
05-Jun-88	ABM	1	52	1	2	10.0	1	10.7	10.7
05-Jun-88	ABM	1	52	1	2	10.3	1	11.0	11.0
05-Jun-88	ABM	1	52	1	2	10.6	1	11,2	11.2
05-Jun-88	ABM	1	52	1	2	10.7	1	11.3	11,3
05-Jun-88	ABM	1	52	1	2	10.7	1	11.3	11.3
05-Jun-88	ABM	1	52	1	2	10.8	1	11.4	11.4
05-Jun-88	ABM	1	52	1	2	10,9	1	11,5	11.5
05-Jun-88	ABM	1	52	1	2	11.0	1	11.6	11,6
05-Jun-88	ABM	1	52	1	2	11.1	1	11.7	11.7
05-Jun-88	ABM	1	52	1	2	11.1	1	11.7	11.7
05-Jun-88	ABM	1	52	1	2	11.2	1	11.8	11.8
05-Jun-88	ABM	1	52	1	2	11.2	1	11.8	11.8
05-Jun-88	ABM	1	52	1	2	11.2	1	11.8	11.8
05-Jun-88	ABM	1	52	1	2	11.3	1	11.9	11.9
05-Jun-88	ABM	1	52	1	2	11,4	1	11.9	11,9
05-Jun-88	ABM	1	52	1	2	11.4	1	11.9	11.9
05-Jun-88	ABM	1	52	1	2	11.6	1	12.1	12.1
05-Jun-88	ABM	1	52	1	2	11.8	1	12.3	12,3
05-Jun-88	ABM	1	52	1	2	12.0	1	12,5	12,5
05-Jun-88	ABM	1	52	1	2	12.0	1	12.5	12.5
05-Jun-88	ABM	1	52	1	2	12,0	1	12.5	12.5
05-Jun-88	ABM	1	52	1	2	12.0	1	12,5	12.5
05-Jun-88	ABK	1	52	1	2	12,8	1	13.2	13.2
05-Jun-88	ABM	1	52	1	2	13.4	1	13,8	13.8
05-Jun-88	ABM	1	52	1	2	13.4	1	13.8	13,8
						MEAN		11.4	11.4
						SD		1.1	1.1
						N		36	36
05-Jun-88	ABM	1	52	1	1	13.5	1	13,9	13.9
05-Jun-88	ABM	1	52	1	1	13.5	1	13.9	13,9
05-Jun-88	ABM	1	52	1	1	13.5	1	13.9	13.9

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
05-Jun-88	ABM	1	52	1	1	13.6	1	14.0	14,0
05-Jun-88	ABM	1	52	1	1	14.3	1	14.6	14,6
05-Jun-88	ABM	1	52	1	1	14s4	1	14.7	14.7
05-Jun-88	ABN	1	52	1	1	14.5	1	14,8	14,8
05-Jun-88	ABH	1	52	1	1	15,0	1	15,3	15.3
05-Jun-88	ABM	1	52	1	1	15.0	1	15,3	15,3
05-Jun-88	ABM	1	52	1	1	15,7	1	15.9	15,9
05-Jun-88	ABM	1	52	1	1	15.7	1	15.9	15,9
05-Jun-88	ABM	1	52	1	1	15,8	1	16.0	16,0
05-Jun-88	ABM	1	52	1	1	15,9	1	16,1	16,1
05-Jun-88	ABM	1	52	1	1	17.2	1	17.4	17.4
05-Jun-88	ABM	1	52	1	1	17.3	1	17.5	17,5
05-Jun-88	ABK	1	52	1	1	17.5	1	17,7	17,7
05-Jun-88	ABM	1	52	1	1	19,2	1	19.3	19.3
						MEAN		15.7	15,7
						SD		1,6	1.6
						N		17	17
05-Jun-88	ABK	1	53	2	1	16.7	1	16.9	16.3
						MEAN		16,9	16.3
						SD			
						N		1	1
05-Jun-88	GOV	1	54	1	2	8,9	1	9,7	9.7
05-Jun-88	GOV	1	54	1	2	10,0	1	10.7	10.7
05-Jun-88	GOV	1	54	1	2	10.2	1	10,9	10,9
05-Jun-88	GOV	1	54	1	2	11.1	1	11,7	11.7
05-Jun-88	GOV	1	54	1	2	11.8	1	12.3	12,3
05-Jun-88	GOV	1	54	I	2	14.8	1	15.1	15.1
05-Jun-88	GOV	1	54	1	2	15.9	1	16.1	16.1
						KEEN		12.4	12.4
						SD		2.4	2.4
						N		7	7
05-Jun-88	GOV	1	54	1	1	21.5	1	21.6	21.6
						MEAN		21.6	21.6
						SD			
						N		1	1
05-Jun-88	GOV	1	55	2	2	12.7	1	13.1	12.7
05-Jun-88	GOV	1	55	2	2	15,7	1	15.9	15,4

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
						MEAN		14,5	14.1
						SD		2.0	1.9
						N		2	2
05-Jun-88	GOV	1	55	2	1	18.0	1	18,2	17,5
05-Jun-88	GOV	1	55	2	1	18.1	1	18.2	17,6
05-Jun-88	GOV	1	55	2	1	21.9	1	22.0	21,2
05-Jun-88	GOV	1	55	2	1	22.4	1	22.5	21.6
05-Jun-88	GOV	1	55	2	1	22.9	1	23.0	22.1
						MEAN		20.8	20.0
						SD		2.4	2,3
						N		5	5
1O-JUD-88	CSI	1	61	1	2	11,9	1	12.4	12,4
10-Jun-88	CSI	1	61	1	2	12.0	1	12.5	12.5
10-Jun-88	CSI	1	51	1	2	12,1	1	12.6	12,6
10-Jun-88	CSI	1	61	1	2	13,3	1	13.7	13.7
10-Jun-88	CSI	1	61	1	2	13.4	1	13,8	13,8
1O-JUU-88	CSI	1	61	1	2	13.4	1	13.8	13.8
10~Jun-88	CSI	1	61	1	2	14.2	1	14,5	14.5
1O-JUII-88	CSI	1	61	I	2	17,5	1	17.7	17.7
						KHAN		13,9	13.9
						SD		1.7	1.7
						N		8	8
10-Jun-88	CSI	1	62	2	2	13.4	1	13,8	13.3
10-Jun-88	CSI	1	62	2	2	14.3	1	14,6	14.1
1O-JUD-88	CSI	1	62	2	2	16.2	1	16.4	15,9
1O-JUU-88	CSI	1	62	2	2	16,4	1	16.6	16,0
10-Jun-88	CSI	1	62	2	2	17.6	1	17,8	17.1
						MEAN		15.8	15,3
						SD		1,6	1.5
						N		5	5
10-Jun-88	CSI	1	62	2	1	21.0	1	21.1	20.3
						MEAN		21.1	20.3
						SD			
						N		1	1
1O-JUO-88	ABM	1	64	1	3	8.5	1	9.4	9.4

Appendix C. Lengths of Pacific herring captured in AukeBay.

Date	Site	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (inn]	Preserv-Corrected length (mm)
1O-JUO-88	ABM!	64	1	3	8.8	1	9.7	9,7
					MEAN		9.5	9,5
					SD		0.2	0.2
					N		2	2
10-Jun-88	ABM 1	64	1	2	11.9	1	12,4	12,4
1O-JUU-88	ABM 1	64	1	2	13.0	1	13.4	13,4
10-Jun-88	ABM 1	64	1	2	13.4	1	13,8	13.8
10-Jun-88	ABM 1	64	1	2	13.4	1	13.8	13.8
1O-JUU-88	ABM I	64	1	2	13.6	1	14.0	14,0
1O-JUD-88	ABM1	64	1	2	13.9	1	14.2	14,2
1O-JUU-88	ABM 1	64	1	2	14.2	1	14.5	14,5
1O-JUU-88	ABM 1	64	1	2	14.8	1	15.1	15,1
10-Jun-88	ABH 1	64	1	2	15.8	1	16.0	16.0
10-Jun-88	ABH 1	64	1	2	16.3	1	16.5	16.5
10-Jun-88	ABK 1	64	1	2	16.5	1	16.7	16,7
10-Jun-88	ABM 1	64	1	2	16.8	1	17,0	17,0
10-Jun-88	ABM 1	64	1	2	17.5	1	17.7	17,7
					MEAN		15,0	15.0
					SD		1.6	1.6
					N		13	13
10-Jun-88	ABM 1	64	1	1	18.3	1	18.4	18,4
10-Jun-88	ABM 1	64	1	1	18.6	1	18,7	18,7
10-Jun-88	ABM 1	64	1	1	19.4	1	19,5	19,5
10-Jun-88	ABM 1	64	1	1	20.3	1	20.4	20.4
10-Jun-88	ABM 1	64	1	1	20.3	1	20,4	20.4
10-Jun-88	ABM 1	64	1	1	20.6	1	20,7	20.7
10-Jun-88	ABM 1	64	1	1	20.7	1	20a	20,8
10-Jun-88	ABM 1	64	1	1	21.1	1	21.2	21.2
1O-JUD-88	ABM1	64	1	1	21.3	1	21,4	21.4
					KHAN		20.2	20,2
					SD		1.0	1.0
					N		9	9
10-Jun-88	ABM 1	65	2	3	8.7	1	9.6	9.3
					MEAN		9.6	9,3
					SD			
					N		1	1
10-Jun-88	ABM 1	65	2	2	11.7	1	12.2	11.8

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
1O-JUU-88	ABM	1	6S	2	2	12.8	1	13.2	12.8
10-Jun-88	ABM	1	6S	2	2	15.0	1	15.3	14.8
1O-JUII-88	ABM	1	65	2	2	15.1	1	15.4	14.9
1O-JUU-88	ABM	1	65	2	2	16,2	1	16.4	15.9
10-Jun-88	ABM	1	65	2	2	16.5	1	16.7	16,1
1O-JUD-88	ABM	1	65	2	2	16.6	1	16,8	16.2
						MEAN		15.1	14.6
						SD		1.8	1.7
						N		7	7
10-Jun-88	ABM	1	65	2	1	18,8	1	18.9	18,3
10-Jun-88	ABM	1	65	2	1	19,4	1	19.5	18,8
10-Jun-88	ABM	1	65	2	1	20,0	1	20.1	19,4
10-Jun-88	ABM	1	65	2	1	20.5	1	20.6	19,9
10-Jun-88	ABM	1	65	2	1	20.7	1	20.8	20,0
10-Jun-88	ABM	1	65	2	1	21.0	1	21.1	20.3
10-Jun-88	ABM	1	65	2	1	21.0	1	21,1	20.3
10-Jun-88	ABM	1	65	2	1	21.3	1	21.4	20,6
10-Jun-88	ABM	1	65	2	1	22.2	1	22.3	21,5
1O-JUD-88	ABM	1	65	2	1	22.7	1	22.8	21,9
10-Jun-88	ABM	1	65	2	1	22.9	1	23.0	22.1
10-Jun-88	ABM	1	65	2	1	23.0	1	23.1	22.2
10-Jun-88	ABK	1	65	2	1	23.5	1	23s5	22,7
						MEAN		21,4	20.6
						SD		1.4	1,4
						N		13	13
10-Jun-88	NOS	1	67	1	3	7.8	2	8.8	8.8
						MEAN		8.8	8.8
						SD			
						N		1	1
10-Jun-88	NOS	1	67	1	2	15.2	1	15.5	15.5
10-Jun-88	NOS	1	67	1	2	15.3	1	15.6	15.6
1O-JUII-88	NOS	1	67	1	2	15.4	1	15.7	15.7
						MEAN		15.6	15.6
						SD		0.1	0.1
						N		3	3
10-Jun-88	NOS	1	67	1	1	20.8	i	20.9	20,9
10-Jun-88	NOS	1	67	i	i	21.1	1	21.2	21.2

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
1O-JUR-88	NOS	1	67	1	1	21,6	1	21.7	21.7
					MEAN			21,2	21.2
					SD			0.4	0.4
					N			3	3
10-Jun-88	NOS	1	68	2	2	13,3	1	13,7	13.2
10-Jun-88	NOS	1	68	2	2	17.5	1	17.7	17.1
					MEAN			15.7	15.1
					SD			2.8	2.7
					N			2	2
1O-JUD-88	NOS	1	68	2	1	21.0	1	21.1	20,3
10-Jun-88	NOS	1	68	2	1	21.7	1	21.8	21.0
10-Jun-88	NOS	1	68	2	1	23.3	1	23.3	22.5
1O-JUU-88	NOS	1	68	2	1	24,0	1	24.0	23s2
10-Jun-88	NOS	1	68	2	1	24.1	1	24.1	23.3
					MEAN			22.9	22,0
					SD			1.4	1.3
					N			5	5
1O-JUQ-88	NOS	2	70	1	3	8.2	1	9.1	9.1
					MEAN			9.1	9.1
					SD				
					N			1	1
10-Jun-88	NOS	2	70	1	2	10.6	1	11.2	11.2
10-Jun-88	NOS	2	70	1	2	10,8	1	11.4	11.4
10-Jun-88	NOS	2	70	1	2	12.4	1	12.9	12.9
10-Jun-88	NOS	2	70	1	2	13.3	1	13.7	13.7
1O-JUU-88	NOS	2	70	1	2	13.4	1	13,8	13.8
10-Jun-88	NOS	2	70	1	2	13,7	1	14,1	14.1
10-Jun-88	NOS	2	70	1	2	14.1	1	14.4	14.4
10-Jun-88	NOS	2	70	1	2	14.7	1	15.0	15,0
10-Jun-88	NOS	2	70	1	2	14.8	1	15.1	15.1
10-Jun-88	NOS	2	79	1	2	14.8	1	15.1	15.1
10-Jun-88	NOS	2	70	1	2	15.0	1	15.3	15.3
10-Jun-88	NOS	2	70	1	2	16.1	1	16.3	16.3
10-Jun-88	NOS	2	70	1	2	16,1	1	16.3	16.3
10-Jun-88	NOS	2	70	1	2	16,6	1	16.8	16.8
10-Jun-88	NOS	2	70	1	2	1?.5	1	18.1	18.1

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
						MEAN		14.6	14,6
						SD		1.9	1.9
						N		15	15
10-Jun-88	NOS	2	70	1	1	19.0	1	19,1	19.1
10-Jun-88	NOS	2	70	1	1	19,3	1	19.4	19.4
1O-JUU-88	NOS	2	70	1	1	19.8	1	19.9	19,9
10-Jun-88-	NOS	2	70	1	1	19.9	1	20.0	20,0
1O-JUII-88	NOS	2	70	1	1	20,0	1	20,1	20,1
10-Jun-88	NOS	2	70	1	1	22.4	1	22.5	22.5
1O-JUD-88	NOS	2	70	1	1	22.7	1	22,8	22.8
10-Jun-88	NOS	2	7%1		1	22.8	1	22.9	22.9
						MEAN		20,8	20,8
						SD		1.6	1.6
						N		8	8
15-Jun-88	CSI	1	74	1	3	9.4	i	10,2	10.2
						KHAN		10.2	10.2
						SD			
						N		1	1
15-Jun-88	CSI	1	74	1	2	16.0	1	16,2	16.2
15-Jun-88	CSI	1	74	1	2	18.7	1	18.8	18.8
15-Jan-88	CSI	1	74	1	2	20.5	1	20.6	20,6
						MEAN		18,6	18,6
						SD		2.2	2.2
						N		3	3
15-Jun-88	CSI	1	15	2	3	9.3	1	10.1	9.8
15-Jun-88	CSI	1	75	2	3	10.1	1	10.8	19.5
15-Jun-88	CSI	1	75	2	3	11.0	1	11.6	11.2
15-Jun-88	CSI	1	75	2	3	12,8	1	13.2	12.8
						MEAN		11.4	11.1
						SD		1.3	1.3
						N		4	4
15-Jun-88	CSI	1	75	2	1	21.2	1	21.3	20.5
						NEAR		21.3	20.5
						SD			
						N		1	1

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample number	Cohort	Measured length (mm)	Captore-Corrected length (mm)	Preserv-Corrected length (mm)
15-Jun-88	ABM 1	77 1	3	7,0 1	8.1	8.1
15-Jun-88	ABM 1	77 1	3	9.0 1	9.8	9.8
15-Jun-88	ABM 1	71 1	3	10.3 1	11.0	11.O
15-Jun-88	ABM 1	77 1	3	11,6 1	12.1	12.1
				MEAN	10.3	10.3
				SD	1,7	1,7
				N	4	4
15-Jun-88	ABM 1	77 1	2	14.2 1	14.5	14.5
15-Jun-88	ABM 1	77 1	2	18.1 1	18.2	18,2
				MEAN	16.4	16.4
				SD	2,6	2,6
				N	2	2
15-Jun-88	ABM 1	78 2	3	6.3 1	7.5	7.3
15-Jun-88	ABM 1	78 2	3	8.3 1	9.2	9.0
15-Jun-88	ABM 1	78 2	3	8.4 1	9.3	9.0
15-Jun-88	ABM 1	78 2	3	10,2 1	10,9	10,5
				MEAN	9.2	9,0
				SD	1.4	1.3
				N	4	4
15-Jun-88	ABM 1	78 2	2	15,7 1	15.9	15.4
15-Jun-88	ABti 1	78 2	2	16.4 1	16,6	16.0
15-Jun-88	ABM 1	78 2	2	17,0 1	17.2	16,6
15-Jun-88	ABM 1	78 2	2	19.3 1	19.4	18.7
				MEAN	17.3	16,7
				SD	1.5	1.4
				N	4	4
15-Jun-88	GOV 1	80 1	3	8.5 2	9.4	9.4
15-Jun-88	GOV 1	80 1	3	12.4 1	12.9	12.9
15-Jun-88	GOV 1	80 1	3	13.2 1	13.6	13.6
				MEAN	11.9	11,9
				SD	2.2	2.2
				N	3	3
15-Jun-88	GOV 1	80 1	2	1?.6 1	17.8	17.8

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
						MEAN		17.8	17.8
						SD			
						N		1	1
15-Jun-88	GOV	1	80	1	1	20,1	1	2.0.2	20.2
15-Jun-88	GOV	1	80	1	1	22.0	1	22.1	22.i
15-Jun-88	GOV	1	80	1	1	22.7	1	22.8	22.8
15-Jun-88	GOV	1	80	1	1	23.4	1	23.4	23.4
						MEAN		22,1	22.1
						SD		1.4	1.4
						N		4	4
15-Jun-88	GOV	1	81	2	3	9.0	1	9.8	9.5
						MEAN		9.8	9.5
						SD			
						N		1	1
15-Jun-88	GOV	1	81	2	2	19,4	1	19s5	18>8
						MEAN		19.5	18,8
						SD			
						N		1	1
15-Jun-88	GOV	1	81	2	1	24,1	1	24.1	23,3
15-Jun-88	GOV	1	81	2	1	25.1	1	25.1	24,2
						MEAN		24.6	23,7
						SD		0.7	0,7
						N		2	2
20-Jun-88	CSI	1	86	1	3	9.5	1	10.3	10.3
20-Jun-88	CSI	1	86	1	3	9.6	1	10.3	10.3
20-Jun-88	CSI	1	86	1	3	10.2	1	10.9	10.9
20-Jun-88	CSI	1	86	1	3	10.7	1	11.3	11,3
20-Jun-88	CSI	1	86	1	3	11.2	1	11,8	11,8
						MEAN		10,9	10.9
						SD		0.6	0.6
						N		5	5
20-Jun-88	CSI	1	86	1	2	18.9	1	19.0	19.0
20-Jun-88	CSI	1	86	1	2	19.1	1	19.2	19.2
20-Jun-88	CSI	1	86	1	2	22.2	1	22.3	22.3

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample Number	P	Cohort	Measured length [mm]	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
20-Jun-88	CSI	1	86	1 2	23.0 I	23.1	23,1
					MEAN	20,9	20.9
					SD	2.1	2.1
					N	4	4
20-Jun-88	CSI	1	86	1 1	26,4 1	26.4	26,4
20-Jun-88	CSI	1	86	1 1	27,3 1	27.3	27.3
					MEAN	26.9	26.9
					SD	0.6	0.6
					N	2	2
20-Jun-88	CSI	1	87	2 3	10.9 1	11.5	11.1
					MEAN	11,5	11.1
					SD		
					N	1	1
20-Jun-88	ABM	1	89	1 3	8.9 1	9.7	9.7
20-Jun-88	ABM	1	89	1 3	9.7 1	10.4	10.4
20-Jun-88	ABM	1	89	1 3	10.9 1	11,5	11.5
20-Jun-88	ABM	1	89	1 3	10.9 1	11.5	11.5
20-Jun-88	ABM	1	89	1 3	11.2 1	11.8	11.8
20-Jun-88	ABM	1	89	1 3	12.0 1	12.5	12.5
					MEAN	11.2	11.2
					SD	1.0	1.0
					K	6	6
20-Jun-88	ABM	1	89	1 2	23.0 1	23,1	23.1
					MEAN	23.1	23.1
					SD		
					N	1	1
20-Jun-88	ANC	I	92	1 3	10.3 1	11.0	11.0
20-Jun-88	ANC	1	92	1 3	12,2 1	12.7	12.7
20-Jun-88	ANC	1	92	1 3	12.2 1	12.7	12.7
20-Jun-88	ANC	1	92	1 3	12,4 1	12.9	12.9
20-Jun-88	ANC	1	92	1 3	13.6 1	14.0	14.0
					HEAN	12.6	12,6
					SD	1.1	1.1
					N	5	5

Appendix C. Lengths of Pacific herring captured in Auke Bay,

Date	Site	T	Sample number	P	Cohort	Measured length (rim)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
20-Jun-88	ANC	1	92	1	2	19.2	1	19.3	19,3
20-Jun-88	ANC	1	92	1	2	19.3	1	19.4	19.4
20-Jun-88	ANC	1	92	1	2	19.9	1	20,0	20.0
						MEAN		19.6	19,6
						SD		0.4	0.4
						N		3	3
20-Jun-88	ANC	1	93	2	3	9.3	1	10.1	9.8
20-Jun-88	ANC	1	93	2	3	11,1	1	11.7	11,3
20-Jun-88	ANC	1	93	2	3	11.1	1	11.7	11,3
20-Jun-88	ANC	1	93	2	3	11,9	1	12,4	12.0
20-Jun-88	ANC	1	93	2	3	13.9	1	14.2	13,8
20-Jun-88	ANC	1	93	2	3	14.0	1	14.3	13,9
						KHAN		12.4	12.0
						SD		1.6	1.6
						N		6	6
20-Jun-88	ANC	1	93	2	2	19,3	1	19.4	18.7
20-Jun-88	ANC	1	93	2	2	23.3	1	23.3	22.5
						BEAN		21.4	20.6
						SD		2.8	2.7
						N		2	2
20-Jun-88	ANC	1	93	2	1	28.0	1	28.0	27.0
						MEAN		28,0	27.0
						SD			
						N		1	1
20-Jun-88	ABM	2	95	1	3	9.4	1	10,2	10,2
20-Jun-88	ABM	2	95	1	3	10.9	1	11.5	11.5
20-Jun-88	ABM	2	95	1	3	11.4	1	11.9	11.9
20-Jun-88	ABM	2	95	1	3	12.3	1	12.8	12,8
20-Jun-88	ABM	2	95	1	3	13.0	1	13.4	13.4
20-Jun-88	ABM	2	95	1	3	13,1	1	13.5	13.5
						MEAN		12.2	12,2
						SD		1.3	1.3
						N		6	6
20-Jun-88	ABM	2	95	1	2	20.4	1	20.5	20.5

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
						MEAN		29.5	29.5
						SD			
						N		1	1
20-Jun-88	ABM	2	95	1	1	25.0	1	25.0	25.%
20-Jun-88	ABM	2	95	1	1	25.3	1	25.3	25.3
20-Jun-88	ABM	2	95	1	1	25,4	1	25.4	25.4
20-Jun-88	ABM	2	95	1	1	26,8	1	26,8	26.8
						MEAN		25.7	25.7
						SD		0.8	0,8
						N		4	4
25-Jun-88	CSI	1	99	1	3	10.8	1	11,4	11.4
25-Jun-88	CSI	1	99	1	3	12.4	1	12,9	12,9
25-Jun-88	CSI	1	99	1	3	12,4	1	12.9	12.9
25-Jun-88	CSI	1	99	1	3	13.0	1	13.4	13,4
25-Jun-88	CSI	1	99	1	3	13,6	1	14.0	14.0
25-Jun-88	CSI	1	99	1	3	13,7	1	14,1	14,1
25-Jun-88	CSI	1	99	1	3	14,4	1	14.7	14.7
25-Jun-88	CSI	1	99	1	3	14,5	1	14.8	14.8
25-Jun-88	CSI	1	99	1	3	14,8	1	15.1	15.1
25-Jun-88	CSI	1	99	1	3	15.5	1	15.8	15.8
						MEAN		13.9	13,9
						SD		1.3	1.3
						N		10	10
25-Jun-88	CSI	1	100	2	3	10.9	1	11.5	11,1
25-Jun-88	CSI	1	100	2	3	12,0	1	12.5	12.1
25-Jun-88	CSI	1	100	2	3	12.4	1	12.9	12.4
25-Jun-88	CSI	1	100	2	3	12.7	1	13.1	12.7
25-Jun-88	CSI	1	100	2	3	13s0	1	13,4	13,0
25-Jun-88	CSI	1	100	2	3	13,2	1	13.6	13.1
25-Jun-88	CSI	1	100	2	3	14.9	1	15.2	14.7
25-Jun-88	CSI	1	100	2	3	15,3	1	15.6	15.0
25-Jun-88	CSI	1	100	2	3	15.4	1	15.9	15,1
						MEAN		13.7	13.3
						SD		1.5	1.4
						N		9	9
25-Jun-88	CSI	1	100	2	2	24,1	1	24.1	23.3

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
						MEAN		24,1	23.3
						SD			
						N		1	1
25-Jun-88	ABM	1	102	1	3	10,0	1	10,7	10.7
25-Jun-88	ABM	1	102	1	3	10,5	1	11,1	11.1
25-Jun-88	ABM	1	102	1	3	10.6	1	11,2	11,2
25-Jun-88	ABM	1	102	1	3	10.7	1	11,3	11,3
25-Jun-88	ABM	1	102	1	3	10,9	1	11.5	11.5
25-Jun-88	ABM	1	102	1	3	11.7	1	12.2	12.2
25-Jun-88	ABM	1	102	1	3	11.9	1	12.4	12.4
25-Jun-88	ABM	1	102	1	3	12.8	1	13.2	13.2
25-Jun-88	ABM	1	102	1	3	13.0	1	13,4	13,4
25-Jun-88	ABM	1	102	1	3	13.0	1	‘ 13,4	13.4
25-Jun-88	ABM	1	102	1	3	13,1	1	13,5	13.5
25-Jun-88	ABM	1	102	1	3	13.4	1	13,8	13,8
25-Jun-88	ABM	1	102	1	3	14,0	1	14.3	14,3
25-Jun-88	ABM	1	102	1	3	14,1	1	14.4	14.4
25-Jun-88	ABM	1	102	1	3	14,5	1	14.8	14,8
25-Jun-88	ABM	1	102	1	3	14,6	1	14,9	14.9
25-Jun-88	ABM	1	102	1	3	15,7	1	15,9	15.9
25-Jun-88	ABH	1	102	1	3	16,8	1	17,0	17.0
						MEAN		13.3	13.3
						SD		1.8	1.8
						N		18	18
25-Jun-88	ABM	1	103	2	3	13.9	1	14.2	13.8
25-Jun-88	ABM	1	103	2	3	15.5	1	15.8	15,2
25-Jun-88	ABM	1	103	2	3	17.3	1	17,5	16.9
						Nolan		15.8	15.3
						SD		1.6	1.5
						N		3	3
25-Jun-88	ABM	1	103	2	2	20,1	1	20.2	19.s
25-Jun-88	ABM	1	103	2	2	22.3	1	22.4	21.5
25-Jun-88	ABM	1	103	2	2	23,4	1	23.4	22,6
						MEAN		22.0	21.2
						SD		1.7	1.6
						N		3	3
25-Jun-88	ANC	1	105	1	3	12.3	1	12.8	12.8
25-Jun-88	ANC	1	105	1	3	12.4	1	12.9	12,9

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
						MEAN		24.1	23,3
						so			
						N		1	1
25-Jun-88	ABM	1	102	1	3	10,0	1	10,7	10.1
25-Jun-88	ABM	1	102	1	3	10,5	1	11.1	11,1
25-Jun-88	ABM	1	102	1	3	10.6	1	11.2	11.2
25-Jun-88	ABM	1	102	1	3	10,7	1	11.3	11,3
25-Jun-88	ABM	1	102	1	3	10,9	1	11.5	11,5
25-Jun-88	ABM	1	102	1	3	11,7	1	12.2	12.2
25-Jun-88	ABM	1	102	1 .	3	11,9	1	12.4	12.4
25-Jun-88	ABM	1	102	1	3	12.8	1	13,2	13,2
25-Jun-88	ABM	1	102	1	3	13.0	1	13,4	13.4
25-Jun-88	ABM	1	102	1	3	13.0	1	13.4	13.4
25-Jun-88	ABM	1	102	1	3	13.1	1	13,5	13,5
25-Jun-88	ABM	1	102	1	3	13,4	1	13.8	13.8
25-Jun-88	ABM	I	102	1	3	14,0	1	14,3	14.3
25-Jun-88	ABM	1	102	1	3	14.1	1	14.4	14.4
25-Jun-88	ABM	1	102	1	3	14.5	1	14,8	14,8
25-Jun-88	ABM	1	102	1	3	14,6	1	14,9	14.9
25-Jun-88	ABM	1	102	1	3	15,7	1	15.9	15,9
25-Jun-88	ABM	1	102	1	3	16.8	1	17.0	17,0
						MEAN		13.3	13.3
						SD		1.8	1.8
						N		18	18
25-Jun-88	ABM	1	103	2	3	13,9	1	14.2	13.8
25-JuG-88	ABM	1	103	2	3	15.5	1	15.8	15,2
25-Jun-88	ABM	1	103	2	3	17,3	1	17.5	16.9
						MEAN		15.8	15.3
						SD		1.6	1.5
						N		3	3
25-Jun-88	ABM	1	103	2	2	20.1	1	20.2	19.5
25-Jun-88	ABM	1	103	2	2	22.3	1	22.4	21,5
25-Jun-88	ABM	1	103	2	2	23.4	1	23s4	22.6
						MEAN		22,0	21,2
						SD		1.?	1.6
						N		3	3
25-Jun-88	ANC	!	105	1	3	12.3	1	12.8	12,8
25-Jun-88	ANC	1	105	1	3	12.4	1	12.9	12.9

Appendix C, Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
25-Jun-88	ARC	1	105	1	3	12,6	1	13,0	13,0
25-Jun-88	ANC	1	105	1	3	13,0	1	13,4	13.4
25-Jun-88	ANC	1	105	1	3	13.2	1	13,6	13,6
25-Jun-88	ANC	1	105	1	3	13.2	1	13.6	13,6
25-Jun-88	ANC	1	105	1	3	13.4	1	13.8	13.8
25-Jun-88	ANC	1	105	1	3	13.9	1	14,2	14.2
25-Jun-88	ANC	1	105	1	3	14.1	1	14.4	14.4
25-Jun-88	ANC	1	105	1	3	14.1	1	14.4	14,4
25-Jun-88	ANC	1	105	1	3	14,4	1	14.7	14.7
25-Jun-88	ANC	1	105	1	3	14s4	1	14,7	14,7
25-Jun-88	ANC	1	105	1	3	14.5	1	14,8	14,8
25-Jun-88	ANC	1	105	1	3	14.9	1	15,2	15,2
25-Jun-88	ANC	1	105	1	3	16)1	1	16,3	16.3
25-Jun-88	ANC	1	105	1	3	17.4	1	17.6	17.6
25-Jun-88	ANC	1	105	1	3	18,1	1	18.2	18.2
						MEAN		14.6	14.6
						SD		1.6	1.6
						N		17	17
25-Jun-88	ANC	1	105	1	2	20.3	1	20s4	20,4
25-Jun-88	ANC	1	105	1	2	23,6	1	23,6	23,6
						MEAN		22,%	22.0
						SD		2.3	2,3
						N		2	2
25-Jun-88	ANC	1	106	2	3	11,9	1	12.4	12,0
25-Jun-88	ANC	1	106	2	3	12.2	1	12,7	12.3
25-Jun-88	ANC	1	106	2	3	13,4	1	13.8	13s3
25-Jun-88	ANC	1	106	2	3	13.5	1	13.9	13.4
25-Jun-88	ANC	1	106	2	3	14.0	1	14.3	13.9
25-Jun-88	ANC	1	106	2	3	14.0	1	14,3	13.9
25-Jun-88	ANC	1	106	2	3	14.3	1	14.6	14.1
25-Jun-88	ANC	1	106	2	3	15,3	1	15,6	15.0
25-Jun-88	ANC	1	106	2	3	15.5	1	15.8	15.2
25-Jun-88	ANC	1	106	2	3	15,8	1	16.0	15.5
						MEAN		14.3	13,9
						SD		1.2	1.2
						N		10	10
25-Jun-88	ANC	1	106	2	2	22.5	1	22.6	21.7
						MEAN		22.6	21.7

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
						SD			
						N		1	1
25-Jun-88	ANC	1	106	2	1	26.7	1	26,7	25,7
						MEAN		26,7	25,1
						SD			
						N		1	1
30-Jun-88	CSI	1	111	1	4	9.1	1	9s9	9.9
						MEAN		9.9	9.9
						SD			
						N		1	1
30-Jun-88	CSI	1	111	1	3	12,1	1	12.6	12,6
30-Jun-88	CSI	1	111	1	3	12.4	1	12.9	12,9
30-Jun-88	CSI	1	111	1	3	13.1	1	13,5	13.5
30-Jun-88	CSI	1	111	1	3	13,8	1	14.2	14.2
30-Jun-88	CSI	1	111	1	3	14.5	1	14,8	14,8
30-Jun-88	CSI	1	111	1	3	14.9	1	15,2	15.2
30-Jun-88	CSI	1	111	1	3	14.9	1	15.2	15.2
30-Jun-88	CSI	1	111	1	3	15.0	1	15,3	15,3
30-Jun-88	CSI	1	111	1	3	15.1	1	15,4	15,4
30-Jun-88	CSI	1	111	1	3	15.2	1	15,5	15,5
30-Jun-88	CSI	1	111	1	3	15,3	1	15,6	15.6
30-Jun-88	CSI	1	111	1	3	15.9	1	16.1	16,1
30-Jun-88	CSI	1	111	1	3	16.0	1	16,2	16.2
30-Jun-88	CSI	1	111	1	3	16>1	1	16,3	16.3
30-Jun-88	CSI	1	111	1	3	16.2	1	16,4	16.4
30-Jun-88	CSI	1	111	1	3	16.3	1	16.5	16,5
30-Jun-88	CSI	1	111	1	3	16,4	1	16,6	16,6
30-Jun-88	CSI	1	111	1	3	16,7	1	16,9	16.9
30-Jun-88	CSI	1	111	I	3	16.7	1	16.9	16,9
30-Jun-88	CSI	1	111	1	3	17.0	1	17,2	17.2
30-Jun-88	CSI	1	111	1	3	17,1	1	17.3	17,3
30-Jun-88	CSI	1	111	1	3	17,2	1	17.4	17s4
30-Jun-88	CSI	1	111	1	3	18,0	1	18,2	18.2
30-Jun-88	CSI	1	111	i	3	18.2	1	18.3	18.3
						MEAN		15.8	15,8
						SD		1.5	1.5
						N		24	24
30-Jun-88	CSI	1	111	1	2	23.0	1	23,1	23,1

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
30-Jun-88	CSI	1	111	1	2	26.1	1	26.1	26,1
						MEAN		24.6	24.6
						SD		2,2	2,2
						N		2	2
30-Jun-88	CSI	1	111	1	1	29,0	1	29,0	29,0
30-Jun-88	CSI	1	111	1	1	29.4	1	29,4	29.4
						MEAN		29.2	29.2
						SD		0,3	0.3
						N		2	2
30-Jun-88	CSI	1	112	2	3	15.3	1	15,6	15.0
30-Jun-88	CSI	1	112	2	3	16,0	1	16,2	15,7
30-Jun-88	CSI	1	112	2	3	17.6	1	11.8	17.1
30-Jun-88	CSI	1	112	2	3	17,7	1	17.9	17,2
30-Jun-88	CSI	1	112	2	3	17.7	1	17,9	17.2
30-Jun-88	CSI	1	112	2	3	17,8	1	18.0	17,3
30-Jun-88	CSI	1	112	2	3	17.8	1	18.0	17,3
30-Jun-88	CSI	1	112	2	3	18.0	1	18,2	17,5
						MEAN		17,4	16,8
						SD		1,0	0,9
						N		8	8
30-Jun-88	ABM	1	114	1	3	13.5	1	13,9	13.9
30-Jun-88	ABM	1	114	1	3	14.0	1	14,3	14,3
30-Jun-88	ABM	1	114	1	3	14.2	1	14,5	14.5
30-Jun-88	ABM	1	114	1	3	14.6	1	14.9	14,9
30-Jun-88	ABM	1	114	1	3	15.5	1	15.8	15.8
30-Jun-88	ABM	1	114	1	3	15.5	1	15,8	15.8
30-Jun-88	ABM	1	114	1	3	15.8	1	16.0	16.0
30-Jun-88	ABM	1	114	1	3	16,2	1	16.4	16.4
30-Jun-88	ABM	1	114	1	3	16.3	1	16.5	16.5
30-Jun-88	ABM	1	114	1	3	16.5	1	16,7	16,7
30-Jun-88	ABM	1	114	1	3	16.9	1	17.1	17,1
30-Jun-88	ABM	1	114	1	3	17.2	1	17.4	17,4
30-Jun-88	ABM	1	114	1	3	18.0	1	18.2	18.2
						MEAN		16.0	16.0
						SD		1.3	1.3
						N		13	13
30-Jun-88	ABM	1	115	2	3	16.0	1	16.2	15.7

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
30-Jun-88	ABM	1	115	2	3	16,1	I	16,3	15.8
30-Jun-88	ABM	1	115	2	3	16.4	1	16,6	16.0
30-Jun-88	ABM	1	115	2	3	16,8	1	17.0	16.4
30-Jun-88	ABM	1	115	2	3	16,9	1	17,1	16.5
30-Jun-88	ABM	1	115	2	3	17.4	1	17.6	17s0
30-Jun-88	ABM	1	115	2	3	17.8	1	18.0	17,3
30-Jun-88	ABM	1	115	2	3	19.5	1	19,6	18.9
					MEAN			17,3	16.7
					SD			1.1	1.1
					N			8	8
30-Jun-88	ABM	1	115	2	2	26,4	1	26,4	25,4
					MEAN			26,4	25,4
					SD				
					N			1	1
30-Jun-88	ABM	1	115	2	1	28.5	1	28,5	27.4
					MEAN			28,5	27,4
					SD				
					N			1	1
30-Jun-88	ANC	1	117	1	4	9.0	1	9.8	9.8
30-Jun-88	ANC	1	117	1	4	10,6	1	11,2	11.2
					MEAN			10,5	10.5
					SD			1,0	1.0
					N			2	2
30-Jun-88	ANC	1	117	1	3	12.5	1	12,9	12.9
30-Jun-88	ANC	1	117	1	3	13.5	1	13.9	13.9
30-Jun-88	ANC	1	117	1	3	13,7	1	14,1	14.1
30-Jun-88	ANC	1	117	1	3	13,7	1	14.1	14.1
30-Jun-88	ANC	1	117	1	3	13.9	1	14.2	14.2
30-Jun-88	ANC	1	117	1	3	14,4	1	14.7	14.7
30-Jun-88	ANC	1	117	1	3	14.5	1	14.8	14.8
30-Jun-88	ANC	i	117	1	3	14.5	1	14.8	14.8
30-Jun-88	ANC	1	117	1	3	14.6	1	14.9	14.9
30-Jun-88	ANC	1	117	1	3	14.9	1	15.2	15.2
30-Jun-88	ANC	1	117	1	3	15.2	1	15,5	15.5
30-Jun-88	ANC	1	117	1	3	15.2	1	1s.5	15.5
30-Jun-88	ANC	1	117	1	3	1$.3	1	15.6	15.6
30-Jun-88	ANC	1	117	1	3	15.4	1	15.7	15.7

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample number	Cohort	Measured length (mm)	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
30-Jun-88	ANC	117	3	15.4	15.7	15.7
30-Jun-88	ANC	117	3	15.4	15.7	15.7
30-Jun-88	ANC	117	3	15.5	15.8	15.8
30-Jun-88	ANC	117	3	15.5	15.8	15.8
30-Jun-88	ANC	117	3	15.6	15,8	15.8
30-Jun-88	ANC	117	3	15.6	15,8	15.8
30-Jun-88	ANC	117	3	15,6	15.8	15.8
30-Jun-88	ANC	117	3	15.6	15,8	15.8
30-Jun-88	ANC	117	3	15.6	15,8	15,8
30-Jun-88	ANC	117	3	15.7	15,9	15.9
30-Jun-88	ANC	117	3	15.7	15,9	15,9
30-Jun-88	ANC	117	3	15.7	15.9	15.9
30-Jun-88	ANC	117	3	15.8	16,0	16.0
30-Jun-88	ANC	117	3	15.8	16,0	16.0
30-Jun-88	ANC	117	3	15.8	16.0	16,0
30-Jun-88	ANC	117	3	16s0	16.2	16,2
30-Jun-88	ANC	117	3	16s0	16.2	16,2
30-Jun-88	ANC	117	3	16.1	16.3	16.3
30-Jun-88	ANC	117	3	16.1	16.3	16.3
30-Jun-88	ANC	117	3	16.1	16.3	16,3
30-Jun-88	ANC	117	3	16.1	16,3	16.3
30-Jun-88	ANC	117	3	16.2	16.4	16,4
30-Jun-88	ANC	117	3	16.2	16.4	16,4
30-Jun-88	ANC	117	3	16,4	16,6	16.6
30-Jun-88	ANC	117	3	16,4	16.6	16,6
30-Jun-88	ANC	117	3	16.4	16.6	16.6
30-Jun-88	ANC	117	3	16.4	16.6	16.6
30-Jun-88	ANC	117	3	16,S	16.7	16.1
30-Jun-88	ANC	117	3	16.5	16,7	16.7
30-Jun-88	ANC	117	3	16.5	16,7	16.7
30-Jun-88	ANC	117	3	16.5	16.7	16.7
30-Jun-88	ANC	117	3	16,6	16,8	16.8
30-Jun-88	ANC	117	3	16.7	16.9	16.9
30-Jun-88	ANC	117	3	16.7	16.9	16.9
30-Jun-88	ANC	117	3	16.8	17.0	17.0
30-Jun-88	ANC	117	3	16.8	17.0	17.0
30-Jun-88	ANC	117	3	16.9	17,1	17.1
30-Jun-88	ANC	117	3	16.9	17.1	17.1
30-Jun-88	ANC	117	3	17.0	17.2	17.2
30-Jun-88	ANC	117	3	17.0	17.2	17.2
30-Jun-88	ANC	117	3	17.1	17.3	17.3
30-Jun-88	ANC	117	3	17.1	17.3	17.3
30-Jun-88	ANC	117	3	17.3	17.5	17.5
30-Jun-88	ANC	117	3	17,3	17.5	17.5
30-Jun-88	ANC	117	3	17.3	17.5	17.5

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
30-Jun-88	ANC	1	11?	1	3	17,3	1	17,5	17.5
30-Jun-88	ANC	1	117	1	3	17.3	1	17,5	17,5
30-Jun-88	ANC	1	117	1	3	17,3	1	17,5	17,5
30-Jun-88	ANC	1	117	1	3	17.5	1	17,7	17.7
30-Jun-88	ANC	1	117	1	3	17,5	1	17.7	17,7
30-Jun-88	ANC	1	117	1	3	17,5	1	17.7	17.7
30-Jun-88	ANC	1	117	1	3	17.6	1	17,8	17,8
30-Jun-88	ANC	1	117	1	3	17.6	1	17.8	17,8
30-Jun-88	ANC	1	117	1	3	17.8	1	18,0	18,0
30-Jun-88	ANC	1	117	1	3	18,1	1	18.2	18,2
30-Jun-88	ANC	1	117	1	3	18,2	1	18,3	18,3
30-Jun-88	ANC	1	117	1	3	18,2	1	18,3	18,3
30-Jun-88	ANC	1	117	1	3	18,3	1	18,4	18.4
30-Jun-88	ANC	1	117	1	3	18.3	1	18.4	18.4
30-Jun-88	ANC	1	117	1	3	18.4	1	18.5	18,5
30-Jun-88	ANC	1	117	1	3	18.9	1	19.0	19,0
30-Jun-88	ANC	1	117	1	3	19.2	1	19.3	19.3
						KHAN		16,5	16.5
						SD		1.2	1.2
						N		76	76
30-Jun-88	ANC	I	118	2	3	15.4	1	15.7	15.1
30-Jun-88	ANC	1	118	2	3	15.5	1	15,8	15.2
30-Jun-88	ANC	1	118	2	3	18,2	1	18.3	17.7
						MEAN		16.6	16.0
						SD		1.5	1.5
						N		3	3
30-Jun-88	ANC	1	118	2	2	24.7	1	24,7	13.8
30-Jun-88	ANC	1	118	2	2	25.2	1	25.2	24.3
						MEAN		25.0	24,1
						SD		0.4	0.3
						N		2	2
05-Jul-88	CSI	1	123	1	3	19,7	1	19,8	19.8
05-Jul-88	CSI	1	123	1	3	20.0	1	20.1	20,1
						MEAN		20.0	20.0
						SD		0.2	0.2
						N		2	2
05-Jul-88	CSI	!	124	2	3	18.0	1	18.2	17,5

Appendix C. Lengths of Pacific herring captured in AukeBay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (rim)
05-Jul-88	CSI	1	124 2	3		18,2	1	18.3	17,7
						MEAN		18.2	17.6
						SD		0.1	0.1
						N		2	2
05-Jul-88	ABM	1	126 1	3		15.8	1	16.0	16,0
05-Jul-88	ABM	1	126 1	3		19,0	1	19.1	19.1
						MEAN		17.6	17,6
						so		2.2	2.2
						N		2	2
05-Jul-88	ABM	2	132 1	3		15.6	1	15.8	15,8
05-Jul-88	ABM	2	132 1	3		17,7	I	17,9	17.9
05-Jul-88	ABM	2	132 1	3		18.1	1	18,2	18.2
05-Jul-88	ABM	2	132 1	3		18.4	1	18.5	18.5
05-Jul-88	ABM	2	132 1	3		18.7	1	18.8	18.8
05-Jul-88	ABM	2	132 1	3		18,7	1	18,8	18.8
05-Jul-88	ABM	2	132 1	3		19.0	1	19,1	19,1
05-Jul-88	ABM	2	132 1	3		20.4	1	20.5	20.5
						MEAN		18.5	18.5
						SD		1.3	1.3
						N		8	8
05-Jul-88	ABM	2	132 1	2		23.7	1	23.7	23.7
						MEAN	"-"	23.7	23.7
						SD			
						N		1	1
05-Jul-88	ABM	2	132 1	1		29.0	1	29.0	29.0
						MEAN		29.0	29.0
						SD			
						N		1	1
06-Jul-88	ABM	1	127 2	3		19.9	1	20.0	19.3
06-Jul-88	ABM	1	12? 2	3		20.3	1	20.4	19.7
						MEAN		20.2	19.5
						SD		0.3	0.3
						N		2	2

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	Sample number	Cohort	Measured length (mm)	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
06-Jul-88	ANC	1291	3	18.5	18.6	18.6
06-Jul-88	ANC	1291	3	18.9	19.0	19.0
06-Jul-88	ANC	1291	3	20.2	20.3	20,3
				MEAN	19.3	19.3
				SD	0.9	0.9
				N	3	3
1O-JU1-88	CSI	1361	4	10,6	11,2	11.2
				MEAN	11,2	11.2
				SD		
				N	1	1
1O-JU1-88	CSI	1372	3	21,3	21.4	20,6
				MEAN	21.4	20,6
				SD		
				N	1	1
1O-JU1-88	ABM	1391	3	18.7	18.8	18.8
				HEAN	18.8	18.8
				SD		
				N	1	1
1O-JU}-88	ANC	1421	3	17.7	17.9	17,9
1O-JU1-88	ANC	1421	3	19.1	19.2	19.2
				MEAN	18.5	18.5
				SD	1.0	1.0
				N	2	2
1O-JUI-88	ANC	1432	3	18.1	18.2	17.6
				MEAN	18.2	17.6
				SD		
				N	1	1
17-Jul-88	CSI	14a2	4	15.5	15.8	15.2
17-Jul-88	CSI	1482	4	17.1	17.3	16.7
17-Jul-88	CSI	1482	4	17.9	18.1	17.4
17-Jul-88	CSI	1482	4	19.4	19.5	18.8
				MEAN	17.7	17.0

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
						SD		1.6	1.5
						N		4	4
17-Jul-88	CSI	1	148	2	3	26.2	1	26,2	25s2
						MEAN		26.2	25.2
						SD			
						N		1	1
17-Jul-88	ABM	1	1s0	1	5	11,3	1	11.9	11,9
						MEAN		11.9	11.9
						SD			
						N		1	1
17-Jul-88	ABM	1	150	1	3	24.1	1	24.1	24.1
						BEAN		24,1	24,1
						SD			
						N		1	1
17-Jul-88	ABM	1	151	2	5	9.5	1	10.3	10.0
						MEAN		10.3	10,0
						SD			
						N		1	1
17-Jul-88	ANC	1	153	1	4	16,5	1	16.7	16.7
						MEAN		16.7	16.7
						SD			
						N		1	1
17-Jul-88	ANC	1	153	1	3	23.1	1	23.2	23.2
						MEAN		23.2	23,2
						SD			
						N		1	1
17-Jul-88	ABM	2	156	1	4	19.7	1	19.8	19.1
						HEAN		19,8	19.1
						SD			
						N		1	1

Appendix C. Lengths of Pacific herring captured in Auke Bay.

Date	Site	T	Sample number	P	Cohort	Measured length (mm)	Y	Capture-Corrected length (mm)	Preserv-Corrected length (mm)
17-Jul-88	ABM	2	156	1	3	22.5	1	22,6	21,7
17-Jul-88	ABM	2	156	1	3	22,8	1	22.9	22.0
17-Jul-88	ABK	2	156	1	3	24,0	1	24,0	23,2
17-Jul-88	ABM	2	156	1	3	24.6	1	24,6	23.7
17-Jul-88	ABM	2	156	1	3	25.2	1	25.2	24,3
						MEAN		23.9	23,0
						SD		1.1	1.1
						N		5	5
22-Jul-88	CSI	1	160	1	4	16.6	1	16,8	16,8
						MEAN		16.8	16.8
						SD			
						N		1	1
27-Jul-88	ANC	1	178	1	3	25.7	1	25.7	25.7
						MEAN		25,7	25.7
						SD			
						N		1	1

APPENDIX D

Numbers and densities of herring larvae captured in Auke Bay

Appendix D. Numbers and density (m^-3) of herring larvae captured in Auke Bay in 1988.

Date	Site	x-y coordinates x (km)	y (km)	Sample number	Volume filtered (m^3)	Cohort 1 Mean Density No. (m^-3)	Cohort 1 Length Meas.	Cohort 1 Length Corr.	Cohort 1 Age "(d)"	Cohort 2 Mean Density No. (m^-3)	Cohort 2 length (mm) Meas.	Cohort 2 length (mm) Hess. Corr.	Cohort 2 Age [d]	Cohort 3 Mean Density No. (m^-3)	Cohort 3 length (mm) Meas.	Cohort 3 length (mm) Corr.	Cohort 3 Age (d)"	cohort '4 Mean Density No. (m^-3)	cohort '4 length (mm) Meas.	cohort '4 length (mm) Corr.	cohort '4 Age (d)	cohort 5 Mean Density No. (m^-3)	cohort 5 length (mm) Meas.	cohort 5 length (mm) Corr.	cohort 5 Age [d]	Total Density No. (m^-3)	Total Density Meas.
15-May-88	GOV	0.693	0.370	1	001	-	1	1	1	2, 5	-	-	9	0	-	-	0	-	-	0	-	-	0	-	-	1	-
15-May-88	ABM	0.000	1.540	1	002	-	1	9	12.4	-	-	90	-	-	0	·	·	0	-	-	0	-	-	9	-		
21-Kay-88	GOV	0.693	0.370	1	1	52.7011	9	13,6	0.11100472	15	22	9.3	0.4170.697	2	0	0,0000.000	-20	0	0.000	0.000	-35	0	0.000	0.000	31	0.588	
21-Hag-88	GOV	0.693	0.370	1	2	32,0$42	11	13.9	0.3430,982	15	24	9.6	0.7481,294	2	0	0.000	0.000	-20	0	0.000	0.000	-35	0	0.000	0.000	35	1.092
21-May-88	ABM	0.000	1.540	1	3	24,816	1	33	13.1	1.3303.467	15	15	9.2	0.6040,997	2	0	0,0000.000	-20	0	0.000	0.000	-35	0	0.000	0.000	48	1.934
21-Hay-88	ABM	0.000	1.540	1	4	24,0102	7	12.8	0,2920,734	15	7	9.2	0.2920.481	2	0	0.000	0.000	-20	0	0.000	0.000	-35	0	0.000	0.000	14	0.583
21-Nay-88	ANN	0,000	1.540	1	5	25,8491	21	14.0	0.8122,354	15	4	10.4	0.1550.294	2	0	0.000	0.000	-20	0	0.000	0.000	-35	0	0.000	0.000	25	0.967
21-Hay-88	CSI	-1.016	4.836	1	6	21.9$91	3	13.4	0.137	0.369	15	4	10.1	0.1820.334	2	0	0.000	0.000	-20	0	0.000	0.000	-35	0	0.000	0.000	7	0.319
21-Kay-88	CSI	-1.016	4.836	1	7	26,7912	10	12.7	0,3730,929	1S	1	9.8	0.037	0.066	2	0	0.000	0.000	-20	0	0.000	0.000	-35	0	0.000	0.000	11	0.411
24-Kay-88	CSI	-1.016	4.836	1	13	50.802	1	26	13.6	0.512	1.415	18	3	10.3	0.059	0.111	5 0	0.000	0. 000	-17	0	0.000	0.000	-32	0	0.000	0.000	29	0.571
24-Nay-88	CSI	-1.016	4.836	1	14	29.7392	4	12.6	0.13500331	18	0		0.000	0.000	5	0	0.0000.000	-17	0	0.000	0.000	-32	0	0.000	0.000	4	0.135
24-May-88	ABM	0.000	1.540	1	16	26,6391	27	14.7	100143.188	18	0		0.000	0.000	5	0	0.000	0.000	-17	0	0.000	0.000	-32	0	0.000	0.000	27	1.014
24-Nay-88	ABM	0.000	1.540	1	17	2707032	41	13.9	1.4804.238	18	0		0.OOOO.OOO	5	0	0.0000.000	-17	0	0.000	0.000	-32	0	0.000	0.000	41	1.480	
24-Hay-88	ASK	0.000	1,540	1	18	27.7031	17	14.2	0.6141.820	18	0		0.000	0.000	5	0	0,0000,800	-17	0	0.000	0.000	-32	0	0.000	0.000	17	0.614
24-Kay-88	NOS	-0. 585	0.400	1	19	5404491	14	14.9	0,2570.828	18	2	9.2	0.0370.061	5	0	0,0000.000	-17	0	0.000	0.000	-32	0	0.000	0.000	16	0.294	
24-May-88	NOS	-0.585	0,40@	1	20	50.452	2	9	13.7	0.1780.499	18	1	8.1	0.0200.029	5	0	0.000	0.000	- 17	0	0.000	0.000	-32	0	0.000	0.000	10	0.198
27-Kay-88	CSI	-1.016	4.836	1	25	25,5001	9	14,3	0.3531.059	21	2	10.7	0.0780.1$4'	B	0	0,0000,000	-14	0	0.000	0.000	-29	0	0.000	0.000	11	0.431	
27-May-88	CSI	-1.016	4.836	1	26	23,0182	9	14.9	0.391	1.258	21	1	11.9	0,0430,098	8	0	0.000	0.000	- 14	0	0.000	0.000	-29	0	0.000	0.000	10	0.434
27-Hay-88	ABM	0.000	1,540	1	28	112,1041	6	16.7	000$40,213	21	5	13.0	0.045	0.115	8	0	0.000	0.000	-14	0	0.000	0.000	-29	0	0.000	0.000	11	0.098
27-Nay-88	ABM	0.000	1,540	1	29	85.8602	6	14.9	0.07000225	21	4	12.0	0,0470,107	8	0	0.000	0.000	- 14	0	0.000	0.000	-29	0	0.000	0.000	10	0.116
27-Kay-88	GOV	0.693	0.370	1	31	109,2321	37	16.3	0.3391.285	21	9	12.3	0.0820.196	8	0	0.000	0.000	- 14	0	0.000	0.000	-29	0	0.000	0.000	46	0.421
27-Hay-88	GOV	0.693	0,370	1	32	94.552	2	29	15.7	0.307	1.085	21	10	12,6	0.1069.260	8	0	0.0000.000	-14	0	0.000	0.000	-29	0	0.000	0.000	39	0.412
27-May-88	GOV	0.693	0.370	1	33	10,8351	5	16,7	0,4611.835	21	8	13.1	0.7381.925	8	0	0.000	0.000	- 14	0	0.000	0.000	-29	0	0.000	0.000	13	1.200
01-Jun-88	CSI	-1.016	4.836	1	37	269,8121	5	17.8	0.0190.084	26	3	11.1	0.0110.023	13	0	0.000	0.000	-9	0	0.000	0.000	-24	0	0.000	0.000	8	0.030
01-Jun-88	CSI	-1.016	4.83S	1	38	262.8062	15	18,2	0.0570.271	26	5	10.7	0.0190,037	13	0	0.0000.000	-9	0	0.000	0.000	-24	0	0.000	0.000	20	0.076	
01-Jun-88	ABM	0.000	1.540	1	39	256,3?8	1	19	17.0	0007400305	26	16	10.5	0.062	0.120	13	0	0.000	0.000	-9	0	0.000	0.000	-24	0	0.000	0.000	35	0.137
01-Jun-88	ANN	0.000	1.540	1	40	227,8392	16	18,3	000700,337	26	18	11,6	0.079	0.173	13	0	0.000	0.000	-9	0	0.000	0.000	-24	0	0.000	0.000	34	0.149
01-Jun-88	GOV	0.693	0.370	1	41	365.108	1	4	15.0	0.0110.036	26	9	10.0	0.025	0.045	13	0	0,0000.000	-9	0	0.000	0.000	-24	0	0.000	0.000	13	0.036
01-Jun-88	GOV	0.693	0.370	2	42	290.9801	46	18.2	0.1580.158	26	7	10.7	0,0240.024	13	0	0.000	0.000	-9	0	0.000	0.000	-24	0	0.000	0.000	53	0.182
01-Jun-88	ABM	0.000	1.540	2	46	269.9941	32	18.9	0.1190.610	26	6	10.6	0.0220.043	13	0	0.0080.000	-9	0	0.000	0.000	-24	0	0.000	0.000	38	0.141	
05-Jun-88	CSI	-1.016	4.836	1	50	248.2941	14	18.3	0.0560.271	30	11	12.8	0.0440.112	17	0	0.0000.000	-5	0	0.000	0.000	-20	0	0.000	0.000	25	0.101	
05-Jun-88	CSI	-1.016	4.836	1	51	240.4672	35	18,2	0.1460.690	30	22	13,4	0.0910,247	17	0	0,0080.000	-5	0	0.000	0.000	-20	0	0.000	0.000	57	0.237	
05-Jun-88	ABM	0.000	1.540	1	52	2S1.1961	17	15,7	0.0680.239	30	36	11.4	0.1430.306	17	0	0.0000.000	-5	'J	0.000	0.000	-20	0	0.000	0.000	53	0.211	
05-Jun-88	ABM	0.000	1.540	1	53	222.3$32	1	16.3	0.004	0.017	30	0	0.000	0.000	17	0	0.0000.000	-5	0	0.000	0.000	-20	0	0.000	0.000	1	0.004	
05-Jun-88	GOV	0.693	0.370	1	54	258,1861	1	21.6	0.004	0.027	30	7	12.4	0,0270.065	17	0	0.0000.009	-5	0	0.000	0.000	-20	0	0.000	0.000	8	0.031	
05-Jun-88	GOV	0,693	0.370	1	5S	241.8962	5	20.0	0.0210.121	30	2	14.1	0.008	0.024	17	0	0.000	0.000	-5	0	0.000	0.000	-20	0	0.000	0.000	7	0.029	
10-Jun-88	CSI	-1.016	4.836	1	61	221.1831	0		0,0000.000	35	8	13.9	0.0360,104	22	0	0.000	0.000	0	0	0.000	0.000	-15	0	0.000	0.000	8	0.036	
10-Jun-88	CSI	-1.016	4.836	1	62	201.3062	1	20.3	0.005	0.030	35	5	15.3	0.025	0.084	22	0	0.000	0 .000	0	0	0.000	0.000	-15	0	0.000	0.000	6	0.030	
10-Jun-88	ABM	0.000	1.540	1	64	212.050	1	9	20.2	0.0420,254	35	13	15.0	0.061	0.200	22	2	9.5	0.009	0.016	0	0	0.000	0.000	-15	0	0.000	0.000	24	0.113	
10-Jun-88	ABM	0.000	1.540	1	65	179.9252	13	20.6	0,0720.454	35	7	14.6	0.0390.121	22	1	9.3	0.006	0.009	0	0	0.000	0.000	-15	0	0.000	0.000	21	0.117	
1O-JUU-88	HOS	-0.585	0.400	1	67	177.0531	3	21.2	0.017	0.114	35	3	15.6	0.017	0.059	22	1	8.8	0.006	0.009	0	0	0.000	0.000	-15	0	0.000	0.000	7	0.040	
10-Jun-88	NOS	-0.585	0.400	1	68	144,1532	5	22.0	0.03 S0,257	35	2	15.1	0.014	0.046	22	0	0.000	0.000	0	0	0.000	0.000	-15	0	0.000	0.000	7	0.049	
10-Jun-88	NOS	-0.585	0.400	2	70	237.2461	8	20,8	'3.0340,034	35	15	14.6	0.063	0.063	22	1	9.1	0.004	0.004	0	0	0.000	0.000	-15	0	0.000	0.000	24	0.101	
15-Jun-88	CSI	-1.016	4.836	1	74	192.9941	0		0.000	0.000	40	3	18.6	0.016	0.077	27	1	10.2	0.005	0.010	5	0	0.000	0.000	-10	0	0.000	0.000	4	0.021	

Appendix D. Numbers and density (m^-3) of herring larvae captured in Auke Bay in 1988.

		x-y coordinates		Volume	Cohort 1					Cohort 2					Cohort 3					Cohort 4					Cohort 5					Total	
				Sample filtered	Mean Density					Mean Density					Mean	Density				Mean Density					Mean Density					Density	
					Length		Age			length		Age			length		Age			length		Age			length		Age				
Date	Site	x (km)	y (km)	T number (m^3)	P No.	(mm)	Meas.	Corr.	Corr.	No.	(mm)	Meas.	Corr.	Corr.	No.	(mm)	Meas.	Corr.	(d)	No.	(mm)	Meas.	Corr.	(d)	No.	(mm)	Meas.	Corr.	(d)	No.	Meas.
15-Jun-88	CSI	-1,016	4,836	1 7S 168,2S42	1	20.5	0.0060,037			40	0		0.000	0.000	27	4	11.1	0.0240.049		5	0		0,0000.000	-10	0		0.0000,000		5	0.030
15-Jun-88	ABM	0,000	1,540	1 77 196.2161	0		0.0000.000			40	2	16.4	0.0100,039		27	4	10.3	0.020	0.038	5	0		0.000	0.000	-10	0		0.000	0.000	6	0.031
15-Jun-88	ASH	0,000	1,540	1 78 177,9502	0		0.0000,000			40	4	16.7	0.0220.089		27	4	9.0	0.0220,036		5	0		0,0000,000	-10	0		0,0000.800		8	0,045
15-Jun-88	GOV	0,693	0,370	1 80 239.2521	4	22,1	0.0170.125			40	1	17.8	0.0040,019		2	7	3	11.9	0.013	0.028	5	6		0.000	0.000	-10	0		0.0840,800		8	0.033
15-Jun-88	GOV	0,693	0.370	1 81 177.3872	2	23,7	0,0110.102			40	1	18,8	0.0060,029		27’	1	9,5	0.0060.010”		5	0		0,0000,0̈00	-10	0		0,0000.000		4	0,023
20-Jun-88	CSI	-1.016	4.836	1 86 249,1601	2	26,9	0,0080.106			45	4	20,9	0.0160.104		32	5	10.9	0,0200.040		10	0		0.000	0.000	-5	0		0.0840.000		11	0.044
20-Jun-88	CSI	-1.016	4.836	1 87 219,2842	0		0,0000.000			45	0		0.0040.000		32	1	11,1	0,0050,009		10	0		0.0000.008	-5	0		0.8000,000		1	0.005
20-Jun-88	ABM	0.000	1.540	1 89 255.8921	0		0.0000,000			45	1	23,1	0.0040,033		32	6	11.2	0,0230.049		10	0		0.0000,008	-5	0		0.0840.00$		7	0,027
20-Jun-88	ABM	0.000	1.540	1 90 219,6332	0		0.0000,000			45	0		0.0000.000		32	0		0.0000.000		10	0		0,0000,000	-5	0		0,0800.000		0	0.OOO
20-Jun-88	ANC	-1.509	0,693	1 92 248.5981	0		0,0000.000			45	3	19.6	0,0120,067		32	5	12,6	0.0200.049		10	0		0.000	0.000	-5	0		0.000	0.000	8	0.032
20-Jun-88	ANC	-1.509	0.693	1 93 218,9952	1	27,0	0.0050,061			45	2	20,6	0,0090,057		32	6	12,0	0,0270,063		10	0		0.0000,000	-5	0		‘.3,000	0.000	9	0.041
20-Jun-88	ABM	0,000	1,S40	2 95 2S9,6911	4	25,7	0.01 S0,015			45	1	20,5	0,0040,004		32	6	12,2	0,0230,023		10	0		0.0000.000	-5	0		0.0000.08$		11	0.042
25-Jun-88	CSI	-1,016	4.836	1 99 298,4571	0		0,0000.000			50	0		0.0000.600		37	10	13,9	0.0340.096		15	0		0,0000.000	0	0		0.0040.000		10	0,034
25-Jun-88	CSI	-1.016	4.836	1 100 264.8582	0		0,0000,000			50	1	23,3	0.0040.033		37	9	13,3	0.0340.091		1s	0		0.000	0.000	0	0		0.00008004		10	0.038
25-Jun-88	ABM	0.000	1.540	1 102 296,6791	0		0.0000.000			50	0		0.0000,000		37	18	13,3	0,0610,162		15	0		0,0000,900	0	0		0,0000,008		18	0.061
25-Jun-88	ABM	0.000	1.540	1 103 270.8752	0		0.0000.000			50	3	21.2	0.0110,075		37	3	15.3	0.0110.037		15	0		0.000	0.000	0	0		0,0000.004		6	0.022
25-Jun-88	ANC	-1, 509	0.693	1 105 272,1671	$		0.0000,000			50	2	22,0	0,0070,054		37	17	14,6	0.0620,194		15	0		0,0000,000	0	0		0.006	0.000	19	0.070
25-Jun-88	ANC	-1,509	0,693	1 106 254,3112	1	25,7	0,0040.045			50	1	21.7	0.004	0.028	37	10	13.9	0.0390.113		15	0		0.000	0.000	0	0		0.0000.00$2		12	0.047
30-Jun-88	CSI	-1,016	4.836	1 111 232,5051	2	29,2	0.0090,148			55	2	24.6	0.0090,086		42	24	15,8	0.1030.369		20	1	9,9	0.0040.008	5	0		0.0000.000		29	%,125
30-Jun-88	CSI	-1,016	4,836	1 112 232.7172	0		0,0000.000			55	0		0.000	0.000	42	8	16,8	0.0340.138		20	0		0.000	0.000	5	0		0.0040,004		a	0.034
30-Jun-88	ABM	0.000	1.540	1 114 265.1161	0		0,0000,000			55	0		0.0000,000		42	13	16,0	0.049	0.180	20	0		0.0000,000	5	0		0,0000.000		13	0.049
30-Jun-88	ABM	0.000	1.540	1 115 268.1552	1	27.4	0,0040.052			55	1	25,4	0.0040,041		42	8	16,7	0.0300.119		20	0		0.000	0.000	5	0		0.0040$000		10	0.037
30-Jun-88	ANC	-1,509	0,693	1 117 292.0291	0		0.0000,000			55	0		0.0000$000		42	76	16,5	0,2601,011		20	2	10.5	0.007	0.013	5	0		0.0000,000		78	0.267
30-Jun-88	ANC	-1,509	0.693	1 118 264,8272	0		0.0800,000			55	2	24,1	0,0080,072		42	3	16,0	0,0110.042		20	0		0,$000.000	5	0		0.0000.000		5	0.019
05-Jul-88	CSI	-1,016	4,836	1 123 342.9821	0		0,0000,000			60	0		0.0000,000		47	2	20,0	0.0060,034		25	0		0.OOOOOOOO	10	0		0,$000.000		2	0.006
05-Jul-88	CSI	-1.016	4.836	1 124 288.7162	0		0.0000.009			60	0		0,0000,000		47	2	17,6	0,0070.031		25	0		0.000	0.000	10	0		0.00$0.000		2	0.007
05-Jul-88	ABM	0.000	1.540	1 126 333,0441	0		0.0000.000			60	0		0.000	0.000	47	2	17,6	0.0060.027		25	0		0.000	0.000	10	0		0.0000,000		2	0.006
06-Jul-88	ABM	0,000	1.540	1 127 328,6372	0		0.0000,000			61	0		0.0000,000		48	2	18,5	0.0060,030		26	0		0.000	0.000	11	0		0.000	0.000	2	0.006
06-Jul-88	ANC	-1.509	0,693	1 129 339,0461	0		0.0000,000			61	0		0.0000,0$30		48	3	19,3	0.0090,048		26	0		0.0000.000	11	0		0,0000,000		3	0.009
06-Jul-88	ANC	-1.509	0,693	1 130 320.7802	0		0,0000.000			61	0		0.0000.000		48	0		0.0000,000		26	0		0.000	0. 000	11	0		0.0000.000		0	0.000
05-Jul-88	ABM	0.000	1,540	2 132 330,0201	1	29.0	0,0030,003			60	1	23,7	0,0030,003		47	8	18.5	0.0240,024		25	0		0.000	0.000	10	0		0,0000.000		10	0.030
1O-JU1-88	CSI	-1.016	4.836	1 136 384>3471	0		0.0000,000			65	0		0.0000$000		52	0		0.0000.000		30	1	11,2	0,$030.005	15	0		0.000	0.000	1	0.003
1O-JU1-88	CSI	-1,016	4.836	1 137 369.773	2	0	0.0000,000			65	0		0.0000.000		5	2	1	20.6	0.003	0.017	30	0		0,00$0.000	15	0		0,0000,000		1	0.003
1O-JU1-88	ABH	0.000	1.540	1 139 369,3331	0		0.0000.000			65	0		0.0000.000		52	1	18,8	0.0030.014		30	0		0.000	0.000	15	0		0,0000,000		1	0.003
1O-JUI-88	ABN	0.000	1.540	1 140 357,8142	0		0,0000,000			65	0		0,0000.000		52	0		0.0000.000		30	0		0.OOOO.OOO	15	0		0,0000.000		0	0.000
1O-JU1-88	ANC	-1,509	0.693	1 142 374,4081	0		0.0000.000			65	0		0.0000,060		52	2	18,5	0.0050.026		30	0		0,0000.000	15	0		0.0000.844		2	0.005
10-Jul-88	ANC	-1.509	0.693	1 143 334.4112	0		0.0000.000			6S	0		0.000$,000		52	1	17.6	0,$030,$13		30	0		0.000	0.000	15	0		0.000	0.000	1	0.003
17-Jul-88	CSI	-1.016	4.836	1 147 275.60!	1	0	0.0000.000			72	0		0.0000,000		59	0		0.000	0.000	37	0		0,0000,000	22	0		0.0000.000		0	0.000
17-Jul-88	CSI	-1.016	4,836	1 148 262.5482	0		0,0000,000			72	0		0.0000.000		59	1	25,2	0.0040,041		37	4	17,0	0(0150.063	22	0		0,0000.000		5	0.019
17-Jul-88	ABM	0.000	1.540	1 150 299.7641	0		0.000	0.000		72	0		0.000	0.000	59	1	24,1	0,0030,032		37	0		0.000	0.000	22	1	11.9	0,0030,00$		2	0.007
17-Jul-88	ABM	0,000	1.540	1 151 275,2222	0		0.0000,000			72	0		0.0000,000		59	0		0,0000,000		37	0		0.0000.000	22	1	10.0	0,0040.007		i	0.004
17-Jul-88	ANC	-1.509	0.693	1 153 301.7851	0		0.000	0.000		72	0		0.000	0.000	59	1	23,2	0,0030,028		37	1	16.7	0,0030,013	22	0		0,0000,000		2	0.007
17-Jul-88	ANC	-1.509	0.693	1 154 286,1932	0		0.000	0.000		72	0		0.0000.000		59	0		0.000	0.000	37	0		0.000	0.000	22	0		0.0000,000		0	0.000
17-Jul-88	ABM	0.000	1.540	2 156 265.6781	0		0.000	0.000		72	0		0.0000.000		59	5	23.0	0.0190.019		37	1	19.1	0,0040.004	22	0		0,0000.000		6	0.023

Appendix D. Numbers and density (m^-3) of herring larvae captured in Auke Bay in 1988.

							Cohort 1				Cohort 2				Cohort 3				Cohort 4				cohort 5				Total	
		x-y coordinates			Volume		Mean Length	Density			Mean length	Density			Mean length	Density			Mean length	Density			Mean length	Density				Density
		Sample filtered							Age				Age				Age				Age				Age			
Date	Site	x (km)	y (km)	T	number (m^3)	P	No. (mm)	Meas.	Corr.	(d]"	No. (mm)	Meas.	Corr.	(d)	No. (mm)	Meas.	Corr.	(d)	No, (mm)	Ness,	Corr.	(d)	No. (mm)	Hess,	Corr.	(d)	No.	Meas.
22-Jul-88	CSI	-1.016	4.836	1	160 280,6621	0		0,0000.000		77	0	0.0400,000		64	0	0.0000,000		42	1	16.8	0.0040,014		27	0	0.0000.000		1	0.004
22-Jul-88	CSI	-1.016	4,836	1	161 283.944	2	0	0,0000.000		77	0	0,0000.000		64	0	0.0000.000		42	0		0.0000.008		27	0	0.000	0.000	0	0.000
22-Jul-88	ABM	0.000	1.540	1	163 317,7411	0		0.000	0.000	77	0	0,0000,000		64	0	0,OOOO.OOO		41	0		0,0000,000		27	0	0.0880.800		0	0.000
22-Jul-88	ABM	0.000	1,540	1	164 303,6542	0		0,0000,000		71	0	0.0000.084		64	0	0.0000,000		42	0		0,0000.080		27	0	0.000	0.000	0	0.000
22-Jul-88	ANC	-1.509	0.693	1	166 288,6401	0		0,0000,000		77	0	0,000	0.000	64	0	0.0000.004		42'	0		0.000	0.000	27	0	0.0080.000		0	0.000
22-Jul-88	ANC	-1,509	0,693	1	167 311,5562	0		0,0000.000		77	0	0,0000,000		64	0	0,0000.000		42	0		0.0000.000		27	0	0.0000.008		0	0.000
27-Jul-88	CSI	-1.016	4.836	1	172 307. S90	1	0	0.0000.000		82	0	0,0000.000		69	0	0.0000,000		47	0		0,0000,000		32	0	0.000	0.000	0	0.000
27-Jul-88	CSI	-1.016	4.836	1	173 316,$102	0		0,0000,000		82	0	0.0000.000		69	0	0,0000,000		47	0		0,0000.084		32	0	0.0000,000		0	0.000
27-Jul-88	ANN	0,000	1,S40	1	175 332,4661	0		0,0000.000		82	0	0.0000.000		69	0	0.0000,000		47	0		0.0000,000		32	0	0.000	0.000	0	0.000
27-Jul-88	ABM	0.000	1.540	1	176 299.718	2	0	0.0000.000		82	0	0,0000.084		69	0	0.0000.000		47	0		0.0000.000		32	0	0.0040.080		0	0.000
27-Jul-88	ANC	-1.509	0,693	1	178 301.1921	0		0.0000,000		82	0	0.0000.000		69	1	25,7	0,0030,038		47	0		0.0000.000		32	0	0.0000.008		1	0.003
27-Jul-88	ANC	-1.509	0,693	1	179 308.638	2	0	0.0000.008		82	0	0.000	0.000	69	0		0.0000,000		47	0		0.0000.680		32	0	0.000	0.000	0	0.000

Notes:

1. Time of sampling, T=1=day, T=2=night.
2. Preservation: P=1=5% seawater formalin; P=2=37% isopropyl alcohol,
3. Sites: GOV=off Government dock, NOS=North Station, ANC=Auke Nu Cove, ABM=Auke Bay Monitor, CSI=between Coghlan and Spuhn Islands.
4. Measured densities of day tows corrected for net evasion using: Corrected density = Measured density*0.5608*exp[0.1173*(Mean sample length)], Night tows not adjusted for net evasion.
5. No ages assigned to cohort 5 larvae because no batch date was estimated.

APPENDIX E

Morphometry, dry weight and condition factors of herring larvae and juveniles

Appendix E. Morphometry, dry weight and condition factors of herring larvae captured in Auke Bay in 1988,

Sample			L (mm)		ABM (mm)		PBD (mm)		ED (mm)		HW (mm)		W (ug)		Condition factors	
Date	Site no.	Cohort	Y Hess,	Corr.	Hess.	Corr.	Meas.	Corr.	Hess.	Mess.	Corr.	Meas.	Corr.		CF1	CF2
15-May-88	ABM	002	1 1	11.8	12.3	0.40	0.39	0.50	0.45	0.40	0.85	0.81	209	250	0,9159	0.786
15-Hay-88	ABM	002	11	10.8	11.4	0.20	0.18	0.60	0,57	0.30	1.00	0,97	175	225	0.9829	-3.375
15-May-88	ABM	002	1 1	12.6	13.0	0.40	0.39	0.65	0,63	0,35	%.90	0.87	275	302	0.9461	0.074
15-May-88	ABM	002	1 1	10,8	11.4	0.20	0.18	0.55	0.51	0.40	1.40	0.97	200	243	1,0624	-2,499
15-May-88	ABM	002	1 1	11,1	11.7	0.25	0.23	0.50	0,45	0.30	0.90	0.87	177	227	0.9405	-24012
21-Hay-88	GOV	1	1 1	12.2	12,7	%.35	0,34	0.65	0,63	0.40	0,90	0.87	235	270	0.9160	0.345
21-Hay-88	GOV	1	1 1“	14,1	14,4	0.40	0,39	0.90	0.89	0,35	1,00	0.97	385	397	0.8999	-0,878
21-Hay-88	GOV	1	1 1	13.4	13.8	0,35	0,34	0.75	0,74	0.40	1.10	1.07	320	339	0.8999	-2,232
21-Hay-88	GOV	1	1 1	14,4	14.7	0.35	0.34	0.65	0.63	0.45	1.00	0,97	378	391	0.8258	-1,115
21-Hay-88	GOV	1	11	12,5	12,9	0.45	0.45	0.80	0,79	0.30	0,90	0.87	264	293	0,9368	0,289
21-Kay-88	GOV	1	21	8.3	9.2	0,25	0.23	0,50	0,45	0,25	0.70	0,66	76	150	0.9254	1.569
21-Hay-88	GOV	1	21	9,3	10.1	0.30	0.29	0.55	0.51	0.25	0.75	0.71	112	180	0.9817	1.046
21-Hay-88	GOV	1	21	10.3	11.0	0.30	0.29	0.55	0,51	0.30	0.85	0.81	138	199	0.9398	-9,286
21-Kay-88	GOV	1	21	9,2	10.0	0.30	0.29	0.70	0,68	0.30	0,75	0.71	118	184	1.0196	2.421
21-Kay-88	GOV	1	2 1	9.2	10.0	0.25	0.23	0.50	0.45	0.25	0,80	0.76	116	183	1.0114	-0.521
21-Hay-88	ABM	3	11	11.8	12.3	8.30	0.29	0.80	%,79	0.35	0.90	0.87	226	263	0.9630	0.097
21-Hay-88	ABM	3	1 1	12,1	12.6	0.35	0,34	0.75	0.74	0.50	0,99	0.87	213	253	0.8758	1.546
21-May-88	ABM	3	1 1	13.8	14.2	0.50	0.50	0.90	0s89	0.30	1.05	1.02	386	398	0,9656	-1.511
21-May-88	ABM	3	1 1	14.0	14,3	0.45	0,45	0.85	0,84	0,35	1.15	1.13	411	421	0.9760	-2,526
21-Hay-88	ABM	3	1 1	13,2	13,6	0.50	0.50	0,70	0,68	0.35	1.10	1.07	344	360	0.9974	-2.001
21-Hay-88	ABM	3	2 1	8.0	9.0	0.20	0.18	0.60	0,57	0.30	0,70	0,66	57	129	0.8269	2.261
21-May-88	ABM	3	2 1	9.0	9.8	0,30	0.29	0.45	0>39	0.35	0.80	0.76	113	181	1,0252	%,938
21-Kay-88	ABM	3	2 1	9.1	9s9	0.20	0,18	0.40	0.32	0.30	0,70	0.66	101	171	%.9603	0,669
21-May-88	ABM	3	2 2	7,8	8.8	0,20	0.18	0.50	0,45	0,20	0,65	0.60	99	170	1.1074	1.425
21-Kay-88	ABM	3	2 1	8.3	9.2	0.25	0.23	0.50	0,45	0.20	0,75	0,71	96	167	1,0337	-0.168
21-May-88	ABM	5	11	14.0	14.3	0.50	0.50	0.75	0.74	0.40	1,10	1.07	426	435	1,0083	-1,485
21-Hay-88	ABM	5	1 1	15.0	15.3	0.55	0,55	0.75	0,74	0.35	1,00	0,97	409	419	0.7669	-0.813
21-Kay-88	ABM	5	1 1	13.3	13.7	0,5%	0.50	0,75	0,74	0.40	1.00	0.97	324	343	0,9290	-0,123
21-Hay-88	ABM	5	1 1	14.2	14.5	0.45	0.45	0.8%	0.79	0.40	1.20	1.18	394	405	0.8975	-2.792
21-Hay-88	ABM	5	1 1	12,5	12,9	0.45	0,45	0.80	0.79	0.40	0.90	%.87	264	293	0.9368	1.374
21-Hay-88	ABM	5	2 1	10,1	10.8	0.35	0.34	0.5%	0.45	0.40	0.90	0,87	151	208	1.0140	0.209
21-Hay-88	ABK	5	21	8.1	9.0	0.25	0.23	0,50	0.45	0,25	0,60	0,55	80	153	0.9700	3.783
21-May-88	ABM	5	2 1	10.7	11.3	0.30	0.29	0.60	0.57	0.30	0.85	0.81	170	222	9.9832	-0.140
21-May-88	ABM	5	21	9.6	10.3	0.40	0.39	0,60	0.57	0.40	0.95	0.92	184	232	1,2142	0.550
21-Kay-88	CSI	6	1 1	13.9	14.2	0.40	0.39	9.75	0.74	0.35	1,00	0.97	404	414	0,9831	-1,229
21-May-88.	CSI	6	1 1	13.9	14.2	0.40	0.39	0.79	0,68	0.40	1.10	1,07	354	369	0.8758	-2.199
21-Nay-88	CSI	6	22	8.4	9.3	0.25	0.23	0.60	0,57	0.45	0,65	0.60	103	173	1.0560	5.345

Appendix E.Morphometry, dry weight and condition factors of herring larvae captured in Aukke Bay in 1988,

Date	Sample Site no.	Cohort	Y	L (mm) Hess.	L (mm) Corr.	ABM (mm) Meas.	ABM (mm) Corr.	PBD (mm) Hess.	PBD (mm) Corr.	ED (MM) Meas.	ED (MM) Corr.	HW (lam) Meas.	HW (lam) Corr.	W (ug) Meas.	W (ug) Corr.	Condition factors CF1	Condition factors CF2
21-Kay-88	CSI 6	2	1	10,81	104	0,3S	9.34	0,650.63	0.40	0.900,87				179	228	0,9955	0,736
21-May-88	CSI 6	2	2	B.5	9.4	0,250,23		0,550,51	0.30	0.75	0,?1			104	174	1.0485	1.577
21-May-88	CSI 6	2	1	10.0	10.7	0.300.29		0,750.74	0.40	0.80	%,76			151	208	1.0293	2,551
24-Hay-88	CSI 13	1	1	11,1	11,7	0,35	0s34	0,700,68	0.30	0,900,87				168	220	0.9137	-0,279
24-Hay-88	CSI 13	1	1	15,5	15, B	0,500,50		0,800.79	0.40	1,101,07				523	527	0.8520	-1,664
24-Nay-88	CSI 13	1	1	16,3	16.5	0,650.65		0.850,84	0,40	1.10	1.07			673	674	0.8875	-1,%46
24-May-88	CSI 13	1	1	11.6	12.1	0,400,39		0.550.51	0.40	0,950.92				198	242	0,9191	-0s371
24-Hay-88	CSI 13	1	1	16,8	17,0	0.600,60		0,850,84	0,50	1.101,07				754	755	0.8704	-0.459
24-Hay-88	CSI 13	1	1	16.8	17.0	0,55$	.55	0.900,89	0.40	1.051,02				704	7%5	0.8131	-0.778
24-Nay-88	CSI 13	2	1	8,8	907	0.250,23		0,650,63	0.30	0.8%	0.76			103	173	1.0066	1.032
24-flay-88	CSI 13	2	1	9.7	10.4	0.35	0s34	0,550,51	0.20	0,750,71				14%	200	1.0346	0.470
24-Hay-88	ABM 16	1	1	17.0	17.2	0,700.70		0.990,89	0.50	1.25	1,23			674	675	0,7382	-1,751
24-May-88	ABH 16	1	1	14,8	15s1	0.50	0.50	0.800,79	0,60	1.20	1.18			427	436	0.8372	-1.163
24-Nay-88	ABM 16	1	1	14.0	14.3	0.500,50		0,650.63	0.50	1.10	1,07			349	365	0.8459	-1,072
24-Kay-88	ABM 16	1	1	16.5	16.7	0.600,60		0.900.89	0.50	1.30	1,28			734	735	0.9177	-2,438
24-Hay-88	ABM 16	1	1	12,4	12.9	0.400.39		0.700.68	0.50	1.05	1.02			295	318	1.0388	-0,358
24-Nay-88	ABM 18	1	1	17,3	17,5	0,70	0,7%	0,950,95	%.45	1,201,18				947	947	0,9550	-1,428
24-May-88	ABM 18	1	1	13.3	13.7	0.400,39		0.850,84	0.50	0,900,87				342	359	0.9715	1.929
24-Nay-88	ABM 18	1	1	13,3	1307	0.308.29		0.800,79	0.40	1.051,02				354	369	1,0002	-1.772
24-Hay-88	ABM 18	1	1	13,2	13,6	0,450.45		0,700,68	0,40	1.10	1,07			307	328	0,9089	-1,774
24-Nay-88	ABM 18	1	1	16, !	16,3	0,500,50		0.85	%.84	0.40	1.2%	1.18		688	689	0.9555	-2.703
24-Nay-88	NOS 19	1	1	14.9	15.2	0,350.34		0.750,74	0,40	1.000,97				465	471	0.8842	-1.263
24-Kay-88	NOS 19	1	1	16,8	17.0	0,650.65		1.05	1.05	0,45	1.401.38			879	879	1.0142	-3,264
24-Nay-88	NOS 19	1	1	11,8	12.3	0.40	0.39	0,65	0.63	0,30	0,900,87			220	258	0,9462	-0,319
24-May-88	NOS 19	1	1	13.6	14,0	%.45	0,45	0.80	0.79	0,40	1,000,97			391	403	1.0212	-0.228
24-Hay-88	NOS 19	1	1	12.4	12.9	0,300.29		0,700,68	0,30	1.10	1,07			253	284	0.9269	-3,625
24-Hay-88	NOS 19	2	1	8.2	9.1	0.200,18		0,450,39	0.30	0,900,87				74	148	0.9238	-2,030
24-Kay-88	NOS 19	2	1	8,7	9.6	0,308,29		0.550.51	0.40	0.70	0,66			104	174	1.0237	3.978
27-Hay-88	CSI 25	1	1	13.9	14.2	0.458.45		0,650.63	0.30	1.000,97				329	347	0.8238	-1.970
27-Nay-88	CSI 25	1	1	13.3	13,7	0.400,39		0.700.68	0.40	1,00	0s97			306	328	0.8873	-0,817
27-May-88	CSI 25	1	1	13,9	14.2	$3,550,55		0.800.79	0.50	1.10	1.%7			357	372	0,8822	-0.315
27-Hay-88	CSI 25	1	1	15,7	15.9	0,450,45		0.85	0.84	0.60	1.20	1.18		519	523	0.8041	-1.423
27-nay-88	CSI 25	1	1	13.6	14.0	0.50	0.50	0.70	0.68	0.40	1.05	1.02		29!	315	0.7990	-1.061
27-Kay-88	CSI 25	2	1	10.1	10.8	0.300.29		0.450,39	0,25	0.900.87				121	186	0,9089	-2.314
27-May-88	CSI 25	2	1	9.8	10.5	0.300.29		0,600.57	0.40	0,900.87				166	219	1.1142	0.492
27-Nay-88	ABM 29	1	1	15.6	15.8	0,55	0.55	0.850.84	0.30	1.20	1,18			522	526	0.8293	-3.559

Appendix E. Morphometry, dry weight and condition factors of herring larvae captured in Auke Bay in 1988.

Date	Sample Site no.	Cohort	Y	L (mm) Mess,	Corr.	ABM (mm) Hess.	Corr.	PBD (mm) Mess,	Corr.	ED (mm) Hess.	Ness.	HW (mm) Corr.	Hess.	w (ug) Corr.		Condition factors CF1	CF2
27-Kay-88	ABM	28	1	1	17,217.4	0,700.70	0,900.89	0.50	1.201.18					882	882	0.9140	-1,158
27-Hay-88	ABM	28	1	1	15.2	15.5	0.600.60	1.00	1.00	0.50	1,10	1.07		524	528	0.9200	0.174
27-Kay-88	ABM	28	1	1	16.2	16.4	0.60	0.60	1.00	1.00	0.40	1.10	1.07	751	752	1.0156	-0.782
27-Hay-88	ABM	28	1	1	16.016.2	0,600,60	0.900,89	0.60	1.401,38					694	695	0.9890	-2,599
27-Hay-88	ABM	28	21		11.712,2	0.500,50	0.700,68	-0,40	0.900.87					263	292”	1.0894	1,543
27-Hay-88	ABM	20	21		13.714,1	0.500.50	0.800.79	0.40	1.05	1.02				423	432	1.0720	-0.636
27-Kay-88	ABM	28	2	1	12.1	12.6	0,500.50	0.55	0.51	0.50	1.000.97			258	288	0.9966	0.207
27-Hay-88	ABM	28	21		11,912,4	0.300.29	0.60	%.57	0.45	1.15	1,13			283	308	1,1082	-2.883
27-l! ay-88	GOV	31	1	1	16,3	16.5	0.70	%,70	0.90	0.89	0,40	1,301.28		724	725	0,9541	-2,895
27-Hay-88	GOV	31	1	1	18.0	18,2	0,700,70	1.15	1,150.60	1,401,38				1113	1113	0.9267	-2.005
27-Hay-88	GOV	31	1	1	16.8	17.0	0.700.70	0.900,89	0.40	1.201.18				703	704	0,8120	-1,996
27-Hay-88	GOV	31	1	1	15.9	16.1	0.650.65	0s80	0.79	0.40	1015	1.13		626	628	%.9166	-1.696
27-May-88	GOV	3 1	1	1	17.417,6	0.650,65	0.910.89	0.60	1,301,28					909	909	0,8922	-1.706
27-Hay-88	GOV	31	2	1	11,211,8	0.400.39	0,55	0.51	0.30	0.850.81				177	227	0,9244	0.140
27-May-88	GOV	31	2	1	13.213.6	0.500.50	0.759,74	0,35	1.05	1,$2				315	335	0,9277	-1,251
27-Hay-88	GOV	31	21		11,011,6	0.300.29	0,550,51	0,35	0.900.87					187	234	0,9872	-0,648
27-nay-88	GOV	31	21		10.911.5	0.300.29	0.700.68	0.30	0.900,87					184	232	0.9946	-0.560
27-Hay-88	GOV	31	21		12s2	12,7	%,35	0,34	0,600,57	0.40	0,950,92			272	299	1,0159	-0.545
27-Hay-88	GOV	33	1	1	17.4	17,6	0.700,70	0,950.95	0,40	1.301,28				877	877	0,8608	-2.965
27-Hay-88	GOV	33	1	1	15,315.6	0.550,55	0,9%	0.89	0.50	10151.13				511	515	9.8761	-0.876
27- May-88	GOV	33	1	1	17,3	17,5	0.650.65	0,950.95	0.40	1.20	1.18			991	991	0.9994	-2.015
27-Kay-88	GOV	33	1	1	15.715.9	0,550.55	0,900,89	0.50	1.000,97					5%6	511	0.7848	0,853
27-Hay-88	GOV	33	1	1	16.817,0	0,600,60	1,001.00	0.40	1.301,28					819	819	0,9451	-3,070
27-Hay-88	GOV	33	2	1	12.713,1	0.400.39	0,550.51	0.40	1.101.07					324	343	1,0537	-2,512
27-Nay-88	GOV	33	21		12,4	12,9	0,350,34	0,700.68	0,50	1.101.97				279	305	8,9955	-1.300
27-Kay-88	GOV	33	2	1	10.611,2	0,250,23	0.600,57	0.30	0,900.87					183	231	1.0415	-1.310
27-Hay-88	GOV	33	2	1	11.7	12,2	0,550.55	0.800.79	0.45	0.800.76				258	288	1.0744	4.101
27-Nay-88	GOV	33	2	1	14.2	14.5	0.450.45	0,70	0.68	0.40	1.101.07			489	494	1.0948	-1.893
01-Jun-88	CSI	3 7	1	1	19.8	19.9	0,900.90	1.20	1.20	0.50	1,40	1,38		1863	1863	0.9382	-2.237
01-Jun-88	CSI	37	1	1	15.3	15.6	0,500.50	0,9%	0,89	0.60	1.25	1.23		632	634	1.0769	-1.399
01-Jun-88	CSI	3 7	1	1	16,1	16.3	0.600.60	1.00	1.00	0.65	1,35	1.33		773	773	1.0727	-1.573
01-Jun-88	CSI	3 7	1	1	18.7	18,8	0.85	0,85	1.15	1.15	0,55	1.20	1.18	1376	1376	0.9433	0.009
01-Jun-88	CSI	37	1	1	18.2	18.3	0.65	0.65	0.95	0.95	0.60	1.40	1.38	1271	1271	1.0013	-2.585
01-Jun-88	CSI	3 7	2	1	8.8	9.7	0.300.29	0,500.45	0.40	0.700.66				114	181	1.0557	3.675
01-Jun-88	CSI	3 7	2	1	9.2	10,0	0.20	0.18	0.500.45	0.30	0.700.66			113	181	0.9990	1.398
01-Jun-88	CSI	3 7	2	1	13.3	13.7	0.400.39	0.75	0.74	0.50	1.10	1.07		310	331	0.8965	-1.060
01-Jun-88	ABM	3 9	1	1	18.2	18,3	0.65	0.65	1.05	1.05	0.60	1.20	1.18	1145	1145	0.9021	-0.415

Appendix E. Morphometry, dry weight and condition factors of herring larvae captured in Auke Bay in 1988.

Date	Sample Site no,	Cohort	Y	L (mm) Ness,	Corr.	ABM (mm) Meas.	Corr.	PBD (inn] Hess.	Corr.	ED (mm) Hess.	HW (mm) Hess.	Corr.	W (ug) Meas.	Corr.	Condition factors CF1	CF2
01-Jun-88	ABM	39	1	1 17.6	17.8	0.750.75	1.00	1.00	0.50	1.20	1.18		1072	1072	0,9962	-0.784
01-Jun-88	ABM	39	1	1 13,9	14.2	0,600,60	0.85	0.84	0.50	1.00	0.97		514	518	1.22’37	1.415
01-Jun-88	ABM	39	1	1 17.7	17.9	0.800.80	1.10	1,10	0,65	1.30	1,28		1132	1132	1,0236	-0.479
01-Jun-88	ABM	39	1	1 15.4	15.7	0.50	0.50	0.90	0.89	0.50	1.25	1.23	655	656	1.0880	-2.098
01-Jun-88	ABM	39	2	1 10.6	11.2	0.350,34	0,75	0.74-	0.30	0.90	0,87		195	240	1,0810	0.096
01-Jun-88	ABM	39	2	1 9.7	10.4	0.300029	0,55	0.51	0.60	0.75	%.?1		122	187	0.9674	4.214
01-Jun-88	ABM	39	2	1 8.3	9.2	0,250.23	0,40	0.32	0.35	0.85	0.81		80	153	0.9485	-0.534
01-Jun-88	ABM	39	2	1 10.1	10.8	0.400,39	0,60	0.57	0.40	9,90	0,87		62	135	0.6593	0.864
01-Jun-88	ABM	39	2	1 9.0	9s8	0.250,23	0.60	0,57	0.30	0.90	0,87		110	178	1,0123	-9.831
01-Jun-88	GOV	41	1	1 16,4	16.6	0.700.70	0,95	0,95	0.55	1.30	1.28		947	947	1,2145	-1.485 .
01-Jun-88	GOV	41	1	1 15.5	15.8	0.60	0.60	0.95	0,95	0.50	1,25	1.23	713	714	1,1539	-1.562
01-Jun-88	GOV	41	1	1 13	0013,4	0.500.50	0,85	0,84	0.40	1.10	1>87		394	405	1.1703	-0.926
01-Jun-88	GOV	41	1	1 13.9	14.2	0,500,50	0.85	0.84	0.40	1.00	0.97		475	481	1.1410	0.138
01-Jun-88	GOV	41	2	1 8.5	9.4	0.300,29	0.40	0.32	0.30	0.70	9,66		6$	133	0.8030	1.835
01-Jun-88	GOV	.41	2	1 9.3	10.1	0.100.$7	0.50	0.45	0.30	0.75	0.71		112	180	0.9817	-1.522
01-Jun-88	GOV	41	21	9.6	10,3	0.300.29	0.60	0,57	0,30	0,80	0.76		46	115	0.6022	0.798
01-Jun-88	GOV	41	2	1 8.4	9.3	0.250.23	0.40	0.32	0.20	0.80	0.76		102	172	1.0512	-14818
01-Jun-88	GOV	41	2	1 10.1	10.8	0,300.29	0,60	0,57	0.40	0.90	0.87		150	207	1.0106	0.361
01-Jun-88	ABM	46	1	1 21.1	21.2	0.950.95	1.30	1.30	0.70	1.25	1.23		2168	2168	0.7582	0,577
01-Jun-88	ABM	46	1	1 19,1	19,2	0,750,75	1.05	1,05	0.50	1.45	1.44		1239	1239	0,7595	-3.398
01-Jun-88	ABM	46	1	1 20,2	20.3	13.850.85	1.20	1.20	0.60	1.45	1.44		1822	1822	0.8200	-2.218
01-Jun-88	ABM	46	1	1 14.3	14.6	0.500,50	0.70	0.68	0.40	1.00	0,97		415	425	0,9186	-0.491
01-Jun-88	ABM	46	1	1 17,8	18,0	0.890.80	0.95	0.95	0.50	1.25	1.23		1052	1052	0.9255	-1.343
01-Jun-88	ABM	46	2	1 8.1	9.0	0.200,18	0,65	0,63	0.30	0.8$	0.76		93	165	1s0415	0.713
01-Jun-88	ABM	46	2	1 10.4	11.1	0.300.29	0.50	0.45	0.30	0.99	0,87		141	201	0,9353	-1,367
01-Jun-88	ABM	46	2	1 9.0	9.8	0.300.29	0.40	0.32	0.30	0.70	0.66		93	165	0.9359	1,727
01-Jun-88	ABM	46	21	9,8	10.5	0.250,23	0.45	0.39	0.40	0.80	0.76		115	182	0.9273	0.689
01-Jun-88	ABM	46	2	1 9.3	10.1	0,200.18	0.60	0.57	0.40	0.70	0.66		112	180	0.9817	2.966
05-Jun-88	CSI	50	1	1 18.9	19.0	0.750.75	0.90	0.89	0.50	1.40	1.38		1299	1299	0.8421	-3.232
05-Jun-88	CSI	50	1	1 21.5	21.6	1.10	1.10	1,40	1.40	0.70	1.70	1.69	2649	2649	0,8289	-2.862
05-Jun-88	CSI	50	1	1 16.3	16.5	0.600.60	0,90	0,89	0.50	1.30	1,28		652	653	0.8601	-2.436
05-Jun-88	CSI	50	1	1 16.1	16.3	0.500,50	1.00	1.00	0.50	1.20	1.18		635	637	0.8828	-1.526
05-Jun-88	CSI	50	1	1 18.7	18.8	0.75	0.75	1015	1,15	0.50	1.40	1.38	1454	1454	0,9968	-2.590
05-Jun-88	CSI	50	2	1 12.3	12,8	0,350.34	0.60	0.57	0.35	1.00	0.97		262	291	0.9693	-1.773
05-Jun-88	CSI	50	2	1 12.9	13.3	0.400.39	0,70	0.68	0.50	1.10	1.07		372	385	1.1361	-1.044
05-Jun-88	CSI	50	2	1 14.8	15.1	0.500,50	0.80	0.79	0.50	1.15	1.13		562	565	1.0854	-1.187
05-Jun-88	CSI	50	2	1 11.1	11.7	0.400.39	0,70	0.68	0.30	1.00	0.97		194	239	0,9918	-1,337
05-Jon-88	CSI	50	2	1 10.9	11.	S 0.400.39	0.50	0.45	0.40	0.90	0.8?		169	221	0.9482	0.266

Appendix E. Morphometry, dry weight and condition factors of herring larvae captured in Auke Bay in 1988.

Date	Sample Site	no.	Cohort	Y	L (mm) Hess,	Corr.	ABM (mm) Hess,	Corr.	PBD (mm) Hess,	Corr.	ED (mm) Meas.	HW (mm) Mess.	Corr.	W (ug) Meas.	Corr.	Condition factors CF1	CF2
05-Jun-88	ABM	5	2	1	1	15.1	15.4	0.650	0.65	0.90	0,89	0.40	1.20	1.18	740	741	1.3226	-1.697
05-Jun-88	ABM	5	2	1	1	19.2	19.3	0,900	0.90	1.10	1.10	0.50	1.40	1.38	1713	1713	1.0210	-2.333
05-Jun-88	ABM	5	2	1	1	15.5	15,8	0.800	0.80	1,00	1.00	0.60	1.10	1.07	1236	1236	1.9981	1.769
05-Jun-88	ABM	5	2	1	1	13,6	14.0	0.700	0.70	0.90	0,89	0.60	1.00	0.97	615	617	1s5651	2.733
05-Jun-88	ABM	5	2	1	1	18,4	18.5	0.850	0.85	1.00	1.00	-0s4S	1.40	1;38	1279	1279	0,9532	-3.010
05-Jun-88	ABH	5	2	2	1	13,2	13,6	0.600	60	0,800	79	0.50	1,101	07	456	463	1.2814	0.175
05-Jun-88	ABH	5	2	2	1	11,1	11.7	0.450	.45	0.700	68	0.5%	1,000	.97	252	283	1.1754	%.929
05-Jun-88	ABM	5	2	2	1	9,9	10,6	0.40	0.39	0.650	63	0.30	0.800	76	108	177	0.8874	1.760
%5-JIM-88	ABM	5	2	2	1	8.3	9.2	0.400	.39	0.500	45	0,50	0,900	87	147	205	1.2679	2,045
05-Jon-88	ABM	5	2	2	1	11.2	11.8	0,400	.39	0,850	84	0,50	0.900	.87	237	271	1.1073	2,475
05-Jun-88	GOV	5	4	1	1	21,4	21.5	1.10	1.10	1.351	35	0.60	1.50	1.49	2754	2754	0,8860	-1.902
05-Jun-88	GOV	5	4	2	1	15,9	16,1	0.700	70	0.80	%.79	0,35	1,000	97	653	654	0.9555	-0,180
05-Jun-88	GOV	5	4	2	1	9.9	10,6	0,443	0.39	0,609	57	0.30	0,90	0.87	143	202	1.0159	0.020
05-Jun-88	GOV	5	4	2	1	11.6	12.1	0,400	.39	0,700	68	0.40	1,000	97	206	248	%,9417	-0,403
05-Jun-88	GOV	5	4	2	1	11,0	11,6	0,350	.34	0.60	0.57	0.20	0.800	.76	191	237	0,9995	-0,554
05-Jun-88	GOV	5	4	2	1	10.2	10.9	0.300	,29	0.600	,57	0.30	0,900	.87	160	214	1.0296	-0.745
05-Jun-88	GOV	5	4	2	1	7,8	8.8	0,300	.29	0.500	,45	0020	0.70	0,66	101	171	1.1178	1.447
1O-JUD-88	CSI	6	1	2	1	17.4	17,6	0.700	,70	1.301	,30	0.50	1,501	,49	1036	1036	1.0167	-3.190
1O-JUU-88	CSI	6	1	2	1	13,4	13,8	0.450	.45	0,650	.63	0.5%	1.000	.97	309	330	$.8750	0,080
1O-JUO-88	CSI	6	1	2	1	14.2	14.5	0.450	.45	0.800	,79	0.50	1,301	,28	463	470	1.0399	-2.925
10-Jun-88	CSI	6	1	2	1	13,1	13.5	0.450	,45	0.800	,79	0,45	1.201	.18	334	352	0.9941	-2.086
10-Jun-88	CSI	6	1	2	1	12.0	12.5	0.500	.58	0.600	.57	0.30	1,101	.07	247	279	0.9850	-2.716
10-Jun-88	ABM	6	4	1	1	21.1	21.2	1.10	1.10	1,351	,35	0,70	1.70	1.69	2770	2770	0.9688	-2.843
10-Jun-88	ABM	6	4	1	1	20.7	20.8	1.05	1.05	1.401	,40	0.80	1.79	1.69	2941	2941	1.1503	-2,2S4
10-Jun-88	ABM	6	4	1	1	20.4	20.5	1.05	1.05	1.35	1.35	0.75	1,70	1.69	2673	2673	1,1373	-2.555
10-Jun-88	ABM	6	4	1	1	20.2	20.3	1,10	1,10	1.40	1,40	0.70	1.70	1.69	2452	2452	1.1035	-2.627
10-Jun-88	ABM	6	4	1	1	20,2	20.3	1.05	1.05	1,40	1,40	0,70	1.60	1.59	2502	2502	1.1260	-1.954
1O-JUD-88	ABM	6	4	2	1	14.5	14,8	0.400	.39	0.80	0.79	0,4S	1,10	1,07	463	470	0,9693	-1,503
10-Jun-88	ABM	6	4	2	1	13.4	13,8	0,400	.39	0.850	,84	0.40	1.80	0.97	404	414	1.0986	-0.285
10-Jun-88	ABM	6	4	2	1	15.7	15,9	0.600	.60	0,900	.89	0.50	1.10	1.07	767	768	1.1795	-0.040
10-Jun-88	ABM	6	4	2	1	13,8	14.2	0,500	.50	0.880	.79	0,30	1.10	1.07	410	420	1.0190	-2.373
10-Jun-88	ABM	6	4	2	1	14.0	14.3	0,500	.50	0.900	,89	0.40	1.10	1.07	477	483	1.1198	-1.015
1O-JUD-88	ABM	6	4	3	1	8.2	9.1	0.300	.29	0.500	.45	0.40	0.750	.71	87	160	0.9983	2.922
1O-JUR-88	ABM	6	4	3	1	8.8	9.7	0.250	.23	0.550	,51	0.30	0,800	.76	120	186	1.0816	0.610
10-Jun-88	NOS	6	7	1	1	21.5	21.6	1.10	1.10	1.60	1,60	0.80	1,601	.59	3291	3291	1.0297	-1.208
10-Jun-88	NOS	6	7	1	1	20.6	2%,7	1.00	1.00	1.35	1,35	0.70	1.60	1.59	2143	2143	0,862%	-2.290

Appendix E. Morphometry, dry weight and condition factors of herring larvae captured in Auke Bay in 1988.

Date	Sample Site no.	Cohort	Y	L (mm) Meas.	L (mm) Corr.	ABM (mm) Meas.	ABM (mm) Corr.	PBD (mm) Hess,	PBD (mm) Corr.	ED (mm) Ness,	ED (mm) Corr.	HW (mm) Hess.	HW (mm) Corr.	W (ug) Hess.	W (ug) Corr.	Condition factors CF1	Condition factors CF2
1O-JUD-88	NOS	67	1	1 20,720.8	1.00	1.00	1,401.40	0.75	1.401.38					2258	2258	0.8832	-0.248
1O-JUO-88	NOS	67	2	1 15.3	15.6	0,900.90	1.00	1.00	0.60	1.3%	1.28			1130	1130	1.9205	-0.131
10-Jun-88	NOS	67	2	1 15.4	15.7	0.600.60	0,900,89	0.50	1,101.07					725	726	1.2030	0.015
1O-JUD-B8	NOS	67	2	1 15.315.6		0.700,70	0.800.79	0.50	1.401.38					853	853	1.4501	-2.949
10-Jun-88	NOS	67	32	7.4	8.5	0.150,13	0.60	0.57	0.20	0.800.76				86	159”	1s0794	-1.529
1O-JUD-88	NOS	70	1	1 18.8	18.9	0.950.95	1,25	1,25	0.80	1.75	1.74			1709	1709	1.1393	-2,904
10-Jun-88	NOS	70	1	1 22,5	22,6	1.25	1.25	1.50	1.50	0.75	1.60	1059		3447	3447	8.8192	-1,491
10-Jun-88	NOS	70	1	1 22.7	22,8	1.301.39	1,701.70	0.80	1.701.69					4123	4123	$.9281	-1.616
1O-JUD-88	NOS	70	1	1 19.4	19.5	0,900.90	1,20	1.20	0.60	1,55	1.54			1736	1736	0.9782	-2.790
10-Jun-88	NOS	70	1	1 22,222,3		1.45	1.45	1.95	1.95	0.80	1.901.89			4133	4133	1.0661	-2,376
10-Jun-88	NOS	70	2	1 15.8	16,0	0.650,65	0,80	0.79	0,60	1,301.28				711	712	1.0664	-1,680
10-Jun-88	NOS	70	21	15.1	15.4	9.650.65	0.950.95	0.40	1.201.18					486	491	0,8777	-1,746
10-Jun-88	NOS	70	2	1 15.015,3		0,600.60	0.900,89	0.40	1.201,18					577	580	1,0608	-1,949
10-Jun-88	NOS	70	2	1 14,1	14.4	0.500.50	0.750,74	0.45	1.15	1.13				447	454	1.0300	-1.633
10-Jun-88	NOS	70	2	1 14,6	14.9	0.700,70	0,900.89	0.40	1.201,18					540	544	1.0956	-1.527
1O-JUU-88	NOS	70	3	1 8.1	9.0	%.25	0,23	0.600.57	0.30	0.900,87				91	163	1.0309	-0,507
15-Jun-88	CSI	74	2	1 20,2	20,3	0.906,90	1,35	1.35	0.70	2.25	2,25			2014	2014	0s9064	-6.733
15-Jun-88	CSI	74	2	1 18.618,7		0.800.80	1,001,00	0.50	1.40	1,38				1229	1229	0.8664	-2.808
15-Jun-88	CSI	74	21	15.9	16.1	0.990,99								852	852	1,2445	
15-Jun-88	CSI	74	3	1 9,4	10.2	0,350,34	9,600.57	0,20	0,950.92					118	184	0,9927	-2.396
15-Jun-88	ABM	77	2	1 17,6	17.8	1.00	1.00	1.301,30	%,70	1,601.59				2075	2075	1.9283	-1.718
15-Jun-88	ABM	77	21	14.1	14.4	0.500.50	0.800079	%.55	1.30	1.28				488	493	1,1182	-2.280
15-Jun-88	ABM	77	3	1 11.4	11.9	0,400.39	0.600.57	0.35	1.000.97					199	243	0,9557	-1,247
15-Jun-88	ABM	77	3	1 10.1	10.8	0.350,34	0.60	0,S7	0.40	0.900.87				140	200	0.9758	0.716
15-Jun-88	ABM	77	31	9.0	9.8	0,300,29	0,400.32	0.20	0,800,76					107	176	0,9993	-1,592
15-Jun-88	GOV	80	1	1 23,4	23.4	1.45	1.45	1,401.40	0.90	1,951,94				5516	5516	1.0291	-3s092
15-Jun-88	GOV	80	1	1 20.020.1		1.00	1,00	1,2%	1.20	0.70	1.80	1,79		2385	2385	1,1354	-3.863
15-Jun-88	GOV	80	1	1 22.1	22.2	1.20	1.20	1.60	1.60	0.80	2,00	1,99		4511	4511	1,1960	-3.809
15-Jun-88	GOV	80	1	1 22.6	22.7	1.40	1.40	1.75	1.75	0.75	2,05	2.05		4885	4885	1.1299	-3.890
15-Jun-88	GOV	80	2	1 17.5	17.7	0.750.75	0.950.95	0.50	1.681,59					1096	1096	1.0467	-4.556
15-Jun-88	GOV	80	3	1 13.2	13.6	0,600.60	0.75	0.74	0.30	1.10	1,07			380	393	1.0864	-1.973
15-Jun-88	GOV	80	3	1 12.1	12,6	0,450,45	0,650,63	0,40	1.00	0,97				333	351	1.2138	-0.337
15-Jun-88	GOV	80	3	1 8.4	9.3	0.35	0.34	0.60	0.57	0.20	0.800.76			112	180	1.0982	0.293
20-Jun-88	CSI	86	1	1 27.3	27.3	1.75	1,75	2.30	2.30	1.00	2.602,60			10315	10315	0.7348	-5.177
20-Jun-88	CSI	86	1	1 26,3	26.3	1.90	1.90	2.20	2.20	1.00	2.50	2.50		14375	14375	1.2908	-4.308
20-Jun-88	CSI	86	2	1 22.2	22.3	1.25	1.25	1.60	1.60	0.80	1.70	1.69		3861	3861	0.9960	-1.766
20-Jun-88	CSI	86	2	1 20.0	20.1	0.85	0.85	1.15	1.15	0.60	1.40	1.38		1568	1568	0.7465	-1.884
20-Jun-88	CSI	86	3	1 10.4	11.1	0.300,29	0.550,51	0.30	0.950.92					148	206	0.9585	-1.797
20-Jun-88	CSI	86	3	1 11.1	11.7	0.400.39	0.65	0.63	0.50	0.900.87				1S6	212	0.8782	1,755

Appendix E. Morphometry, dry weight and condition factors of herring larvae captured in Auke Bay in 1988.

Date	Sample Site no.	Cohort	Y	L (mm) Meas.	L (mm) Corr.	ABM (mm) Ness.	ABM (mm) Corr.	PBD (mm) Hess,	PBD (mm) Corr.	ED (mm) Hess.	HW (ml) Hess,	HW (ml) Corr.	K (ug) Hess,	K (ug) Corr.	Condition factors CF1	Condition factors CF2
20-Jun-88	CSI 8 6	3	1	9.7	10.4	0.205	.18	0.600	.57	0.30	0,850	.81	113	181	0.9329	-0.904
20-Jun-88	CSI 8 6	3	1	9.4	10.2	0.150	,13	0,600	,57	0,30	0,850	.81	96	167	0.9012	-1,611
20-Jun-88	CSI 8 6	3	1	10,	$ 10.7	0,350	,34	0.500	.45	0,40	0,950	.92	152	209	1,0328	-0,475
20-Jun-88	ABM 8 9	2	1	23.3	23,3	1.25	1.25	1,601	,60	0.90	1.801	,79	4250	4250	0.8143	-2.211
20-Jun-88	ABM 8 9	3	1	10.7	11.3	0.350	.34	0,600	,57	0.30	1.00	$.9?	161	215	0,9547	-1.953
20-Jun-88	ABM 8 9	3	1	10	411.9	0.400	,39	0.550	.51	0.40	0.90	0.87	200	243	0.9586	0,420
20-Jun-88	ABM 8 9	3	1	12.0	12.5	0,350	.34	0,700	,68	0.40	1,101	.07	303	325	1.1464	-1,988
20-Jun-88	ABM 8 9	3	1	10.7	11,3	0,400	,39	0.650	.63	0.30	1,000	.97	154	210	0,9326	-1,441
20-Jun-88	ABM 8 9	3	1	9.7	10.4	0,250	,23	0.500	,45	0.45	0,800	,76	116	183	0.9445	1.507
20-Jun-88	ANC 9 2	2	1	19.7	19,8	1,001	.00	1.151	,15	0.60	1,451	,44	2015	2015	1.0437	-1,898
20-Jun-88	ANC 9 2	2	1	19.3	19.4	0.900	.90	1.15	1.15	0.70	1,69	1s59	1842	1842	1,0675	-2,659
20-Jun-88	ANC 9 2	2	1	19.2	19,3	1,001	,00	1.201	020	0.65	1,401	,38	1898	1898	1.1313	-0,879
20-Jun-88	ANC 9 2	3	1	12.1	12.6	0,450	.45	0.700	.68	0,30	1,101	,07	260	290	1.0021	-2.572
20-Jun-88	ANC 9 2	3	1	12,5	12.9	0.300	.29	0,600	.57	0,50	1,000	,97	245	27B	0,8884	-0.881
20-Jun-88	ANC 9 2	3	1	12.1	12.6	0,450	,45	0.650	,63	0,40	1,05	1,02	251	282	0.9773	-1.073
20-Jun-88	ANC 9 2	3	1	10.4	11.1	0,250	,23	0,600	,57	0.40	0.900	.87	143	202	0,9419	-0.210
20-Jun-88	ANC 92	3	1	13.6	14,0	0,400	,39	0.75	%,74	0.40	1,10	1.07	359	374	0.9480	-1.939
20-Jun-88	ABM 95	1	1	26.7	26.7	2.102	.10	2.402	.40	1.10	2.402	,40	11839	11839	0.9677	-3.18$
20-Jun-88	ABM 95	1	1	25.1	25.1	1.95	1.95	2.20	2.20	1.00	2.102	,10	8024	B024	0.9652	-2,127
20-Jun-88	ABM 9 5	1	1	25.9	25.9	2.05	2.05	2.05	2.05	1.10	1.80	1.79	8579	8579	0.8478	0.006
20-Jun-88	ABM 9 5	1	1	24.9	24.9	1.80	1.80	2.00	2.00	1.00	1.801	.79	7153	7153	0,9048	-0,59?
20-Jun-88	ABM 9 5	2	1	20.4	20.5	1.05	1.05	1.40	1.40	0,80	1.501	,49	2828	2828	1.2032	-0.622
20-Jun-88	ABM 9 5	3	1	13.1	13.5	0.400	.39	0,650	.63	0.40	0.90	0.87	345	361	1.0214	0.501
20-Jun-88	ABM 9 5	3	1	11.4	11.9	0,459	.45	0,600	.57	0,40	1,000	.97	274	301	1.1852	-0.385
20-Jun-88	ABM 9 5	3	1	9.2	10.0	0,250	,23	0,550	.51	0.30	0.850	.81	128	192	1.0601	-0.351
20-Jun-88	ABM 95	3	1	12.6	13.0	0.450	,45	0,700	,68	0.30	1.05	1.02	304	326	1.0217	-2.067
20-Jun-88	ABM 95	3	1	12.7	13,1	0.550	,55	0,800	,79	0,30	1,101	,07	451	458	1.4081	-1,796
25-Jun-88	CSI 9 9	3	1	10,7	11,3	0.40	0.39	0.550	,51	0.30	0.850	,81	154	210	0.9326	0.279
25-Jun-88	CSI 9 9	3	1	15.0	15.3	0,500	.50	0,750	.74	0,45	1,20	1,18	508	513	0.9381	-2,387
25-Jun-88	CSI 9 9	3	1	12.9	13.3	0.400	,39	0.650	,63	0.40	1.000	.97	268	296	0.8728	-0.926
25-Jun-88	CSI 9 9	3	1	14,4	14.7	0,500	,50	0.800	.79	0,55	1.15	1.13	450	457	0.9665	-0,805
25-Jun-88	CSI 9 9	3	1	12,3	12.8	0.450	,45	0,800	,79	0.30	1,151	.13	241	275	0.9139	-2.918
25-Jun-88	ABM 102	3	1	14.4	14.7	0,550	,55	0.700	.68	0.40	1.20	1.18	435	443	0.9367	-2.683
25-Jun-88	ABM 102	3	1	11,5	12.0	0.400	,39	0,700	.68	0,35	1,05	1.02	266	294	1,1391	-1.447
25-Jun-88	ABM 102	3	1	15.6	15.8	0.55	0.55	0.900	.89	0.30	1.30	1,28	522	526	0.8293	-4,464
25-Jun-88	ABM 102	3	1	12.9	13.3	0,350	,34	0.70	0.68	0.40	0.90	0.87	366	380	1.1202	0.458
25-Jun-88	ABM 102	3	1	12.9	13,3	0.450	.45	0,750	.74	0.45	1.05	1.02	354	369	1.0887	-0.410
25-Jun-88	ANC 105	2	1	23.2	23.3	1,80	1.80	1.85	1.85	1.00	1.95	1,94	5759	5759	1.1332	-1.555
25-Jun-88	ANC 105	2	1	20,1	20. ?	1.00	1.00	1,55	1.55	0.70	1,70	1,69	2487	2487	1.1512	-2.584

Appendix E. Morphometry, dry weight and condition factors of herring larvae captured in AukeBay in 1988.

Date	Sample Site	no.	Cohort	Y	L (mm) Hess,	L (mm) Corr.	ABM (mm) Meas.	ABM (mm) Corr.	PBD (mm) Meas.	PBD (mm) Corr.	ED (mm) Hess,	HW (mm) Hess.	W (ug) Corr.	W (ug) Meas.	W (ug) Corr.	Condition factors CF1	Condition factors CF2
25-Jun-88	ANC	105	3	1	12.0	12.5	0.40	0.39	0.65	0.63	0.30	0.90	0,87	247	279	0,9850	-0.351
25-Jun-88	ANC	105	3	1	14.5	14.8	0>600,60		0,800.79		0.55	1.10	1.07	469	475	9.9811	0.170
25-Jun-88	ANC	105	3	1	18.0	18.2	0.800.80		1.10	1.10	0.50	1.45	1.44	1156	1156	0.9625	-2.931
25-Jun-88	ANC	105	3	1	1301	13.5	0.45	0s45	0.85	0.84	0.40	0.950,92		354	369	1.0439	0.707
25-Jun-88	ANC	105	3	1	14.3	14,6	0,600,60		0,700.68		0.50	1.20	1.18	483	489	1.0572	-1.580
30-Jun-88	CSI	111	1	1	29.3	29.3	2,452.45		3.103,10		1.35	2,302,30		19854	19854	0,9219	-1,170
30-Jun-88	CSI	111	1	1	28.8	28,8	2.80	2,8%	3,203,20		1.80	2,802,80		19358	19358	0.9959	-2.096
30-Jun-88	CSI	111	2	1	26,4	26.4	1495	1,95	2.352.35		1.10	2.252,25		11275	11275	0,9888	-2.558
30-Jun-88	CSI	111	2	1	22.8	22,9	1.40	1.40	1.80	1.80	0.80	1.75	1.74	4306	4306	0.9434	-1.695
30-Jun-88	CSI	111	3	1	12.1	12.6	0.450,45		12,850,84		0.40	1,000.97		283	308	1,0669	0,259
30-Jun-88	CSI	111	3	1	16.2	16,4	0.70	0.70	1,001,06		0.40	1,201,18		730	731	0,9873	-1,591
30-Jun-88	CSI	111	3	1	15,2	15.5	0,500,50		0,800,79		0.60	1,15	1.13	533	537	0.9352	-0.629
30-Jun-88	CSI	111	3	1	17,1	17,3	0,800,80		1.10	1.10	0.30	1,15	1,13	938	938	0.9985	-1.736
30-Jun-88	CSI	111	3	1	16,6	16.8	0,600.60		1.05	1.05	0.35	1.20	1.18	765	766	9,9312	-2.406
30-Jun-88	CSI	111	4	1	9.0	9.8	0,250.23		0,500,45		0.40	0,900,87		113	181	1.0252	-0,264
30-Jun-88	ABM	114	3	1	17.8	18.0	0,750.75		1.001.0$		0.50	1,45	1.44	1129	1129	44,9932	-3,248
30-Jun-88	ABM	114	3	1	15,6	15.8	0,700,70		0,950.95		0,45	1.30	1,28	881	881	1,3890	-2,065
30-Jun-88	ABM	114	3	1	17.4	17,6	0.600,60		1.05	1.05	0.85	1.35	1.33	953	953	0.9353	-0.689
30-Jun-88	ABM	114	3	1	15.7	15.9	0.600.60		0.900.89		0.40	1,20	1,18	624	626	0.9617	-2.104
30-Jun-88	ABM	114	3	1	15.3	15.6	0.60	0.60	1.05	1.05	0.50	1.20	1.18	693	694	1.1795	-0.766
30-Jun-88	ANC	117	3	1	17.4	17.6	0.85	0.85	1.10	1,1$	0.50	1.50	1.49	1106	1106	1,0854	-3.107
30-Jun-88	ANC	117	3	1	17.5	17.7	0,750.75		1.0%	1.00	0.40	1.65	1.64	1015	1015	9,9694	-5.703
30-Jun-88	ANC	117	3	1	14.7	15.0	0,650,65		0,750,74		0.40	1,35	1,33	608	610	1,2006	-3.618
30-Jun-88	ANC	117	3	1	17.3	17.5	0.800,80		0.900,89		0.45	1,45	1.44	893	893	0.9006	-3.720
30-Jun-88	ANC	117	3	1	17.2	17.4	0.75	0.75	1.10	1.10	0.50	1.30	1.28	1089	1089	1,1283	-1.505
30-Jun-88	ANC	117	4	1	10.3	11.0	0.450,45		0.650.63		0.40	0,950,92		177	227	1.0714	0.766
30-Jun-88	ANC	117	4	1	9,0	9.8	0,300,29		0.600,57		0.40	9,950.92		219	258	1,4629	0.140
05-Jul-88	CSI	123	3	1	19,3	19.4	1.00	1.00	1.35	1.35	0.60	1.50	1.49	1845	1845	1.0693	-1,836
05-Jul-88	CSI	123	3	1	19.5	19.6	0.90	0.90	1.10	1.10	0.50	1.75	1.74	1702	1702	0.9325	-5,234
05-Jul-88	ABM	126	3	1	18.1	18,2	0.850.85		1.10	1.10	%.55	1.401.39		1379	1379	1,1328	-1,974
05-Jul-88	ABM	126	3	1	18,7	18.8	0.900.90		1.05	1.05	0.50	1.35	1,33	1264	1264	%.8665	-1,986
05-Jul-88	ABM	126	3	1	14.7	15.0	0.70	0.70	0.850.84		0.40	1.20	1.18	677	678	1,3346	-1.593
06-Jul-88	ANC	129	3	1	19.9	20.0	1.10	1.10	1.30	1.30	0.50	1.60	1.59	1957	1957	0.9582	-3.323
06-Jul-88	ANC	129	3	i	18.2	18.3	0.85	0.85	1.15	1,15	0.60	1,45	1,44	1340	1340	1.0557	-1.997
05-Jul-88	ABM	132	!	1	28.7	28.7								19037	19037	1.0001	
05-Jul-88	ABM	132	2	1	23.8	23.8								6167	6167	1.0352	
05-Jul-88	ABM	132	3	1	15.4	15.7	0.500.50		0.800.79		0.45	1,10	1,07	524	528	0.8753	-1.192
05-Jul-88	ABM	132	3	1	20, !	20.2	1.00	1.00	1.40	1.40	0.65	1,50	1.49	2384	2384	1.1035	-1.520

Appendix E. Morphometry, dry weight and condition factors of herring larvae captured in Auke Bay in 1988,

Date	Sample Site no.	Cohort	Y	L (mm) Meas.	L (mm) Corr.	ABM (mm) Hess.	ABM (mm) Corr.	PBD (mm) Ness.	PBD (mm) Corr.	ED (mm) Mess.	HW (mm) Mess.	W (ug) Corr.	W (ug) Meas.	W (ug) Corr.	Condition factors CF1	Condition factors CF2
05-Jul-88	ABM 132	31		18.018,2	0.750.75	1.101,10				0.50	1,25	1,23	1436	1436	1.1956	-1.073
05-Jul-88	ABM 132	31		17,317.5	0.800,80	0.900.89				0.55	1.35	1,33	1088	1088	1.0971	-1,966
05-Jul-88	ABM 132	31		17.3	17.5	0,800.80				1.00	1.00	0.50	1.20	1.18	1108	1108 1.1173 -0,557
10-Jul-88	CSI 136	4	1	10,6	11.2	0,350.34				0.500.45		0.25	0.950.92		166	219 0.9863 -2.441
1O-JU1-88	ABM 139	31		18,718,8	1.001.00	1.001,00				0.70	1,601,59		2000	2000	1,3711	-2.571
1O-JU1-88	ANC 142	3	1	17.5	17,7	0,700,70		0,900.89		0,40	1,20	1,18	960	960	0.9169	-2.037
1O-JU1-88	ANC 142	31		18,1	18.2	0.800.80		0,950,95		0.50	1,401,38		1257	1257	1,0181	-2,799
17-Jul-88	ABM 150	31		24,124.1	1,701.70	1,801,80				0,80	1,85	1,84	6299	6299	0,9777	-2,050
17-Jul-88	ABM 150	51		11.1	11.7	0,450.45		%.55		0,45	0.25	0.950.92	179	228	0,9465	-2,014
17-Jul-88	ANC 153	31		23,223,3	1,501.50	1.651.65				0.60	1,65	1,64	4273	4273	0.8408	-2,156
17-Jul-88	ANC 153	4	1	16.3	16,5	0.850,85		0.900.89		9,40	1.25	1.23	763	764	1,0051	-1,941
17-Jul-88	ABM 156	3	1	22,5	22,6	1.50	1.50	1.65	1.65	0.70	1,80	1.79	9871	9871	2.346$	-2.188
17-Jul-88	ABM 156	3	1	23,923,9	1.60	1.60	1.751,75			0.80	1,701,69		5715	5715	0,9345	-1,185
17-Jul-88	ABM 1S6	3	1	25.325,3	2.05	2,05	2.20	2.20		0.90	1.95	1,94	4333	4333	0.4959	-1.783
17-Jul-88	ABM 156	31		22.822.9	1.501.50	1,70	1.70			0,80	1.891.79		5042	5042	1.1047	-1,958
17-Jul-88	ABM 156	31		24.524.5	2.002000	2,152,15				0,9$	1.951.94		8693	8693	1,2171	-1,456
17-Jul-88	ABM 156	4	1	20,620.7	1.25	1,25	1,45	1.45		0.70	1.80	1.79	2543	2543	1.0229	-3.059
22-Jul-88	CSI 160	4	1	16,3	16.5	0.650,65		0.900,89		0.45	1.15	1.13	764	765	1,0064	-1,000
27-Jul-88	ANC 178	3	1	25,5	25.5	2.00	2.00	2.20	2.20	1,00	2,15	2.15	10347	10347	1,1272	-2,327
14-Aug-88	GOV 181	21		31.831,8									35958	35958	1,0444	
14-Aug-88	GOV 181	2	1	32.0	32.0								32502	32502	0.9120	
14-Aug-88	GOV 181	21		35.335,3									59680	59680	1.0084	
14-Aug-88	GOV 181	21		35.435.4									89483	89483	1,4914	
14-Aug-88	GOV 181	2	1	31,831,8									28085	28085	0,8157	
14-Aug-88	GOV 181	3	1	29.3	29.3								21933	21933	1.0184	
15-Aug-88	GOV 183	1	1	44,7	44.7								151129	151129	0.9924	
15-Aug-88	GOV 183	1	1	44.7	44.7								184175	184175	1.2094	
15-Aug-88	GOV 183	1	1	38,5	38,5								79384	79384	0,9049	
15-Aug-88	GOV 183	1	1	38.8	38.8								91236	91236	1.0066	
15-Aug-88	GOV 183	1	1	39.7	39.7								102626	102626	1,0310	
15-Aug-88	GOV 183	2	1	32.1	32.1								34204	34204	0.9436	
15-Aug-88	GOV 183	2	1	35.0	35.0								51756	51756	0.9116	
15-Aug-88	GOV 183	2	1	35.1	35.1								50814	50814	0.8826	
15-Aug-88	GOV 183	2	1	33.9	33.9								48889	48889	1.0105	
15-Aug-88	GOV 183	2	1	36.5	36.5								57107	57107	0.8239	

Appendix E. Morphometry, dry weight and condition factors of herring larvae captured in Auke Bay in 1988,

Date	Sample Site	no.	Cohort	Y	L (mm) Meas.	L (mm) Corr.	ABM (mm) Meas.	ABM (mm) Corr.	PBD (mm) Hess,	PBD (mm) Corr.	ED (mm) HW (Bin) Meas.	ED (mm) HW (Bin) Hess.	ED (mm) HW (Bin) Corr.	W (ug) Meas.	W (ug) Corr.	Condition factors CF1	Condition factors CF2
15-Aug-88	GOV	183	3	1	29,	S 29,5								18382	18382	0.8199	
15-Aug-88	GOV	183	3	1	30,5	30.5								54702	54782	2.0125	
15-Aug-88	GOV	183	3	1	28,9	28,9								20197	20197	1.0178	
15-Aug-88	GOV	183	3	1	28.2	28.2								17424	17424	1.0178	
15-Aug-88	GOV	183	3	1	30.0	30.0								265%5	26505	1.0713	
18-Aug-88	GOV	185	1	1	39.3	39,3								99641	99641	1.0428	
18-Aug-88	GOV	185	2	1	33,9	33.9								54352	54352	1.1235	
18-Aug-88	GOV	185	2	1	34,0	34.0								44594	44594	0.9080	
18-Aug-88	GOV	185	2	1	33.2	33,2								46155	46155	1,063%	
18-Aug-88	GOV	185	2	1	36,6	36,6								67533	67533	0,9622	
18-Aug-88	GOV	165	2	1	35,1	35,1								56741	56741	0.9856	
18-Aug-88	GOV	185	3	1	29.4	29,4								21108	21108	0.9605	
19-Aug-88	GOV	186	1	1	40.0	40,0								956?6	95676	0,9329	
19-Aug-88	GOV	186	1	1	43.6	43s6								146693	146693	1.0448	
19-Aug-88	GOV	186	1	1	41.6	41.6								106346	106346	0.8930	
19-Aug-88	GOV	186	1	1	40.0	40.0								103295	103295	1,0071	
19-Aug-88	GOV	186	1	1	41,3	41.3								122571	122571	1.0571	
19-Aug-88	GOV	186	2	1	37,5	37,5								80678	806?8	1,0304	
19-Aug-88	GOV	186	2	1	35,6	35,6								646?3	64673	1,0491	
19-Aug-88	GOV	186	2	1	36,4	36,4								65783	65783	0.9612	
19-Aug-88	GOV	186	2	1	35,0	35.0								63135	63135	1.1121	
19-Aug-88	GOV	186	2	1	33,1	33.1								40731	40731	0.9531	
25-Aug-88	GOP	188	1	1	44.5	44,5								134784	134784	0.8978	
25-Aug-88	GOV	188	1	1	43.2	43,2								132823	132823	0,9759	
25-Aug-88	GOV	188	1	1	43.5	43,5								126935	126935	0.9110	
25-Aug-88	GOV	188	1	1	43.1	43.1								132792	132792	0.9834	
25-Aug-88	GOV	188	1	1	41.2	41,2								102623	102623	0.8931	
25-Aug-88	GOV	188	2	1	38.9	38.9								104892	104892	1.1450	
25-Aug-88	GOV	188	2	1	39.6	39.6								96145	96145	0.9757	
25-Aug-88	GOV	188	2	1	39.2	39.2								99016	99016	1.0472	
25-Aug-88	GOV	188	2	1	35,2	35,2								58298	58298	0.9987	
25-Aug-88	GOV	188	2	1	39.8	39,8								94876	94876	0,9436	
25-Aug-88	GOV	188	3	1	31.3	31.5								36266	36266	1.1101	
25-Aug-88	GOV	188	3	1	31.0	31.0								35035	35035	1.1732	
25-Aug-88	GOV	188	3	1	32,6	32.6								39183	39183	0.9942	
25-Aug-88	GOV	188	3	1	31.8	31,8								36703	36703	1.0660	
25-Aug-88	GOV	188	3	1	32.8	32,8								39595	39595	0.9723	

Notes:

1. Fish captured with 333 and 505 um-mesh bongo nets and preserved in 5% seawater formal in.
2. GOV=off Government dock, NOS=North station, ANC=Auke Nu Cove, ABM=Auke Bay Monitor, CSI=between Coghlan and Spuhn Islands.

Appendix E. Morphometry, dry weight and condition factors of herring larvae captured in Auke Bay in 1988.

Sample				L (mm)	ABM (mm)		PBD (mm)		ED (mu)	HW [mm]		W (ug)		Condition factors	
Date	Site no.	Cohort	Y	Meas.	Corr. Hess,	Corr.	Meas.	Corr.	Hess.	Ness.	Corr.	Ness.	Corr.	CF1	CF2

3. L=standard length, ABD=anal body depth, PBD=pectoral body depth, ED=eye diameter, HW=head width, ML=maxillary length, W=dry weight.
4. Y=1=non-yolked, Y=2=yolked.
5. Condition factors: CF1=observed W/predicted W, where
   Predicted W = exp(4.6526+(8.5357/(1+exp(-2.9682(lnL-3.2076))))).
   CF2=14.191-4.389*lnL+2.184*lnABD+2.197*lnPBD-12.331*lnHW+3.770*lnED+0.419*lnW.

APPENDIX F

Number and width of herring otolith rings, radii of otoliths and recent growth rates calculated from ring width

Appendix P. Number and width of otolith rings, and specific growth rates estimated from ring widths, of herring larvae,

Date	Sample: Fish no.	Sample: site	Sample: Length no.	Sample: (mm)	Cohort	Otolith parameters: sag. no.	radius (urn): mean	radius (urn): SE	no. rings: mean	no. rings: SE	Back-calculated ring width (um) fish length (mm): 1	2	3	4	Predicted fish weight (ug) from fish length: 0	1	2	3	4	Specific growth rates (% dry weight d^-1) individual sagitta: 1	2	3	4	mean of 2 sagittae: 1	2	3	4	Standard error of mean specific growth rates: 1	2	3	4
21-Hay-88	2	GOV	1	14,9	1	1	27,0	25,91,1	16	14	2 1.11,21	,31,2	16.416	.115,715.314,9	739	676	611	546	491	7,5	8.0	8,5	8,6	6.6	7.7	719	8,4	0,9	0.3	0,5	0.3
21-May-88	2	GOV	1	14.9	1	2	24.8		13		0,81.21,01,3		15,715,51	S,114,714,2	616	576	518	474	420	5.8	7.3	7.4	8.1								
21-Hag-88	2	GOV	2	15,4	1	1	22,6	17.5	10	9	0,60,81	,30,9	15,014	,814,514,013,6	509	482	448	397	364	4.6	5.4	7,0	7,1	4,6	5.4	7.0	7.1				
21-Hag-88	2	GOV	3	11,4	1	1	14,3	15,00,6	6	7	1 0.90.91	,01,0	11,310	,910,3 9,6 8,9	228	208	199	172	156	7.7	7,7	7.9	8.0	6.4	6,6	6.7	6,7	1,3	1.1	1,3	1,3
21-Kay-88	2	GOV	3	11.4	1	2	15,6		8		0,60.70	,60,6	12,011	,811.411,010,7	260	244	228	214	201	5.1	5.6	5.4	5.4								
21-Hay-88	2	GOV	4	14.9	1	1	17.7	17.10.6	11	10	1 0,80,90,60,6		13,012,712,312,011,6		321	296	271	255	240	6.7	7,2	6,5	6,2	6,3	7,0	6.8	6,5	0.4	0.2	0,3	%,3
21-May-88	2	GOV	4	14,9	1	2	16.5		10		0,70.90,90.7		12,512,211,711,210,8		284	265	242	221	206	6.0	6.8	7.1	6,9								
21-May-88	2	GOV	5	11,9	1	1	17,9	17,70,2	7	10	3 0.70,60	.70.7	13.112,812,612,211,9		327	305	287	268	249	5.9	5.5	5.6	5,7	6.3	5.9	5,9	5,8	0,4	0.4	0.3	0,1
21-Nay-88	2	GOV	5	11,9	1	2	17. s		13		0.80.70	.70,6	12,912,612,311,911,6		314	290	271	252	237	6.7	6,3	6,2	6,0								
21-Nay-88	2	GOV	6	13.1	1	1	17,4	17,50.1	11	11	0 0.80, 8	0.8	0.6	12.912,612,211,811,4	311	287	265	244	230	6.7	6.8	6.8	6.4	6.7	6.8	6.8	6.5	0.0	0.0	0.0	0.1
21-Nay-88	2	GOV	6	13,1	1	2	17.7		11		0.80,80	.80,7	13,012,712,311,911,5		321	296	273	252	235	6.7	6.7	6,8	6,6								
21-Hay-88	4	ABM	1	10.8	1	1	14.7	15.81.1	6	6	0 0,40.50,70,6		11,511	.411,110,710,3	237	228	216	201	190	3,4	3,9	4,6	4,7	4,7	4,7	4.8	4,9	1,2	0.8	0.3	0.2
21-Nay-88	4	ABM	1	10,8	1	2	17.0		6		0,70.60	.50,6	12,712	.412,111,911,5	299	279	262	249	235	5.9	5.5	5.1	5.1								
21-Hay-88	4	ABM	2	13,1	1	1	25,8	25.8 ERR	15	13	2 1,01.51,41,3		16,015,715,214,814,3		670	616	S42	478	424	7,0	9.0	9.$	9,7	6,3	8,2	8,7	8,9	0,7	0,7	0,8	0,8
21-Nay-88	4	ABM	2	13.1	1	2	25.8		11		0.81.31	,21,1	16,015	,815,415,014,6	670	627	561	504	457	5.6	7.5	8.0	8.1								
21-Kay-88	4	ABM	3	12.5	1	1	13.0	13,70.8	4	5	1 0,61,00	,81,3	10,610,2	9.6 9,0 8.0	199	188	170	157	140	5.1	6.8	6,7	7,5	4.7	5.7	5,9	6.1	0.4	1.0	0.8	1.4
21-Nay-88	4	ABM	3	12,5	1	2	14.5		6		0,50,60,70,4		11,411.2113,910,41	O,2	232	221	208	193	186	4.3	4.7	5.1	4,7								
21-Nay-88	4	ABM	4	10,8	1	1	14.1	14.1	3	3	0.81,00,8	-	11.210	.810,2 9,6 -	223	206	186	172	-	6.9	7.7	7.4	-	6.9	7.7	7.4	-				
21-Nay-88	4	ABM	5	12.5	1	1	11,9	11,70.2	5	5	0 0,80,90,80,9		9,91	9,4 8.7 8.0 7,3	179	165	151	141	130	6.6	6.9	6.7	6,6	7.0	6,9	6.7	6,4	0.4	0.1	0.1	0,2
21-Nay-88	4	ABM	5	12.5	1	2	11.5		5		0,90s80	.90,6	9,64	9.0 8.4 7.6 7,1	172	157	146	13S	128	7.4	6.8	6.8	6.1								
21-Hay-88	4	ABM	6	12,5	1	1	17,5	17,80,3	12	12	0 0,81,10,80,9		12,912,612,111,611,2		314	290	260	240	219	6.7	8.0	7,7	7.7	5.4	5.9	5.6	5.7	1.3	2.1	2.0	1.9
21-Nay-88	4	ABM	6	12.5	1	2	18.1		12		0,50,40,40.5		13,213,012	.812,712,4	334	317	305	293	279	4.2	3.8	3.6	3.8								
21-May-88	7	CSI	1	13,7	1	1	19,6	20,50,9	10	10	0 1.01.10,71,2		13,813,513,012,712,1		386	350	314	293	260	8.1	8.6	7.7	8.3	7.2	7.7	7.4	7.7	0.9	1.0	0.3	0.7
21-Nay-88	7	CSI	1	13.7	1	2	21.5		10		0.80,91	,00,8	14,614,314,013,513,2		461	428	393	357	330	6.2	6.7	7.2	7.0								
21-Hag-88	7	CSI	2	13.1	1	1	1S,6	16.20.6	5	5	1 0.70,71,61,3		12,011,711,310.4	9.5	260	242	225	192	168	6.0	6.0	8,6	9,2	9,4	8,110,310,2		3,4	2.1	1.7	1.1
21-Nay-88	7	CSI	2	13.1	1	2	16.8		6		1.50,91,81,1		12,611,911,410,4	9,6	293	252	230	192	172	12,8	10,3	12,0	11.3								
21-Hay-88	7	CSI	3	11.4	1	1	18.7	18.7	4	4	0.70.90,80.8		13,513,212	.812,412,0	354	330	302	279	257	5.8	6,6	6,7	6,7	5,8	6,6	6,7	6,7				
21-May-88	7	CSI	4	11,9	1	1	15.0	14.90.0	5	7	2 0,70.70,90,8		11,711,411,010,4	9,9	244	228	212	193	179	6.0	6.0	6.6	6.6	7.3	6.9	7.1	6.9	1.3	0.9	0.6	0.3
21-Nay-88	7	CSI	4	11.9	1	2	14.9		9		1.00.80	.90.7	11,711,210,710,1	9.6	242	219	201	184	172	8.6	7.7	7,7	7.2								
21-Hay-88	7	CSI	5	11,4	1	1	12.6	12.6	3	3	0,91.31.2	-	10,3	9,8 8.9 7,9 -	192	175	154	138	-	7.6	9,1	9.1	-	7,6	9,1	9.1	-				
24-Hay-88	14	CSI	1	14.2	1	1	14.7	14,70.0	4	4	1 1,20.91	,01,!	11,510	,910,4 9,7 8,6	237	210	192	173	150	10.3	9.0	8,8	9.7	8.2	8,4	8.4	8,5	2.1	0.6	0.4	1.1
24-Nay-88	14	CSI	1	14.2	1	2	14.8		5		0.71,11	.00.7	11.6 11.3 10.6 10.0 9,5		240	223	199	180	168	6.0	7.7	8,0	7,4								
24-Nay-88	14	CSI	2	14.9	1	1	20.7	21,00,3	12	111	1.01,21	,21,0	14,313	.913,412,912,4	428	389	347	308	279	8.0	8.9	9.2	9.0	6.3	8.0	8.1	8.3	1.6	0.9	1.2	0.8
24-May-88	14	CSI	2	14.9	1	2	21,3		10		0.61.20	.81.1	14.5 14.313	.813, S13,0	452	428	382	354	317	4.7	7.1	6.9	7.5								
24-Nay-88	14	CSI	3	11.9	1	i	20,3	20,60,3	13	12	1 0,90.70	.70,6	14,113,813,513,212,9		412	378	354	330	311	7,2	6.5	6.2	5,9	6,0	5,6	5,6	5,9	1.2	0.8	0.6	0.0
24-Nay-88	14	CSI	3	11.9	1	2	20.9		12		0.60.60	.71.0	14,314	.213,913.613.2	436	412	389	364	330	4.7	4.8	5.1	5,9								
24-Nay-88	14	CSI	4	12.5	1	1	23.5	21,71,8	15	15	0 1,00,70	.80.9	15.315	.014,7140414,1	551	504	474	440	404	7,5	6,4	6,3	6,5	7,0	6,5	6,4	6.6	0.5	0.1	0.1	0.0
24-Nay-88	14	CSI	4	12.5	1	2	19,9		15		0.80.80.808		13.913,713,313,012,6		397	368	140	314	290	6.5	6.5	6.6	6.6								
24-Nay-88	17	ABM	1	19.7	1	1	33.1	33,1	20	20	1.9	1,81.62,7	18,017	,617,116,615,8	1159	1015	889	787	632	11.2	11.2	10,9	12,8	11,211	,210.912,8								

Appendix F. Number and width of otolith rings, and specific growth rates estimated from riog widths, of herring larvae,

Oate	Sample no.	site	Fish no.	Length (mm)	Cohort	Otolith parameters: sag, no.	radius (urn) mean	SK	no. rings mean	SK	ring width (um) 1	2	3	4	Back-calculated fish length (mm) 0	1	2	3	4	Predicted fish weight (ug) from fish length %	1	2	3	4	Specific growth rates (% dry weight d^-1) individual sagitta 1	2	3	4	mean of 2 sagittae 1	2	3	4	Standard error of mean specific growth rates 1	2	3	4
24-Hay-88	17	ASH	2	1$.4	1	1	23.2	23.2	17	17	1.01.51,20,8				15.214,914,313,813,5					537	491	428	382	354	7.5	9,6	9,6	8.8	7.5	9,6	9,6	8.8				
24-nay-88	17	ABN	3	17.9	1	1	27.0	26.3	0.7	17	16	1	1.61,71	,71,6	16.415	.915.414.814.2				739	648	561	482	416	11.0	11.6	12,0	12,1	15,315,514,914,5				4.33.9	2,9	2.4	
24-Nay-88	17	ABM	3	17.9	1	2	25.6		16		2,72. S1.81,7				15,915	.114,213,$12,7				659	523	416	350	296	19,5	19.4	17,8	16.9								
24-Hay-88	17	ABM	5	14.2	1	1	18.0	18,10.1	10	11	1	0,70,80	.70,8		13.1	12.9	12.5	12.2	11.8	330	308	284	265	244	5.8	6.3	6.2	6.4	6,3	6.5	6)3	6.3	0.4	0.2	0.1	0.0
24-Kay-88	17	ABM	5	1402	1	2	18,2		12		0.8	0.8	0.7	0.7	13,212,912	.612,211.9				337	311	287	268	249	6,7	6.7	6.5	6.3								
24-Hay-88	17	ABM	6	15,4	1	1	27,6	27,30,3	17	17	1	0,91	,31.01,2		16,516,315,915	.615,2				775	721	648	596	537	6.0	7,5	7,4	7.7	5,1	6.0	6.4	6,7	1.0	1.5	1,0	1.1
24-May-88	17	ABM	6	15,4	1	2	27,1		18		0.6	0.7	1.0	0.9	16.41$.316.115.71					504	744	709	670	616	571	4.1	4,4	5.3	5.6								
24-May-88	20	NOS	1	16.8	1	1	21,6	21>80,3	11	10	1	1.0	0.6	0.9	1.0	14,614	.314,013,713,2			465	424	401	368	334	7.8	6.3	6,6	7.0	7,4	6.6	7.0	7,3	0.4	0.4	0.4	0.3
24-May-88	20	NOS	1	16.8	1	2	22.1		9		0,90.91	,01.0		14.8	14.5	14.2	13.8	13.3		487	448	412	375	340	6.9	7.0	7,3	7.6								
24-Nay-88	20	NOS	2	11.8	1	1	20.6	21,30, ?	8	8	1	0.90,70,70,7			14.213,913	.613,313,0				424	389	364	340	317	7,2	6.4	6,2	6,1	7,4	6,9	6,5	6,1	0,3	0.5	0,3	0.0
14-Hay-88	20	NOS	2	11.8	1	2	22.1		9		1,00,90,70.5				14,814,514,113,813.6					487	444	408	382	364	7,7		7.4	6.8	6.1								
24-May-88	20	NOS	3	13,9	1	1	19.2	19.8	0.6	4	5	1	1.51.21	.61.4		13,713	.112.511,710,9			371	321	284	242	210	12,4	11,2	12.0	12.0	9.4	8.8	9.7	9,6	3.0	2.4	2.4	2.4
24-May-88	20	NOS	3	13.9	1	2	20.4		6		0,80,81	,10,8			14,113	,913.513.112.7				416	386	357	321	296	6,4	6,4	7.3	7.2								
24-May-88	20	NOS	4	14.9	1	1	19,8	19,8	12	12	1.31,40,80.8				13,913,412,812	.412.0				393	347	302	279	257	10.6	11,1	9.7	9.0	10.6	11.1	9.7	9.0				
27-Hay-88	26	CSI	1	16.6	1	1	24.7	24.10.6	14	14	0	1.1	1.1	0.8	0.8	15,715	.315,014,714.4			611	S$6	504	469	436	8.0	8.1	7.4	7.1	7,0	7,2	7.0	6,7	1.0	0.8	0.4	0.4
27-May-88	26	CSI	1	16$6	1	2	23.5		14		0.8	0.9	0.9	0.7	15,315,014,714,414.1					S51	514	474	436	408	6.0	6,4	6.6	6.3								
27-Nay-88	29	ABM	1	1s.4	1	1	27,1	27.1	15	15	1,41.71	,31.6			16,416,015,515,014, S					744	664	576	514	444	9.6	10.9	10,4	10.9	9,6	10,9	10,4	10,9				
27-May-88	29	ABM	2	14.9	1	1	24.2	24.2	14	14	1s11.01.20,9				15,515,214	.814,414.0				586	532	487	436	401	8.1	7.8	8,3	8.0	8,1	7.8	8,3	8.0				
27-May-88	29	ABM	3	1s.4	1	1	25.3	23.7	1.6	16	16	0	0.81.31,11,0		15.8150615.214	081405				643	601	$37	487	444	5.7	7.6	7.8	7.8	5.1	6.7	7.4	7.7	0.5	0.9	0.4	0.1
27-May-88	29	ABM	3	15.4	1	2	22.2		16		0,60,91,21,1				14.814	.614.313.813,4				491	465	428	382	343	4,6	5.8	7.1	7.5								
27-May-88	29	ABM	4	15.4	1	1	23,7	23,40,3	11	13	2	1,20.70,90,9			15,315,014,714,414,0					561	504	474	436	401	8.9	7,1	7.1	7.1	8.6	7.8	7.8	7,8	0.3	0,6	0,7	0.7
27-Kay-88	29	ABM	4	15,4	1	2	23,1		15		1.1	1.1	1.1	1.0	15.1	14.8	14.4	14.0	13.5	532	482	436	393	357	8.3	8.4	8,5	8,4								
27-May-88	29	ABM	5	11.4	2	1	20.2	20.2	13	13	0.80,71	.10,7			14,113	.813,513.012.7				408	37B	354	317	296	6.4	6.1	7.1	6.8	6.4	6.1	7.1	6.8				
27-May-88	29	ABM	6	14,2	1	1	16.5	16,5	4	4	1.10.91	.11,2			12,512	,011.510,910,1				284	255	232	208	184	9.4	8.6	8.9	9.2	9.4	8.6	8.9	9.2				
27-May-88	29	ABM	7	11,9	2	1	16.1	16.1	4	4	0.9	0.6	0.8	0.8	12.311,911	.511,110.6				273	249	235	216	199	7,7	6.4	6,6	6.6	7.7	6.4	6.6	6,6				
27-May-88	32	GOV	1	17.5	1	1	34.3	35.20.9	14	14	0	2.01.91	.41,6		18.3	17.8	17.4	17.0	16.5	1256	1097	958	863	762	11,4	11.4	10.6	10.5	12,012	.S12,111<7			0.6	1.1	1.5	1.2
27-May-88	32	GOV	1	17,5	1	2	36.2		14		2,32,52	.21.7			18.718.217.617,0	166				1419	1223	1029	876	768	12,6	13,5	13,6	12.9								
27-Nay-88	32	GOV	2	16,5	1	1	22.3	23.81, !	9	9	1	2.51,61	.42.6		14.814	.013,312,711.3				495	393	337	293	225	19.5	16.3	14.8	16.6	19.616	.715.015,8			0.1	0.4	0.2	0.8
27-May-88	32	GOV	2	16.5	1	2	25,4		10		2.7	1.9	1.4	1.8	15,915	.014,313.813,0				648	S14	432	378	317	19.6	17.1	15.1	15.1								
27-Nay-88	32	GOV	3	12.0	2	1	21.3	21.3	8	8	2,23.24,1	-			14.513	.712.2	9.9	-		452	368	268	177	-	17.5	22.1	26,4	-	17,522.1264-							
27-Hay-88	32	GOV	4	17.9	1	1	34,8	32,91,9	21	21	0	1.71.81	.81,4		18.418,017,617,116,7					129B	1159	1022	896	805	9.6	10.1	10.4	10.1	U3,711.411.31			O,8	1.1	1.4	0.9	0.7
27-Nay-88	32	GOV	4	17.9	1	2	31.0		21		1.9211	.61.3			17.517	,016,415,915.5				1000	870	739	64B	581	11.8	12.8	12.2	11.5								
27-Nay-88	32	GOV	5	16.7	1	1	28.2	27.70.4	17	18	!	2.21.71	.81,2		15,716,115	.615,014.5				812	681	591	504	452	14.8	13.4	1344	12.3	13.9	13,8	13.7	12,9	0.9	0.3	0.3	9.5
27-Nag-88	32	GOV	5	16.7	1	2	27.3		19		1,92,11	.81.5			16,415	,915,214,6:4,0				756	648	542	461	401	13.0	14.1	13.9	13.4								
27-Nay-88	32	GOV	6	14.9	1	1	2?,9	25,82, [	18	18	i	1,01,11	,41.0		16,616,416,115,6		15.3			793	733	670	596	546	6.7	7.1	8.0	7.9	6.3	7.1	7.8	7.9	0.4	0.0	0.2	0.0
27-May-88	32	GOV	6	14. !	i	2	23.7		19		0.81.11	.1	1.1		15.315	.114.714,3	13.9			561	523	474	428	386	5.9	7.1	7.6	7.9								
01-Jun-88	38	CSI	1	18.0	1	1	31.5	30.6	0.9	15	14	1	1.72.01	,91,6	17,617,216,616,115,6					1037	916	787	676	591	10.4	11.6	12, !	11.9	10.310,4114			11.8	0.1	1.3	0.7	0.1
01-Jun-88	38	CSI	1	18.0	1	2	29.7		14		1.61.22	,02.0			17,1	16.716,4	1S,815.1			910	805	733	622	523	10.3	9.1	10.7	11.7								

Appendix P. Number and width of otolith rings, and specific growth rates estimated from ring widths, of herring larvae.

Date	Sample no.	site no,	Fish Length (mm)	Cohort	Otolith parameters: sag. no.	radius (urn) mean	radius (urn) SE	no. rings mean	no. rings SE	Back-calculated ring width (urn) 1	2	3	4	Back-calculated fish length (mm) 0	1	2	3	4	Predicted fish weight (ug) from fish length 0	1	2	3	4	Specific growth rates (% dry weight d^-1) individual sagitta 1	2	3	4	mean of 2 sagittae 1	2	3	4	Standard error of mean specific growth rates 1	2	3	4
01-Jun-88	38	CSI	3 19.4		1 1	37,8	36.7 1.0	17	17 0	0,91,71	,51,1	19.018	,91805180217.9	1S66	1482	1332	1207	1120	4,6	6.8	7.3	7.1	5,3	6.5	7.0	7.2	0.7	0.4	0.3	0.1								
01-Jun-88	38	CSI	3 19.4		1 2	35.7		17		1,11.11	.41.5	18,618	.418,117.817,4	1375	1281	1191	1082	912	6.0	6,1	6,8	7,3															
01-Jun-88	38	CSI	4 20,9		1 1	41,3	39,81,4	23	23 0	1,01.41	.81.7	19.719	,619 .318,918,6	1916	1812	1672	1501	1349	4.7	5.8	6.9	7.4	6.7	7.2	8.0	8,4	2.0	1.4	1.1	1,0								
01-Jun-88	38	CSI	4 20.9		1 2	38s4		23		1.71,61,81,8	19,218,818	.518,117,6	1623	1464	1323	1175	1037		8.7	8.6	9.1	9.5															
01-Jun-88	38	CSI	5 20,3		1	1	36,2	33,42,7	24	23 1	1,81,72,01,9	18,718,317	.917.416.9	1419	1264	1127	979	850	9.8	9.7	10.4	10,8	10.810	.611,111.7	1.1	0.9	0.7	0.8									
01-Jun-88	38	CSI	5 20.3		1 2	30.7		22		1.91,71,82,0	17,416	.916,415,915,2	979	850	744	643	542		11,9	11,6	11.8	12,5															
01-Jun-88	38	CSI	6 21,5		1 1	32,7	32.80,2	21	21 0	2,52.82	.32,1	17,917,316,	S1S,81S,1	1127	944	762	632	527	15.0	1605	16,3	16,0	16,216	<115,615,4	1.2	0.4	0.6	0.6									
01-Jun-88	38	CSI	6 21.5		1 2	33.0		21		2,92,22	.02.0	18,017,316,716	.115,4	1151	937	793	676	571	17.4	15.7	15.0	1 4 , 8															
01-Jun-88	40	ABM	1 21.5		1 1	39.3	40,06.7	22	22 0	2,62,32,31.8	19,3180818	.3170817,3	1711	1464	1264	1082	951		13.2	12,8	12.9	12.4	12.712,813	.212.8	0.5	0.0	0.2	0.4									
01-Jun-88	40	ABM	1 21.5		1 2	40.7		22		2.52,62,62,1	19,619	.218,618.017,5	1853	1604	1366	1151	993		12.2	12,9	13.4	13.2															
01-Jun-88	40	ABM	2 17.9		1 1	33.7	31.22.4	18	16 2	2.01.21001,6	18.117,717	.417.116.7	1207	1052	96S	896	793		11.6	9)4	8.4	8.9	11,110	.610.010.3	0.5	1.2	1.7	1.5									
01-Jun-88	40	ABM	2 17.9		1 2	28.8		14		1.61.91	,61,6	16.916	.515.915.414,8	850	750	643	561	487	10.5	11.8	11.7	11,8															
01-Jun-88	40	ABM	3 21.5		1	1	55,9	53,22,7	30	30 1	3,23,43	.23.1	22,121	,721.220.720,1	3788	3324	2863	2460	2100		11.0	11,8	12.1	12.4	11.1	11.9	12.4	12.8	0.1	0.1	0.3	0.4				
01-Jun-88	40	ABM	3 21,5		1 2	50. s		31		2.93.13,13.1	21,320	.920,419.819.2	3022	2645	2271	1927	1613		11,2	12.1	12.7	13.2															
01-Jun-88	40	ABM	4 18,4		1 1	40.5	39,01,4	24	23 1	3.12,32,51.5	19,619	.018.517.917.5	1832	1528	1323	1120	1008		15.3	13.7	13.9	12.6	14,014	.314,613,2	1.3	0.5	0.8	0.6									
01-Jun-88	40	ABM	4 18,4		1 2	37.6		23		2.43,02,71.4	19.018	.517.817.116.7	1547	1332	1089	896	805		12.7	14,8	15.4	13.8															
01-Jun-88	40	ABM	5 17.9		1	1	43,1	40,82.3	27	26 1	2,82,22,32.3	20.119	)619.118,618,1	2112	1812	1594	1384	1191		12.9	11,9	11.9	1201	13.712,612	.612,1	0.8	0.7	0.7	0.0								
01-Jun-88	40	ABM	5 17.9		1 2	38, $		26		2.82,22	}31.4	19,21806180117	.617,2	1633	1375	1191	1015	916		14,5	13,3	13.4	12.2															
01-Jun-88	40	ABM	6 20.9		1 1	46.0	46,30.3	29	28 1	3,22,73	.02.0	20,620	.119,518,918, S	2448	2078	1791	1501	1323		13.8	13,2	13.8	13,0	13.111,1	11,311,3	0.8	2.1	2.5	1.7								
01-Jun-88	40	ABM	6 20.9		1 2	46.7		27		2,91.31	.82,4	20,720	.220,019,719,2	2533	2190	2045	1853	1613		12,3	9.0	8.8	9.5															
01-Jun-88	42	GOV	1 21.5		1	1	42,8	44,61.8	25	25 0	2,42.82	,52.0	20,019	.619,0180518,0	2078	1822	154?	1323	1159		11.1	12.5	12.7	12.3	11,111	.612.112,1	0.0	0.9	0.6	0.2								
01-Jun-88	42	GOV	1 21.5		1 2	46.5		25		2.62,32,82,5	20.720	.319,819.318,8	2509	2202	1948	1662	1428		11.0	10.7	11.6	11.9															
01-Jun-88	42	GOV	2 20s3		1 1	40.6	40.6	22	22	2,43.32	.22.4	19,619,218,417,917.3	1843	1604	1306	1127	951		11.7	14.5	13.8	14.0	11.7	14.5	13.8	14.0											
01-Jun-88	42	GOV	3 19.1		1	1	34.1	33.20.9	18	18 0	1.92.0161,6	18.217	.817.316.916,4	1239	1089	944	837	739		10,9	11.5	11.0	10.9	13,312	.411.811.4	2.4	0.9	0.7	0.4								
01-Jun-88	42	GOV	3 19.1		I 2	32.3		18		2.6 1.7 1.6 1.4	17.8	17.2 16.7 16.2 15.8	1097	910	799	704	627		15.8	13,4	1205	11.8															
01-Jun-88	42	GOV	4 18,4		1	1	36,0	35.50,5	16	17 1	2.42.63	.02,8	18.618	.117.516.715,9	1401	1199	1000	799	637		13.2	14.2	15.8	16.6	16,916,617	.418.5	3.7	2.4	1.6	1.9							
01-Jun-88	42	GOV	4 18.4		1 2	35,0		18		3.62.82	.83.4	18.417	.616.916.114.9	1315	1029	837	670	500		20,6	19.0	19.0	20.4															
01-Jun-88	42	GOV	5 19.1		1	1	40.3	38.41.9	20	19 1	2,32.62	.82.5	19,519	.118,617.917,3	1812	1585	1349	1120	937		11.3	12,5	13.5	13.9	11.912,814	.414.6	0.6	0.3	0.3	0.6							
01-Jun-88	42	GOV	5 19.1		1	2	36,5		18		2(32.43,12,3	18,818	.317.716,916,2	1446	1247	1059	843	704		12.5	13.1	15.2	15.2															
01-Jun-88	42	GOV	6 20.9		1 1	46.8	45.11.7	25	25 0	2.42.92,62,8	20,720,419	.819.318,7	2546	2259	1937	1672	1410		10.1	11.5	11.8	12.5	11.712	.513>	113)5	1.6	1.0	1.2	1.0								
01-Jun-88	42	GOV	6 20,9		1	2	43.4		25		2.92,83	)82.6	20,119	.619.118,417.8	2145	1832	1S56	1289	1082		13.3	13.5	14.3	14.5															
05-Jun-88	S1	CSI	! 22.2		1	1	43.9	45. !	1.2	17 17	11.4 1.7	1.71,4	20,220	,019,719.319,1	2202	2045	1864	1691	1556		6.2	7.0	7.4	7.3	8.0	8.8	9.0	9.0	1.9	1.7	1.5	1.7				
05-Jun-88	51	CSI	1 22.2		1	2	46,3		18		2,32.52	.22,2	20.620,319	,819.418.9	2484	7.213	1937	1711	1501		9.8	10.5	10.5	10.6															
05-Jun-88	51	CSI	? 23.2		1	1	43.9	43.80.1		23 21 2	2.52.42,12,0	20,219	.819,318,918,4	2202	1927	1681	1482	1306		11.3	11.4	11.1	11.0	10.6	11.5	11.8	11.7	0.7	0 , 2	0.6	0.7						
05-Jun-88	51	CSI	2 23,2		1	2	43.7		20		2.22.82.7	2,2	20.2	19.8 19,3 18.7 18,2	2179	i937	1652	1401	1215		9.9	11.7	12.4	12.3															
05-Jun-88	51	CSI	3 20.3		1	1	33.8	35.61.9		20 20 1	1.82.22	)91.7	18,1	17.8 17.2 16.6 16.1	1215	1074	916	787	687		10.4	11.9	12.2	12.0	11.012	.212,712.7	0.6	0.3	0.4	0.6							
05-Jun-88	51	CSI	3 20,3		1	2	37.5		21		2.22.4	2.4 2.2	19.0 18.5	18.0 17.4 16.8	1538	1340	1143	965	818		11.6	1?..5	13,1	13.3															
05-Jun-88	51	CSI	4 20.3		1	1	45,3	45.3		25 25	1.4 2. !	1.8 1.8	20.5 20	.3 19.9 19.5 19.2	2 3 6 4	2202	1969	1781	1604		6.0	7.7	8.0	8.2	6.0	7.7	8.0	8.2								
05-Jun-88	51	CSI	5 22.8		1	i	42.4	40.9	0.7	2 6	- - - -	1 9 . 9	- - - -	2 0 3 4	- - - -						-	-	-	.													
05-Jun-88	51	CSI	5 22.8		1	2	40.9		26		2.7 2.2 2.4 2.0	19.7	19.2 18.7 18.1	17.7	1874	1604	1401	1199	1044		13.1	12.3	12.6	12,3	13,112	.312,612.3												

Appendix F, Number and width of otolith rings, and specific growth rates estimated from ring widths, of herring larvae.

Date	Sample no, site	Fish Length no.	(mm)	Cohort	Otolith parameters sag. no.	radius [urn) mean	SE	no. rings mean	SE	Back-calculated ring width (urn] 1	2	3	4	fish length (mm) 0	1	2	3	4	Predicted fish weight (ug) from fish length 0	1	2	3	4	Specific growth rates (% dry weight d^-1) individual sagitta 1	2	3	4	mean of 2 sagittae 1	2	3	4	Standard error of mean specific growth rates 1	2	3	4
05-Jun-88	51 CSI	6	16,7	1	1 26.5	25.7	0.8	14 15	1	1,61,81	.61.4	16,215,815,214	.614.1		709	622	532	461	40411.2	12,1	12,1	11,9	11.812,412,111,8	0,6	0.2	0.0	0.1
05-Jun-88	51 CSI	6	16.7	1	2 25,0			16		1.71,71	.41.3	15,815	.214.614.113.6	627	542	465	408	361	12.3	12,6	12.1	11,7													
05-Jun-88	53 ABM	1	12.5	2	1 16,9	17.0	0.1	4 5	1	2041071	.51,4	12.611	.510,5	9.5	8.5	296	232	195	168	14?	20)5	17,5	15,9	14,7	16.214	.112.912,9	4.3	3.4	3.0	1.8
05-Jun-88	53 ABM	1	12.5	2	2 17.1			6		1,41,11	.01,7	12,712	.111.511.0	9.9	302	262	235	212	179	11.9	10.7	10,0	11.1													
05-Jun-88	55 GOV	1	22.8	1	1 48,7	48,7		20 20		2.1	2.2	2.5	2.0 21.020	.720.419.919,5	2785	2521	2259	1980	1771	8.4	8.8	9.6	9.5	8.4	8.8	9.6	9.5									
05-Jun-88	55 GOV	2	22.2	1	1 58.1	58.2	0.1	23 25	3	2,11,82	.91.1	22.421,221	.921.521.3	4123	3803	3538	3130	2982	6.8	6.5	7.8	6.8	6.2	7.1	8.5	8.0	0.7	0.6	0.7	1.2							
05-Jun-88	55 GOV	2	22.2	1	2 58.3			28		1,72,93,42,4	22,522,321,921	,321,0	4154	3893	3466	2995	2683		5.5	7.6	9.2	9.2													
05-Jun-88	55 GOV	3	19.7	1	1 31.0	31.0		16 16		1.01.00,81,1	17.517,217	.016,816,4	1000	930	B63	812	744		6.2	6.2	5.9	6.2	6.2	6.2	5.9	6.2									
05-Jun-88	55 GOV	4	23.4	1	1 55,8	54.81	>0	28 28	0	1,81,92	.3	2.0 22,121	.921,621,320,9	3773	3509	3240	2928	2670	6.1	6.4	7.1	7.3	10,010,010	.411,0		3.8	3.6	3.2	3.7							
05-Jun-88	55 GOV	4	23.4	1	2 53.8			28		3.83043,2308	21.821	.320.720.219,4	3480	2955	2521	2145	1741	13,8	13,6	13.6	1406															
05-Jun-88	55 GOV	5	11.4	2	1 14.7	14.40.2	8	9 1	0.7$	.70,90.9	11.511,210,810.2	9.6	237	221	206	188	172		6.0	6.0	6.6	6.8	5.6	5.4	5.9	6.1	0,4		0.6	0.7	0.7					
05-Jun-88	55 GOV	5	11.4	2	2 14.2			10		0,60,50,70.7	11,311,010,710.2	9.8	225	212	201	188	175		5.2	4.7	5.1	5.3														
10-Jun-88	62 CSI	1	16,0	2	1 25.4	26.0	0.6	10 10	1	1,21,41	.11,1	15,91	S,51$0114071403		648	586	518	469	424	8.6	9.4	9.1	9.0	7.4	8.8	8.8	8.6	1,2		0.7	0.3	0.3					
10-Jun-88	62 CSI	1	16.0	2	2 26.6			11		0,91.41,31,0	16.2160015	.6150114.8	715	664	591	527	482		6.2	8.1	8.6	8.3														
1O-JUD-88	62 CSI	2	17,2	2	1 29,4	29,4		11 11		1,32,32	.22,1	17,016	,716.115,314,6	889	805	670	556	461	8.4	12.0	13.2	13.9	8.4	12.0	13.2	13.9										
10-Jun-88	62 CSI	3	22.2	1	1 50.2	50.2		20 20		2.53,02	.32.2	21,320	.920.420.019.6	2982	2658	2294	2934	1802	9.7	11.1	10,8	10,6	9,711,110,810.6													
1O-JUO-88	62 CSI	4	16.0	2	1 23.7	23.7		12 12		1,71,71071,5	15.3	14.8	14.2	13.5	12.8	561	482	412	350	302	12.7	13.0	13,2	1301	12.713,013	.213,1										
1O-JUD-88	62 CSI	5	14,2	2	1 24.9	24.0		15 15		1,21,31	.21,3	15,715	.414.914,514.0	622	561	500	448	397	8.7	9.2	9.2	9.5	8.7	902	9.2	9.5										
10-Jun-88	65 ABM	1	24.0	1	1 70.9	67.7	3.1	33 31	2	4,24,13	.83,2	24,023,623,122,622,1		6312	5552	4848	4233	3743	10,8	11,1	1102	11,0	15.9	15.0	14.6	14.0	5.1	3.8	3.4	3.0						
10-Jun-88	65 ABM	1	24.0	1	2 64,6			30		7,04	,94.43.4	23.322	.421.721.020,4	S187	4046	3324	2734	2317	21.0	18.8	18.0	17.0														
1O-JUD-88	65 ABM	2	22.8	1	1 63,0	61,31,6	31	31 0	3,04.0302,3		23.122,722	.2	21.8	21.4	4915	4423	3803	3366	3949	8.9	10.8	10.7	10.1	9,010	,511.411,6		0.1	0.3	0.7	1.5						
10-Jun-88	65 ABM	2	22.8	1	2 59,7			31		2.93,31	.34,0	22.722,321	,821.220,5	4375	3924	3437	2850	2353	9.2	1002	12,1	13.1														
10-Jun-88	65 ABM	3	21.5	1	1 35.6	3S.6		24 24		2,52.03	,53,0	18.618	,017,516,615.7	1366	1159	1008	775	606	13.9	12.8	16,0	17,2	13,912	,816.017,2												
10-Jun-88	65 ABM	4	21,5	1	1 50,3	49,40,9	30	30 1	3,63,22	.42.3	21.3	20.8	200219.719.3	2995	2533	2156	1895	1662	14,1	13.9	12,9	12.4	13,814,815	.314.1		0.4	1.0	2.5	1.7						
10-Jun-88	65 ABM	4	21.5	1	2 48,6			31		3.3	4.1	4.4	1.8 21.020,519,818	.918,5	2772	2364	1905	1473	1315	13,4	15.8	17.8	15.7													
10-Jun-88	65 ABM	5	20.9	1	1 51,7	48.5	3.2	23 22	1	3.33.53	.22.0	21.521	.020.419.919,5	3185	2746	2317	1959	1751	12. S	13,4	13.7	12.6	13(114,214,613.9		0.6	0.7	1.0	1.3						
10-Jun-88	65 ABM	5	20.9	1	2 45.3			21		3.13.43	.32,5	20.5	20.0	19.3	18.6	18.0	2364	2012	1662	1357	1151	13.6	14.9	15.6	15.2											
10-Jun-88	65AM	6	24.7	1	1 65.8	64.21.6	39	39		4.42.23	.83.5	23.422	.922.622.121,6	5394	4650	4296	3714	3212	12.5	9.6	10.5	10.9	12.01	$.911.412.0		0.5	1.3	0.9	1.0						
10-Jun-88	65 ABM	6	24.7	1	2 62.6					3.84,03	.53.9	23.022	.622,021.520.9	4848	4233	3625	3130	2620	11.5	12.3	12.3	13.0														
15-Jun-88	75 CSI	1	11.9	3	1 16.6	15.80,8	8	9 1	0.80.60	.81,0	12.512	.211,911.410.9		287	265	249	230	208	6.8	6.0	6.3	6.9	6.8	6.4	6.6	6.9		0.0	0.5	0.3	0.1					
15-Jun-88	75 CSI	1	11,9	3	2 15.0			10		0.80.80	.80,9	11.711,310	.910.4	9.8	244	225	208	192	175	6.9	6.9	6.9	7.0													
15-Jun-88	75 CSI	2	20.9	1	1 56.4	57.61.2	20	20 0	2.51.92	,02.1	22.221	,921.621.321.0		3863	3495	3226	2955	26B3	8.5	7.6	7.5	7.7	6.0	5.8	6.1	6.2	2.5	1.9		1.4	1.5					
15-Jun-88	75 CSI	2	20.9	1	2 58.8			20		1,11.41	.81,4	22,522,422,222	.021,8	4233	4061	3B48	3581	3380	3.5	4.0	4.7	4.7														
15-Jun-88	78 ABM	1	17.2	2	1 30.3	30.0	0.3	15 15	0	1.01,41	.4	0.9	17.317	.116,716,316,0		951	883	793	709	659	6.3	7.7	8.2	7.7	6.6	7.7	7.9	7.9	0.4	0.1	0.3		9.1			
15-Jun-88	78 ABM	1	17.2	2	2 29.8			15		1.11.31	.11.3	17.116	.916.516,215,8	916	843	762	698	627	7.0	7.8	7.7	8.0														
15-Jun-88	78 ABM	2	16.7	2	1 24.9	24.90,1	20	20 1	0.60)	81.01,4	15.715.6	15.3	15.0	14.5	622	591	551	504	444	4.3	5.1	5.9	7.1	5.0	5.3	6.0	7.1	Q.?		0.2	0.1	0.0					
15-Jun-88	78 ABM	2	16.7	1	2 25.0			21		0.80.71	.01,3	15.815	.515.315.014.5		627	586	551	504	448	5.7	5.4	6.1	7.1													

Appendix F. Number and width of otolith rings, and specific growth rates estimated from ring widths, of herring larvae.

Date	Sample no.	site	Fish no.	Length (mm)	Cohort	sag. no.	Otolith parameters: radius (urn) mean	radius (urn) SE	no. rings mean	no. rings SE	Back-calculated ring width (um) 1	2	3	4	Back-calculated fish length (mm) 0	1	2	3	4	Predicted fish weight (ug) from fish length 0	1	2	3	4	Specific growth rates (% dry weight d^-1) individual sagitta 1	2	3	4	mean of 2 sagittae 1	2	3	4	Standard error of mean specific growth rates 1	2	3	4
15-Jun-88	78	ABM	3	19,1	2	1	35,6	36,10.5	17	16	1,61,91	,31,2	18,618,217,817,	S17,1	1366	1231	1082	986	903	8.8	9,9	9.2	8.7	9,511	.211,	S11,5	0.7	1.3	2.3	2.8							
15-Jun-88	78	ABM	3	19,1	2	2	36,7		15		1.92.62	.72.4	18,818	,417.817,116,4	1464	1298	1089	896	744	10.2	12,5	13.8	14.3													
15-Jun-88	78	ABM	4	17.2	2	1	37.0	37.0	13	13	1,92.02	.32.0	18,918,	$18.017.516,9	1491	1323	1159	986	850	10.1	10.7	11.6	11,9	10.1	10.7	11.6	11.9									
15-Jun-88	78	ABM	5	9.1	3	1	17,1	15.0	2.0	7	7	0	0,90,91,00.7	12,712,411	.911.411,0	302	276	252	228	212	7.6	7.7	8.0	7.5	7,6	7.6	7.5	7.0	0.0	0.0	0.5	0.4				
15-Jun-88	78	ABM	5	9.1	3	2	13,0			7			0.90,90	.70,7	10.610,1	9,4	8,9	8.4	199	182	167	156	146	7.6	7,6	6.9	6.6									
15-Jun-88	78	ABM	6	7.6	3	1	11,3	11,3		4	4		1,01,30	.80,8	9.50	8,8	7.7	7,0	6,2	168	153	136	127	120	8.1	9.0	7,8	7,1	8.1	9.0	7,8	7.1				
15-Jun-88	81	GOV	1	13.1	2	1	41,7	41,7		11	17		1,61,82,62,3	19.819,519,218,618,1	1959	1791	1613	137S	1183	7.5	8,2	10.0	10,6	7,5	8,210,010,6											
15-Jun-88	81	GOV	2	25.2	1	1	78.3	79.0	0.7	31	30	1	2.92.52,92,9	24.824,624	.324,023,6	7738	7167	6687	6146	5623	6.5	6.2	6.5	6.7	4,9	5.3	5.4	5.7	1.6	0.9	1.0	1.1				
15-Jun-88	81	GOV	2	25.2	1	2	79.7			29			1.52,51	.92,2	24,924	,824,624,424,1	8019	7718	7225	6858	6442	3.2	4.4	4,4	4.6											
15-Jun-88	81	GOV	3	24.7	1	1	89,3	85,14,2		2	8		- - - -	2 5 , 8 - - -	-10032-		-	-	-	-	-	-	-													
15-Jun-88	81	GOV	3	24,7	1	2	80,9			28			3, S 3.73,93.4	25,124,824	.423.923,5	8263	75S9	6839	6109	5499	7.5	8,0	8.5	8,6	7,5	8.0	8,5	8,6									
20-Jun-88	87	CSI	1	11.4	3	1	14,3	14.3		4	4		0,40,80,70,7	11,311,210,710,2	9.8	228	219	201	188	175	3,4	5,2	5.4	5.5	3,4	5.2	5.4	5.5								
20-Jun-88	93	ANC	1	27.8	1	1	64.0	64,0		25	25		4,13,82	.03,3	23,222,722,221	.921,4	5084	4407	3818	3523	3062	12,1	12,1	10,3	10.7	12,112,110,310,7										
20-Jun-88	93	ANC	2	22.2	2	1	59.3	59.31,6		22	22		3,43,83,84,2	22.622,221,621,020,3	4312	3788	3240	2734	2225	10,9	12,1	12.8	14,0	14,814,914,614.9	3.8	2.81.81.0										
20-Jun-88	93	ANC	2	22,2	2	2	56.2						5,34.33,23,2	22.221,420	.7	20.2	19.6	3833	3076	2521	2145	1892	18.6	17.7	16.3	15.9										
25-Jun-88	100	CSI	1	23.4	2	1	69,4	69.4		40	40		2.12,12,62,4	23.823,723,423,122.8	6036	5658	5290	4848	4455	5.5	5,6	6.2	6.4	5,5	5,6	6.2	6.4									
25-Jun-88	103	ABM	1	20,3	2	1	50.7	47.7	2.9	19	19	1	3.83,23,12,6	21,420,820	.219,619.1	3049	2558	2179	1843	1585	14,8	14,2	14,2	13.8	14,314,614,814.0	0.5	0.4	0,6	0.2							
25-Jun-88	103	ABM	1	20.3	2	2	44,8			20			3.13.43	.11,9	20,419,919,218	.518,1	2306	1959	1613	1332	1175	13.8	15.1	15,4	14.2											
25-Jun-88	103	ABM	2	17,9	3	1	38.2	36,91.3		16	16	0	2.32.02	.11,8	19,118	.718.217	>717,2	1604	1392	1223	1059	930	11,9	11.4	11.7	11.5	12,913,713,613.4	1.0	2,2	1.9	1.9				
25-Jun-88	103	ABM	2	17,9	3	2	35,6			16			2,53.02	.32,1	18,618,017,316	.616,0	1366	11S9	937	787	664	1309	15,9	15,5	15.2											
25-Jun-88	103	ABM	3	24,0	2	1	71.7	70.4	1.2	31	30	1	3.63,43,02,4	24,123,723,323	.022.6	6461	5801	5204	4699	4312	9.1	9,1	9.0	8.5	9,7	9,5	9,3	9.0	0.6	0.4	0.4	0.5				
25-Jun-88	103	ABH	3	24.0	2	2	69.2			30			3.93,33,12,7	23.823	.423.022,622,2	6000	5307	4749	4248	3833	10.4	9,9	9,7	9.5												
25-Jun-88	103	ABH	4	14.9	3	1	26.1	25.6	0.5	10	12	2	1.51.61	,61,9	16,11	S.715,114.613,8	687	606	527	457	382	10,6	11,1	11.5	12.4	11,412,412	.613.0	0.9	1.3	1.1	0.7				
25-Jun-88	103	ABM	4	14,9	3	2	25.1			14			1,72,01	,71,7	15,815	,314.613,913,2	632	546	457	389	330	12,3	13.7	13,6	13.7											
25-Jun-88	106	ANC	1	21.5	2	1	S3.9	53.7	0.2	21	20	1	3,23,63	.43,8	21.821,420	.820,219,5	3495	3049	2583	2179	1771	11.5	12.8	13.3	14,3	10,311	.212.713.5	1.3	1.5	0.6	0.9				
25-Jun-88	106	ANC	1	21.5	2	2	53.5			20			2.52.74	,13.1	21,821,	5 21,020,319.7	3437	3089	2734	2236	1895	9.0	9.7	12.1	12,6											
25-Jun-88	106	ANC	2	17.2	3	1	26.1	26.4	0.3	15	15	0	1,01,11	,51,4	16,115	.815.515,014,5	687	632	576	504	444	7.0	7.4	8,7	9,2	6.6	8,3	9,2	9,7	0.4	0.8	0,5	0.5				
25-Jun-88	106	ANC	2	17.2	3	2	26,8			15			0.91.71	.51,5	16,316,115	.515,014,5	727	676	586	514	448	6.2	9.1	9.8	10.2											
25-Jun-88	106	ANC	3	14,9	3	1	21.1	21,1		7	7		1.11,21	.11,1	14,414,013,513,112.6		444	401	357	321	287	8.7	9,2	9,2	9.2	8.7	9.2	9.2	9.2							
25-Jun-88	106	ANC	5	13,1	3	1	15.9	15.9		6	6		1.2	1.2	0.7	1.0	12.211,610	.910,5	9.9	268	237	210	195	177	10.3	10.3	8.9	8.8	10.3	10.3	8,9	8.8				
25-Jun-88	106	ANC	6	27,2	1	1	100.2	98.02.2		44	44	0	4,04,64,23,5	26,826,526,125,725,4		124691155910534		9623	8882		6.4	7.1	7.3	7.2	7>2	7.7	7.8	7.8	0.8	0.6	0,S	0.7				
25-Jun-88	106	ANC	6	27,2	1	2	95,8			44			4,74.64,34,3	26.426,125	.625,224,8	1146810425		9431	8529	7658	8.1	8.3	8.3	8.5												
30-Jun-88	112	CSI	1	18.9	3	1	31.3	30.30.9		12	12	0	1,82,42,21,8	17,517,116,415,815,2		1022	896	744	622	532	11.1	1304	14.0	13.8	12.4	14.3	14. S	14.4	1.3	0.9	0.5	0.6				
30-Jun-88	112	CSI	1	18.9	3	2	29.4			12			2.12,42	.02.0	17.016	.515.815,114.4	889	756	622	523	436	13.7	15.1	15.0	15.0											
30-Jun-88	112	CSI	2	17.2	3	1	29,8	32.22,4		12	12	0	1,62,31	.91,5	17,116,816	.115,515,0	916	812	676	576	504	10.2	12.9	13.1	12.6	12.6	13.7	13.7	13.0	2.3	0.8	0.6	0.5				
30-Jun-88	112	CSI	2	17,2	3	2	34.6			12			2.62.32	.21.6	18.317,817,216,616,1		1281	1074	910	768	676	14.9	14.4	14.4	13,5											

, Appendix F. Number and width of otolith rings, and specific growth rates estimated from ring widths, of herring larvae,

Date	Sample no.	site no.	Fish Length (mm)	Cohort	Otolith parameters: sag. no.	radius (urn) mean	radius (urn) SE	no. rings mean	no. rings SE	Back-calculated ring width (urn) 1	2	3	4	fish length (mm) 0	1	2	3	4	Predicted fish weight (ug) from fish length 0	1	2	3	4	Specific growth rates (% dry weight d^-1) individual sagitta 1	2	3	4	mean of 2 sagittae growth rates 1	2	3	4	Staodard error of mean specific growth rates 1	2	3	4
30-Jun-88	112	CSI	3 17,5	3	1	30.3	30.3	12	12	2,52,02	.92,4	17.316,616,115	.114.2	951	787	670	S23	420	16.0	14.8	16.8	17.2	16,014	,816,817.2													
30-Jun-88	115	ABM	1 17.9	3	1	48,4	46.91.5	19	19	1 1,72.02	.42.1	21.0	20.8	20.4	20.0	19.6	2746	2533	2294	2023	1802	6.8	7.6	8.6	8.9	6.6	8.0	9.3	9.8	0.2	0.4	0.7	0.9				
30-Jun-88	115	ABM	1 17$9	3	2	45.4		20		1,52,32	.82.4	20.520,319	.819.318.8	2376	2202	1948	1662	1437	6.4	8.4	10.1	10.6															
30-Jun-88	115	ABM	2 26,6	1	1126.2	123.032	49	49	1 3.82.93,$	2.6	28,628,428,228	<027.8	1871217773170611633015700						4.3	3.9	3.8	3.7	4.6	4.1	4.0	3.8	0.2	0.2	0.1	0.1							
30-Jun-88	115	ABM	2 26.6	1	2119.8			50		3.93,02,72,5	28,228	.027,827,627,4	17134161841545914813142 19						4.8	4.3	4,1	3.9															
30-Jun-88	115	ABM	3 17,2	3	1	38,2	37,90,3	13	12	1 2,72.93,02,8	19,118,617,917,116,4			1604	1357	1120	903	727	14.1	15,2	16,2	16,7	17.017,117,817,8				2.9	1.9	1.6	1.1							
30-Jun-88	115	ABM	3 17,2	3	2	37.6		12		373	.13.12,5	19.018,217	.S 16,615,8	1547	1223	986	775	632	19.8	19,0	19,5	18,9															
30-Jun-88	115	ABM	4 20,3	3	1	33,0	33,0	15	15	2.32.52	.42.8	18,017,416,816	.115.1	1151	979	812	670	527	13.7	14,7	15.2	16, S	13,714	.715,216,5													
30-Jun-88	115	ABM	5 16.0	3	1	30,7	28.0	2.7	16	15	1 1,81,91	,01.7	17,417	s016.416	,115.6	979	856	739	681	591	11,3	11.9	10.2	10.7	9,610,510,311,3				1,7	1.4	0.1	0.7					
30-Jun-88	115	ABM	5 16,0	3	2	25.3		14		1.11.41	,72.1	15,815,515,114,513,6		643	586	518	444	364	7.9	9.1	10.4	12.0															
30-Jun-88	115	ABM	6 28,4	1	1	127.3	126.0	1.2	48	48	0 7.74.63	.14.9	28.728,227	.927.727,3	18985170851596615219140 53						8.9	7.3	6.2	6.3	8.0	6.6	6.0	5.9	0.9	0.7	0.3	0.5					
30-Jun-88	115	ABM	6 28.4	1	2124.8			48		6.13.74	.03.4	28.528,127,927	.627.4	18365168651596615004				14195	7.2	5.9	5.7	5.4															
30-Jun-88	118	ANC	1 25.2	2	1	8 7 . 1	8 3	. 5	3 . 6	3 1	3 2 2	- - - -	2 5 . 6	- - - -	9 5	S 9	- - - -		-	-	-	-															
30-Jun-88	118	ANC	1 25.2	2	2	8000		34		5.05,24	.22.6	25.024,523	.923.423.1	8080	7089	6109	5359	4915	11,0	11.8	11,5	10.5	11,011,811	.510.5													
30-Jun-88	118	ANC	2 25.9	2	1	93,4	92.70,7	32	32	0 4012.62,92.8	26s2	25.925	.725,425,1	1093210032		9473	8861	8283	7,3	6.0	5,9	5.9	7,3	6,0	5.9	5,9											
30-Jun-88	118	ANC	2 25.9	2	2	92,1		3	2	- - - -	2 6 ,	1 - - -	-	1 0 6	4	4 - - - -			-	-	-	-															
30-Jun-88	118	ANC	3 17,2	3	1	29.4	28.11,3	11	10	1 2022.52	.31.8	17.016	,515.714,914,3	889	750	611	500	424	14,3	15.8	16.2	15.6	15,916	.816.315.5			1.6	0.9	0.1	0.1							
30-Jun-88	118	ANC	3 17.2	3	2	26.8		10		2.52.41	.81.5	16.315,614	.814.113.5	727	591	478	404	350	1705	17.7	16.5	1504															
30-Jun-88	118	ANC	4 16,7	3	1	27.5	26.51.0	14	14	0 1.11.21	.11.3	160516	.215.915,515.1	768	704	637	581	518	7,4	7,9	7.9	8,3	6.9	7,4	7,6	7,9	0,5	0.5	0,3	0.4							
30-Jun-88	118	ANC	4 16,7	3	2	2S.6		14		0.91,01	,11,1	15.915	,715.415.014.6	659	611	561	509	461	6,4	6,8	7.3	7,6															
30-Jun-88	118	ANC	5 17.2	3	1	29.0	27.31.6	16	16	0 1.5	1.61,71.5	16.916	.616.115.515.0	863	768	676	586	514	9.8	10,3	10,9	11.0	9.110,211,011,3				0.6	0.1	0.1	0.4							
30-Jun-88	118	ANC	5 17,2	3	2	25,7		16		1.21.61	.11.7	16.015	.615.114.513.8	664	601	523	448	382	8.5	10.1	11.1	11.7															
05-Jul-88	124	CSI	1 18,4	3	2	31,7	31.7	23	23	0.80,70,70.6	17.617	.517,317.117.0		1052	993	944	896	856	4.8	4.6	4.5	4.3	4.8	4.6	4.5	4,3											
05-Jul-88	124	CSI	2 18,4	3	1	49.9	49.9	21	21	1,01.0	1.S 1.7	210221	.121.020,720.4	2942	2811	2683	2497	2294	3.8	3.9	4,6	5.2	3.8	3.9	4.6	5.2											
06-Jul-88	127	ABM	1 18.4	3	1	41.8	41,40.4	19	19	0 2. I	2.11,91.4	19.819	.519,018,618,3	1969	1751	1547	1375	1256	9,9	10.2	10,1	9.5	11,010	.810.810,2			1.1	0.6	0.7	0.7							
06-Jul-88	127	ABM	1 18.4	3	2	41.1		19		2.52,12	.21,6	19,719	.218.818.317,9	1895	1642	1446	1256	1127	12.1	11.4	11,6	11.0															
06-Jul-88	127	ABM	2 18.4	3	1	41,1	39.70,8	16	15	1 2,82.92,41,7	19,719,218	.618.017.6		1895	1613	1349	11S1	1022	13.6	14.3	14.0	13.0	14.414.715,214>4				0.8	0.3	1.1	1.3							
06-Jul-88	127	ABM	2 18.4	3	2	39,4		14		3.02,73	,12.2	19,418	,818,217.416,8	1721	1437	1207	965	818	15.2	15.0	16,3	15.7															
1O-JU1-88	137	CSI	1 19)7	3	1	57.1	57.1	25	25	3,33,72,72.8	22.321	,921,320,920,4		3969	3480	2968	2626	2282	11.1	12.3	11,7	11,7	11.1	12.311,711,7													
1O-JU1-88	143	ANC	1 18.4	3	1	38.1	36.81.3	19	18	1 1.72.01	.92.4	19.118,818	.317,917,3	1594	1437	1264	1112	937	8.8	9.8	10.1	11.2	8.0	8.7	9,710.5		0.8	1.1	0.5	0.7							
1O-JU1-88	143	ANC	1 18,4	3	2	35.5		18		1.31.42,11.8	18,518,318,017,417,0			1357	1247	1135	979	856	7.1	7.5	9,2	9,7															
17-Jul-88	148	CSI	1 20.3	4	1	54.6	54.50.0	22	’22	1 3.32,22	.54,9	21.921	.521,220.719,9	3596	3130	2837	2521	1959	11.7	10.0	10.0	12.8	11.0	10.1	9.5	10.9	0.7	0.1	0.5	1.9							
17-Jul-88	148	CSI	1 20,3	4	2	54. s		23		2,92,7162,2	21,921	,521,120,920,5		3581	3171	2811	2607	2341	10.3	10.2	8.9	9.0															
17-Jul-88	148	CSI	2 20.3	4	1	45.0	45.0	17	17	3.43.63	.52.7	20.419	.819.118.417,7	2329	1948	1585	1272	1059	15. !	16.2	17.0	16.6	15.116	.217.016.6													
17-Jul-88	148	CSI	3 26,6	3	1	88.1	88.1	42	42	3,51063	.13,5	2$.725	,525,325,024.7	9773	9029	8695	8060	7362	6.7	4.9	5.4	6.0	6.7	4.9	5.4	6.0											
17-Jul -88	148	CSI	4 15.4	4	1	26.9	25.41.5	14	14	1 1.61082	.01.9	16315,915,314,613.9		733	643	551	461	386	11.1	12.0	13.0	13.5	10.711,713	.013.7			0.3	0.3	0.1	0,2							

Appendix F. Number and width of otolith rings, and specific growth rates estimated from ring widths, of herring larvae,

Date	Sample no.	site	Fish Length no.	(mm)	Cohort	Otolith parameters sag. no.	radius (um) mean	SE	no. rings mean	SE	Back-calculated ring width (um) 1	2	3	4	Back-calculated fish length (mm) 0	1	2	3	4	Predicted fish weight (ug) from fish length 0	1	2	3	4	Specific growth rates (% dry weight d^-1) individual sagitta 1	2	3	4	mean of 2 sagittae 1	2	3	4	Standard error of mean specific growth rates 1	2	3	4
17-Jul-88	148	CSI	4	1s,4	4	2	23.9		15		1,41.62,02.0				15,415	.014,413.612,7				571	504	436	361	296	10.4	1104	12,9	13,8								
17-Jul-88	148	CSI	5	16. ?	4	1	30.3	29,80.5	17	16	1	1,51.41,42.5			17,316	.916,516.115,3				951	850	762	681	551	9.5	9.3	9,4	11,5	11.611	.011,713,1			2,1	1.7	2,3	1,6
17-Jul-88	148	CSI	5	16,7	4	2	29.3		16		2,11,72				,32.2 17.016	,516,015,214,4				883	750	654	537	440	13,7	12,7	14,0	14,7								
17-Jul-88	151	ABM	1	9.1	5	1	16,5				- · ·		·	1	2 . 5	- - - -				284-	-	-	-	-	-	-	-	-								
17-Jul-88	151	ABM	1	9.1	5	2	18,3	17.40,9	9	9	0,60,81		,11.3	13.313	,112,712,211,5					340	321	296	265	232	5.0	5.8	7.0	8.9	5.0	5.8	7.0	8.0				

Notes:

1. Sites: GOV=Government dock; NOS=North station; ANC=Auke Nu Cove; ABM=Auke Bay Monitor; CSI=between Coghlan and Spuhn Islands.
2. All measured lengths corrected for net capture: Lcorr=Lmeas*exp(0.91*exp(-0.26*Lmeas)).
3. All capture-corrected lengths then adjusted for preservation in alcohol: L=(Lcorr+0.1334)/1.044.
4. Ring number count begins at outer edge of otolith.
5. Dashes indicate missing or broken sagitta.
6. Specific growth rate = (ln(W2/W1)*100)/(t2-t1), where W2=dry weight (ug) at capture (t=t2), W1=dry weight (ug) before ring number n deposited (t=t1).
7. Dry weight calculated from length using weight-length equation for all cohorts combined; W=exp(4.6526+(8.5357/[1+exp(-2.9682(lnL-3.2176))))),
8. Length = -9.7090 + 7.9255ln(V-v), where V=radius of otolith at capture (um), and v=combined widths of o outer rings,
9. Specific growth rates were not calculated for cohorts 4 and 5 because ring deposition rates were not available for these 2 cohorts,
10. SE=standard error,

APPENDIX G
Gut contents of herring larvae and juveniles
collected in Auke Bay, 1988

Appendix G. Gut contents of herring larvae and juveniles collected in Auke Bag, 1988,

Length of gut (mm)	Fraction full	Type of prey: copepod nauplii DO, %	copepodites DO, %	adult copepods no. %	bivalve larva no. %	cladocera (podonidae) no. %	unid. arthropod no. %	unid. detritus no. %	total no.	Particle size (um): mean length	SD	mean width	SD	no.
10,6	0.0	0 0.0	0 0.0	0 0.0	00.0	0 0.0	0 0.0	0 0.0	0	-	-	-	-	-
10.9	0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0,0	0 0,0	0 0.0	0	-	-	-	-	-
12.1	0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0	-	-	-	-	-
12.5	0.0	0 0.0	0 0.0	0 0.0	00.0	0 0.0	0 0,9”	0 0.0	0	-	-	-	-	-
13.3	0.0	0 0.0	0 0,0	0 0.0	0 O.O	0 0.0	0 0.0	0 0.0	0	-	-	-	-	-
13.8	0.0	0 0.0	0 0.0	0 0.0	00,0	0 0.0	0 0.0	0 0,0	0	-	-	-	-	-
15.4	0.0	0 0.0	0 0s0	0 0.0	0 0.0	0 0,0	0 0.0	0 0.0	0	-	-	-	-	-
16.1	0,0	0 0.0	0 0.0	0 0.0	0 0.0	0 0,0	0 0,0	0 0.0	0	-	-	-	-	-
16,3	0.0	0 0.0	0 0.0	0 0.0	00,0	0 0.0	0 0.0	0 0,0	0	-	-	-	-	-
16,3	0.0	0 0.0	0 0.0	0 0.0	00.0	0 0.0	0 $,0	0 0.0	0	-	-	-	-	-
16.6	0,0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0,0	0	-	-	-	-	-
19.1	0.0	0 0.0	0 0.0	0 0.0	00,0	0 0.0	0 0.0	0 0.0	0	-	-	-	-	-
19,3	0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0,0	0 0.0	0 0.0	0	-	-	-	-	-
19.8	0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0	-	-	-	-	-
20.1	0.0	0 0.0	0 0.0	0 0.0	00,0	0 0.0	0 0,0	0 0.0	0	-	-	-	-	-
20.6	0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0,0	0 0.0	0	-	-	-	-	-
20.7	0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0	-	-	-	-	-
21,6	0.0	0 0.0	0 0.0	0 0.0	00,0	0 0.0	0 0,0	0 0.0	0	-	-	-	-	-
21,6	0.0	0 0.0	0 0,0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0	-	-	-	-	-
22.1	0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0,0	0 0.0	0	-	-	-	-	-
22.4	0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0	-	-	-	-	-
24,1	0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0	-	-	-	-	-
24.9	0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0,0	14100.0	14	2	1	7	-	14
27.7	%.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0,0	0 0,%	0 0.0	0	-	-	-	-	-
31.0	1.0	52079.8	132 20.2	0 0,0	00,0	0 0.0	0 0.0	0 0.0	652	240	50	114		1630
31.7	0.5	19083,3	38 16.7	0 0.0	00.0	0 0.0	0 0.0	0 0.0	228	223	46	105	1%	3%
31,8	0.3	4287.5	6 12,5	0 0.0	0 0.0	0 %,0	0 0.0	0 0.0	48	227	41	116		2130
32.6	1.0	32870.1	140 29.9	0 0.0	00,0	0 0.0	0 0,63	0 0.0	468	253	69	114		1830
33.2	0.5	29889.8	34 10.2	0 0.0	00.0	a 0,0	0 0.0	0 0.0	332	237	55	124		2030
33,5	0.0	0 0.0	2100.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	2	-	-	-	-	-
34,6	1.0	14438.3	222 59.0	8 2.1	20.5	0 0.0	0 %,0	0 0.0	376	319	160	128		4930
34.8	0.3	562.5	1 12,5	0 0,0	00.0	0 0,0	225,0	0 0.0	8	305	130	160	76	8
35.3	0.5	610,0	26 43.3	1016.7	23.3	8 13.3	813,3	0 0.0	60	443	176	171		6430
35.7	0.5	6060.0	36 36.0	2 2.0	00.0	0 0.0	2 2.0	0 0.0	100	331	210	144		7530
36,3	1.0	16847.2	176 49,4	12 3,4	0 0,0	0 0.0	0 0.0	0 0,0	356	292	120	116		3330
36.8	1.0	25858.4	178 40.3	0 0.0	0040	0 0.0	6 1.4	0 0.0	442	270	78	128		4030
37.5	1.0	40651.5	368 46.7	8 1.0	0 0.0	0 0.0	6 0.8	0 0.0	788	306	179	129		5230
38,7	0.5	14081,4	30 17.4	0 0.0	0 0.0	0 0.0	2 1.2	0 0.0	172	213	32	103		1430
39.0	1.0	35841,9	474 55.5	0 0.0	00,0	0 0.0	22 2.6	0 0.0	854	270	90	129		4230
39.5	1.0	8 6.3	76 60.3	3830,2	0 0.0	4 3.2	0 0.0	0 0.0	126	506	149	167		5930

Notes:

1. Gut fullness: 1=full, 0=empty.

APPENDIX H

Mean densities of copepod nauplii at 3 stations in Auke Bay, 1988, collected by APPRISE project personnel

Appendix H. Densities of copepod nauplii(l^-1) at 3 stations in Auke Bay, 1988.

Date	Nauplii length class (um)	Depth (m) 0 mean SD	5 mean SD	10 mean SD	15 mean SD	20 mean SD	30 mean SD	0-30 mean
05-Apr-88	<150	0.5 0.2	6.8 4.6	6,6 4.2	8.6 3.8	5.5 3.2	1.4 0.2	4.9
05-Apr-88	150-350	3.1 2,6	12,6 4.4	9.6 1.1	7.6 1.0	3.9 1.4	4.6 2s4	6.9
05-Apr-88	>350	0.3 0.5	0.4 0.3	0.1 0.1	0.4 0.3	0.3 0.2	0.7 0.6	0.4
		3.9	19.8	16,3	16,6	9.7	6,7	12.2
12-Apr-88	<150	1.0 1.0	5,6 1.7	8.0 1.4	6.3 2.0	5.1 1.1	3.0 1.2	4.8
12-Apr-88	150-350	8.6 4.6	13.2 6.7	11.7 2.2	11.9 4.0	8.8 2.2	6.6 5.5	10.1
12-Apr-88	>350	3.0 2.3	0.6 0.4	0.5 0.2	0.5 0.2	2.0 1.0	2.3 4.5	1.5
		12,6	19,4	20.2	18,7	15,9	11,9	16,5
19-Apr-88	<150	0.9 0.4	7.5 1.3	3.1 2.5	1.8 109	0.3 0.1	0.9 0.5	2.4
19-Apr-88	150-350	8.1 0.8	20.4 5.0	10.0 2.6	6.4 3.7	3,2 0.8	2.1 1.3	8.4
19-Apr-88	>350	2.0 1.8	1.2 1.0	0.8 1.1	0.6 0.6	0.9 1.0	0.3 0.1	1.0
		11.0	29.1	13,9	8.8	4.4	3.3	11.8
26-Apr-88	<150	4.6 3.1	4.9 1.9	6.9 2.1	2.5	2.0 0.6	0.4 0.5	0.2 3.3
26-Apr-88	150-350	12.1 3.0	13,6 3.4	18.1 6.3	10,0 8.3	1.9 0.4	1.3 1.0	9.5
26-Apr-88	>350	0.5 0.5	0.7 0.4	1.2 0.4	1.0 0.5	0.4 9s4	0.1 0.1	0.7
		17,2	19.2	26,2	13,5	2.9	1.9	13.5
03-Hay-88	<150	16.4 13,6	6.3 2.2	11,4 2.2	6.7 2.3	2,2 1.0	2.0 0.2	7,5
03-Hay-88	150-350	29,6 24,8	22,2 4.6	16.1 3.2	11,6 3.0	13.0 3.7	6,6 0,8	16.5
03-May-88	>350	2.4 3.4	3,8 3.3	1.6 1s8	3.4 2,8	3.8 3.0	1.5 0.5	2,8
		48.4	32.3	29.1	21.7	19,0	10.1	26,8
10-May-88	<150	29.3 8.2	14.0 4.0	8.1 5.2	4.8 4.3	4.6 3.5	2.4 1.0	10.5
10-Nay-88	150-350	27,1 9,8	22, % 2.7	15,2 9.2	10.9 2,1	5,2 2,1	2.6 0.7	13,8
10-May-88	>350	3.4 2.2	2.3 1.3	2,3 1,9	1.7 0.7	0.8 0.4	0.7 0.5	1.9
		59.8	38.3	25.6	17.4	10.6	5,7	26.2
17-Nay-88	<150	77,1 26,2	35.0 9.5	36.1 15.0	39.8 8.3	14,4 4,8	7,0 2,6	33,4
17-Hay-88	150-350	60.9 17.9	60.6 9.0	27,4 5.8	18,4 1,6	15.5 6.8	9.4 4.4	32.0
17-Nay-88	>350	0.0 -	0.7 0.3	0.6 0.6	0.5 0.5	0.4 0.3	1.0 0,7	0,5
		138.0	96.3	64.1	49,7	30,3	17,4	66.0
24-Hay-88	<150	24.2 12.4	40,2 7.2	40.2 22.1	32.4 17.9	11.3 7.3	4.6 2.1	25.5
24-Hay-88	150-350	42,5 27.5	53,8 17.8	39,6 6.2	38.6 6,2	13,7 3.3	3.9 1.4	32,0

Appendix H. Densities of copepodnauplii (l^A-l) at 3 stations in Auke Bay, 1988.

Date	Nauplii length class (Urn)	Depth (m) 0 mean	0 SD	5 mean	5 SD	10 mean	10 SD	15 mean	15 SD	20 mean	20 SD	30 mean	30 SD	0-30 mean
24-Hay-88	>350	0.6	0.8	0.0	-	0,8	0,3	2,4	2,5	0.4	0.1	0.6	0.9	0.8
		67,3		94,0		80.6		73,4		25.4		9.1		58,3
31-Hay-88	<150	59.0	14.0	43.9	6.7	42,3	6.7	28.4	2.1	15.8	2.1	2.8	1.0	32,0
31-Hay-89	150-350	46.4	6.9	42,2	8.4	38.4	5.1	15,8	4.4	6,0	3,4	4,3	2.2	25,5
31-Hay-88	>350	2.1	1.8	0.0	-	0.0	-	0.0	-	0.2	0.2	0.2	0.2	0.4
		107,5		86,1		80,7		44.2		22,0		7.3		58.0
07-Jun-88	<150	32.3	14.1	33,2	10,6	24.6	7.8	15,4	1.9	6.3	1,8	3,4	1.7	19,2
07-Jun-88	150-350	32,3	14,1	33,2	10.6	24,6	7,8	15.4	1,9	6,3	1.8	3,4	1,7	19,2
07-Jun-88	>350	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.2	0.2	0.0
		64.6		66,4		49.2		30.8		12,6		7.0		38.4
14-Jun-88	<150	37,5	8.5	31,6	7.2	27,4	6,4	21,3	8,5	9.0	2.8	3,2	1.4	21.7
14-Jun-88	15%-350	105.2	36.5	46,2	7,2	30.4	3,3	15.1	5.4	7.7	4,8	5.0	2.5	34,9
14-Jun-88	>350	0.7	1.2	0.0	-	0.0	-	0.0	-	0,0	-	0.0	-	0.1
		143,4		77,8		57.8		36.4		16.7		8.2		56.7
21-Jun-88	<150	14.0	2.6	18,1	3.6	41,9	14,5	32,2	10.3	22,3	2.5	7,5	2,9	22,7
21-Jun-88	150-350	52,9	9.4	39,1	8,0	63,4	10.4	39.3	18,9	18,8	7,5	7,9	3,3	36.9
21-Jun-88	>350	0.6	0.4	0,8	1.0	1.4	0.5	0.0	-	0,0	-	0.2	0.2	0.5
		67,5		58.0	*****			71.5		41.1		15,6		60,1

Notes:

1. Data collected by A. J. Paul and K. O. Coyle (Inst., Mar. Sci., Univ. Alaska-Fairbanks) by passing contents of 30 1 bottle through 24 urn mesh.
2. SD=standard deviation.
3. Stations: ABM, North, and outside Cohglan Island.

APPENDIX I

Densities of zooplankton collected in Auke Bay
by Envirocon Pacific Limited

Note: 1. National Oceanographic Data Center taxonomic code taken from Anonymous (1984).

APPENDIX I

Densities of zooplankton collected in Auke Bay
by Envirocon Pacific Limited

Note: 1. National Oceanographic Data Center taxonomic code taken from Anonymous (1984).

Appendix I. Density of zooplankton captured in Auke Bay in 1988.

SAMPLE NUMBER						5	8	9	15	18	21	27	33	43	44
Date						Hay 21	Kay 21	May 21	Nay 24	May 24	May 24	May 27	Hay 27	June 1	June 1
Site						ASH	CSI	WV	CSI	ABM	NOS	CSI	Gov	CSI	ASK
Mesh (um)						165	165	165	165	165	165	16S	lb-5	16S	165
Volume filtered (m^3)						25,8490	19.5729	35,9850	34,4806	26,2441	32,7338	26,7152	10,8350	113.2738	95,9195
Fraction enumerated						256	512	512	512	512	512	512	1024	1024	2048
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (MM) KIN	LENGTH (MM) MAX	WIDTH (MM)	TOTAL DENSITY (M^-3)	TOTAL DENSITY NO.	TOTAL DENSITY (M^-3)	TOTAL DENSITY NO.	TOTAL DENSITY (M^-3)	TOTAL DENSITY NO.	TOTAL DENSITY (M^-3)	TOTAL DENSITY NO.	TOTAL DENSITY (M^-3)	TOTAL DENSITY NO.	TOTAL DENSITY (M^-3)	TOTAL DENSITY NO.	TOTAL DENSITY (M^-3)	TOTAL DENSITY NO.	TOTAL DENSITY (M^-3)	TOTAL DENSITY NO.
Clupea harengus		874701020101	8.00	20,00	1,00	0	0.0	0	0,43	0	0,0	0	0.0	0	0.0	1	15,6	0	0.0	0	0.0
Thaleichthys pacificus		8755030501	5.00	20.00	1.00	0	0.0	0	0.0	0	0.O	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0
Ammodytes hexapterus		8845010101	5,00	20,00	1.00	0	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	1	19.2	0	0.0
Lumpenella longirostris		8842120801	5.00	10.00	1.50	0	0.0	0	0.0	0	0.0	0	0,0	0	0.0	0	0.0	1	19.2	0	0.0
Liparis spp.		88310908	3,00	3.00	0.50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.O	0	0.0	0	0.0
Anarichthys ocellatus		884202020110	0,00	100,00	2,00	0	0.0	0	0.0	0	0.0	0	0,0	0	0.0	0	0,0	0	0.0	0	0.0
Pleuronectidae, unid.		885704	10.00	10.00	5.00	0	0.0	0	0.0	0	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0
Fish eggs		8735	1.00	1,00	1.00	4	39.6	1	26.2	3	42,7	1	14.8	0	0.0	0	0.0	0	0.0	3	283.5
Fish eggs		8735	0,25	0,25	0.25	0	0,0	11	287.7	0	0.0	9	133.6	2	39,0	2	31,3	34	651.6	8	756.1
COPEPODA																					
Centropages abdominalis		6118170101	1.20	1.20	0.20	S1	802.2	11	287,7	12	170,7	59	876,1	32	624,3	16	250.3	5	95,8	28	2646.2
Centropages abdominalis	cop, 4	6118170101	0,40	0.40	0.80	273	2703.7	27	706,3	43	611,8	41	608.8	35	682.8	39	610.0	20	383,3	107	10112.4
Centropages abdominalis	cop.5	6118170101	0.50	0.50	1.00	91	901.2	3	78,5	24	341,5	32	475,2	64	1248.6	62	969.8	0	0.0	89	8411,3
Scolecithricella minor		6118100504	1.00	1.00	0,30	149	1475,6	145	3793,0	41	583,4	52	772,1	13	253.6	9	140.8	12	230,0	16	1512.1
Scolecithricella minor	cop. 4	6118100504	0.70	0,70	0.20	204	2020.3	113	2955.9	64	910.6	104	1S44.3	16	312.1	26	496.7	56	1073.2	26	2457.2
Spinocalanus brevicaudatus		6118060306	2.00	2.00	0,30	1	9.9	1	26.2	1	14,2	2	29,7	0	0.0	1	15,6	1	19,2	5	472,
Microcalanus pygmaeus		6118050402	0.60	0,60	0.20	42	416.0	3	78.5	14	199.2	9	133.6	7	136.6	9	140.8	9	172.5	6	567,1
Neocalanus plumchrus		6118010206	1,70	1.70	0.40	3	29,7	0		0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Pseudocalanus minutus		6118050502	1,10	1,10	0,20	30	297,1	36	941.7	4	56,9	8	118.8	0	0.0	1	15.6	0	0.0	4	378,0
Pseudocalanus minutus	cop, 4	6118050502	0,90	0,90	0,20	17	168.4	12	313.9	11	156, S	29	430.6	16	312.1	69	1079.3	26	498,3	1	94.5
Calanus pacificus		6118010205	2.50	2.50	0.50	3	29.7	10	261.6	0	0.0	16	237.6	1	19,5	2	31.3	2	38.3	0	0.0
Calanus pacificus	cop! 5	6118010205	2.00	2.00	0,30	30	297.1	40	1046.3	7	99,6	15	222.7	2	39.0	4	62,6	2	38.3	2	189.0
Metridia pacifica		6118160214	2,00	2,00	0.80	1	9.9	0	0.0	0	0,0	0	0.0	0	0,0		0		0.0	0	0.0
Metridia pacifica	cop. 4	6118160214	1.60	1,60	0,40	16	158,5	6	157.0	30	426,8	25	371,2	17	331.7	13	203.3	1	19,2	15	1417.6
Acartia spp.		611829	1.00	1.00	0.10	35	346.6	6	157.0	13	185.0	4	59.4	14	273,1	164	2565.2	15	287.5	185	17484,1
Eucalanus bungii		6118030102		1.50	2.50	0.30	1	9.9	2	52.3	0	0,0	1	14,8	0	0.0	0	0.0	0	0.0	0
Eucalanus bungii	COp, 2-5	6118030102	1.50	1,60	0.30	0	0.0	0	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	2	189.0
Calanus marshallae		6118010204		3.50	3.50	1.00	0	0.0	0	0.0	0	0,0	1	14.8	0	0.0	0	0.0	0	0.0	0
Scaphocalanus brevicornis		6118100402	1,00	1,00	0.20	2	19,8	2		52,3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	17
Tortanus discaudatus		6118300101	1.50	1,50	0.30	0	0.0	1	26,2	1	14,2	0	0.0	0	0.0	0	0	0.0	0	0.0	0
Unid. copepodites		6118	0.10	0.70	0,10	1196	11844.8	450	11771.4	677	9632,5	274	4068.6	187	3648,2	4S6	7132.6	297	5692.0	597	56421,6
Copepod nauplii		6118	0.10	0,10	0.10	149	1475,6	61	1595,7	80	1138.3	88	1306.7	95	1853,4	125	1955,2	152	2913.1	83	7844.2
Oithona similis		6120090103	0.50	0,50	0,20	46	455.6	30	784.8	70	996.0	30	445.5	22	429.2	53	829.0	13	249.1	14	1323.1
Oncaea borealis		6120010301	0.50	0,50	0,20	0	0.0	0	0.0	0	0,0	0	0,0	0	0.0	0	0.0	0	0.0	1	94.5
Oncaea borealis		6120010301		0.50	0.50	0.10	0	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0,0	0	0.0	0	0.0
Monstrilla spp.		612202	1.00	1.00	0.10	0	0.0	0	0.0	0	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0
Harpacticoida		6119	0.50	0,50	0,10	0	0.0	0	0.0	0	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0
Harpacticus spp.		611910	0.50	0.50	0,10	0	0.0	0	0.0	0	0,0	0	0.0	0	0.0	2	31,3	1	19.2	0	0.0
TUNICATES																					

SPECIES	33 NO.	33 (M^-3)	43 NO.	43 (M^-3)	44 NO.	44 (M^-3)
Clupea harengus	0	0.0	0	0.0	0	0
Thaleichthys pacificus	0	0.0	0	0.0	0	0
Ammodytes hexapterus	0	0.0	0	0.0	0	0
Lumpenella longirostris	0	0.0	0	0.0	0	0
Liparis spp.	0	0.0	1	21.4	0	0
Anarichthys ocellatus	0	0.0	0	0.0	0	0
Pleuronectidae, unid.	0	0.0	0	0.0	0	0
Fish eggs	2	18.1	0	0.0	1	
Fish eggs	31	280.2	3	64.1	2	
COPEPODA						
Centropages abdominalis	22	198.9	51	1088.9	59	
Centropages abdominalis	31	280.2	34	725.9	54	
Centropages abdominalis	41	370.6	112	2391.3	124	
Scolecithricella minor	63	569.5	29	619.2	84	
Scolecithricella minor	73	659.9	36	768.6	67	
Spinocalanus brevicaudatus	5	9	81.4	6	128.1	16
Microcalanus pygmaeus	14	126.6	1	21.4	13	
Neocalanus plumchrus	0	0.0	0	0.0	0	
Pseudocalanus minutus	17	153.7	16	341.6	33	
Pseudocalanus minutus	5	43,2	7	149.5	9	
Calanus pacificus	16	144.6	3	64.1	4	
Calanus pacificus	14	126.6	8	170.8	10	
Metridia pacifica	1	9.0	0	0.0	2	
Metridia pacifica	5	45,2	2	42.7	8	
Acartia spp.	142	1283.7	52	1323.8	70	
Eucalanus bungii	0	0.0	0	0.0	1	
Eucalanus bungii	2	18.1	2	42.7	1	
Calanus marshallae	1	9.0	0	0.0	0	
Scaphocalanus brevicornis	18	162.7	32	683.2	61	
Tortanus discaudatus	0	0.0	0	0.0	0	
Unid. copepodites	476	4303,1	318	6789.7	481	
Copepod nauplii	123	1111.9	38	811.3	54	
Oithona similis	63	569.5	53	1345.1	72	
Oncaea borealis	3	27.1	0	0.0	6	
Oncaea borealis	0	0.0	0	0.0	0	
Monstrilla spp.	0	0.0	0	0.0	0	
Harpacticoida	0	0.0	0	0.0	2	
Harpacticus spp.	1	27.1	1	21.4	7	

Appendix I. Density of zooplankton captured in Auke Bay in 1988.

SAMPLE NUMBER						5	8	9	15	18	21	21	33	43	44
Date						Hay 21	Hag 21	Hay 21	Hay 24	Hay 24	Kay 24	Nay 27	Hay 27	June 1	June 1
Site						ABM	CSI	GOV	CSI	ANN	ties	CSI	Gov	CSI	ABM
Nesh (urn)						165	16S	165	16s	165	165	165	165	165	16S
Volume filtered {m^3}						25,8490	19,5729	35.9850	34.4806	26,2441	32s733%	26,7152	10.8350	113.2738	95.9195
Fraction enumerated						256	512	512	512	512	512	512	1024	1024	2048
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (MN) MIN	LENGTH (MN) MAX	WIDTH (MM)	NO,	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO,	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO,	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY [H^A -3)	NO,	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO.
Oikopleura doica		8413010101	1.50	3.00	0.50	135	1337,0	66	1726.5	37	526,4	67	994.9	19	370.7	27	422.3	35	670.8	31	2929,8	39	352,6	29	619.2	13
CNIDARIA																										
Medusae, damaged		3730				0	0,0	1	26.2	1	14,2	3	44,5	1	19,5	1	15.6	0	0.0	1	94,5	0	0.0	1	21.4	0
Hybocodon prolifer		3703030401	3000	3.00	3.00	0	0.0	0	0.0	0	0.0	1	14,8	0	0.0	0	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0
Halitholus spp.?		37031206	3.00	3.00	3.00	0	0.0	1	26.2	0	0,0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1
Mitrocomella sinuosa		3704080606	12.00	12.00	12.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	15.6	0	0.0	0	0.0	0	0.0	0	0.0	0
Tiaropsis multicirrata		3704040301	10.00	10.00	10.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	94,5	0	0.0	0	0.0	0	0.0	0
Sarsia spp.		37030609	8,00	8.00	8.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Rathkea octopunctata		3703190203	3.00	3.00	3.00	0	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Aequoria victoria		3704140314				0	0.0	0	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	Q	0.0	0
Cyanea spp.?		37340201				0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	9.0	0	0.0	0
Polyorchis spp.		370313	15.00	15.00	15.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Phialidium spp.		37040104	14.00	14.00	14.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Staurophora mertensi		3704090601100)	00100,00		100.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Eperetmus typus		3705010101	15.00	15.00	15.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
CIRRIPEDIA																										
Barnacle cypris		6130	1.00	1.00	0,50	32	316,9	23	601.6	25	355.7	20	297.0	50	915,5	41	641,3	3	57.5	7	661,6	14	126,6	2	42.7	12
Barnacle nauplii		6130	0.20	1,00	0,30	31	307.0	84	2197,3	138	1963.5	167	2479.8	160	3121,5	183	2862,4	91	1744,0	11911246.5		292	2639,7	51	1088.9	44
DECAPODA																										
Pandalus spp.		617918	5.00	5,00	1.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Shrimp zoea		617	1.00	4.00	0.40	931	9220.3	145	3793.0	579	8238.1	666	9889.4	96	1872.9	121	1892,6	56	1073.2	29	2740.7	44	397,8	34	725.9	32
Crab zoea		6184	3,00	3.00	1.50	9	89,1	1	26,2	2	28.5	6	89,1	0	0.0	3	46,9	2	38.3	1	94.5	1	9.0	8	170.8	2
MOLLUSCA																										
Clam veliger		55	0.30	0,30	0.20	75	742.8	12	313.9	44	626.0	47	697,9	38	741.3	54	844,7	55	1054.1	96	9072,8	339	3064.6	128	2733.0	165
Snail veliger		5180	0,60	0.60	0.50	5	49,5	12	313,9	26	369.9	13	193.0	9	175,6	6	93,9	4	76.7	8	756.1	21	189.8	5	128.1	9
CLADOCERA																										
Podon polyphemoides		6109050203	1,00	1.00	0.70	4	39.6	2	52.3	1	14,2	0	0.0	2	39,0	11	172.1	0	0.0	3	283.5	3	27.1	1	21,4	2
Evadne nordnanni		61090 S0101	1,00	1.00	0.50	11	108,9	2	52.3	20	284.6	0	0.0	5	97,5	2	31,3	0	0.0	10	94s,1	1	9.0	7	149.5	4
POLYCHAETA																										
Polychaeta unid.		5001	0.50	1.50	0,50	15	148.6	2	52.3	7	99,6	3	44.5	5	97.5	12	187,7	3	57.5	1	94>5	10	90.4	5	106.8	1
Spionidae		500143	0.50	1,50	0.50	9	89,1	3	78,5	15	213,4	4	59.4	2	39,0	3	46.9	1	38.3	0	0.0	2	18.1	2	42.7	1
Nereidae		500124	0.50	1.50	0.50	3	29,7	1	26,2	2	28,5	3	44.5	1	19.5	0	0.0	0	0.0	0	0.0	1	9.0	0	0.0	1
Trochophores		50	0,20	0.20	0.20	13	128,7	15	392,4	18	256.1	19	282.1	22	419.2	22	344.1	3	57.5	4	378.0	20	180.8	8	170.8	6
Archiannelida		5002	2,00	2,00	0.20	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
INSECTA																										
Chironomidae		650508	1.50	1.50	0.20	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
ISOPODA																										
Isopoda unid.		6158	1.00	1.00	0.20	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
AMPHIPODA																										

Appendix I. Density of zooplankton captured in Auke Bay in 1988,

SAMPLE NUMBER						5	8	9	15	18	21	27	33	43	44
Date						May 21	Hag 21	Kay 21	May 24	Nay 24	Nay 24	May 27	May 27	June 1	June 1
Site						ABM	CSI	GOV	CSI	ABM	NOS	CSI	GOV	CSI	ASK
Mesh (urn)						165	16S	165	165	165	165	165	165	165	165
Volume filtered (m^3)						25.8490	19,5729	35,9858	34,4806	26,2441	32.7330	26,7152	10.8350	113,2738	95.9195
Fraction enumerated						256	512	512	$12	512	$12	512	1024	1024	2048
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (NM) MIN	LENGTH (NM) MAX	WIDTH (MM)	NO.	TOTAL DENSITY (M^-3)	NO,	TOTAL DENSITY (H^A -3)	NO,	TOTAL DENSITY (M^-3)	NO,	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO,	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO,	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY [H^A -3]	NO.	TOTAL DENSITY (M^-3)	NO,
Parathemisto spp.		61?00110	2.S0	2.50	0.60	3	29.7	1	26.2	0	0,0	0	0,0	0	0.0	0	0.0	0	0,0	0	0,0	0	0.0	0	0.0	0
NEMERTEA																										
Nemertea		43	10.00	10.00	0,50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
CHAETOGNATHA																										
Sagitta elegans		8300000303	3,00	6.00	0.20	1	9.9	0	0.0	3	42,7	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	21.4	1
ECTOPROCTA																										
Bryozoa cyphonautes		78	1,00	1.00	1.00	0	0.0	2	52.3	1	14.2	1	14,8	2	39.0	0	0.0	0	0.0	1	94,	s	0	0.0	0	0.0	0
ECHINODERMATA																										
Echinopluteus		81	0,50	0,50	0,50	0	0,0	0	0.0	0	0,0	3	44.5	0	0.0	4	62.6	2	38.3	1	94,	s	1	9.0	0	0.0	0
Asteroid larvae		8104	0.50	0.S0	0.50	2	19.8	1	26s2	1	14.2	2	29,7	1	19.5	3	46,9	0	0.0	0	0.0	4	36.2	1	21.4	0
OSTRACODA																										
Ostracoda		6110	0.30	0.30	0.20	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0

Appendix I. Density of zooplankton captured in Auke Bay in 1988.

SAMPLE NUMBER							56	57	63	66	69	76	79	82	88	91	94
Date							June 5	June 5	June 10	June 10	June 10	June 15	June 15	June 15	June 20	June 20	June 20
Site							CSI	ABM	CSI	ABM	NOS	CSI	ABM	GOV	CSI	ABM	ANC
Mesh (um)							165	165	165	165	165	165	165	165	165	165	165
Volume filtered (m^3)							70.8911	110.9031	86,9688	119,0332	62,6850	72.1372	75,4652	73,1705	9.5970	110.7360	106,5722
Fraction enumerated							512	1024	256	512	512	512	512	1024	1024	1024	1024
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (MM) MIN	MAX	WIDTH (MM)	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO.
Clupea harengus		874701 O2W31	8.00	20,00	1,00	0,0	0	0,0	0	0.0	0	0.0	0	0.0	1	6,8	0
Thaleichthys pacificus		8755030S01	5.00	20.00	1.00	0.0	0	0,0	0	0.0	0	0.0	1	8.2	0	0.0	0
Ammodytes hexapterus		8845010101	5,00	20.00	1,00	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0	0,0	0
Lumpenella longirostris		8842120801	5,00	10.00	1,50	0,0	0	0.0	0	0.0	1	4,3	0	0.0	0	0.0	0
Liparis spp.		88310908	3.00	3.00	0.50	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Anarichthys ocellatus		8842020201	100,00	100,00	2,00	0.0	1	9,2	0	0.0	0	0,0	0	0.0	0	0.0	0
Pleuronectidae, unid.		885704	10,00	10,00	5,00	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0,0	0
Fish eggs		8735	1.00	1,00	1.00	7.2	0	0,0	0	0.0	4	17.2	3	24,5	1	7.1	0
Fish eggs		8735	0.25	0.25	0,25	14,4	3	27.7	1	2.9	8	34.4	26	212s4	34	241.3	3
COPEPODA																	
Centropages abdominalis		6118170101	1,20	1.20	0.20	426.1	26	240,1	40	117.7	91	391.4	44	359,4	39	276,8	51
Centropages abdominalis	cop, 4	6118170101	0.40	0.40	0,80	390.0	64	590.9	50	147.2	210	903,3	68	555.4	43	305.2	254
Centropages abdominalis	Cop. 5	6118170101	0.50	0.50	1.00	895,6	67	618.6	118	34703	25	107.5	72	588.1	54	383,3	76
Scolecithricella minor		6118100504	1.00	1.00	0,30	606.7	41	378,6	44	129.5	38	163.5	46	375,7	96	681,4	36
Scolecithricella minor	cop, 4	611810 0504	0.70	0.70	0.20	483.9	47	434,0	13	38.3	168	722.6	80	653,4	102	724.0	113
Spinocalanus brevicaudatus		6118060306	2.00	2.00	0,30	115.6	9	83.1	26	76. S	6	25,8	0	0.0	6	42.6	4
Microcalanus pygmaeus		6118050402	0,60	0.60	0.20	93,9	10	92.3	36	106,0	35	150.5	16	130.7	17	120.7	7
Neocalanus plumchrus		6118010206	1,70	1,70	0.40	0.0	0	0.0	1	2.9	0	0.0	0	0.0	0	0.0	0
Pseudocalanus minutus		6118050502	1,10	1,10	0.20	238.3	20	184.7	8	23,5	20	86,0	16	130.7	48	340.7	16
Pseudocalanus minutus	cop, 4	6118050502	0.90	0.90	0.20	65.0	1	9.2	1	2.9	22	94.6	30	245.0	10	71,0	18
Calanus pacificus		6118010205	2<50	2,50	0,50	28,9	2	18.5	2	5.9	0	0.0	0	0.0	1	7.1	2
Calanus pacificus	Cop. 5	611801020$	2.00	2,00	0.30	72.2	9	83,1	0	0.0	11	47,3	0	0$0	3	21,3	1
Metridia pacifica		6118160214	2.00	2.00	0.80	14.4	3	27.7	0	0.0	1	4,3	1	8.2	0	0.0	0
Metridia pacifica	cop, 4	6118160214	1,60	1,60	0,40	57.8	6	55.4	0	0.0	21	90,3	14	114.3	5	35,5	15
Acartia spp.		611829	1.00	1.00	0.10	505.6	33	304,7	0	0.0	50	215.1	47	383,9	37	262,6	46
Eucalanus bungii		6118030102	1,50	2.50	0.30	7.2	0	0.0	0	0.0	0	0.0	0	0.0	1	7.1	0
Eucalanus bungii	cop. 2-5	6118030102	1.50	1,60	0.30	7.2	2	18,5	0	0.0	0	0.0	0	0.0	0	0.0	0
Calanus marshallae		6118010204	3.50	3.50	1,00	0.0	0	0.0	0	0.0	0	0,0	0	0.0	0	0.0	0
Scaphocalanus brevicornis		6118100402	1.00	1,00	0.20	440.6	23	212.4	0	0.0	1	4,3	3	24.5	5	35. s	2
Tortanus discaudatus		6118300101	1.50	1.50	0,30	0.0	0	0.0	0	0,0	1	4,3	0	0.0	0	0.0	0
Unid. copepodites		6118	0.10	0,70	0.10	3473.9	302	2788.5	40	117.7	482	2073.2	0	0.0	48?	3456.5	853
Copepod nauplii		6118	0.10	0.10	0.10	390,0	29	267.8	387	1139.2	51	219.4	0	0.0	20	142.0	23
Oithona similis		6120090103	0.50	0.50	0.20	520.0	55	507,8	8	23.5	22	94,6	10	81.7	54	383.3	38
Oncaea borealis		6120010301	0.50	0.50	0.20	43.3	1	9.2	0	0,0	0	0,0	1	8.2	4	28,4	1
Oncaea borealis		6120019301	0.50	0.50	0.10	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Monstrilla spp.		612202	1.00	1,00	0.10	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Harpacticoida		6119	0.50	0.50	0.10	14.4	1	9,2	0	0.0	0	0.0	3	24.5	0	0.0	2
Harpacticus spp.		611910	0.50	0.50	0.10	50.6	4	36,9	0	0.0	4	17,2	[4	114.3	13	92.3	7
TUNICATES																	

SPECIES	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)
Clupea harengus	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Thaleichthys pacificus	0	0.0	0	0.0	1	8.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Ammodytes hexapterus	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Lumpenella longirostris	0	0.0	1	4,3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Liparis spp.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Anarichthys ocellatus	0	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Pleuronectidae, unid.	0	0.0	0	0.0	0	0.0	0	0.0	0	0,0	0	0.0	0	0.0	1	9.6
Fish eggs	0	0.0	4	17.2	3	24,5	1	7.1	0	0.0	0	0.0	0	0.0	1	9.6
Fish eggs	1	2.9	8	34.4	26	212s4	34	241.3	3	20.4	0	0.0	2	213,4	1	9.2
COPEPODA																
Centropages abdominalis	40	117.7	91	391.4	44	359,4	39	276,8	51	346.0	20	279.9	27	2880.9	80	739.8
Centropages abdominalis	50	147.2	210	903,3	68	555.4	43	305.2	254	1723,3	77	1077.6	48	5121,6	86	795.3
Centropages abdominalis	118	34703	25	107.5	72	588.1	54	383,3	76	515.6	71	993.6	93	9923.1	197	1821.7
Scolecithricella minor	44	129.5	38	163.5	46	375,7	96	681,4	36	244,2	18	251,9	30	3201.0	54	499.3
Scolecithricella minor	13	38.3	168	722.6	80	653,4	102	724.0	113	766,7	48	671,7	35	3734.5	46	425.4
Spinocalanus brevicaudatus	26	76. S	6	25,8	0	0.0	6	42.6	4	27.1	6	84.0	19	2027.3	19	175.7
Microcalanus pygmaeus	36	106,0	35	150.5	16	130.7	17	120.7	7	47,5	4	56.0	2	213,4	9	83.2
Neocalanus plumchrus	1	2.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Pseudocalanus minutus	8	23,5	20	86,0	16	130.7	48	340.7	16	108.6	3	42.0	9	960.3	12	111.0
Pseudocalanus minutus	1	2.9	22	94.6	30	245.0	10	71,0	18	122.1	4	56.0	1	106,7	25	231.2
Calanus pacificus	2	5.9	0	0.0	0	0.0	1	7.1	2	13.6	0	0.0	2	213.4	1	9.2
Calanus pacificus	0	0.0	11	47,3	0	0$0	3	21,3	1	6.8	0	0.0	1	106.7	1	9.2
Metridia pacifica	0	0.0	1	4,3	1	8.2	0	0.0	0	0.O	0	0.0	6	640.2	2	18.5
Metridia pacifica	0	0.0	21	90,3	14	114.3	5	35,5	15	101.8	14	195,9	0	0.0	4	37.0
Acartia spp.	0	0.0	50	215.1	47	383,9	37	262,6	46	312.1	259	3624.6	47	5014.9	150	1387.1
Eucalanus bungii	0	0.0	0	0.0	0	0.0	1	7.1	0	0.0	0	0.0	0	0.0	1	9.2
Eucalanus bungii	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Calanus marshallae	0	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Scaphocalanus brevicornis	0	0.0	1	4,3	3	24.5	5	35. s	2	13,6	22	307.9	16	1707.2	31	286.7
Tortanus discaudatus	0	0,0	1	4,3	0	0.0	0	0.0	0	0,0	0	0.0	0	0.0	0	0.0
Unid. copepodites	40	117.7	482	2073.2	0	0.0	48?	3456.5	853	S787,3	299	4184.4	23	5074,5	644	5955.2
Copepod nauplii	387	1139.2	51	219.4	0	0.0	20	142.0	23	156,0	9	126.0	14	1493.8	27	249.7
Oithona similis	8	23.5	22	94,6	10	81.7	54	383.3	38	257.8	32	447.8	74	7895.8	99	915.5
Oncaea borealis	0	0,0	0	0,0	1	8.2	4	28,4	1	6.8	0	0.0	2	213.4	4	37.0
Oncaea borealis	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Monstrilla spp.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Harpacticoida	0	0.0	0	0.0	3	24.5	0	0.0	2	13.6	1	14.0	2	213.4	0	0.0
Harpacticus spp.	0	0.0	4	17,2	[4	114.3	13	92.3	7	47.5	11	153.9	7	746,9	5	46.2

Appendix I. Density of zooplankton captured in Auke Bay in 1988.

SAMPLE NUMBER						56		57		63		66		69		76		79		82		88		91		94
Date						June 5		June 5		June 10		June 10		June 10		June 15		June 15		June 15		June 20		June 20		June 20
Site						CSI		ABM		CSI		ABM		NOS		CSI		ABM		GOV		CSI		ABM		ANC
Mesh (um)						165		165		165		165		165		165		165		165		165		165		165
Volume filtered (m^3)						70.8911		110.9031		86.9688		119.0332		62.6850		72.1372		75.4652		73.1705		9.5970		110.7360		106.5722
Fraction enumerated						512		1024		256		512		512		512		512		1024		1024		1024		1024
			LENGTH (MM)																							
SPECIES	STAGE	TAXONOMIC CODE	MIN	MAX	WIDTH (MM)	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^-3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)
Oikopleura doica		8413010101	1.50	3.00	0.50	93.9	14	129.3	166	488.6	68	292.	84	686.1	105	745.2	126	854.9	59	825.7	77	8215.9	72	665.8	93	893.6
CNIDARIA																										
Medusae, damaged		3730				0.0	0	0.0	1	2.9	1	4.3	1	8.2	0	0.0	0	0.0	0	0.0	0	0.0	1	9.2	4	38.4
Hybocodon prolifer		3703030401	3.00	3.00	3.00	0.0	0	0.0	0	0.0	0	0.0	1	8.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Halitholus spp.?		37031206	3.00	3.00	3.00	7.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Mitrocomella sinuosa		3704080606	12.00	12.00	12.00	0.0	0	0.0	0	0.0	1	4.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tiaropsis multicirrata		3704040301	10.00	10.00	10.00	0.0	0	0.0	0	0.0	0	0.0	1	8.2	0	0.0	0	0.0	0	0.0	0	0.0	1	9.2	1	9.6
Sarsia spp.		37030609	8.00	8.00	8.00	0.0	0	0.0	0	0.0	0	0.0	1	8.2	0	0.0	1	6.8	1	14.0	0	0.0	1	9.2	0	0.0
Rathkea octopunctata		3703190203	3.00	3.00	3.00	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	6.8	0	0.0	0	0.0	0	0.0	0	0.0
Aequoria victoria		3704140314				0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	14.0	0	0.0	1	9.2	0	0.0
Cyanea spp.?		37340201				0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	9.6
Polyorchis spp.		370313	15.00	15.00	15.00	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Phialidium spp.		37040104	14.00	14.00	14.00	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Staurophora mertensi		3704090601	100.00	100.00	100.00	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Eperetmus typus		3705010101	15.00	15.00	15.00	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
CIRRIPEDIA																										
Barnacle cypris		6130	1.00	1.00	0.50	86.7	4	36.9	12	35.3	26	111.8	49	400.2	21	149.0	25	169.6	10	139.9	9	960.3	15	138.7	14	134.5
Barnacle nauplii		6130	0.20	1.00	0.30	317.8	19	175.4	258	759.4	158	679.6	79	645.3	168	1192.4	112	759.9	63	881.7	32	3414.4	72	665.8	81	778.3
DECAPODA																										
Pandalus spp.		617918	5.00	5.00	1.00	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	9.2	0	0.0
Shrimp zoea		617	1.00	4.00	0.40	231.1	25	230.8	22	64.8	32	137.6	11	89.8	16	113.6	22	149.3	8	112.0	10	1067.0	17	157.2	7	67.3
Crab zoea		6184	3.00	3.00	1.50	14.4	4	36.9	1	2.9	2	8.6	2	16.3	0	0.0	8	54.3	8	112.0	1	106.7	3	27.7	3	28.8
MOLLUSCA																										
Clam veliger		55	0.30	0.30	0.20	1191.7	96	886.4	75	220.8	234	1006.5	166	1355.9	264	1873.8	288	1954.0	104	1455.4	264	28168.8	270	2496.7	260	2498.2
Snail veliger		5180	0.60	0.60	0.50	65.0	13	120.0	5	14.7	3	12.9	8	65.3	28	198.7	18	122.1	8	112.0	4	426.8	4	37.0	13	124.9
CLADOCERA																										
Podon polyphenoides		6109050203	1.00	1.00	0.70	14.4	0	0.0	18	53.0	4	17.2	2	16.3	5	35.5	15	101.8	43	601.8	7	746.9	5	55.5	31	297.9
Evadne nordmanni		6109050101	1.00	1.00	0.50	28.9	4	36.9	20	58.9	19	81.7	42	343.0	52	369.1	38	257.8	18	251.9	5	533.5	31	286.7	24	230.6
POLYCHAETA																										
Polychaeta unid.		5001	0.50	1.50	0.50	7.2	0	0.0	0	0.0	2	8.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	9.2	0	0.0
Spionidae		500143	0.50	1.50	0.50	7.2	0	0.0	5	14.7	1	4.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Nereidae		500124	0.50	1.50	0.50	7.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Trochophores		50	0.20	0.20	0.20	43.3	3	27.7	0	0.0	3	12.9	2	16.3	4	28.4	1	6.8	5	70.0	1	106.7	5	46.2	5	43.0
Archiannelida		5002	2.00	2.00	0.20	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
INSECTA																										
Chironomidae		650508	1.50	1.50	0.20	0.0	0	0.0	0	0.0		0.0	0	0.0	0	0.0	0	0.0		0.0	0	0.0		0.0		0.0
ISOPODA																										
Isopoda unid.		6158	1.00	1.00	0.20	0.0		0.0	0	0.0	0	0.0	0	0.0		0.0	0	0.0	0	0.0		0.0		0.0	0	0.0
AMPHIPODA																										

Appendix I. Density of zooplankton captured in Auke Bay in 1988.

SAMPLE NUMBER						56	57	63	66	69	76	79	82	88	91	94
Date						June 5	June 5	June 10	June 10	June 10	June 15	June 15	June 15	June 20	June 20	June 20
Site						CSI	ABM	CSI	ANN	NOS	CSI	ANN	Gov	CSI	ANN	ANC
Mesh (um)						165	165	165	165	165	165	165	165	165	16S	165
Volume filtered (m^3)						70.8911	110,9031	86,9688	119,0332	62,6850	72.1372	75.4652	73,1705	9.5970	11 0.7360	106,5722
Fraction enumerated						512	1024	256	512	512	512	512	1024	1024	1024	1024
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (MN) MIN	LENGTH (MN) MAX	WIDTH (NH)	TOTAL DENSITY (M^-3)	TOTAL DENSITY NO. (M^-3)	TOTAL DENSITY NO. (M^-3)	TOTAL DENSITY 110, (M^-3)	TOTAL DENSITY NO, (M^-3)	TOTAL DENSITY NO. (M^-3)	TOTAL DENSITY NO, (M^-3)	TOTAL DENSITY NO. (M^3)	TOTAL DENSITY NO, (M^3)	TOTAL DENSITY NO, (M^3)	TOTAL DENSITY NO. (M^3)
Parathemisto spp.		61700110			2.50	2.50	0.60	0.0	0	0.0	0	0.0	2	8,6	0	0.0
NEMERTEA																
Nemertea		43			10.00	10.00	0.50	0,0	0	0,0	0	0,0	0	0.0	0	0.0
CHAETOGNATHA																
Sagitta elegans		8300000303			3.00	6.00	0.20	7.2	0	0.0	0	0,0	0	0,0	0	0.0
ECTOPROCTA																
Bryozoa cyphonautes		78		1,00	1.00	1.00	0,0	0	0.0	0	0,0	1	4,3	0	0.0	0
ECHINODERMATA																
Echinopluteus		81	0.50	0.50	0.50	0.0	1	9.2	0	0.0	0	0.0	0	0.0	0	0.0
Asteroid larvae		8104			0.50	0.50	0,50	0.0	0	0.0	1	2.9	0	0,0	0	0,0
OSTRACODA																
Ostracoda		6110			0.30	0.30	0.20	0.0	0	0.0	0	0.0	0	0.0	0	0.0

SPECIES	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76
Parathemisto spp.	0	0.0	1	6,8	0	0.0	0	0.0	9	0.0	0	0.0	0	0.0	0	0.0
NEMERTEA																
Nemertea	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
CHAETOGNATHA																
Sagitta elegans	0	0,0	0	0,0	2	13.6	0	0,0	0	0.0	1	9.2	0	0.0	0	0.0
ECTOPROCTA																
Bryozoa cyphonautes	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0,0
ECHINODERMATA																
Echinopluteus	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Asteroid larvae	0	0,0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
OSTRACODA																
Ostracoda	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Appendix I. Density of zooplankton captured in Auke Bay in 1988.

SAMPLE NUMBER						101		104		107		113		116		119		12s		128		131		138
Date						June 25		June 25		June 25		June 30		June 30		June 30		July 5		July 6		July 6		July 10
Site						CSI		ABM		ANC		CSI		ABM		ANC		CSI		ABM		ANC		CSI
Mesh (um)						165		165		165		165		165		165		165		165		165		165
Volume filtered (m^3)						101,0103		118.4861		101.1623		104,1559		106,1467		144,1832		149.2588		140,7720		156,3099		132.0565
Fraction enumerated						1024		1024		1024		512		1024		1024		1024		1024		2048		1024
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (MM) KIN	MAX	WIDTH (NH)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO,	(M^3)	TOTAL DENSITY NO.	(M^3)
Clupea harengus		874701020101				8.00	20.00	1.00 0	0.0	0	0.0	0 0.0	1	4,9	0	0.0	0	0,0	0	0,0	0	0.9	0	0.0 0	0.0
Thaleichthys pacificus		8755030501				5.00	20.00	1.00 0	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Ammodytes hexapterus		8845010101				5.00	20.00	1.00 0	0.0 0	0,0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	7,8
Lumpenella longirostris		8842120801				5.00	10.00	1.50 0	0.0	0	0.0	0	0,0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Liparis spp.		88310908	3.00			3,00		0.50 0	0.0 0	0.0	0	0,0	0	0,0	0	0.0	0	0.0	0	0.0	0	‘8	0	0.0	0	0.0
Anarichthys ocellatus		B842020201	100,00			1OO,OO		2.00	0	0,0	0	0.0 0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0,0
Pleuronectidae, unid.		885704				10.00	10.00	5.00	0	0.0 0	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Fish eggs		873S	1.00			1,00		1.00	0	0.0	0	0,0	1	10.1	0	0,0	0	0.0	0	0.0	0	0,0	1	13.1	0	0.0
Fish eggs		8735	0.25			0.25	0.25	4	40,6	0	0.0	2	20.2	1	4.9	1	9.6	1	7.1	1	6.9	0	0.0	0	0.0	0	0.0
COPEPODA																										
Centropages abdominalis		6118170101	1,20			1.20	0.20	50	506.9	54	466.7	99	1002,1	38	186.8	82	791.1	154	1093.7	29	199.0	173	1258,4	89	1166.1	150	1163.1
Centropages abdominalis	Cop,4	6118170101	0.40			0,40	0,80	118	1196,2	99	855,6	228	2307,9	83	408,0	137	1321,6	160	1136,3	80	548,8	179	1302,1	235	3079.0	229	1775.7
Centropages abdominalis	cop, 5	6118170101	0.50			0,50	1.00	135	1368,6	183	1581,6	407	4119.8	102	501,4	304	2932,7	280	1988,6	88	603.7	442	3215,2	277	3629.3	265	2054.9
Scolecithricella minor		6118100504	1.00			1,00	0,30	35	354,8	34	293.8	87	880,6	19	93,4	42	405.2	84	596,6	33	226.4	56	407.4	41	537,2	25	193.9
Scolecithricella minor	cop, 4	6118100S04	0,70			0,70	0,20	29	294,0	16	138.3	34	344.2	12	59.0	22	212.2	169	1200.3	74	507,7	129	938,4	118	1546,1	14	108.6
Spinocalanus brevicaudatus		6118060306	2,00			2.00	0.30	36	365,0	27	233.3	45	455,5	32	157,3	33	318.4	18	127,8	3	20,6	44	320.1	18	235,8	30	232,6
Microcalanus pygmaeus		6118050402	0.60			0.60	0.20	12	121,7	6	51,9	7	70,9	2	9.8	3	28.9	53	376,4	6	41,2	31	225.5	25	327.6	2	15.5
Neocalanus plumchrus		6118010206	1.70			1,70	0.40	38	385,2	0	0,0	0	0.0 0	0,0		0	0.0	0	0.0	0	0.0	0	0,0	0	0.0 0	0.0
Pseudocalanus minutus		61180 S0502	1.10			1.10	0.20	11	111.5	66	5?0.4	66	668,1	19	93.4	96	926,1	106	752,8	68	466,S	51	371.0	31	406.2	10	77,5
Pseudocalanus minutus	cop, 4	6118050502	0,90			0,90	0.20	0	0,0	12	103.7	26	263.2	8	39,3	20	192,9	53	376.4	0	0,0	27	196.4	9	117.9	12	93.1
Calanus pacificus		611801020S	2.50			2,50	0.50	4	40.6	0	0.0	2	20.2	1	4.9	2	19.3	1	7,1	0	0.0	1	7,3	0	0.0 0	0.0
Calanus pacificus	cop. 5	6118010205	2,00			2,00	0,30	0	0.0 0	0,0	1	10,1	2	9.8	1	9.6	3	21,3	1	6,9	2	14.5	4	52.4	0	0.0
Metridia pacifica		6118160214	2,00			2.00	0.80	5	50.7	3	25.9	0	0.0	0	0.0	1	9.6	0	0.0 0	0,0	0	0.0	0	0.0	0	0.0
Metridia pacifica	cop. 4	6118160214	1,60			1.60	0.40	0	0.0	5	43.2	0	0,0	1	4,9	0	0.0	19	134.9	1	6,9	0	0.0	16	209.6	0	0.0
Acartia spp.		611829	1,00			1,00	0.10	43	435,9	98	847,0	79	799,7	117	57s,1	93	897.2	82	582.4	96	658.6	58	421.9	73	956. 5	154	1194.2
Eucalanus bungii		6118030102				1.50		2,50	0.30	0	0.0	0	0,0	0	0.0 0	0.0	0	0.0	0	0,0	0	0.0	0	0.0	0	0.0
Eucalanus bungii	cop. 2-5	6118030102	1,50			1,60	0.30	0	0.0	1	8,6	0	0.0 0	0,0		0	0.0	0	0,0	0	0.0	0	0.0	0	0.0 0	0.0	0
Calanus marshallae		6118010204				3.50		3.50	1.00 0	0,0	0	0.0	0	0.0 0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0 0	0.0	0
Scaphocalanus brevicornis		6118100402	1.00			1,00	0.20	31	314.3	31	267.9	54	546.6	42	206.5	53	511.3	44	312.5	14	96.0	9	65.5	19	248.9	46	356.7
Tortanus discaudatus		6118300101				1.50		1,50	0,30	0	0.0 0	0,0	0	0.0 0	o,o	0	0.0	0	0.0	0	0.0	0	0.0	1	13.1	0	0.0
Unid. copepodites		6118	0.10			0,70	0.10	615	6234.6	428	3698,9	760	7693.0	307	1509.1	398	3939.5	925	6S69,4	656	4500.5	934	6794,1	676	3857.1	629	4877.4
Copepod nauplii		6118	0.10			0.10	0,10	39	395.4	22	190.1	28	283,4	24	118.0	24	231,5	17	120.7	55	377,3	17	123.7	29	380.0	246	1907. s
Oithona similis		6120090103	0.50			0,50	0.20	160	1622,0	101	872,9	83	840,2	48	236.0	107	1032.2	52	369.3	128	878.2	i78	1294.8	67	877.8	217	1682.7
Oncaea borealis		6120010301	0.50			0.50	0.20	1	10.1	4	34.6	0	0.0	3	14.7	1	9.6	4	28.4	0	0.0	2	14.5	0	0.0 1	7.8
Oncaea borealis		6120010301				0.50	0.50	0.10	0	0.0	0	0.0	0	0.0 0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Monstrilla spp.		612202	1.00			1.00	0.10	0	0.0	0	0.0	0	0,0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Harpacticoida		6119	0.50			0,50	0.10	5	50.7	0	0.0	6	60.7	0	0.0	1	9.6	0	0.0	0	0.0	3	21.8	7	91.7	4	31.0
Harpacticus spp.		611910	0.50			0,50	0.10	4	40.6	6	51,9	7	70.9	1	4,9	3	77.2	10	71.0	0	0.0	6	43.6	5	65. S	6	46.5
TUNICATES																										

Appendix I. Density f zooplankton captured in Auke Bay in 1988.

SAMPLE NUMBER						101		104		107		113		116		119		125		128		131		138
Date						June 25		June 25		June 25		June 30		June 30		June 30		July 5		July 6		July 6		July 10
Site						CSI		ABM		ANC		CSI		ABM		ANC		CSI		ABM		ANC		CSI
Mesh (um)						165		165		165		165		165		165		165		165		165		165
Volume filtered (m^3)						101.0103		118.4861		101.1623		104.1559		106.1467		144.1832		149.2588		140.7720		156.3099		132.0565
Fraction enumerated						1024		1024		1024		512		1024		1024		1024		1024		2048		1024
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (MM) MIN	LENGTH (MM) MAX	WIDTH (MM)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)
Oikopleura doica		8413010101	1.50	3.00	0.50	79	800.9	43	371.	74	749.	125	614.5	106	1022.6	78	554.0	82	562.6	65	472.8	48	628.9	39	302.
CNIDARIA																									
Medusae, damaged		3730				0	0.0	0	0.0	1	10.1	0	0.0	1	9.6	0	0.0	0	0.0	0	0.0	1	13.1	0	0.0
Hybocodon prolifer		3703030401	3.00	3.00	3.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Halitholus spp.?		37031206	3.00	3.00	3.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Mitrocomella sinuosa		3704080606	12.00	12.00	12.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tiaropsis multicirrata		3704040301	10.00	10.00	10.00	0	0.0	1	8.6	0	0.0	0	0.0	0	0.0	1	7.1	0	0.0	0	0.0	0	0.0	0	0.0
Sarsia spp.		37030609	8.00	8.00	8.00	0	0.0	0	0.0	0	0.0	1	4.9	1	9.6	1	7.1	0	0.0	1	7.3	0	0.0	0	0.0
Rathkea octopunctata		3703190203	3.00	3.00	3.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	6.9	0	0.0	0	0.0	0	0.0
Aequoria victoria		3704140314				0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Cyanea spp.?		37340201				0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	7.3	0	0.0	0	0.0
Polyorchis spp.		370313	15.00	15.00	15.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Phialidium spp.		37040104	14.00	14.00	14.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Staurophora mertensi		3704090601	100.00	100.00	100.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Sperelmus typus		3705010101	15.00	15.00	15.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
CIRRIPEDIA																									
Barnacle cypris		6130	1.00	1.00	0.50	40	405.5	6	51.9	10	101.2	3	14.7	7	67.5	15	106.5	12	82.3	8	58.2	3	39.3	6	46.5
Barnacle nauplii		6130	0.20	1.00	0.30	57	577.8	36	311.1	64	647.8	39	191.7	27	260.5	108	767.0	37	253.8	12	87.3	7	91.7	40	310.2
DECAPODA																									
Pandalus spp.		617918	5.00	5.00	1.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Shrimp zoea		617	1.00	4.00	0.40	3	30.4	19	164.2	9	91.1	4	19.7	6	57.9	8	56.8	0	0.0	8	58.2	9	117.9	7	54.3
Crab zoea		6184	3.00	3.00	1.50	1	10.1	4	34.6	3	30.4	1	4.9	4	38.6	0	0.0	1	6.9	3	21.8	3	39.3	3	23.3
MOLLUSCA																									
Clam veliger		55	0.30	0.30	0.20	298	3021.0	443	3828.6	351	3552.9	172	845.5	199	1919.8	274	1946.0	495	3396.0	285	2073.1	116	1519.9	382	2962.1
Snail veliger		5180	0.60	0.60	0.50	26	263.6	5	43.2	5	50.6	20	98.3	11	106.1	8	56.8	40	274.4	22	160.0	2	26.2	27	209.4
CLADOCERA																									
Podon polyphemoides		6109050203	1.00	1.00	0.70	10	101.4	8	69.1	8	81.0	30	147.5	22	212.2	23	163.3	20	137.2	5	36.4	6	78.6	11	85.3
Evadne nordmanni		6109050101	1.00	1.00	0.50	23	233.2	10	86.4	11	111.3	67	329.4	59	569.2	62	440.3	72	494.0	48	349.2	30	393.1	121	938.3
POLYCHAETA																									
Polychaeta unid.		5001	0.50	1.50	0.50	1	10.1	1	8.6	1	10.1	0	0.0	0	0.0	0	0.0	0	0.0	2	14.5	0	0.0	0	0.0
Spionidae		500143	0.50	1.50	0.50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Nereidae		500124	0.50	1.50	0.50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Trochophores		50	0.20	0.20	0.20	3	30.4	0	0.0	0	0.0	0	0.0	1	9.6	1	7.1	3	20.6	2	14.5	2	26.2	4	31.0
Archiannelida		5002	2.00	2.00	0.20	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
INSECTA																									
Chironomidae		650508	1.50	1.50	0.20	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
ISOPODA																									
Isopoda unid.		6158	.00	1.00	0.20	0	0.0	0	0.0	0	0.0	0	0.0	1	9.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
AMPHIPODA																									

Appendix I. Density of zooplankton captured in Auke Bay in 1988.

SAMPLE NUMBER							101	104	107	113	116	119	125	128	131	138
Date							June 25	June 25	June 25	June 30	June 30	June 30	July 5	July 6	July 6	July 10
Site							CSI	ABM	ANC	CSI	ABM	ANC	CSI	ABM	ANC	CSI
Mesh (um)							165	165	165	165	165	165	165	165	165	165
Volume filtered (m^3)							101.0103	118,4861	101,1623	104,1559	106,1467	144.1832	149,2588	1407720	156.3099	132.0565
Fraction enumerated							1024	1024	1024	512	1024	1024	1024	1024	2048	1024
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (MN) MIN	LENGTH (MN) MAX	WIDTH (MM)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)
Parathemisto spp.		61700110					2.50		2.50		0.60	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	7.3	0	0.0	2	15, s
NEMERTEA																															
Nemertea		43			10.00	10.00	0.50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
CHAETOGNATHA																															
Sagitta elegans		8300000303	3.00	6.00	0.20	1	10.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	7.3	0	0.0	1	7.8				
ECTOPROCTA																															
Bryozoa cyphonautes		78			1,00		1.00	1.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	
ECHINODERMATA																															
Echinopluteus		81	0.50	0.50	0.50	1	10.1			0			0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Asteroid larvae		8104			0.50			0.50		0,50		0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
OSTRACODA																															
Ostracoda		6110			0.30			0.30			0.20	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Appendix I. Density of zooplankton captured in Auke Bay in 1988.

SAMPLE NUMBER						141		149		152		155		162		165		168		174		177		180	
Date						July 10		July 17		July 17		July 11		July 22		July 22		July 22		July 27		July 27		July 27	
Site						ABM		CSI		ABM		ANC		CSI		ANN		ANC		CSI		ABM		ANC	
Mesh (urn)						165		165		165		165		165		165		165		165		165		165	
Volume filtered (m^3)						87,9870		52,8074		90,9655		90,2513		23,9485		51,5461		26.8672		26,8368		115.2341		110,9943	
Fraction enumerated						1024		1024		1024		1024		1024		1024		1024		1024		1024		1024	
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (NH) MIN	LENGTH (NH) MAX	WIDTH (NH)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO,	(M^3)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO.	(M^3)	TOTAL DENSITY NO.	(M^3)
Clupea harengus		874701020101	8.00	20.00	1.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Thaleichthys pacificus		8755030501	5.00	20.00	1.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Ammodytes hexapterus		8845010101	5.00	20.00	1.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	39.7	0	0.0	0	0.0	0	0.0	0	0.0
Lumpenella longirostris		8842120801	5.00	10.00	1.50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Liparis spp.		88310908	3.00		3.00	0.50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Anarichthys ocellatus		8842020201	100.00	100.00		2.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Pleuronectidae, unid.		885704	10.00	10.00	5.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Fish eggs		8735	1.00	1,00	1.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Fish eggs		873S	0,25		0.25	0.25	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	1	38.1	0	0.0	0	0.0	0	0,0
COPEPODA																									
Centropages abdominalis		6118170101	1,20	1.20	0.20	129	1501.3	53	1027.7	82	923,1	92	1043,8	30	1282.8	39	774,8	54	2058.1	17	648,7	51	453.2	49	452.1
Centropages abdominalis	cop, 4	6118170101	0,40	0,40	0.80	251	2921.2	53	1027.7	151	1699,8	68	771.5	51	2180,7	67	1331.0	82	3125.3	32	1221.0	81	719.8	97	894.9
Centropages abdominalis	cop.5	611 B1701O1	0.50	0.50	1.00	475	5528,1	137	2656.6	257	2893.1	265	3006.7	81	3463,4	152	3019.6	164	6250.6	51	1946.0	169	1501.8	145	1337.7
Scolecithricella minor		6118100504	1.00	1.00	0.30	28	325,9	7	135,7	10	112.6	7	79,4	5	213,8	16	317,9	8	304,9	2	76,3	1	8.9	2	18.5
Scolecithricella minor	cop, 4	6118100504	0.70	0,70	0.20	11	128.0	9	174,5	19	213.9	14	158,8	8	342,1	32	635.7	12	457.4	4	152.6	i	8.9	2	18.5
Spinocalanus brevicaudatus		6118060306	2.00	2.00	0.30	54	628.5	45	872,6	44	495.3	29	329,0	34	1453.8	55	1092.6	54	2058,1	10	381.6	9	80.0	10	92.3
Microcalanus pygmaeus		6118050402	0.60	0.60	0.20	7	81,5	2	38,8	7	78.8	1	11,3	1	42,8	1	19,9	0	0.0	0	0.0	2	17.8	1	9.2
Neocalanus plumchrus		6118010206	1.70	1.70	0.40	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Pseudocalanus minutus		6118050S02	1,10	1.10	0.20	14	162.9	15	290.9	85	956.8	30	340.4	41	1753.1	51	1013,2	47	1791.3	27	1030.2	2	17.8	0	0.0
Pseudocalanus minutus	Cop. 4	61180 S0$02	0.90	0.90	0.20	5	58.2	3	58.2	33	371.5	8	90,8	13	555,9	18	357.6	15	571.7	4	152.6	3	26.7	2	18.5
Calanus pacificus		6118010205	2.50		2,50	0.50	0	0.0	0	0.0	0	0.0	1	11,3	0	0.0	0	0.0	0	0.0	1	38,2	0	0.0	0	0.0
Calanus pacificus	cop. 5	611801020S	2.00		2.00	0.30	0	0.0	0	0.0	1	11.3	1	11,3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Metridia pacifica		6118160214	2,00		2.00	0.80	0	0.0	0	0.0	0	0.0	1	11.3	0	0.0	0	0.0	4	152.5	0	0.0	0	0.0	0	0.0
Metridia pacifica	Cop. 4	6118160214	1.60	1.60	0.40	0	0.0	1	19.4	2	22.5	12	136.2	2	85.5	4	79,5	190	7241.5	0	0.0	9	80.0	9	0.0
Acartia spp.		611829	1.00	1.00	0.10	154	1792.3	74	1435.0	238	2679.2	101	1146.0	130	5558.6	14	278.1	0	0.0	145	5532.7	201	1786.1	49	452.1
Eucalanus bungii		6118030102	1,50		2,50	0.30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Eucalanus bungii	cop. 2-5	6118030102	1,50	1>60	0.30	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Calanus marshallae		6118010204	3.50		3,50	1.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Scaphocalanus brevicornis		6118100402	1.00	1.00	0.20	58	675.0	51	989,0	84	945.6	47	533,3	43	1838.6	97	1927.0	123	4687.9	29	1106.5	12	106.6	12	110.7
Tortanus discaudatus		6118300101	1.50		1.50	0.30	0	0.0	0	0.0	0	0.0	1	11.3	0	0.0	0	0.0	2	76.2	0	0.0	0	0.0	1	9.2
Unid. copepodites		6118	0.10	0.70	0.10	377	4387.6	444	8609.7	937	10547.8	672	7624.6	269	11502.0	537	10667,9	930	3S44S.5	256	9768,1	262	2329.2	549	5064.9
Copepod nauplii		6118	0,10	0.10	0.10	263	3060.8	57	1105.3	50	562,9	79	896,3	33	1411.0	53	1052,9	70	2667,9	70	2671.0	26	231.0	45	415.2
Oithona similis		6120090103	0.50	0.50	0.20	115	1338.4	137	2656,6	127	1429.6	202	2291.9	66	2822,1	136	2701.7	200	7622.7	94	3586.7	46	408.8	130	1199.3
Oncaea borealis		6120010301	0.50	0.50	0.20	5	58.2	17	329.7	17	191.4	12	136,2	5	213.8	26	516.5	25	952.8	48	1831.5	20	177.7	22	203.0
Oncaea borealis		6120010301	0.50		0.50	0.10	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Monstrilla spp.		612202	1,00		1.00	0.10	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Harpacticoida		6119	0.50	0.50	0.10	4	46,6	2	38.8	1	11.3	3	34.0	0	0.0	0	0.0	2	76,2	0	0.0	0	0.0		9.2
Harpacticus spp.		611910	0,50	0.50	0.10	11	128.0	5	97.0	7	78.8	6	68,1	0	0.0	4	79,5	14	533.6	0	0.0	3	26.7	3	27,7
TUNICATES																									

Appendix I. Density of zooplankton captured in Auke Bay in 1988.

SAMPLE NUMBER						141		149		152		155		162		165		168		174		177		180
Date						July 10		July 17		July 17		July 17		July 22		July 22		July 22		July 27		July 27		July 27
Site						ABM		CSI		ABM		ANC		CSI		ABM		ANC		CSI		ABM		ANC
Mesh (um)						165		165		165		165		165		165		165		165		165		165
Volume filtered (m^3)						87.9870		52.8074		90.9655		90.2513		23.9485		51.5461		26.8672		26.8368		115.2341		110.9943
Fraction enumerated						1024		1024		1024		1024		1024		1024		1024		1024		1024		1024
			LENGTH (MM)																					
SPECIES	STAGE	TAXONOMIC CODE	MIN	MAX	WIDTH (MM)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)
Oikopleura doica		8413010101	1.50	3.00	0.50	15	174.6	34	659.3	63	709.2	50	567.3	38	1624.8	61	1211.8	78	2972.8	37	1411.8	51	453.2	93	858.0
CNIDARIA																									
Medusae, damaged		3730				0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	9.2
Hybocodon prolifer		3703030401	3.00	3.00	3.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Halitholus spp.?		37031206	3.00	3.00	3.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	9.2
Mitrocomella sinuosa		3704080606	12.00	12.00	12.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tiaropsis multicirrata		3704040301	10.00	10.00	10.00	0	0.0	0	0.0	0	0.0	1	11.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	9.2
Sarsia spp.		37030609	8.00	8.00	8.00	1	11.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	9.2
Rathkea octopunctata		3703190203	3.00	3.00	3.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Aequoria victoria		3704140314				0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	38.2	0	0.0	1	9.2
Cyanea spp.?		37340201				0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Polyorchis spp.		370313	15.00	15.00	15.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Phialidium spp.		37040104	14.00	14.00	14.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Staurophora mertensi		3704090601	100.00	100.00	100.00	1	11.6	0	0.0	0	0.0	0	0.0	1	42.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Eperetmus typus		3705010101	15.00	15.00	15.00	0	0.0	0	0.0	0	0.0	1	11.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
CIRRIPEDIA																									
Barnacle cypris		6130	1.00	1.00	0.50	7	81.5	1	19.4	6	67.5	4	45.4	2	85.5	1	19.9	8	304.9	2	76.3	2	17.8	3	27.7
Barnacle nauplii		6130	0.20	1.00	0.30	48	558.6	16	310.3	57	641.6	58	658.1	15	641.4	13	258.3	41	1562.6	16	610.5	17	151.1	17	156.8
DECAPODA																									
Pandalus spp.		617918	5.00	5.00	1.00	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Shrimp zoea		617	1.00	4.00	0.40	4	46.6	3	58.2	1	[illegible]	2	22.7	0	0.0	1	19.9	0	0.0	0	0.0	7	62.2	2	18.5
Crab zoea		6184	3.00	3.00	1.50	4	46.6	2	38.8	1	[illegible]	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	8.9	2	18.5
MOLLUSCA																									
Clam veliger		55	0.30	0.30	0.20	267	3107.4	117	2268.8	254	2859.3	187	2121.7	62	2651.0	121	2403.8	156	5945.7	83	3167.0	68	604.3	131	1208.6
Snail veliger		5180	0.60	0.60	0.50	3	34.9	12	232.7	9	101.3	16	181.5	2	85.5	2	39.7	12	457.4	3	114.5	8	71.1	7	64.6
CLADOCERA																									
Podon polyphemoide		6109050203	1.00	1.00	0.70	23	267.7	5	97.0	11	123.8	23	261.0	8	342.1	17	337.7	39	1486.4	4	152.6	2	17.8	25	230.6
Evadne nordmanni		6109050101	1.00	1.00	0.50	80	931.0	33	639.9	57	641.6	61	692.1	12	513.1	58	1152.2	83	3163.4	16	610.5	26	231.0	69	636.6
POLYCHAETA																									
Polychaeta unid.		5001	0.50	1.50	0.50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Spionidae		500143	0.50	1.50	0.50	1	11.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Nereidae		500124	0.50	1.50	0.50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Trochophores		50	0.20	0.20	0.20	0	0.0	0	0.0	0	0.0	1	11.3	1	42.8	0	0.0	0	0.0	0	0.0	0	0.0	2	18.5
Archiannelida -		5002	2.00	2.00	0.20	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
INSECTA																									
Chironomidae		650508	1.50	1.50	0.20	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0		9.2
ISOPODA																									
Isopoda unid.		6158	1.00	1.00	0.20	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
AMPHIPODA																									

Appendix I. Density of zooplankton captured in Auke Bay in 1988.

SAMPLE NUMBER						141		149		152		155		162		165		168		174		177		180	
Date						July 10		July 17		July 17		July 17		July 22		July 22		July 22		July 27		July 27		July 27	
Site						ABM		CSI		ABM		ANC		CSI		ABM		ANC		CSI		ABM		ANC	
Mesh (um)						165		165		165		165		165		165		165		165		165		165	
Volume filtered (m^3)						87.9870		52.8074		90.9655		90.2513		23.9485		51.5461		26.8672		26.8368		115.2341		110.9943	
Fraction enumerated						1024		1024		1024		1024		1024		1024		1024		1024		1024		1024	
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (MM) MIN	LENGTH (MM) MAX	WIDTH (MM)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)	NO.	TOTAL DENSITY (M^3)
Parathemisto spp.		61700110	2.50	2.50	0.60	0	0.0	1	19.4		22.5		45.4	4	171.0	3	59.6	0	0.0	3	114.5	4	35.5	0	0.0
NEMERTEA																									
Nemertea		43	10.00	10.00	0.50	0	0.0	0	0.0	0	0.0	0	0.0	1	42.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
CHAETOGNATHA																									
Sagitta elegans		8300000303	3.00	6.00	0.20	0	0.0	0	0.0	2	22.5	0	0.0	0	0.0	0	0.0	1	38.1	0	0.0	0	0.0	0	0.0
ECTOPROCTA																									
Bryozoa cyphonautes		78	1.00	1.00	1.00	0	0.0	0	0.0	1	11.3		11.3	0	0.0	0	0.0	1	38.1	4	152.6	1	8.9		9.2
ECHINODERMATA																									
Echinopluteus		81	0.50	0.50	0.50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Asteroid larvae		8104	0.50	0.50	0.50	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
OSTRACODA																									
Ostracoda		6110	0.30	0.30	0.20	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

APPENDIX J

Prey field of Auke Bay herring

APPENDIX J

Prey Field of Auke Bay Herring

1.0 Gut Contents of Auke Bay Herring

1.1 Results

The guts of 40 fish were examined, 23 larvae and 17 juveniles, spanning a length range from 10.6 to 39.5 mm. The number and type of prey found in the guts and the average length and width of the prey is shown in Appendix G.

The number of prey found in the gut was related to the method by which the fish were captured. Only 1 of 23 larvae (4%), which were caught by a towed plankton net, contained any prey in its gut, compared to 16 of 17 juveniles (94%), which were captured by dipnets. There was no significant relationship between number of prey and length of fish for all fish with non-zero gut contents; the mean (± lSD, n) number of prey was 295 (274, 17).

Copepod nauplii and copepodites were the dominant prey of juvenile herring, accounting for at least 50% and usually more than 90% of the diet by number. Adult copepods, bivalve larvae, the common cladoceran Podon polyphemoides, and unidentified arthropods made up beween 0.5 and 30% of the diet when present. The percent of copepod nauplii in the diet decreased with length of juvenile herring and the percent of copepodites in the diet increased with length of juvenile herring.

There were no significant relationships between length or width of prey and length of juvenile herring; the mean (± lSD, n) length and widths were 296 (82, 15) and 130 (21, 15) µm, respectively.

1.2 Discussion

The 4% feeding rate of Auke Bay herring larvae is among the lowest rates ever recorded for Pacific or Atlantic herring. In comparison, the feeding rate of Pacific herring larvae collected in the Strait of Georgia and Saanich Inlet, British Columbia never fell below 30% and averaged 48% (Table Jl). Last (1980) reported that the feeding rate of Atlantic herring larvae from the west-central North Sea ranged from O% in larvae 5.0 to 6.9 mm long to a maximum of 50% in larvae 17.0 to 17.9 mm long, and averaged 22%. Cohen and Lough (1983) reported that the feeding rate of Atlantic herring larvae in the Georges Bank-Nantucket Shoals area ranged from O% for larvae with an average length of 5.8 mm to 57.1% for larvae with an average length of 33.8 mm, and averaged 32. 1%.

The almost complete absence of prey in the guts of Auke Bay herring larvae was most likely caused by larvae voiding their guts upon capture in the plankton net (Hay 1981). The high rate of voiding of the guts was probably caused by the relatively long duration (approximately 10 rein) of the plankton tows. Robinson (1988) was able to capture Pacific herring larvae with prey in their guts by using brief (<60 s) tows to shallow depths (≤20 m). The primary support for this argument is the high feeding rate observed in the juveniles caught by a dipnet. Secondary support is the fact that Pacific herring larvae and juveniles collected in the Strait of Georgia and Saanich Inlet, British Columbia, and recent studies of sea-caught Atlantic herring by Last (1980) and Cohen and Lough (1983) have shown that herring larvae feed primarily during daylight hours, the time of day during which most of the sampling in Auke Bay was conducted. The empty guts were not a reflection of low prey density because prey density was relatively high in Auke Bay in 1988. The empty guts were also unlikely to have been caused by rapid digestion of prey because although digestion of prey by herring takes less than 1.5 h, the passage of the empty exoskeleton through the digestive tract takes an additional 1.5 to 21 h (Fossum 1983).

Therefore, further dissection of the guts of larvae captured in Auke Bay in 1988 is unlikely to increase the number of non-zero guts.

2.0 Definition of Prey Field

The gut content data collected in this study was not sufficient to allow a definition of the diet of larval herring and, therefore, of its prey field. Fortunately, there are 3 studies of the diet of herring larvae and juveniles in southern British Columbia waters that have a sufficiently large sample size and temporal spread to provide an accurate description of the type and size of organisms in the diet, and of how they change with size of herring. There are also numerous studies of the diet of Atlantic herring larvae that support the overall conclusions of these 3 studies.

Wailes (1935) conducted the first study of diet in Pacific herring collected from southern British Columbia waters; he reported that no food was found in the guts of larvae less than 9 mm long, that traces of phytoplankton were found in both larvae and juveniles, but that copepod nauplii and invertebrate eggs dominated the diet of 9 to 12 mm long larvae, and copepod nauplii, invertebrate eggs, mollusc larvae and small adult harpacticoid and calanoid copepods dominated the diet of 13 to 27 mm long larvae and 28 to 48 mm long juveniles.

The results of the largest and most complete study of diet in Pacific herring larvae, juveniles and adults is contained in a series of data reports written by Barraclough (1967a, 1967b, 1967c), Barraclough and Fulton (1967, 1968), Barraclough et al. (1968), Robinson (1969) and Robinson et al. (1968a, 1968 b). They list the food of larval, juvenile and adult fish caught with a two-boat trawl and an Isaacs-Kidd trawl in the surface waters of the Strait of Georgia and Saanich Inlet, in southern British Columbia. The trawls were taken in the spring and summer of 1966, 1967 and 1968, the seasons that herring larvae are abundant in surface waters. To the best of my knowledge, this data has never been summarized in the primary and secondary scientific

literature, and the analysis of this data that is presented below is original.

The percentage composition of the gut eontents of 612 herring, 405 larvae and 207 juveniles, is shown in Table J1. For the purpose of this study, juveniles were classified as herring greater than 26 m m long but less than 50 mm long. The percentage of feeding herring rose from 30% for 5.0 to 9.9 mm long fish to 88% for 40.0 to 43.9 mm long fish; the average feeding rate was 48% and 62% for larvae and juveniles, respectively, and 53% overall.

The number of prey per feeding herring rose from 1.7 in larvae 5.0 to 9.9 mm long to 25.9 in juveniles 40.0 to 43.9 mm long; the average number of prey per feeding larva was 2.9 and the average number of prey per feeding juvenile was 10.2.

The dominant prey of herring larvae and juveniles were the eggs, nauplii, copepodites and adult stages of calanoid copepods and cladocerans. These organisms made up 71.2% of the diet by number, the remainder being made up by barnacle (2.5%) and euphausiid (1.3%) eggs, bivalve (Mytilus spp.) larvae (3.0%), fragments of tunicates (Oikopleura spp.) {2.7%), adult amphipods (1.9%) and fish larvae (1.8%), and 7 groups of miscellaneous invertebrates each of which made up between 0.1 and 0.7% of the diet. Phytoplankton was found in trace amounts in the guts of larvae 10.0 to 19.9 mm long.

There is a clear positive correlation between the lengths of herring larvae and juveniles and their prey (Table J2 and Fig. J1). For example, first-feeding herring larvae 5.0 to 11.9 m m long fed exclusively on copepod nauplii of an average length of 0.3 mm, but the percentage of nauplii in the diet decreased steadily with length, falling to 20% in larvae 25.0 to 25.9 mm long. The dominant position of nauplii in the diet was replaced by copepodites (length=0.4 to 1.0 mm), which formed 4 to 60% of the diet in larvae longer than 16.0 mm, and cladocerans, particularly Podon pol yphemoides and P. leuckarti (length=0.5 to 1.0 mm), which formed 4 to 42% of the diet

Table J1. Percentage composition of all gut contents of herring larvae end juveniles collected from the Strait of Georgia and Saanich Inlet, British Columbia.

Herring length ranga (mm)	phyto-plankton	bryozoan cyphonautes	copepod eggs	Balanus spp. eggs	rotifer	olkopleura spp.	pelecypoda larvae	Mytilus larvae	copepod nauplii	ostracod	euphausiid eggs	fish eggs	cladocera unid.	Podon app.	Evadne spp.	unid. copepodites	copepod	calanoid copepod Pseudocalan minutus	Microcalanus spp.	Scolecithrice spp.	Acartia longiremis
length (mm):		0.1	0,1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.6-1.0	0.4-1.0	0.4.1.5	0.6-1.5	0.4-1.5	0.8	0.9
5.0.9.9									100.0												
10.0-11.9	•								100.0												
12.0-12.9	•		3.0	3.0					90.0							3.0					
13.0-13.9				56.0					40.0							2.0					
14.0-14.9			4.0	46.0			6.0		25.0					13.0			4.0				
1 5.0-15.9				59,0					35.0					6.0							
16.0-16.9			12.0						25.0							36.0		25.0			
17,0-17.9			2.0						50.0					10.0		19.0	7.0	10.0			
16.0-18.9									30,0					10.0		60.0					
1 9.0-1 9.9									17.0	4.0	4.0		13.0			22.0	39.0				
20.0-20.9									31.0					16.0		6.0	27.0	14,0	6.0		
21.0-21.9									29.0				6.0	5.0		11.0	37,0	8.0	3.0		
22.0-22.9									8.0				11.0	42,0		17.0	14.0	6.0	3.0		
23.0-23.9								5.0	16.0		16.0			4.0		23.0	12.0	19,0			
24.0-24.9									1.0	1.0	9.0		5.0	15.0		22.0	16.0	25.0		4.0	
25.0.25.9								3.0	20.0	5.0	1.0		3.0	26.0	1.0	4.0		32.0			
26.0-26.9			79.0						6.0				6.0	1.0			2.0	3.0	1.0		
27.0-27.9			3.0		1.0				6.0	1.0			1.0	40.0		25.0		6.0		13.0	
26.0-28.9								8.0	4.0					71.0		13.0		3.0			
29.0-29.9			6.0	1.0		28.0		1.0	6.0			1.0	1.0	13.0		31.0		10.0			
30.0-30.9		7.0				5.0		2.0	8.0					32.0	1.0	41,0		2.0			
31.0.31.9								15.0	15.0				4.0	50.0	1.0	12.0		1.0	1.0		
32.0-32.9			22.0					19.0					3.0	24.0	1.0	7.0		18.0			
33.0-33,9			28.0										1.0	56.0		4.0	3.0	2.0			
34.0-36.9			32.0								6.0			5.0							
40.0-43.9			6,0								1.0			56.0		1.0	2.0				10,0
No. 01 food items		13.0	218.6	46.9	0,9	49.3	1.4	56.1	241.5	6.3	23.4	1.4	36.1	542.0	5.1	253.5	76.9	122.2	6.4	15.3	18.1
Percent of all items		0.7	11.9	2.5	0.1	2.7	0.1	3.0	13.1	0.3	1.3	0.1	2.1	29.4	0.3	13.6	4.2	6.6	0,5	0.8	1.0

1. Strait of Georgia April 25 to 29, June 8 to 8, and July 4108, 1966; and May 1 to 4, June 5 to 9, and July 4 to 6, 1967.

2. Saanich Inlet: June and July, 1966; and April 23 to July 21, 1966.

3. Larvae classified as all herring <26 mm long; only data for juveniles <50 mm long analysed.

4." Indicates presence of phytoplankton.

Table J1. Percentage composition of all gut contents of herring larvae end juveniles collected from the Strait of Georgia end Saanich Inlet, British Columbia. (CONT.)

Herring length range (mm)	calanoid copepod: Eurytemora transversalis	Centrop: abdomir	Metridia spp.	Calanus spp.	harpacticoid copepods	polychaete larvae	amphipod: Hyperoche	Parat hemisto pacifica	Insects: Amphidae	fish larvae: Thaleichthye pacificus	Leuroglossus stilbius	Total no. of herring	No. o! feeding herring	Percent of herring feeding	No. of prey	No. of prey/ feeding herring	Percent of prey hems	Prey length (mm) all range mean	lower	upper
	1,0	1,1-1.8	1.3-1.7	3.5	1.1	1.1-1.5	0,8-2.0	0.8-2.0	1.8-3.5	5.5.8.0	5.5									
5.0- 9.9												10.0	3.0	30.0	5.0	1.7	0.3	0.3	0.3	0.3
10.0-1 {.9												15.0	6.0	40.0	f 9.0	3.2	1.0	0.3	0.3	0.3
12.0-12.9												20.0	12.0	60.0	39.0	3.3	2.1	0.3	0.1	0,4
13.0-13.9												13.0	9.0	69.0	40.0	4.4	2.1	0.2	0.1	0.6
14.0-14.9												12.0	6.0	50.0	24.0	4.0	1.3	0.2	0.1	0.5
15.0-15.9												10.0	5.0	50.0	17.0	3.4	0.9	0.2	0.1	0.5
18.0-16.9												13.0	7.0	54.0	9.0	1.1	0.5	0.6	0.1	0.6
17.0-17.9												21.0	10.0	48.0	42.0	4.2	2.3	0.4	0.1	0.8
18.0-18.9												20.0	6.0	30.0	10.0	1.7	0.5	0.6	0.3	0.6
19.0-19.9												20,0	12.0	60.0	23.0	1.9	1.2	0.5	0.3	0.9
20.0-20.9												37.0	22.0	59.0	49.0	2.2	2.6	0.6	0.3	f .0
21.0-21.9												32.0	15.0	47,0	3s.0	2.5	2.0	0.8	0.3	0.9
22.0-22.9												37.0	14.0	38.0	36.0	2.6	1.9	0.6	0.3	1,0
23.0.23.9						2.0						52.0	21.0	40.0	57,0	2.7	3.1	0.6	0.1	1.3
24,0-24.9												42.0	25.0	60.0	79.0	3.2	4.2	0.7	0.3	1.3
25.0-25.9						4.0						51.0	22.0	43.0	74.0	3.4	4.0	0.7	0.3	1.3
26.0-28.9												33.0	14.0	42.0	f 43.0	10.2	7.7	0.2	0.1	{.1
27.0-27.9												31.0	19.0	61.0	93.0	4.9	5.0	0.8	0.1	1.1
28.0-28.9		1.0										29.0	17.0	59.0	72.0	4.2	3.9	0.5	0.3	1.9
29.0-29.9		1.0										28.0	19.0	66.0	f 43.0	7.5	7.7	0.8	0. f	1,3
30.0-30.9		2.0										22.0	14.0	64.0	f 88.0	13.3	10.0	0.6	0.1	1.3
31.0-3 {.9					1.0							17.0	14.0	82.0	181.0	12.9	9.7	0.5	0.3	1.3
32.0-32.9		3.0				3.0						13.0	6.0	62.0	66.0	6.5	3.7	0.6	0.3	1.3
33.0-33.9						1.0	1.0		4.0	2.0		15.0	10.0	67.0	172,0	17.2	9.2	0.8	0. f	5.5
34.0-38.9	5.0		6.0	13.0				& o		24.0	2.0	11.0	6.0	55.0	62,0	10.3	3.3	2.3	o. f	5.5
40.0-43.9								16.0		7.0		8.0	7.0	86.0	161.0	25.9	9.7	1.0	0.1	5.5
No. of food items	3.1	7.9	3.7	8.1	1.8	7.9	1.7	32.7	8.9	31.0	1.2	812.0	323.0		1662.0					
Percent of all items	0.2	0.4	0.2	0.4	0.1	0.4	0.1	1.8	0.4	f .7	0.1									

1. Strait of Georgia April 25 to 29, June 8 to 8, and July 4 to 8, 1966; and May 1 to 4, June 5 to 9, and July 4 to 6, 1967.
2. Saanich Inlet: June and July, 1986; and April2310 July 21,1988.
3. Larvae classified es all herring <26 mm long; only data for juveniles <50 mm long analysed.
4." Indicates presence of phytoplankton.

TABLE J2

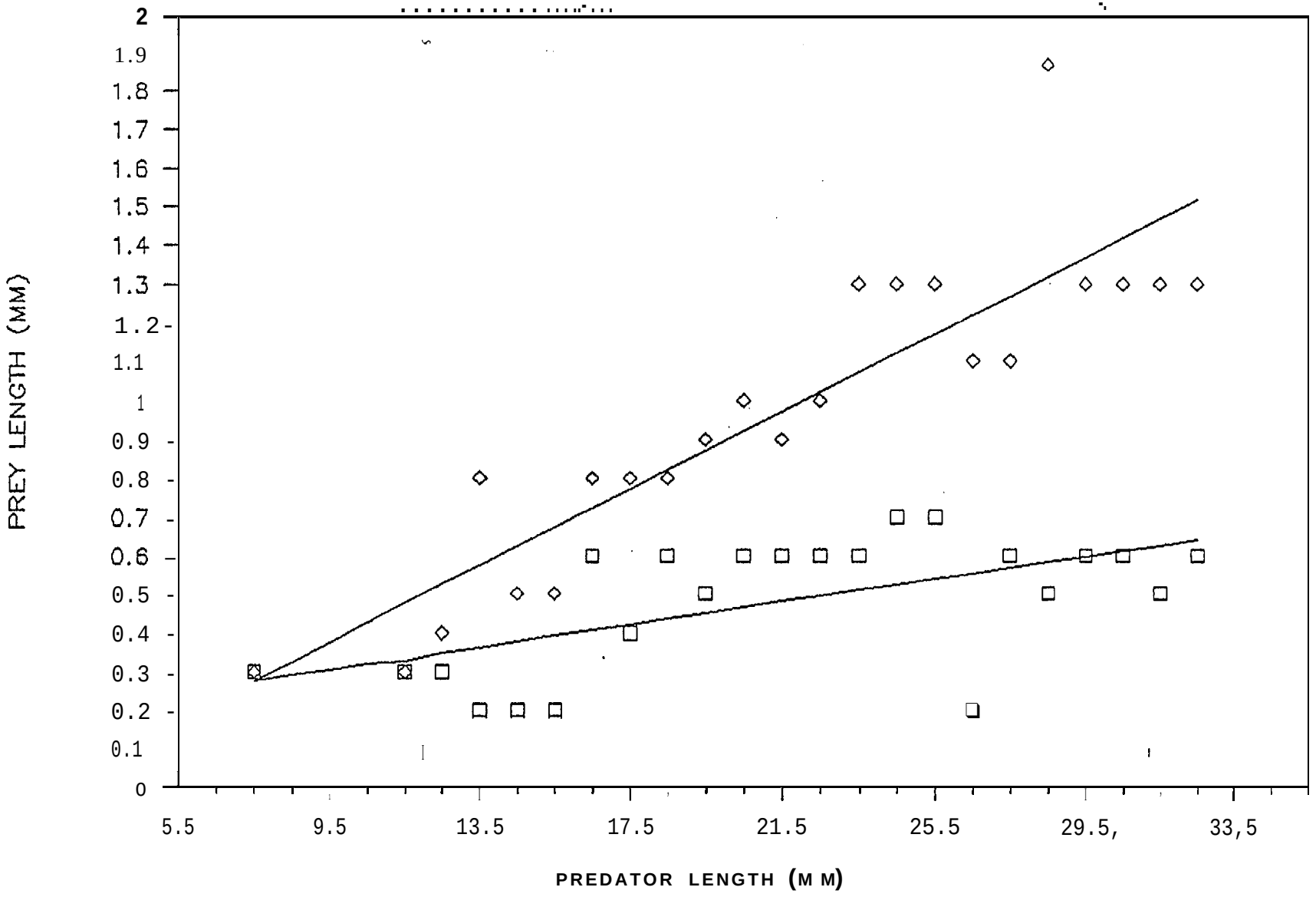
Regressions of prey size on length of herring larvae used to define the prey field of Auke Bay herring larvae.

Dependent Variable (mm)	Intercept (mm)	Slope	SE of Slope	r^2	N	P	Species	Source
Mean prey length	0.166	0.015	0.004	0.36	23	P< O.O1O	Pacific	this study: literature review
Maximum prey length	-0.095	0.050	0.006	0.79	23	P< O.O1O	Pacific	this study: literature review
Mean prey width	0.010	0.008		0.32	103	P<0.005	Atlantic	Checkley (1982: Fig. 2)
Maximum prey width	-0.060	0.019		0.68	52	P<0.005	Atlantic	Checkley (1982: Fig. 2)
Minimum prey width	0.028	0.003		0.09	103	P<0.005	Atlantic	Checkley (1982: Fig. 2)

Notes:

1. dashes indicate data is not available.
2. Regressions of prey length on herring length shown in Fig. J1.
3. No significant regression (P>0.05) between minimum prey length and length of herring.

Figure J1: **REGRESSIONS OF MAXIMUM (diamonds) AND MEAN** (squares) **PREY LENGTH ON LENGTH OF HERRING LARVAE FROM SOUTHERN BRITISH COLUMBIA WATERS (equations are shown in Table J2)**



in larvae longer than 14.0 mm. Small adult copepods, particularly Pseudocalanus minutus (length=0.6 to 1.5 mm) and Microcalanus spp. (length=0.4 to 1.5 mm), first appeared in the diet of larvae longer than 16.0 mm, and made up 6 to 32% of the diet in mid-size and large larvae. Species of copepods with larger adults (length=O.8 to 3.5 mm) never made up more than 1.0% of the diet. Large prey such as amphipods (length=0.8 to 2.0 mm) and fish larvae (length= 5.5 to 6.0 mm) were only found in the guts of juveniles 33.0 to 43.9 mm long.

Despite this correlation between predator size and prey size, both herring larvae and juveniles continued to display a preference for relatively small and immobile organisms, particularly the eggs of copepods (diameter=0.1 mm), barnacles (diameter=0.1 mm), and euphausiids (diameter= 0.4 mm).

The third study of the diet of Pacific herring larvae was performed by Robinson (1988) on larvae captured in the Strait of Georgia east of Vancouver Island, British Columbia, in the springs of 1985 and 1986. Larvae fed primarily on the eggs, nauplii and adult stages of copepods, but bivalve veligers and diatoms were also found in small amounts. Copepod eggs and diatoms made up 46 to 90% of the diet of 10 to 15 d old larvae, but copepod eggs (12 to 32%), nauplii (35%) and adults (24 to 47%) dominated the diet of 30 to 40 d old larvae. The size range of prey ranged from 60 to 1020 pm, but it was skewed towards small organisms with a modal length of 80 µm in 10 to 15 d old larvae and a modal length of 140 µm in 30-40 d old larvae.

The average number of prey per feeding herring juvenile captured in the Strait of Georgia or Saanich Inlet, 10.2, was an order of magnitude lower than the number of prey per feeding juvenile captured in Auke Bay in 1988, 313. This difference is probably caused by voiding of the guts of juveniles captured by the trawls used in the former study. Therefore, the number of prey per fish of Auke Bay juveniles captured with dipnets is far closer to an accurate measurement of the instantaneous feeding intensity of juvenile herring. I conclude by similar reasoning that the number of prey per feeding

herring larvae that was measured in southern British Columbia also underestimates the true feeding intensity of these fish by as much as an order of magnitude.

The conclusions concerning the diet of juvenile herring in southern British Columbia surface waters are substantially supported by the only other study of diet in juvenile herring: Levings (1983) reported that the gut contents of Pacific herring 45 to 55 m m long captured on Roberts Bank, British Columbia, contained 37.5% natantia zoea larvae, 32.1% harpacticoid copepods, and 28.3% small calanoid copepods.

In summary, the diet of Pacific herring larvae collected from southern British Columbia waters is dominated by the early life history stages of pelagic copepods and the adults of the smallest species of copepods and cladocerans. The diets of juveniles are similar, but a greater diversity of organisms are eaten including some epibenthic species picked up as the juveniles move from pelagic to littoral habitat. In the following analysis, I assume that the herring larvae of Auke Bay have a diet similar to that of herring larvae of southern British Columbia.

The conclusions concerning the diet of larval herring in southern British Columbia are also in agreement with the results of numerous studies on the diet of sea-caught Atlantic herring larvae (Hardy 1924, Lebour 1924, Marshall et al. 1937, Bowers and Williamson 1951, Bhattacharyya 1957, Sherman and Honey 1971, Gosheva and Slonova 1975, Last 1980, Cohen and Lough 1983). In general, Atlantic herring larvae feed on the synchronously developing juvenile and adult stages of the dominant copepods in their region. A shift in diet from one species to another usually reflects a shift in the zooplankton species distribution in the area (Cohen and Lough 1983). The length of prey increases from about 0.1 to 0.5 mm in larvae 10 mm long to 0.1 to 1.5 mm in larvae 26 mm long. Width of prey is actually more closely correlated with length of predator because herring swallow their prey head-on. Width of prey increases from 0.1 mm in 10 mm long larvae to 0.1 to 0.5 mm

in large larvae (Last 1980, Checkley 1982, Cohen and Lough 1983). Prey longer than 1.5 mm or wider than 0.5 mm are rarely ever seen in their guts.

Herring larvae select prey by type as well as by size. Checkley (1982) reported that Atlantic herring larvae reared in the laboratory and exposed to natural zooplankton preferred copepod nauplii and copepodites, but that some species of copepodites, e.g. Acartia spp., were rarely ingested, even when of acceptable size. Mollusc veligers were selected by young herring, but were rejected by mid-size and large larvae.

Checkley's (1982) report that the prey selected by herring larvae in the laboratory is similar to the prey observed in the guts of sea-caught herring larvae suggests that the voiding of guts of sea-caught herring larvae does not affect the relative proportions of prey types in the diet. Thus, the gut eontents of sea-caught herring larvae are reliable indices of diet.

Of particular relevance to this report is Checkley's (1982) observation that particles much smaller than the largest acceptable size were consistent y preferred. This was also reported by Robinson (1988) for wild Pacific herring larvae. He interpreted this to mean that herring larvae follow the invertebrate style of feeding: large numbers of small prey, as opposed to the vertebrate style of feeding: small numbers of large prey. This allows larvae to maximize growth rate, but at a cost of reduced feeding efficiency because growth rate is asymptotically related to ingestion rate (Checkley 1984).

One consequence of this observation is that the prey field described by Table J3 probably overestimates the density of prey because there is no mechanism for the removal of organisms from the field. However, this factor is not expected to bias the correlation analysis between growth, prey density and temperature because, first, the same rules for including organisms in the prey field were followed consistently for all length classes of herring, and, second, the most numerous prey in all herring length classes, copepod nauplii and unidentified copepods, were also among the smallest of all potential prey

Table J3. Prey **fiekdol** herring larvae In **Auke** Bay.

Herring length range (mm)	Expected length ol prey (mm) lower	Expected length ol prey (mm) upper	Expected width of prey (mm) lower	Expected width of prey (mm) upper	Type of prey: calanoid copepods: nauplii	unid. copepodids	Oncaea borealis	Olthona similis	Microcalanus pygmaeus	Scolecithricella minor (cop. 4)	Pseudocalanus minutus (rep. 4)	Acartia spp.	Scaphocalanus brevicornis	Scolecithricella minor	Pseudocalanus minutus	Centropages abdominalis	harpacticoid copepods: Harpacticus spp.	unid. spp.	cladocera: Evadne nordmanni	mollusca: clam veliger	snail veliger	polychaeta trochophore	vertebrata: fish	small eggs
					L: 0.1	0.1.0.7	0.5	0.5	0.6	0.7	0.9	1.0	1.0	1.0	1.1	1.2	0.5	0.5	1.0	0.3	0.%	02		0,25
					W 0.1	0 . 1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.5	0.2	0.2	0.2		0.25
7.0- 7.9	0.1	0.3	0.1	0.1	•																			
8.0- 8.9	0.1	0.3	0.1	0.1	•																			
9.0-9.9	0.1	0.4	0.1	0.1	•	•																		
10,510.9	0.1	0.4	0.1	0.1	•	•																		
11.0.11.9	0.1	0.5	0.1	0.2	•	•	•	•																
120.12.9	0.1	0.5	0.1	0.2	•	•	•	•										•						
13.0.13.9	0.1	0.6	0.1	0.2	•	•	•	•	•									•						
14.0-14.9	0.1	0.6	0.1	0.2	•	•	•	•	•									•						
15.0-15.9	0.1	0.7	0.1	0.2	•	•	•	•	•									•						
16.0-16.9	0.1	0.7	0.1	0.3	•	•	•	•	•	•								•						
1?.0.17.9	0.1	0.8	0.1	0,3	•		•	•	•	•														
1 8.0-18.9	0.1	0.8	0.1	0,3	•	•	•	•	•	•														
19.0.19.9	0.1	0.9	0.1	0.3	•	•	•	•	•	•	•													
20.0-20.9	0.1	0.9	0.1	0.3	•	•	•		•															
21.0-21.9	0.1	1.0	0.1	0.3	•		•	•			•	•		•										
220-229	0.1	1.0	0.1	0.4	•	•	•		•	•	•	•												
23.0-23.9	0.1	1.1	0.1	0.4	•	•	•			•	•	•	•		•									
24.0.24.9	0.1	1.1	0.1	0.4	•	•	•		•						•							•		
25.0-25.9	0.1	1.2	0.1	0.4	•		•	•	•					•		•								
26.0-28.9	0.1	1.2	0.1	0.4			•	•	•			•	•	•	•									
27.0-27.9	0.1	1.3	0.1	0.5	•	•	•	•	•	•	•	•	•		•	•			•		•	•		
28.0.28.9	0.1	1.3	0.1	0.5	•	•		•	•	•	•			•		•		•			•	•		
29.0-29.9	0.1	1.4	0.1	0.5		•	•	•				•	•				•	•		•	•	•		

Notes:

1. Expected maximum and minimum lengths and widths ol prey calculated from equations In Table J2.
2. Zooplankton taxa and their length (L) and weigh (WI taken from community structure listed In Appendix I.

in Auke Bay. Thus, the prey field is dominated by the kind of small organisms that are the preferred prey of herring larvae.

The use of prey densities that are integrations over the upper 30 m of the water column is a necessary consequence of relying on oblique plankton net tows to obtain estimates of herring and zooplankton density, but it ignores the vertical stratification of these organisms. The APPRISE data listed in Appendix H shows that the highest densities of copepod nauplii were always found in the upper 10 m of the water column. Haldorson et al. (1988) reported that the highest densities of fish larvae (except herring larvae, which were not present) in Auke Bay measured on May 22, 1987, were also found in the upper 10 m during the day with most larvae dispersing to lower depths during the night. Thus, the densities of potential prey calculated in this report may not reflect the actual densities encountered by feeding herring larvae; being averages they probably underestimate the actual encountered prey densities.

APPENDIX K

Concentrations of prey for herring larvae in Auke Bay in 1988

Appendix K. Concentrations of prey for herring larvae captured in Auke Bay in 1988.

SPECIES	STAGE	TAXONOMIC CODE	LENGTH (MM) KIN	LENGTH (MM) MAX	WIDTH (MM)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)
SAMPLE NUMBER						8	9		15	18	21		27	33		43	44		56	57		63	66	69
Date						May 21	May 21	May 21	May 24	May 24	May 24	May 24	May 27	May 27	May 27	June 1	June 1	June 1	June 5	June 5	June 5	June 10	June 10	June 10
Site						CSI	GOV		CSI	ASK	NOS		CSI	GOV		CSI	ABM		CSI	ASK		CSI	ASH	NOS
Fish eggs		8135	0.25	0.25	0,25	0.5	0.0	0,2	0,2	0.1	0.1	0.1	1.1	1.2	1.2	0.5	0.1	0.3	0.0	0.0	0.0	0.0	0.1	0.3
Centropages abdominalis		6118170101	1,20	1,20	0.20	0.8	0.5	0.7	2.5	1.8	0.7	1.7	0.3	7.5	3,9	0.6	3.1	1.8	1.2	0.7	0.9	0.3	1.1	1.0
Scolecithricella minor		6118100504	1,00	1.00	0.30	36,1	5.6	20,8	7.4	2.4	1.3	3.7	2.2	14.4	8.3	5.4	5.9	5.7	5.8	3.6	4.7	1.2	1.6	3.6
Scolecithricella minor	cop, 4	6118100504	0.70	0.70	0.20	8.4	2.6	5.5	4.4	0.9	1,2	2.1	3.1	7.0	5.0	1.9	2.2	2.0	1.4	1.2	1.3	0.1	2.1	1.9
Microcalanus pygmaeus		6118050402	0,60	0,60	0,20	0.2	0.6	0.4	0.4	0.4	0.4	0.4	0.5	1.6	1.1	0,4	0,1	0.2	0.3	0.3	0.3	0.3	0.4	0.4
Pseudocalanus minutus		6118050502	1,10	1,10	0,20	2.7	0.2	1.4	0.3	0.0	0.0	0.1	0.0	1.1	0.5	0.4	1.0	0.7	0.7	0.5	0.6	0.1	0.2	0.4
Pseudocalanus minutus	cop, 4	6118050502	0,90	0.90	0.20	009	0.4	0.7	1.2	0.9	3.1	1.7	1.4	0.3	0.8	0.1	0.4	0.3	0.2	0.O	0.1	0.0	0.3	0.7
Acartia spp.		611829	1.00	1,00	0.10	0.1	0.1	0$1	0.0	0.1	0.9	0.3	0.1	6.3	3.2	0.5	0.5	0.5	0.2	0.1	0.1	0.0	0.1	0.1
Scaphocalanus brevicornis		6118100402	1.00	l.OO	0,20	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	4.6	2.3	0.5	1.9	1.2	1.3	0.6	0.9	0.0	0.0	0.1
Unid. copepodites		6118	0,10	0.70	0.10	4.3	3.5	3.9	1.5	1.3	2.6	1.8	2.1	20.4	11,2	1.6	2.5	2.0	1.3	1.0	1.1	0.0	0.7	0.0
Copepod nauplii		6118	0,10	0.10	0.10	22.3	22,3	22.3	21,1	21,1	21,1	21.1	21.0	21.0	21.0	19.9	19,9	19.9	15.9	15,9	15,9	16.7	16.7	16.7
Oithona similis		6120090103	0.50	0.50	0.20	2.2	2.8	2.5	1.3	1.2	2.4	1.6	0.7	3.8	2.2	1.6	3.8	2.7	1.5	1.4	1.5	0.1	0.3	0.2
Oncaea borealis		6120010301	0.50	0,50	0,20	0.0	0.0	0.0	0.0	0.0	0s0	0.0	0.0	0.3	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.O
Harpacticoida		6119	0.50	0.50	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.O	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Harpacticus spp.		611910	0.50	0.50	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.O	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Clam veliger		55	0.30	0.30	0.20	2.2	4.3	3,2	4.8	5.1	5.8	5.2	7.3	62, S	34,9	21.1	18.8	20.0	8.2	6.1	7.2	1.5	6.9	9.3
Snail veliger		5180	0,60	0.60	0.50	28,0	33,0	30. $	17.2	15,7	8.4	13.8	6.8	67,5	37.2	16,9	11,4	14,2	5.8	10,7	8.3	1.3	1.2	5.8
Evadne nordmanni		6109050I01	1,00	1.00	0,50	2.3	12,4	7.3	0.0	4.3	1.4	1.9	0.0	41.2	20.6	0.4	6.5	3.5	1.3	1.6	1.4	2.6	3.6	14.9
Trochophores		50	0.20	0,20	0,20	0.3	0.2	0.3	0,2	0.4	0.3	'?.3	0.0	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
HERRING LARVAE LENGTH CLASSES:			7,0- 8,9			22,3	22.3	22.3	21.1	21.1	21,1	21,1	21.0	21,0	21,9	19.9	19.9	19.9	15.9	15.9	15,9	16.7	16,7	16,7
			9.0-10.9			26,5	25,7	26.1	22,5	22.4	23,6	22.9	23.1	41,4	32,3	21.5	22.4	22.0	17.2	16,9	17.0	16.7	17.4	16.7
			11,0-12.9			31,2	33,1	32.2	28.8	29.1	32,1	30.0	31,1	108.2	69,7	44,5	45.2	44,8	27.0	24.5	2S.8	18.3	24.7	26.4
			13,0 -14,9			31,5	33.7	32.6	29.2	29.5	32.5	30.4	31,6	109.9	70.7	44.8	45.3	45.0	27.3	24.8	26.0	18.6	25,1	26.7
			15,0 -16.9			40.3	36,3	38.3	33.8	30.4	33.7	32.7	35,7	118.1	76,9	47.2	47.6	47,4	28.7	26,1	27,4	18.7	27.2	28.9
			17.0 -18.9			40,3	36.3	38.3	33.8	30.4	33,7	32.7	3S,7	118,1	76,9	47,2	47.6	47,4	28.7	26.1	27,4	18.7	27.2	28.9
			19.0-20,9			41.2	36,7	39.0	35,1	31.3	36.8	34.4	37.1	118.4	77,8	4703	48,0	47.6	28.9	26.1	27.5	18.7	27,5	29.6
			21,4 -22,9			77.6	42.3	59.9	42,4	33,8	39.1	38,4	39,4	143.6	91.5	53,6	56,3	55,0	36.1	30,4	33.3	20.0	29.1	33.4
			23,0-24.9			80,2	42s5	61,4	42.8	33.8	39.1	38,6	39,4	144.7	92,1	54.1	57,3	55.7	36.8	30.9	33,9	20.0	29.4	33.8
			25.0-26,9			81,1	43.0	62.0	45.3	35.6	39.8	40.2	39.7	152.3	96.0	S4.6	60.4	5705	38.0	31.6	34,8	20.4	30.5	34.8
			27,0-28,9			111.4	88,4	99,9	62.5	55.5	49.6	55.9	46.6	260,9	153.7	72.0	78,3	75.2	45.0	43.9	44.5	24.3	35.2	55,6
			29.0 -29.9			111.4	88,4	99.9	62.5	55.5	49.6	55.9	46,6	260.9	153.7	72.0	78,3	75,2	45.0	43.9	44.5	24.3	35.2	55.6

Note;

1. Copepod nauplii concentration based on mean density for upper 30 m of water column (Appendix H),

Appendix K. Concentrations of prey for herring larvae captured in Auke

SAMPLE NUMBER							76	79	82		88	91	94		101	104	107	
Date							June 10	June IS	June 15	June 15	June 15	June 20	June 20	June 20	June 20	June 25	June 25	June 25
Site							CSI	ABM	GOV		CSI	ABM	ANC		CSI	ABM	ANC	
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (NH) KIN	MAX	MEAN [NH]	WIDTH (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)
Fish eggs		8735	0.25	0.25	0.25	0.1	0.4	0.0	0,0	0.1	0,3	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Centropages abdominalis		6118170101	1.20	1.20	0.20	0.8	0.8	1.0	0.8	0.9	8.2	2.1	2.0	4.1	1.4	1.3	2,9	1.9
Scolecithricella minor		6118100504	1,00	1.00	0.30	2.1	6.5	2.3	2.4	3.7	30.5	4,8	6.1	13,8	3,4	2,8	8.4	4.9
Scolecithricella minor	cop. 4	6118100504	0.70	0,70	0.20	1.3	2.1	2.2	1.9	2.1	10,6	1.2	0.9	4,3	0,8	0,4	1.0	0.7
Microcalanus pygmaeus		6118050402	0.60	0.60	0.20	0.4	0,3	0,1	0.2	0.2	0,6	0,2	0.3	0.4	0,3	0.1	0.2	0.2
Pseudocalanus minutus		6118050502	1,10	1,10	0.20	0.2	1.0	0.3	0.1	0,5	2,7	0.3	0,7	1,2	0.3	1.6	1.9	1.3
Pseudocalanus minutus	cop, 4	6118050502	0,90	0,90	0.20	0.3	0.2	0.3	0.2	0.2	0.3	0.7	0,5	0,5	0.0	0,3	0.7	0.3
Acartia spp.		611829	1.00	1.00	0.10	0.1	0.1	0.1	1.3	0.5	1.8	0,5	0.5	0.9	0,2	0,3	0.3	0.3
Scaphocalanus brevicornis		6118100402	1,00	1.00	0.20	0.0	0.1	0.0	0.9	0.3	4.9	0.8	0.8	2.2	0.9	0.8	1.6	1.1
Unid. copepodites		6118	0.10	0.70	0.10	0.3	1.2	2.1	1.5	1,6	9.1	2.2	1.8	4.3	2.3	1.3	2.8	2.1
Copepod nauplii		6118	0.10	0.10	0.10	16,7	20,7	20,7	20,7	20.7	21.5	21,s	21s5	21,5	21,7	21,7	21.7	21,7
Oithona similis		6120990103	0.50	0.50	0.20	0.2	1.1	0.7	1.3	1.0	22.5	2.6	2.2	9.1	4.6	2.5	2.4	3.2
Oncaea borealis		6120010301	0.50	0,50	0,20	0.0	0.1	0.0	0.0	0.0	0.6	0.1	0,0	0.2	0,0	0,1	0.0	0.0
Harpacticoida		6119	0.50	0.50	0,10	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0,0	0.0	0.0	0,0	0.0	0.0
Harpacticus spp.		611910	0.50	0,50	0.10	0,0	0.0	0.0	0.1	0.0	0,3	0.0	0.0	0,1	0.0	0.0	0.0	0.0
Clam veliger		55	0.30	0.30	0.20	5.9	12,9	13. 5	10.0	12,1	194.0	17.2	1?,2	76,1	29,8	26.4	24.5	13,9
Snail veliger		5180	0.60	0,60	0.50	2.8	17.7	10.9	10,0	12.9	38,1	3.3	11,2	17,5	23,5	3,9	4.5	10,6
Evadne nordmanni		6109050101	1.00	1.00	0,50	7.0	16.1	11,2	11,0	12.8	23.2	12,5	10.0	15,3	10.2	3,8	4.9	6.3
Trochophores		50	0.20	0.20	0020	0.0	0$0		0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0
HERRING LARVAE LENGTH CLASSES:					7.0-8,9	16.7	2007	20.7	20.7	20.7	21.5	21,5	21,5	21.5	21,7	21.7	21.7	21.7
					9.0-10,9	17.0	21.9	22.8	22.2	22.3	30.6	23,7	23.3	25,9	24,0	23.1	24,5	23.8
					11,0 -12,9	23,1	36.1	37,0	33.6	35,5	248.1	43,6	42.8	111,$	49, s	52,0	51.4	51,0
					13.0-14.9	23.5	3604	37.1	33.8	35,8	248,7	43.9	43.1	111,9	49,8	52,2	51,6	51.2
					15,0 -16,9	25,0	38.9	39.3	3507	38,0	259,7	45,1	44,0	116.3	50,7	52,6	52.6	52.0
					17.0-18,9	25.0	38.9	39.3	35.7	38.0	259,7	45,1	44,0	116,3	50,7	52.6	52.6	52.0
					19.0-20.9	25,3	39.1	39.7	35.8	38,2	260.0	45,8	44,5	116.8	50,7	52,9	53.4	52,3
					21.0 -22.9	27.5	45.7	42,2	40.4	42,8	297,1	51.8	52.0	133.7	55,2	56,7	63.6	58.5
					23,0 -24,9	27,7	46.7	42,5	40,5	43.2	299,9	52.2	52.7	134,9	55.5	58,3	65,5	59,8
					25.0-26,9	28.6		47.5	43.5 41.3	44.1	308.1	54.3	54.7	139.0	56.9	59.7	68.3	61,6
					27.0 -28,9	38.3	81.3	65.6	62,3	69,7	369,4	70,1	75,9	171,8	90.6	67,3	77.7	78.5
					29.0 -29,9	38.3	8103	65,6	62,3	69,7	369,4	70.1	75,9	171,8	90,6	67,3	77.7	78.5

Note;

1. Copepod nauplii concentration based on mean density for upper 30 m

APPENDIX L

Diameter and dry weight of gelatinous predators

APPENDIX L

Diameter and Dry Weight of Gelatinous Predators

1.0 Fixation Shrinkage of Jellyfish

In order to calculate the concentration of jellyfish (mg dry weight·m^{-3}) it was first necessary to correct preserved diameters of jellyfish to live diameters. Table L1 summarizes the reports of percent shrinkage of jellyfish diameters. Two of the five reports are not reliable because the storage period of the preserved jellyfish was either not reported (Fancett 1986) or it was less than 60 d (van der Veer and Orthuysen 1985). de Lafontaine and Leggett (in press) showed that percent shrinkage of 2 species of hydrozoan jellyfish does not stabilize until after at least 60 d of storage. The remaining 3 papers reported storage times ranging from 154 to 1,020 d.

The 2 reports that used 10% formalin reported a range of shrinkages of 15.1 to 32.1% (mean = 21.6%, SD = 9.2) for 3 species of jellyfish (Moller 1980a, de LaFontaine and Leggett in press), but Larson (1985), who used only 5% formalin, reported much lower shrinkages: a range of 1 to 11% for 5 species (mean = 7%, SD = 5). Since 5% formalin was used as the preservative in this study, the mean percent shrinkage derived from Larson's (1985) work was used to correct all preserved diameters of jellyfish to live diameters.

2.0 Weight-Diameter Relationship of Jellyfish

Several authors have reported dry weight-live diameter relationships for individual species of jellyfish (Kerstan 1977 cited in Moller 1980a, Arai 1980, Larson 1985, de Lafontaine and Leggett in press), but this project required a general relationship between weight and diameter because at least 12 separate species of jellyfish were captured in Auke Bay and there does not exist a separate weight-diameter relationship for each of these species. Larson (1985) reported the most extensive data set: 215 measurements of

TABLE L1

Summary of percent shrinkage of bell diameters of jellyfish preserved in form alin.

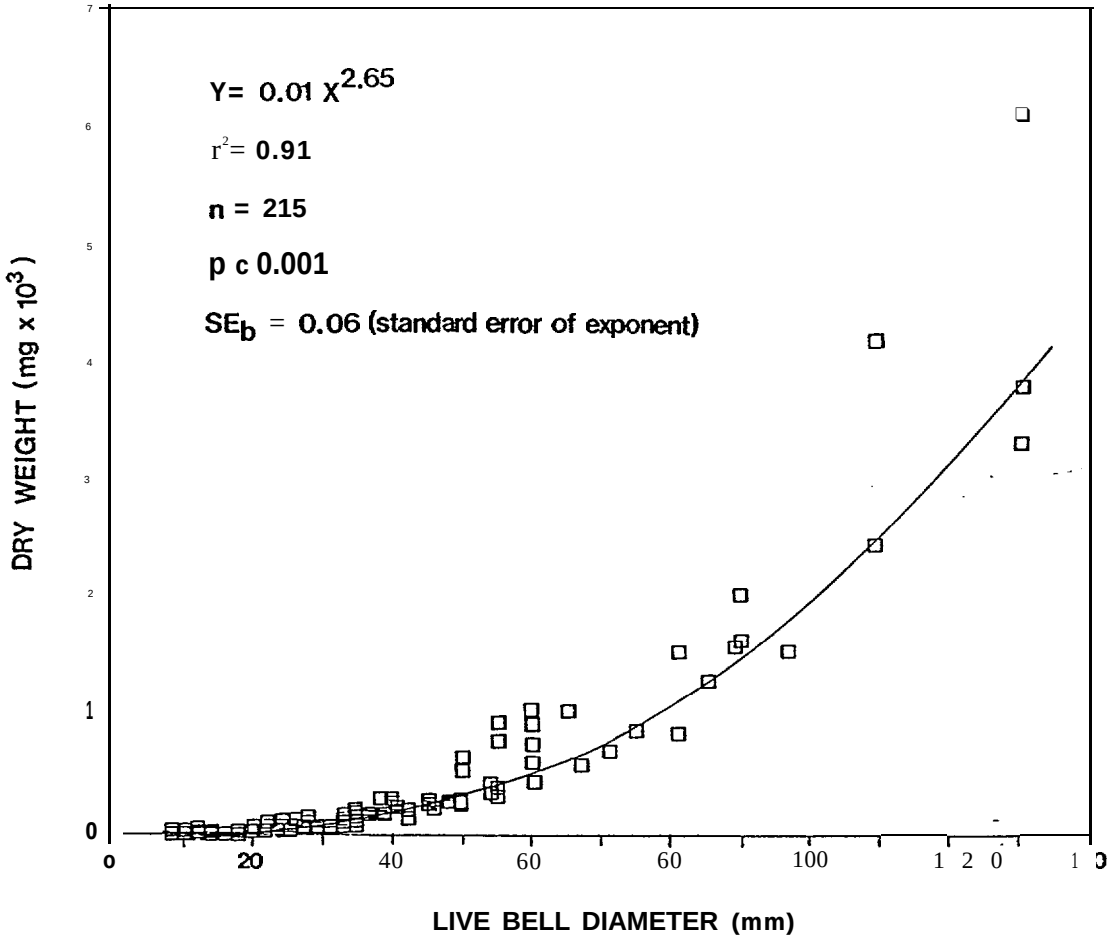
Species/Taxon	Percent Formalin	Days Stored	% Shrinkage Range	% Shrinkage Mean	Number Measured	Author
Aurelia aurita	10	190	15.4 -28.5	17.5	320	Moller (1980a)
Aequorea victoria	5	1020		2	6	Larson (1985)
Aglantha digitale	5	660		1	11	Larson (1985)
Eutonina indicans	5	300		11	4	Larson (1985)
Phialidium gregarium	5	27	3-15	11	44	Larson (1985)
Phialidium lomae	5	300		10	10	Larson (1985)
Aurelia aurita	10	"few wk"		10		van der Veer and Oorthwysen (1985)
Scyphomedusae	10			7		Fancett (1986)
Staurophora mertensi	10	154		15.1	26	de Lafontaine and Leggett (in press)
Catablema vesicarium	10	154		32.1	9	de Lafontaine and Leggett (in press)

Note: 1. Mean (± ISD) shrinkage of jellyfish stored in 5% formalin is 7 (± 5)%.

2. Mean (± ISD) shrinkage of jellyfish stored in 10% formalin for at least 60 d is 21.6 (± 9.2)%.

weight and diameter for 6 species of hydrozoan (Aequoria victoria, Eutonia, indicans, Mitrocoma cellularia, Phialidium gregarium, Philidium lomae and Stomotoca atra) and 2 species of scyphozoan (Aurelia aurita and Cyanea capillata) captured in Saanich Inlet, British Columbia. Dry weights ranged from 2 to 6,108 mg, and diameters ranged from 8 to 130 mm. An exponential regression of dry weight on live bell diameter was successful in explaining 91% of the variation in Larson's (1985) data (Fig. Ll). This equation was used in section 3.5 [equation (4)] of volume I of this report to convert numbers of jellyfish" m^{-3} to mg dry weight·m^{-3}.

Figure LI : REGRESSION OF DRY WEIGHT ON LIVE BELL DIAMETER FOR THE COMBINED DATA OF SPECIES OF JELLYFISH FROM SAANICH INLET , BRITISH COLUMBIA



source: Larson, 1985

APPENDIX M

Concentrations of invertebrate predators of herring larvae in Auke Bay in 1988

Appendix M. Concentrations of invertebrate predators captured in Auke Bay in 1988.

SAMPLE NUMBER						8	9		1S	18	21		27	33		43	44		56	57		63	66
Date						21-May	21-Hag	21-May	24-Nay	24-Hay	24-Nay	24-Hay	27-Hay	27-Nay	27-Kay	01-Jun	01-Jun	01-Jun	05-Jun	05-Jun	05-Jun	10-Jun	10-Jun
Site						CSI GOV		CSI	ABM	NOS		CSI	GOV	CSI	ABM		CSI	ABM			CSI	ABM	
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (MN) MIN	MAX	(MM)	TOTAL (MG/M^3)	TOTAL (MG/M^3)	MEAN WIDTH (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	NEAR CONC'N (MG/M^3)	CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)
Medusae, damaged		3738				5.8	3.1	4.4	9.8	57.7	135, s	67.7	0.0	505.1	252.	s 0.0	63,2	31.6		0.0	0.0	0.0	8.7	37.3
Hybocodon prolifer		3703030401				3.00			3,00			3.00	0.0	0.0	0.0 3.3	0.0	0.0 1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Halitholus spp.?		37031206		3.00			3.00		3,00		5.8	900		209		0.0	0.0 0.0	0.0	0.0	0.0	0.0	1.6	0.0 0.8	0.0 0.0
Mitrocomella sinuosa		3704085606		12.00	12.00	12.00	0.0	0.0 0.0	0.0	0.0	135,5	45,2				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37,3
Tiaropsis multicirrata		3704040301			10.00	10.00	10.00		0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0	505.1		25205		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sarsia spp.		37030609						8.00	8.00	8.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rathkea octopunctata		3703190203				3,00			3.00		3.00	0.0		0.0	0.0 0.0	0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aequoria victoria		3704140314						20.00		20.00		20.00	0.0	0.0	0.0 0.0	0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cyanea spp.?		37340201	16.00	16.00	16.00	0.0	0.0	0.0	0.0	0.0	0,0		0.0	0.0	0.0	303,2	0.0	70,2		0,0		0.0	0.0	0.0 0.0
Polyorchis spp.		370313				15.00				15.00	15.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0
Phialidium spp.		37040104				14,00			14.00		14.00		0.0	0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0
Staurophora mertensi		3704090601	100,00	100,00								100.00	0.0	0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.0
Eperetmus typus		3705'?				10101			15.00	15.00	15.00	0.0	0.0	0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Parathemisto spp.		61?00110					2.50	2.50	0,60		1.6	0.0	0.8	0.0	0.0 0.0	0.0	0.0	900		0.0	0.0	0.0	0.0	0.0 0.0
Sagitta elegans		8300000303						3.00		6,00		0.20	0.0	1.5	0.7 0.0	0.0	0.0	0.0	0.0	0.7	0.4	0.2	0.0	0.1 0.0
TOTAL: Gelatinous predators						11.5	3.1	7.3	13.1	57.7	271.0	113.9	0.0	1010.1	505.1	303.2	63.2	101.7	1.6	0.0	0.8		8,7	74,5
GRAND TOTAL						13.1	4.6	8.8	13.1	S707	271,0	113.9	0.0	1010.1	505.1	303.2	63,9		102.1	1,8	0.0	0.9	8,7	75.1
percent jellyfish						87.8	68,3	82.8	100.0		100.0	100.0	0.0	100.0	100.0	100.0	98,9	99,6	86.6	0.0		86.6	100.0	99.3

Appendix M. Concentrations of invertebrate predators captured in Auke

SAMPLE NUMBER						69	76	79	82	88	91	94	101	104	101	113	116	119
Date						10-Jun	10-Jun	15-Jun	15-Jun	15-Jun	15-Jun	20-Jun	20-Jun	20-Jun	20-Jun	25-Jun	25-Jun	25-Jun	25-Jun	30-Jun	30-Jun	30-Jun	30-Jun
Site						NOS	CSI	ABM	GOV	CSI	ABN	ANC	CSI	ABM	ANC	CSI	ABM	ANC
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (NH) MIN	MAX	(NH)	TOTAL MEAN WIDTH (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL MEAN CONC'N (MG/M^3)	TOTAL MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL MEAN CONC'N (MG/M^3)
Medusae, damaged		3730				24.2	23.4	0.0	0.0	0.0	0.0	0.0	27.4	501.0	176.1	0.0	0.0	29,9	10.0	0.0	28,5	0.0	9.5
Hybocodon prolifer		3703030401					3.00	3,00	3.00	1.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Halitholus spp.?		37031206				3.00		3.00	3.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mitrocomella sinuosa		3704080606	12,00	12.00	12.00	0.0	12,4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tiaropsis multicirrata		3704040301	10,00	10,00	10.00	43,6	14,5	0.0	0.0	0.0	0.0	0.0	49,4	51,3	33,6	0.0	46.2	0.0	15,4	0.0	0.0	38.0	12.7
Sarsia spp.		37030609	8,00	8.00	8.00	24,2	8,1	0.0	20.1	41,4	20.5	0.0	27,4	0.0	9.1	0.0	0.0	0.0	0.0	14.5	28.5	21.0	21.4
Rathkea octopunctata		3703190203	3.00	3.00	3.00			0.0	0.0	0.0	1.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aequoria victoria		3704140314			20.00	20.00	20.00	0.0	0.0	0.0	0.0	469,4	156,5	0,0	310.2	0.0	103,4	0,0	0.0	0.0	0.0	0,0	0.0	0.0
Cyanea spp.?		37340201			16.00	16.00	16,00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	178,4	59,5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Polyorchis spp.		370313			15,00			15.00	15.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phialidium spp.		37040104				14.00		14.00	14.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Staurophora mertensi		3704090601	100,00	100,00						100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eperetmus typus		3705010101						15.00	15.00	15.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Parathemisto spp.		61700110					2.50	2,50	0.60	0.0	0.2	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sagitta elegans		8300000303					3.00	6.00	0.20	0.0	0.0	0.0	0.5	0.0	0.2	0.0	0.3	0.0	0.1	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0
TOTAL: Gelatinous predators						93,8	59.0	0.0	21,6	510.8	177.5	0.0	414.3	730.7	381.7	0.0	46,2	29,9	25.4	14.5	57.1	59>0	43.5
GRAND TOTAL						93.8	59.2	0.0	22.4	510.8	177,8	0.0	414,6	730.7	381.8	0.3	46.2	29,9	25.5	14.5	57.1	59.0	43. s
percent jellyfish						100.0	99.7	0.0	96.1	100.0	99,8	0.0	99.9	100.0	100.0	0.0	100.0	100.0	99.	s	100.0	100.0	100.0	100.0

Appendix M. Concentrations of invertebrate predators captured in Auke

SAMPLE NUMBER							125	128	131		138	141		149	152	155		162	165	168		174	177	180
Date							05-Jul	06-Jul	06-Jul	06-Jul	10-Jul	1O-JU1		10-Jul	17-Jul	17-Jul	17-Jul	22-Jul	22-Jul	22-Jai		22-Jul	27-Jul	27-Jul
Site							CSI	ABM	ANC		CSI	ABM		CSI	ABM	ANC		CSI ABM		ARC		CSI	ABM	ANC
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (NH) KIN	MAX	WIDTH (MM)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	MEAN CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)	TOTAL CONC'N (MG/M^3)
Medusae, damaged		3730				0.0	0.0	38.8	19,4			0.O			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.3
Hybocodon prolifer		3703030401						3.00	3.00		3.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Halitholus spp. ?		37031206				3.00			3.00			3.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
Mitrocomella sinuosa		3704080606					12.00				12.00	12.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tiaropsis multicirrata		3704040301				10.00		10.00	10.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.6	20,2		0.0	0.0	0.0	0.0	49,3
Sarsia spp.		37030609	8.00	8.00	8.00	0.0	21, s	0.0	10.8	0.0	34,4	17.2			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.3
Rathkea octopunctata		3703190203							3.00	3.00	3.00	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aequoria victoria		3704140314							20.00	20.00	20.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1279.9	0.0	309.5
Cyanea spp. ?		37340201	16.00	16.00	16.00	0.0	135.1	0.0	67.5				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Polyorchis spp.		370313	15.00	15.00			15.00		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phialidium spp.		37040104					14.00				14.00	14.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Staurophora mertensi		3704090601	100,00	100.00			100.00	0.0	0.0	0.0	0.0	0.0	27781)0	13890,5	0.0	0.0	0.0	0.0102067.8	0.0	0.0	34022.6	0.0	0.0	0.0
Sperematus typus		3705010101					15.00	15.00	15.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	177.6	59,2		0.0	0.0	0.0	0.0
Parathemisto spp.		61700110				2.50	2,50		0.60		0.0	0.4	0.0	0.2	0.9	0.0	0.5	1.2	1.4	2.8	1.8	10,4	3.6	0.0
Sagitta elegans		8300000303							3.00	6.00	0.20	0.0	0.2	0.0	0.1	0.3	0.0	0.1	0.0	0.8	0.0	0.3	0.0	0.0
		TOTAL: Gelatinous predators				1.5	156.6	38,8	97.7	0.0	27815,	$ 13907,7	0.0	0.0	238.2	79,4102067,8	0.0	0.0	34022,6	1279.9	0.0	415.4		
		GRAND TOTAL				1.5	157,3	38,8	98.0	1.2	27815.5	13908.3	1.2	2.1	241.0	81.4102078,2	3.6	1.3	34027.7	1286.9	2.2	415.4		
		percent jellyfish				100.0	99,6	100.0	99,6	0,0	100.0	100.0	0.O	0.0	98.9	97.5	100.O	0.0	0.0	100.0	99.5	0.0	100.0	

Appendix M. Concentrations of invertebrate predators captured in Auke

SAMPLE NUMBER						
Date						27-Jul
Site						
SPECIES	STAGE	TAXONOMIC CODE	LENGTH (MM) KIN	LENGTH (MM) MAX	WIDTH (MM)	MEAN CONC'N (MG/M^3)
Medusae, damaged		3730				9.1
Hybocodon prolifer		3703030401	3.00	3.00	3.00	0.0
Halitholus spp. ?		37031206	3.00	3.00	3.00	0.7
Mitrocomella sinuosa		3704080606	12,00	12.00	12.00	0.0
Tiaropsis multicirrata		3704040301	10.00	10.00	10.00	16,4
Sarsia spp.		37030609	8.00	8.00	8.00	9,1
Rathkea octopunctata		3703190203	3,0%	3.00	3.00	0,0
Aequoria victoria		3704140314	20.00	20,00	20,%0	529.8
Cyanea spp. ?		37340201	16.00-	16.00	16.00	0,0
Polyorchis spp.		370313	15.00	15.00	15.00	0.0
Phialidium spp.		37040104	14.00	14.00	14.90	0.0
Staurophora mertensi		3704090601	100,00	100,00	10%.%0	0.0
Eperetmus typus		3705010101	15,00	15.00	15.00	0.0
Parathemisto spp.		6170011%	2.50	2,50	0,60	3,1
Sagitta elegans		8300000303	3.00	6.00	0.20	0.0
		TOTAL: Gelatinous predators				565,1
		GRAND TOTAL				568.1
		percent jellyfish				99.5

APPENDIX N

APPRISE temperature/salinity/density data
from Auke **Bay Monitor (ABM) station**

Appendix N. Mean temperature, salinity and and density of upper 20 m of Auke Bay measured by APPRISE at ABM station,

Date	Time	Temperature (deg C)	Salinity (ppt)	Density (sigma-t)
14-Mar-88		4,25	29s89	23,79
17-Mar-88		4,34	30,41	24.19
21-liar-88		4,38	30.19	24.00
24-Mar-88		4.51	30.32	24.10
28-Mar-88		4.58	29.85	23.72
31-liar-88		4.51	30.09	23,91
04-Apr-88		4.52	30,23	24.02
07-Apr-88		4,63	30.19	23.99
11-Apr-88		4.65	30,21	24.00
12-Apr-88	AM	4.63	3%,26	24,04
12-Apr-88	PM	4.67	3%,39	24.14
13-Apr-88	AK	4.66	30.42	24.17
13-Apr-88	PM	4,68	30.42	24.16
14-Apr-88		4.69	30.47	24.20
16-Apr-88		4,93	30,32	24.06
18-Apr-88		4.90	30.55	24.24
19-Apr-88		5.20	30.29	24,01
21-Apr-88		4’91	30.78	24.43
23-Apr-88		5.08	30,73	24.37
25-Apr-88		5,65	30.68	24.28
26-Apr-88		6,12	30.47	24.08
27-Apr-88	AM	6.70	30.06	23,70
27-Apr-88	PM	6.60	30.13	23.76
28-Apr-88		6.82	29,85	23,53
02-Kay-88		6,29	30.23	23.87
03-Hay-88	AN	6.64	30,03	23.72
04-May-88	AH	6.68	29,93	23.60
04-Hay-88	PM	6,36	30.25	23.88
05-May-88		6,12	30.44	24.05
09-Nay-88		6,82	30.30	23,88
12-May-88		7,98	29,37	23.06
16-Hay-88		7,60	29.17	22.93
17-Hay-88	AH	7,60	29.03	22.82
17-May-88	PM	7,43	29.31	23.06
18-Kay-88	AM	8.14	27,57	21,63
18-Nay-88	PM	7,97	27.84	21,86
19-Nay-88		7.97	27.38	21.49
20-Hay-88		7,61	28.01	22.02
23-May-88		7,32	28,40	22.35
27-Hay-88		7,68	27.98	22.00
30-Nay-88		7.75	27.71	21.78
31-Nay-88	AH	8,03	27,16	21,33
31-Nay-88	Pm	7.58	28.32	22.27
01-Jun-88	AH	7,93	27.24	21,39
01-Jun-88	PM	8.39	26.82	21.03
02-Jun-88		8,33	27.04	21’21
06-Jun-88		7.41	29,42	23.14
14-Jun-88		8.26	28,49	22.36

APPENDIX O

Water temperatures of Auke Bay measured by Envirocon Pacific Ltd.

Appendix O. Water temperatures (0C) in Auke Bay in 1988 measured by Envirocon Pacific Ltd.

Date	Site	Instrument	Depth (m) 0	2	5	10	15	20	25	20 m mean
25-Jun-88	ABM	YSI	11.0	10.9	10.2	8.0	-8.3	8.1	-	9.1
30-Jun-88	ABM	YSI	15.5	14.8	12.1	9.9	9.1	8.5	8.8	11.0
06-Jul-88	ABM	YSI	15.4	1443	12.8	10.0	9,5	9.3	9.2	11.4
1O-JU1-88	ABM	YSI	14.9	14.2	13.2	9.6	8.5	8.2	8.4	10.9
17-Jul-88	ABM	YSI	15,1	13.8	13.0	11.0	9.7	9.3	0.2	11.6
22-Jul-88	ABM	YSI	15.6	15.5	13.9	10.9	0.3	8,7	8.2	11.7
27-Jul-88	ABM	YSI	13.0	13,1	13.0	10,5	-10.2	8,8	8.6	11.1
14-Aug-88	GOV	NT	14,5	-	-	-	-	-	-	-
15-Aug-88	GOV	NT	15.0	-	-	-	-	-	-	-
18-Aug-88	GOV	XT	15.0	-	-	-	-	-	-	-
19-Aug-88	GOV	MT	16.0	-	-	-	-	-	-	-
25-Aug-88	GOV	MT	17.0	-	-	-	-	-	-	-

Notes:

1. ABM=Auke Bay Monitor Station; GOV=off Government docks.
2. YSI=YSI conductivity-tetsperaure meter; MT=mercury thermometer.
3. Dashes indicate no temperatures measured at that depth.

APPENDIX P

Surface water temperatures and salinities of Auke Bay measured by Auke Bay Laboratory personnel

Appendix P. Surface water temperatures (0C) and salinities (ppt) in Auke Bay in 1988 measured by Auke Bay Laboratory.

Date	Site	Temperature (0C)	Salinity (ppt)
29-Mar	Joyce	4.6	30.6
29-Mar	Dock	4,6	30.4
29-Mar	Slate	4.6	30.8
30-Mar	Auke Nu	4,6	29.4
30-liar	Ferry	4.7	30.6
30-Mar	Crabpot	4.8	30.6
30-Mar	Culture	5.0	30.6
30-Mar	A B L	4.8	30,7
31-Mar	Sp in	4.8	30.7
31-Mar	Sp in	4.8	30.7
31-Mar	Sp canoe	4.4	30,9
31-Mar	In in	4,8	30,9
05-Apr	Dock	4.6	31,6
05-Apr	Slate	4.6	31,2
05-Apr	Joyce	4.9	30.6
05-Apr	Reisch	4.6	31,3
06-Apr	Sp in	4.6	31.6
06-Apr	Sp in	4.6	31.6
06-Apr	Sp canoe	4.6	31.9
06-Apr	In in	4.1	30,9
06-Apr	Sp in	4,5	31,5
06-Apr	Sp hi	4.8	31.3
06-Apr	Sp 10	4,8	31.3
07-Apr	Ferry	4.1	30.9
07-Apr	Crabpot	4.3	31.2
07-Apr	Auke Nu	4.1	30.6
07-Apr	Culture	4.7	31.6
07-Apr	ABL	4.6	31,1
12-Apr	Slate	5.2	31,3
12-Apr	Joyce	5.3	31.4
12-Apr	Dock	4,8	31.5
12-Apr	Reisch	5.0	31,3
13-Apr	Crabpot	5.2	31.0
13-Apr	Auke Nu	5.6	30,4
13-Apr	Ferry	5s8	30.2
13-Apr	ABL	6.1	29.2
13-Apr	Culture	6.1	30,4
14-Apr	Sp hi	5.3	29.7
14-Apr	Sp in	5.4	29.8
14-Apr	Sp in	5.4	29.8
14-Apr	Sp canoe	5.3	30,3
14-Apr	In in	5.1	31.0
15-Apr	Sp off	5.8	30,8
15-Apr	Sp off	5.8	30.8
15-Apr	ABM	5.6	31.1
15-Apr	ABM	5.6	31.1

Appendix P. Surface water temperatures (0C) and salinities (ppt) in Auke Bay in 1988 measured by Auke Bay Laboratory,

Date	Site	Temperature (0C)	Salinity (ppt)
15-Apr	In off	6.4	30,4
15-Apr	In off	6.4	30,4
19-Apr	Joyce	6.1	31,0
19-Apr	Dock	6.1	30,7
19-Apr	Slate	5.9	30,8
19-Apr	Fr cliff	6.2	30.8
19-Apr	Reisch	5.9	31,2
20-Apr	In in	6.1	30.2
20-Apr	Sp canoe	5.6	30.9
20-Apr	Flower	6.1	30.2
20-Apr	Sp in	6.2	30,3
20-Apr	Sp in	7.9	29.1
20-Apr	Sp hi	8.6	29,7
20-Apr	Sp 10	8.6	29.7
21-Apr	Auke Nu	6.5	30.6
21-Apr	Ferry	6,6	30,3
21-Apr	Crabpot	6.4	30.0
21-Apr	Culture	6.6	30.5
21-Apr	ABL	6.5	30.3
21-Apr	In cliff	6.9	30.2
22-Apr	Sp off	5,9	31,0
22-Apr	Sp off	5.9	31.0
22-Apr	In off	8.9	29,4
22-Apr	In off	8.9	29.4
22-Apr	ABM	8.4	29,7
22-Apr	ABM	8.4	29.7
26-Apr	Dock	8.9	27,5
26-Apr	Slate	8.9	27.9
26-Apr	Joyce	8.9	28,9
26-Apr	Reisch	8.6	28.4
27-Apr	Fr cliff	8.0	30,5
27-Apr	Ferry	8.0	29.7
27-Apr	Crabpot	8.9	30.0
27-Apr	Auke Nu	8.1	28.9
27-Apr	ABL	7.9	30.5
27-Apr	Culture	7.8	30.3
28-Apr	Sp iu	7.7	30,2
28-Apr	Sp in	7.7	30.2
28-Apr	Sp canoe	7.5	30.3
28-Apr	In in	7.9	29,9
28-Apr	Sp hi	7.6	29,7
28-Apr	Flower	7,6	30.0
28-Apr	In cliff	7.7	29,9
29-Apr	Sp off	7.2	29,4
29-Apr	Sp off	1.2	29.4
29-Apr	In off	7.8	30,4

Appendix P. Surface water temperatures (0C) and salinities (ppt) in Auke Bay in 1988 measured by Auke Bay Laboratory.

Date	Site	Temperature (0C)	Salinity (ppt)
29-Apr	In off	7.8	30.4
29-Apr	ABM	7,6	29.8
29-Apr	ABM	7,6	29,8
03-May	Slate	7.2	30.1
03-May	Joyce	7,5	29.3
03-May	Dock	7.7	29.7
03-Hay	Reisch	7,4	30.7
03-May	Fr cliff	7.7	29,9
04-Hay	Crabpot	7,5	29.2
04-May	Auke Nu	7,5	29.4
04-Hay	Ferry	7.7	29,0
04-Nay	ABL	8.2	29.4
04-May	Culture	8.3	29s4
04-May	In cliff	8,2	28,7
05-May	Sp in	8,6	28.2
05-May	Sp hi	10.1	27.7
05-May	Sp in	8.4	29,0
05-May	Sp in	8.4	29.0
05-Nay	Sp 10	10,1	27.7
05-May	Sp canoe	9.1	27,9
05-Hay	In in	8.6	28.2
05-May	Flower	8.5	28,6
06-May	Sp off	8.2	29.9
06-Hay	Sp off	8.2	29,9
06-May	In off	10,0	28.6
06-Hay	In off	10.0	28,6
06-May	ABM	8,9	29,4
06-nay	ABM	8,9	29.4
10-May	Joyce	12.0	24.6
I%-Hay	Dock	12,1	25.2
10-Kay	Slate	13,1	25,1
10-May	Reisch	12.5	24.5
10-Kay	Fr cliff	12.6	27.8
n-Hay	Auke Nu	14.6	25.0
Ii-Hay	Ferry	14,1	25.9
11-May	Crabpot	14.1	26,1
n-Nay	In cliff	14,3	27.1
11-May	Culture	11,4	28,3
Ii-Hay	ABL	11,3	28.3
12-May	Sp hi	11,4	26,8
12-Hay	Sp in	11,6	27,2
12-May	Sp canoe	11.5	27,0
12-Nay	In in	11,8	27.1
12-Hay	Flower	11,s	27.7
13-flay	ABM	10.5	24,6
13-Nay	ABM	10,s	24.6

Appendix P. Surface water temperatures (0C) and salinities (ppt) in Auke Bay in 1988 measured by Auke Bay Laboratory.

Date	Site	Temperature (0C)	Salinity (ppt)
14-Kay	Sp off	10.4	25.3
14-Hay	Sp off	10.4	25.3
14-Kay	In off	10.8	24.1
14-Hay	In off	10,8	24.1
I?-Hay	Dock	9.6	27,1
17-Hay	Slate	9,6	27.3
17-Hay	Joyce	9.5	27.4
17-Hay	Fr cliff	9.4	26,4
17-Hay	Reisch	9.6	27.5
18-Hay	Ferry	9.2	26,3
18-Hay	Crabpot	9.1	25,9
18-Kay	In cliff	9.7	26.1
18-May	ABL	9,7	27,4
18-Kay	Culture	9,6	27.3
19-May	Sp in	8,3	27.2
19-Kay	Sp canoe	8.2	27,1
19-Hay	AukeNu	9.4	20.8
19-Hay	In in	9.6	29,6
19-May	Sp in	8.2	28.0
19-May	Sp hi	9.0	26.1
19-May	Sp 10	9.0	26,1
20-May	Sp off	7.4	26.8
20-May	Sp off	7.4	26.8
20-May	In off	8,4	25.8
20-May	In off	8.4	25.8
20-May	ABM	7.8	26.2
20-Hay	ABM	7.8	26.2
21-Kay	Flower	8,2	26.7
24-Hay	Slate	8.3	27,1
24-Kay	Joyce	8.4	27,3
24-May	Dock	8.6	27.2
24-May	Fr cliff	8.4	27,2
24-Hay	Reisch	8.2	27,5
25-Hay	Crabpot	9.2	26,9
25-Hay	Auke Nu	10,4	25,8
25-Kay	Ferry	9.5	26,1
25-Hay	In cliff	10.0	26.3
25-Kay	ABL	9.5	25,6
25-May	Culture	9,4	25.8
26-May	Sp canoe	9.8	23.6
26-Kay	Spin	9.8	23.8
26-Kay	Sp hi	9.7	24.8
26-May	In in	9.8	24.2
26-Kay	Flower	9.3	25.0
27-May	Sp off	9.4	24,8
27-Kay	Sp off	9.4	24.8

Appendix P. Surface water temperatures (0C) and salinities (ppt) in Auke Bay in 1988 measured by Auke Bay Laboratory,

Date	Site	Temperature (0C)	Salinity (ppt)
27-Kay	ABM	10.1	23.6
27-nay	ABM	10.1	23.6
27-May	ID off	9.8	23.5
27-Kay	In off	9,8	23,5
01-Jun	Joyce	8.4	24.6
01-Jun	Dock	9,2	24.7
01-Jun	Slate	9.4	25.8
01-Jun	Fr cliff	9.5	24.8
01-Jun	Reisch	9.2	25.2
02-Jun	In in	9.5	23.9
02-Jun	Sp canoe	9.9	24.0
02-Jun	Sp lo	9.3	23.5
02-Jun	Sp in	9.9	23.0
02-Jun	Sp gill	10.4	23,5
02-Jun	Sp hi	10.4	23.5
03-Jun	Auke Nu	9.9	23.5
03-Jun	Ferry	9.7	23.9
03-Jun	Crabpot	10,3	23.5
03-Jun	ABL	10.8	24.3
03-Jun	Culture	10.6	24.2
03-Jun	Flower	9.8	23.7
03-Jun	In cliff	10.0	23,9
03-Jun	ABM	10.9	24,2
03-Jun	ABM	10.9	24.2
03-Jun	In off	9.9	25.0
03-Jun	In off	9,9	25,0
03-Jun	Sp off	9.9	24.3
03-Jun	Sp off	9.9	24,3

Notes:

1. Data collected by Adrian Celewycz, Joyce Landingham and Alex Wertheimer (National Marine Fisheries Service, Auke Bay Laboratory, Auke Bay, Alaska),
2. All sites within Auke Bay and arbitrarily assigned names by the researchers,