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STUDIES OF JUVENILE SALMONIDS OFF THE OREGON AND WASHINGTON COAST, 19

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by

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Corvallis, Oregon 97331

CRUISE REPORT

Cruise Report
Reference 85-14
November 1985

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CRUISE PERSONNEL

D. Botton, R. Brodeur, B. Emmett, J. Fisher, K. Jones, K. Krefft, A. Nold, W. Percy, D. Varoujean

INTRODUCTION

The College of Oceanography, Oregon State University, conducted a cruise from May 29 to June 25, 1985 to study the distribution, abundance, migration, growth and feeding habits of juvenile salmonids during their first summer in the ocean off Oregon and Washington. Sampling was concentrated near the Columbia River Plume during the first leg of this cruise (May 29 to June 6). A coastwide survey of the ocean off Oregon and Washington was conducted along standard transects during the second leg of this cruise (June 10 to 25). This is the seventh year we sampled waters off the Oregon and Washington coast during June.

METHODS

Vessel and Gear

The Pacific Warwind, a 28 m (92 ft) commercial drum purse seiner, was chartered for these cruises. A herring purse seine of 32 mm (1.25 in) stretch measure mesh and approximately 495 m long was used to collect salmonids and other nekton. Except for two sets, all sets were round hauls, where the net was laid out in a circle by seiner and skiff. The direction of the opening of the seine when half set was recorded. A depth gauge attached to the bottom of the net indicated that the seine fished to a depth of about 25 m. This is a shallower seine than we've used for the last 3 years, enabling us to sample closer to shore. Each set sampled an area of approximately 19,000 m².

General Description of Sampling

Columbia River Plume Study. Sea-surface temperature and salinity measurements were made at numerous locations between May 29 and June 5 to define the Columbia River Plume (Fig. 1). Twenty-eight purse seine sets were made, some in low salinity water near the core of the Columbia River Plume and others in higher salinity water both inshore and offshore of the plume (Fig. 2). Sets were repeated every three hours over one 24-hour period on the Seaside transect to study diel changes in salmonid feeding.

Coastwide Survey. Seventy-eight quantitative round-haul sets were made between Coos Bay, Oregon (48-27 N) and Sea Lion Rock, Washington (48-00 N). Sets were generally at stations 9.3 km apart from the 28 m depth contour out to 37 km or until juvenile salmonids were no longer caught (see Fig. 3 for locations of stations). Positions were determined by Loran C.

Environmental Data

Several environmental measurements were made at each station (Appendix A). Temperature of a water sample collected at the surface was measured. An additional water sample was taken with a NIO water bottle at 1 m for determination of salinity, chlorophyll-a and phaeophytin concentrations. Salinity was measured with a Guildline Autosalinometer (Model 8400). Real-time estimates of surface salinity were made with an American Optical temperature-compensated refractometer (Model 10419). Temperature and salinity profiles of the water column were made with an Applied Microsystems Model-12

CTD. Chlorophyll-a and phaeophytin content of 143 ml water samples were estimated by filtering the water through a 0.3 μ m (pore size) glass fiber filter (Gelman type A/E). The pigment was extracted from the filtrate with known volume of 90% acetone; and the fluorescence measured with a Model-10 Turner Designs Fluorometer.

Water clarity was measured with a 30 cm Secchi disk. Ambient light intensity was measured at deck level with a General Electric Model 214 light meter.

Processing the Catch at Sea

The purse seine catch was lifted aboard in the bunt or brailled aboard. Large catches of medusae sometimes occurred and a rough estimate was made of their total volume in each set. Fishes and squids were identified, counted and measured. Stomachs were removed from possible predators of juvenile salmonids and preserved in 10% formalin. Selected whole fishes and squids were also preserved.

Juvenile salmonids were anesthetized in a seawater solution of MS222, identified, and measured to the nearest millimeter fork length (FL). They were then checked for adipose clips, individually wrapped in plastic bags (along with a label identifying set, species and length) and frozen.

Adult salmonids were anesthetized using an electronarcosis basket, identified, measured, sampled for scales, and examined for adipose clips and other marks. Heads from adipose clipped adults were removed, labeled and frozen for later recovery of coded-wire tags (CWT's).

Most adults were released after they were measured and scale samples

removed. To trace movements of adult salmonids in the ocean 215 coho, 37 chinook, 74 pink, 15 cutthroat and 6 chum were tagged with orange Floy tags below the dorsal fin using a Dennison Mark II tagging gun. We also tagged and released 18 juvenile coho, 46 juvenile chinook and 5 juvenile steelhead.

Laboratory Processing of Juvenile Salmonids

Each frozen juvenile salmon was given an identification number (year, set and fish sequence number), weighed in a tared plastic bag, re-identified and re-examined for adipose fin clips and other marks. Scales from a subsample of 25 fish of each salmonid species from each set were removed from the preferred area (see Scarnecchia, 1979) and mounted on gum cards from which acetate impressions were made. Heads from individuals with adipose fin clips were removed and sent to the Oregon Department of Fish and Wildlife, Clackamas Laboratory for removal and decoding of coded wire tags.

Stomach contents from 5 fish of each species from each set were removed, weighed and preserved in 5% buffered formalin solution. Kidney smears from these fish were examined for BKD by personnel of the Department of Microbiology, O.S.U.

RESULTS

Oceanographic Conditions During the Columbia River Plume Study, May 29 to June 5, 1985

Winds. Winds during the day were generally calm or out of the SE to SW

at up to 15 kts. There were a few periods of stronger (20 to 30 kts) southerly winds and of moderate northerly winds. An intense storm with strong southerly winds struck on June 6 preventing further sampling in the plume.

Salinity. The map of surface salinity is shown in Fig. 1. Since the data were obtained over a 7-day period they are not synoptic. At any one time the salinity field may have been quite different from that shown. Surface salinity changed dramatically with tidal stage near the mouth of the river. Many strong fronts were observed in this area where salinity changed as much as 10 to 18‰ over short distances.

Relatively fresh water of the Columbia River Plume spread over the entire study area from Cape Disappointment to Seaside. Very low salinities (16 to 21‰) were found 24 to 30 km offshore between Warrenton and Seaside. Inshore of the plume core on the Seaside transect salinity ranged from 23.9 to 26.4‰.

Sea-surface Temperature. Sea-surface temperatures ranged from 13.0 to 15.4°C in the study area (Fig. 1). Changes in temperature across fronts were generally not as dramatic as changes in salinity, and temperatures on either side of a front were usually within a few tenths of a degree of each other. High salinities and low temperatures along the coast, as a result of upwelling, were not evident in the study area.

Chlorophyll-a. Mean concentration of chlorophyll-a pigment in surface waters of the study area was 3.7 ug/l (n=31, sd=2.3, range = 1.4-11.2, Appendix A).

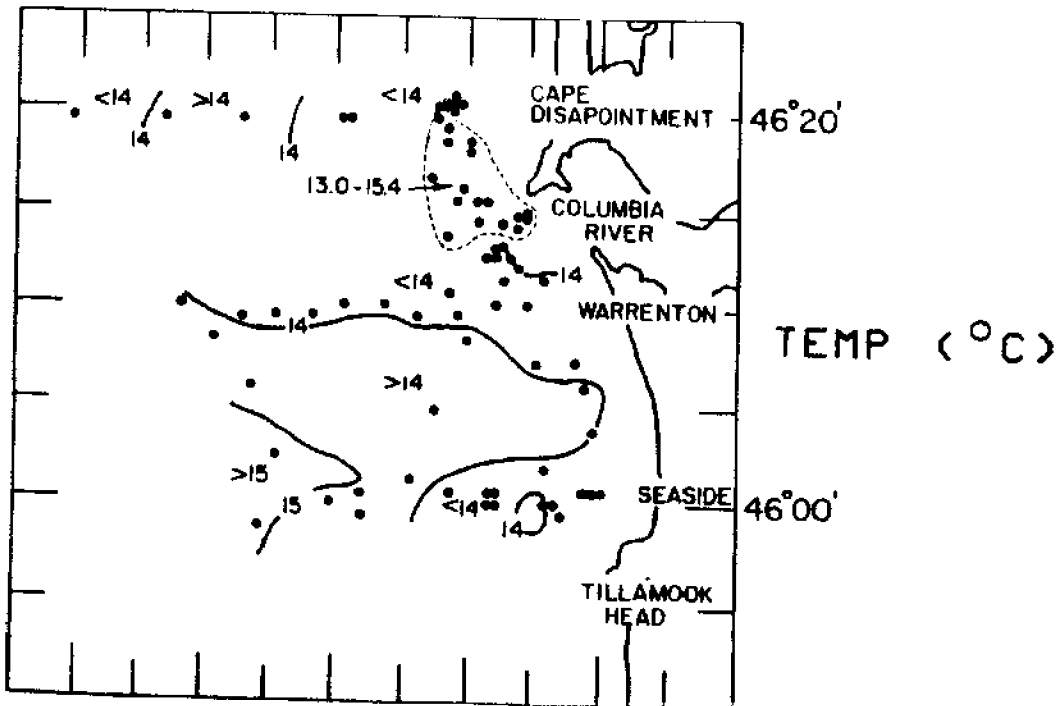
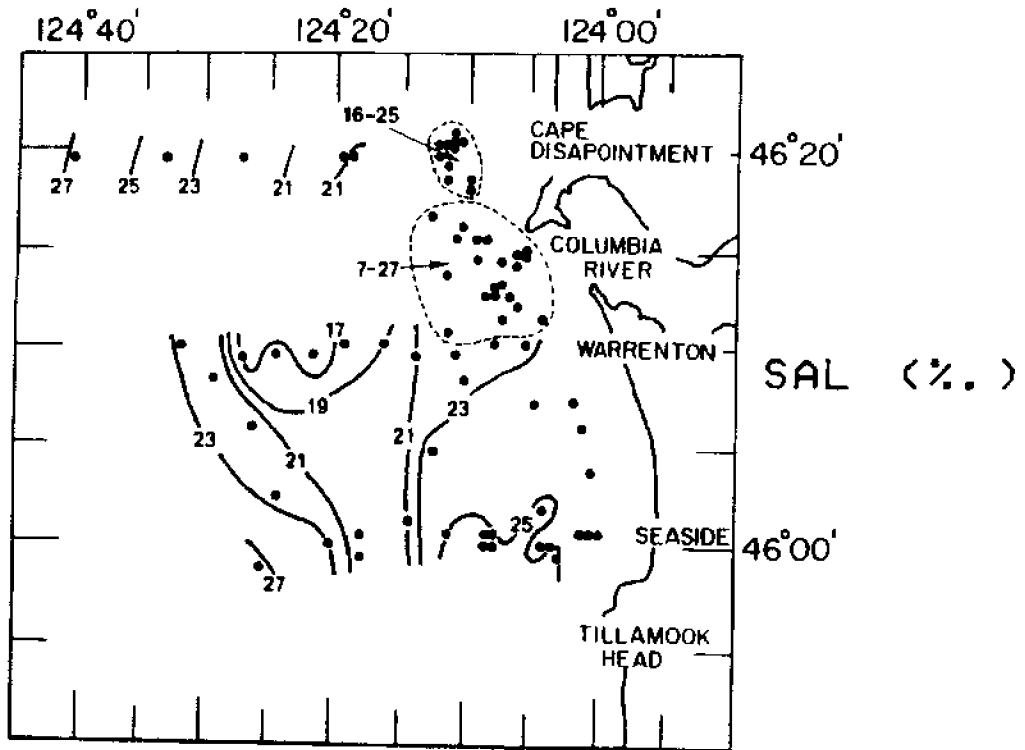


Figure 1. Near-surface (0-1 meter) salinity and temperature fields off the mouth of the Columbia River, May 29 - June 5. Points indicate sample locations.

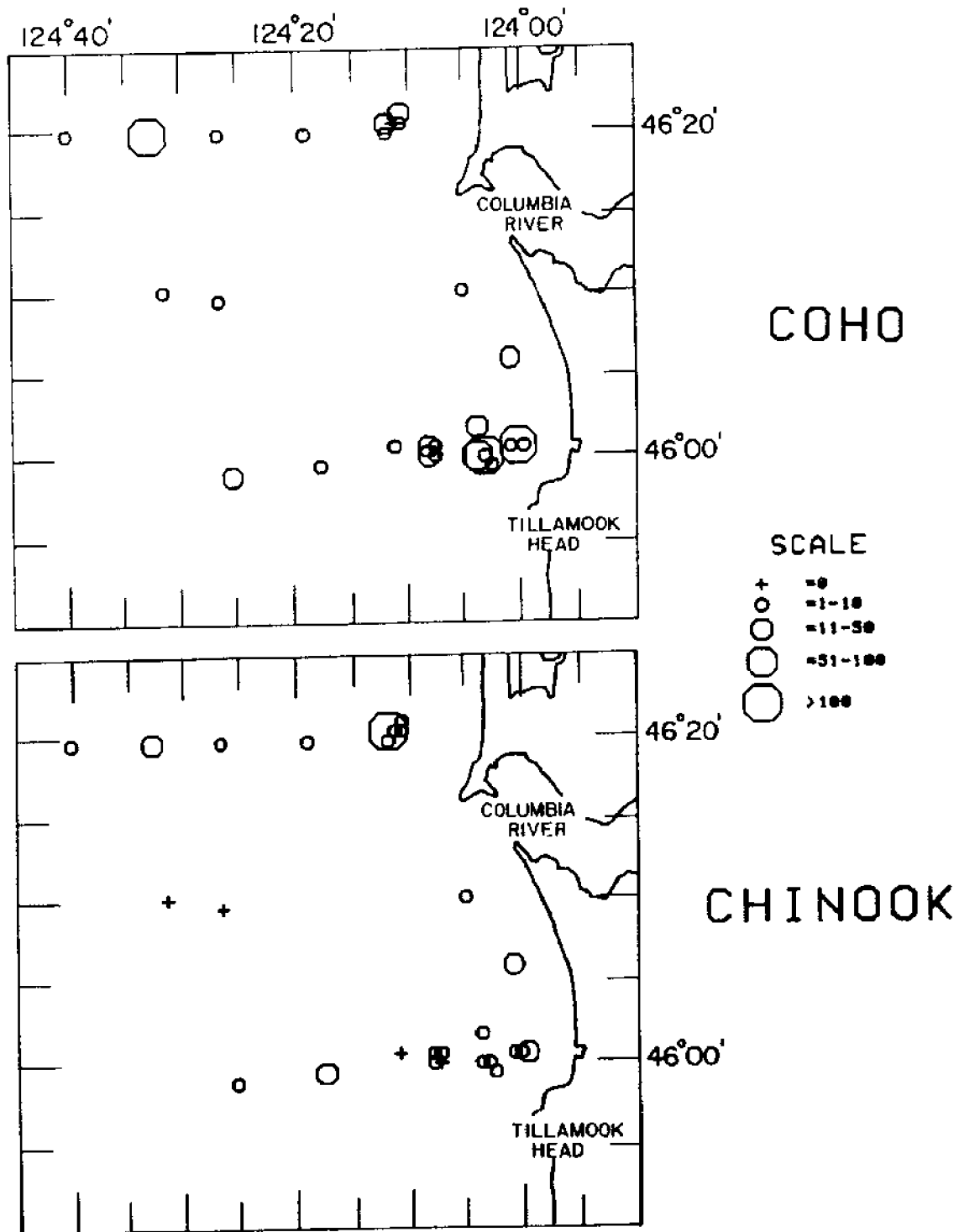


Figure 2. Locations and sizes of catches of juvenile coho and chinook salmon, May 29 - June 10.

Oceanographic Conditions During the Coastwide Survey, June 10-June 25, 1985

Winds. Winds were generally out of the NW at 7 to 15 kts on the Coos Bay to Yaquina Bay transects (June 10-12), were calm or weak on the Wecoma and Cape Lookout transects (June 13), were out of the S at 18 to 25 kts during part of the Nehalem transect (June 14) and then were generally out of the N to WNW at 10 to 30 kts during the rest of the survey except for part of the Grays Harbor and Destruction Island transects when they were out of the WSW at 5 to 15 kts.

Salinity. Surface salinities in offshore waters south of the Columbia River were generally low as a result of the Columbia River. The 30‰ isohaline extended seaward of 10 km from Seaside to Cape Lookout and gradually moved farther offshore toward the south until it was seaward of 28 km off the Umpqua River (Fig. 3). Lowest salinities (24.6 to 29.0‰) occurred near the Columbia River on the Seaside, Nehalem Bay and Cape Lookout transects.

Moderately high salinity water (approx. 32‰) was found south of the Columbia River only at the inshore stations from Coos Bay to the Siuslaw River and at the inshore station at Cape Lookout.

There was little freshwater dilution of surface water north of the Columbia River except along the Cape Disappointment transect. Surface salinities were between 31.7 and 33.3‰ from Willapa Bay north to Sea Lion Rock.

Sea-surface temperature. South of the Columbia River sea-surface temperatures were highest at the offshore stations where they reached 16 to

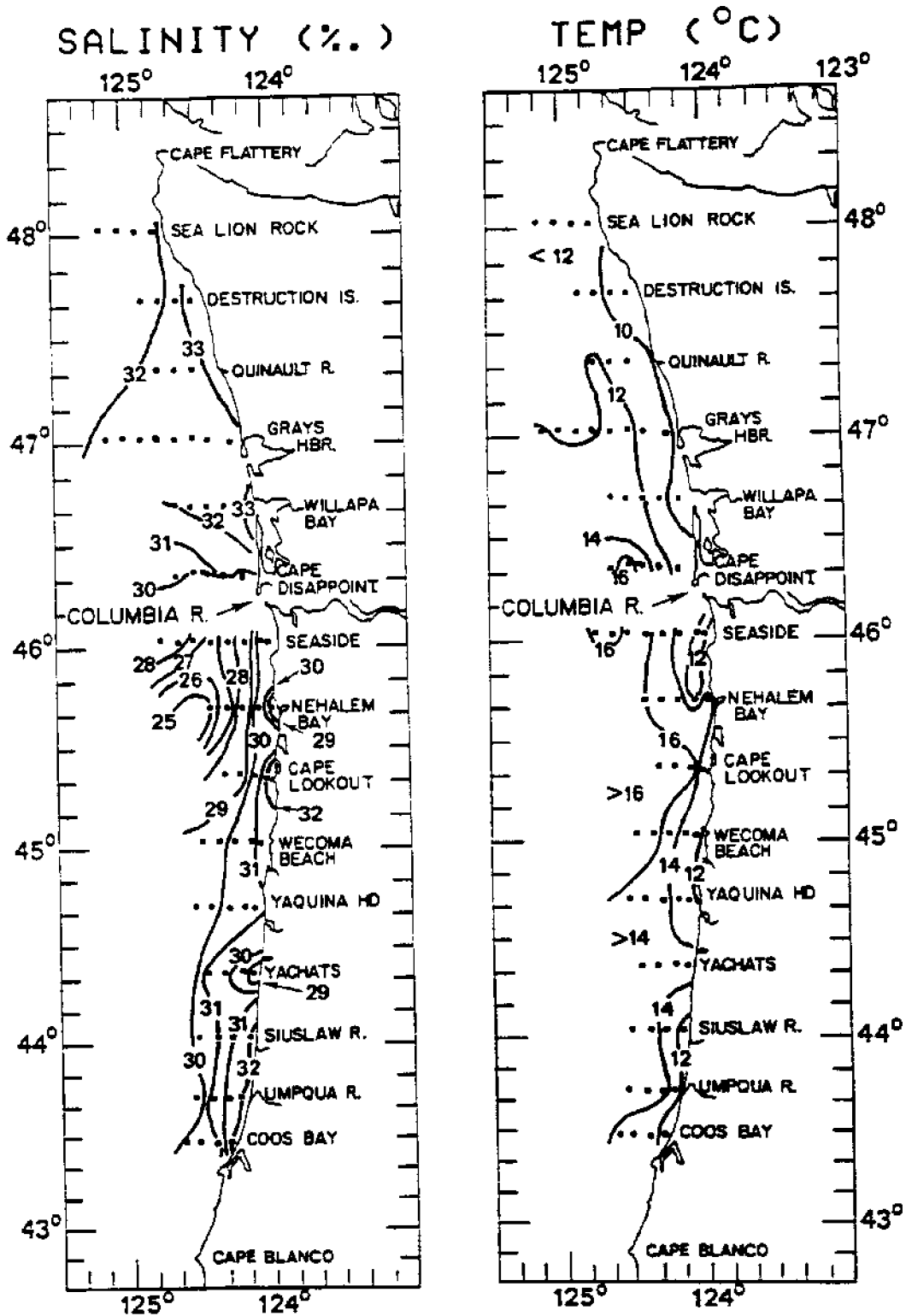


Figure 3. Near-surface (0-1 meter) salinity and temperature fields off Oregon and Washington, June 10 - 25. Squares indicate locations of purse seine sets.

17°C (Fig. 3). Temperature was negatively correlated with salinity. Plume water was warm and dilute. The coolest surface waters (11 to 13°C) occurred at the most inshore stations where salinity was relatively high. Upwelling, however, was not strongly developed.

The coolest temperatures in offshore waters (11 to 13°C) and inshore waters (9 to 11°C) were found north of the Cape Disappointment transect. Upwelled water was apparently present at the inshore stations from Willapa Bay to Destruction Island.

Chlorophyll-a. Chlorophyll-a concentrations at 1 m were generally much higher to the north of the Columbia River than to the south (Fig. 4). Values greater than 9 ug/l were present at over half of the stations north of Cape Disappointment. Chlorophyll-a concentrations were low in waters diluted by the Columbia River Plume. The only stations south of the Columbia River with chlorophyll-a values above 2 ug/l were inshore of the plume on the Seaside and Cape Lookout transects.

Distribution and Catch/Set of Juvenile Salmonids During the Columbia River Plume Study, May 29 to June 6, 1985

Catches of juvenile coho and chinook near the mouth of the Columbia River are shown in Fig. 2. Catches/set ranged from 0 to 172 (mean = 24.6) for juvenile coho and from 0 to 339 (mean = 19.0) for juvenile chinook. Both coho and chinook were caught in a high proportion of sets, 96 % and 86 % respectively. Only a few juvenile chum and sockeye salmon and steelhead and cutthroat trout were collected near the mouth of the Columbia River (Table 1).

Distribution and Catch/Set of Juvenile Salmonids during the Coastwide Survey,
June 10 to 25, 1985

The numbers of juvenile coho, chinook and chum salmon caught during the coastwide survey are illustrated in Figures 5 and 6. Both coho and chinook were much more abundant near the mouth of the Columbia River and off the Washington coast than they were from Cape Lookout south off Oregon. Juvenile coho were caught as far offshore as 66 and 67 km off Seaside and Grays Harbor respectively. Juvenile chum were found only from Willapa Bay north off Washington. The other juvenile salmonids were rare (Table 1). Catch data by set for all species are given in Appendix B.

Length-frequency Distributions of Coho and Chinook Salmon by Area.

Length-frequency distributions for coho and chinook salmon during the Columbia River Plume study and for three different areas during the coastwide survey are shown in Figures 7 and 8. Mean FL of juvenile coho was smallest (156mm) off the mouth of the Columbia River during the Columbia River Plume study, was larger from Coos Bay to Cape Lookout (177 mm) and from Nehalem Bay to Willapa Bay (174 mm) and was largest from Grays Harbor north to Sea Lion Rock (213 mm). Mean catch/set of large juvenile coho (longer than 200 mm FL) was over 2 times greater from Grays Harbor north than between Nehalem and Willapa Bays (7.9 vs 3.6 fish/set).

Mean FL of juvenile chinook was also smallest (180 mm) off of the Columbia River during the Columbia River Plume study and was larger from

CHL-A (ug/l)

12

COHO

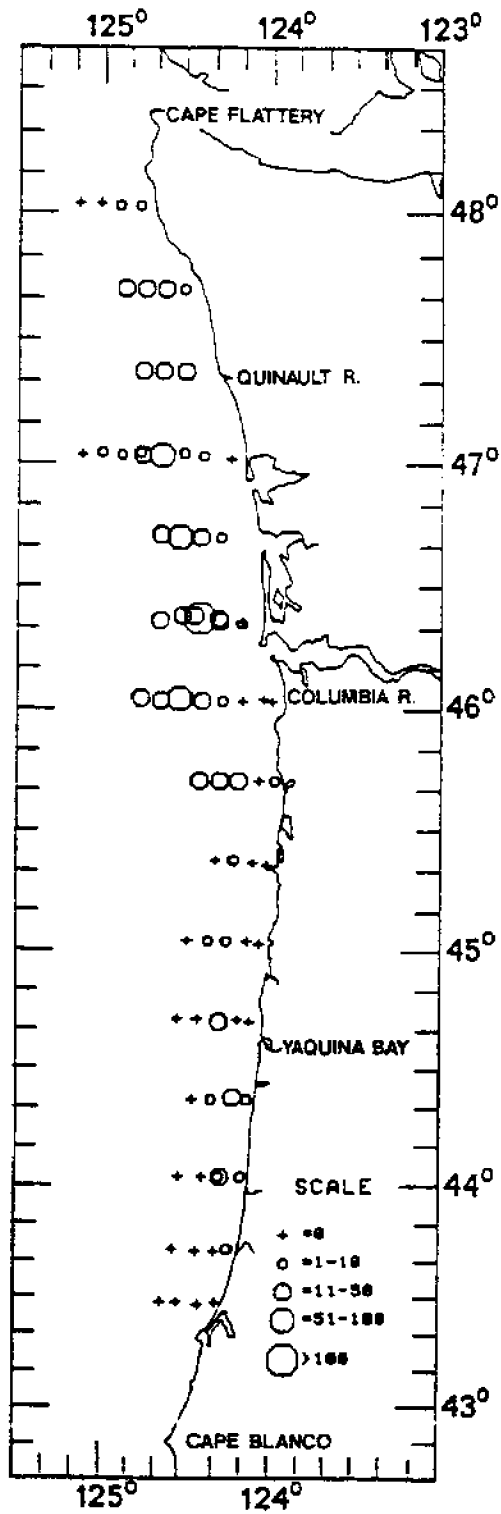
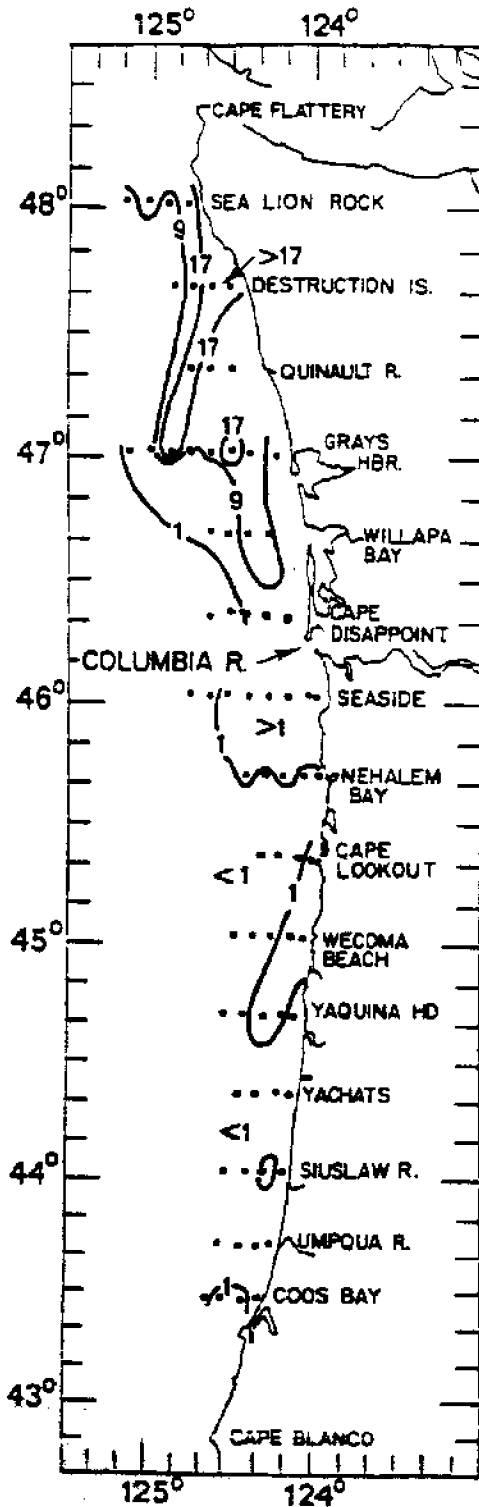


Figure 4. Near surface (0-1 meter) chlorophyll-a field off Oregon and Wash., June 10 - 25.

Figure 5. Locations and sizes of catches of juvenile coho, June 10-25.

CHINOOK

13

CHUM

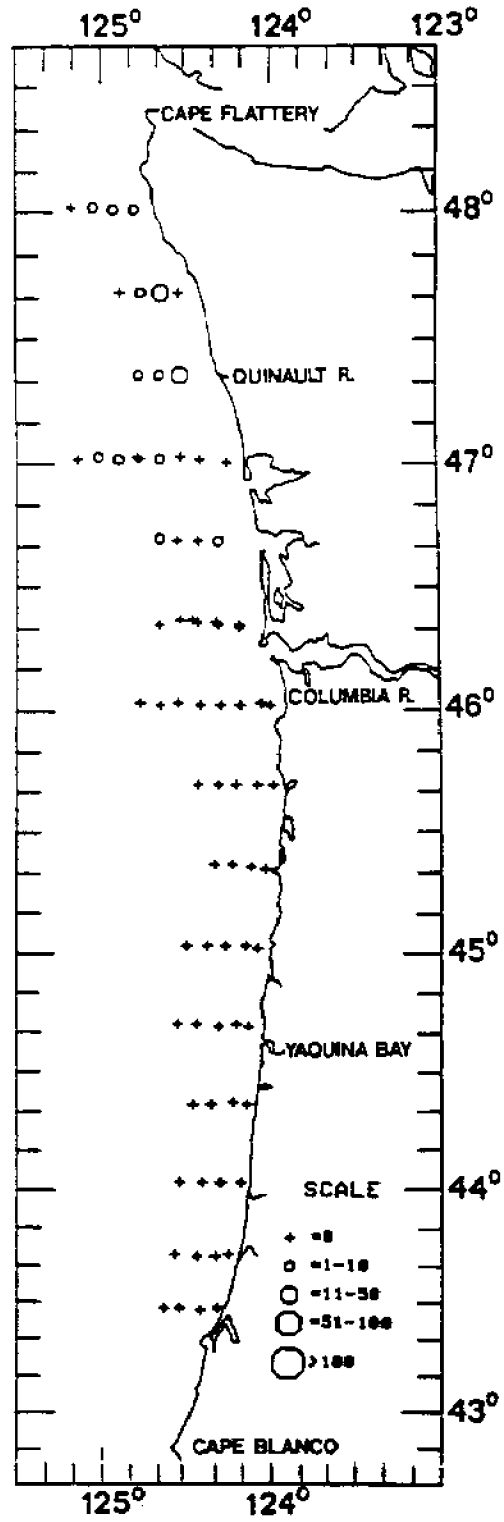
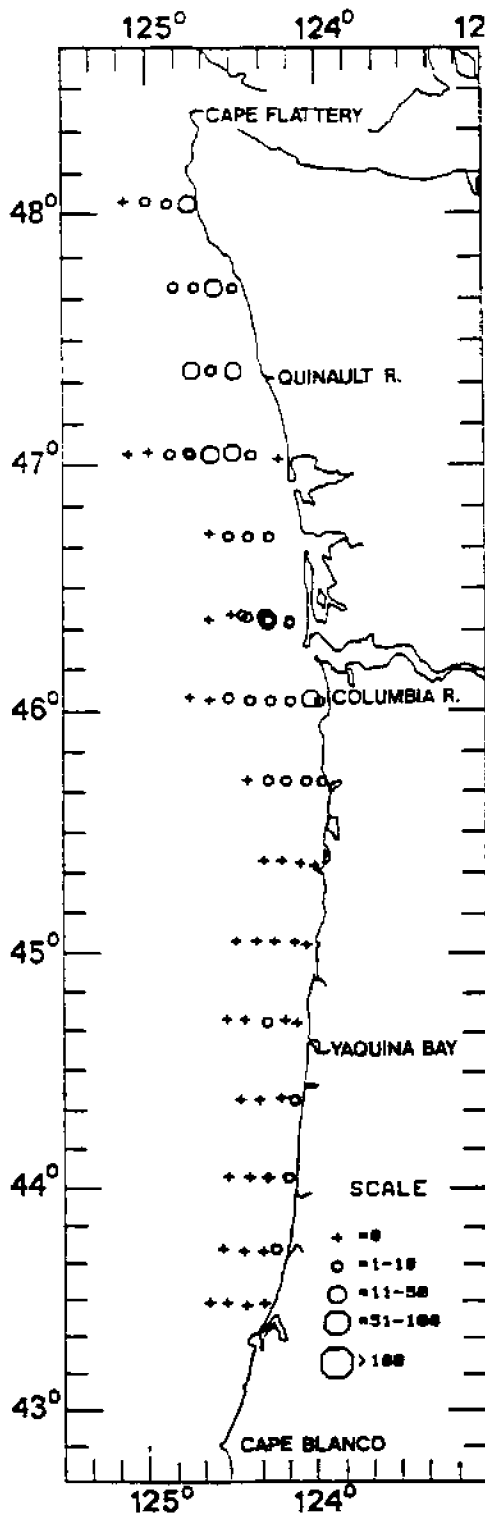


Figure 6. Locations and sizes of catches of juvenile chinook and chum salmon, June 10 - 25.

Table 1. Mean catch/set of juvenile and adult salmonids during the Columbia River Plume study, May 29 - June 5, and for 3 areas during the coastwide survey, June 10 -25.

	COWD		CRIBOOK		CRUR		PINE		SOCKEYE		STEELHEAD		CUTTTHROAT	
	<300mm FL	>300mm FL	<400mm FL	>400mm FL	>300mm FL	>300mm FL	>340mm FL	>340mm FL	<150mm FL	>150mm FL	<290mm FL	>290mm FL	<410mm FL	>410mm FL
Columbia River Plume Study														
May 29 - June 5														
28 Quant. sets	690	64	533	19	12	1	11		8	0	7		13	
Mean catch/set	24.6	2.3	19.0	0.7	0.4	0.04	0.4		0.3	0	0.3		0.5	
Frequency of Occurrence	96%	75%	86%	25%	21%	4%	18%		21%	0%	14%		25%	
Cove Bay to Cape Lookout														
June 10 - June 13														
52 Quant. sets	122	65	11	4	0	0	10		0	0	8		8	
Mean catch/set	3.8	2.0	0.3	0.1	0	0	0.9		0	0	0.3		0.3	
Frequency of Occurrence	34%	34%	16%	9%	0%	0%	13%		0%	0%	13%		22%	
Bellevue to Willapa Bay														
June 18 - June 23														
26 Quant. sets	641	120	121	20	7	1	15		2	0	0		14	
Mean catch/set	24.7	4.6	4.7	0.8	0.3	0.04	0.6		0.1	0	0		0.5	
Frequency of Occurrence	81%	63%	77%	15%	8%	4%	23%		4%	0%	0%		31%	
Grays Harbor to Bas Lion Rock														
June 22 - June 25														
20 Quant. sets	226	72	140	13	99	3	70		9	3	2		0	
Mean catch/set	11.3	3.6	7.4	0.7	5.0	0.3	3.5		0.5	0.2	0.1		0	
Frequency of Occurrence	75%	70%	80%	40%	55%	20%	43%		25%	5%	5%		0%	

COHO

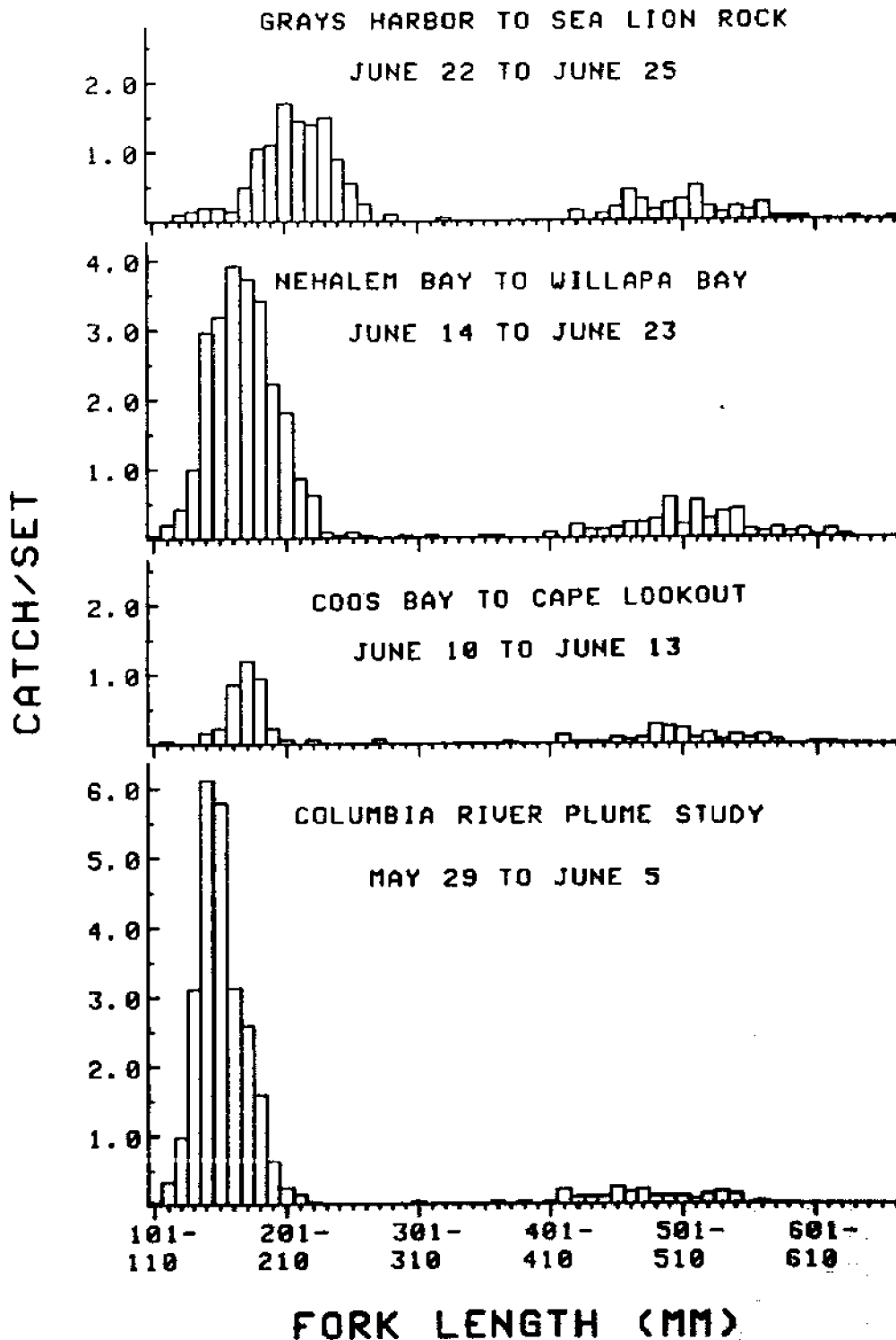


Figure 7. Length-frequency distributions of juvenile coho salmon for four areas and time periods.

CHINOOK

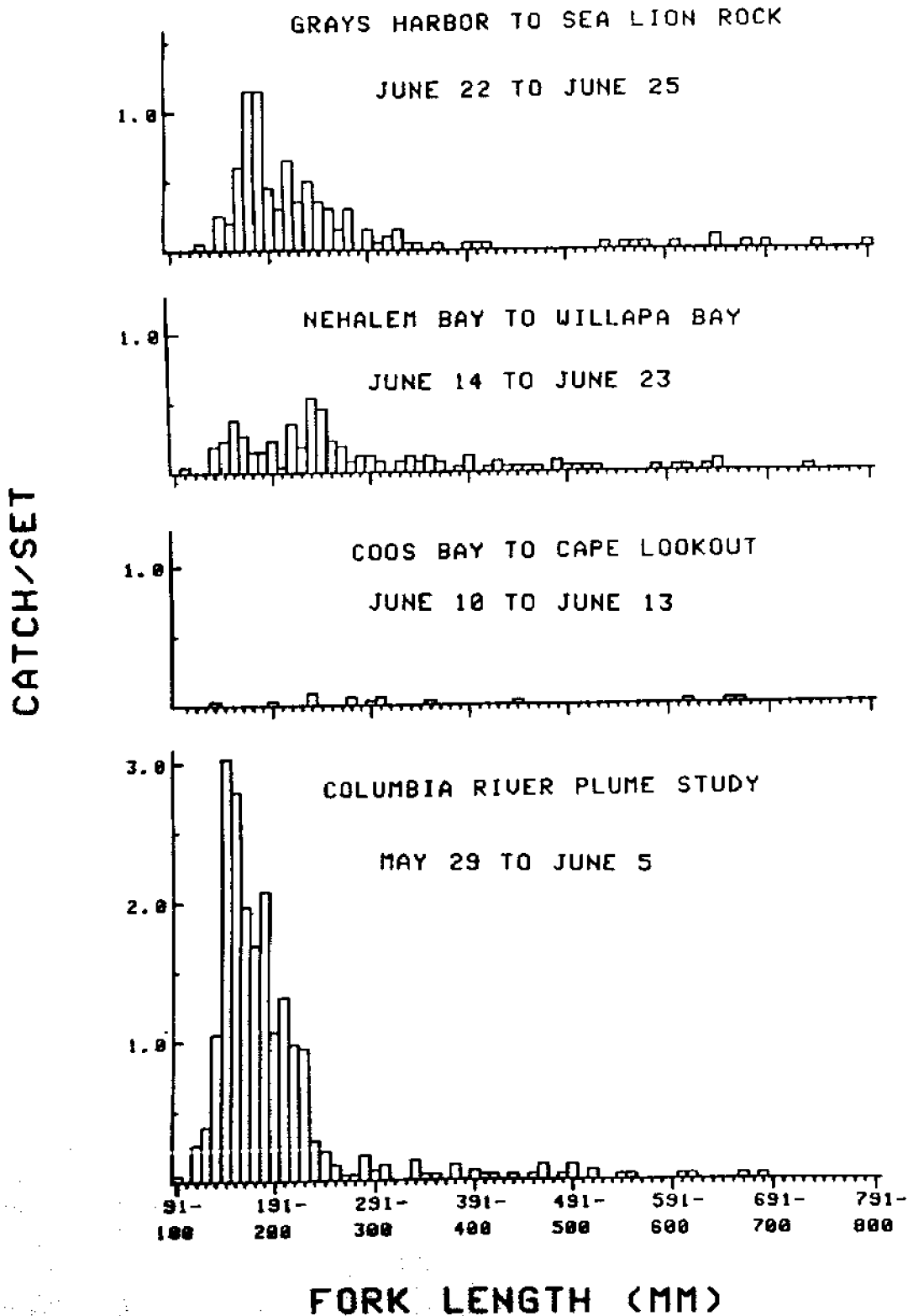


Figure 8. Length-frequency distributions of juvenile chinook salmon for four areas and time periods.

Nehalem to Willapa Bays (231mm) and from Grays Harbor north to Sea Lion Rock (212mm) (Fig. 8).

Recoveries of Coded-Wire Tagged Juvenile Salmonids

Release and recovery data for all CWT'd salmonids captured are given in Appendix C. All recoveries were of coho and chinook salmon. The distances of the recovery positions north or south of where the tagged fish entered the ocean are shown in Figure 9 for juvenile coho and chinook salmon. Juvenile coho released from coastal Oregon public hatcheries were all found north of where they had entered the ocean, even though our sampling extended well to the south of their ocean entry locations. This suggests that a majority of coastal Oregon coho migrated northward during the first 50 to 100 days after release. The CWT'd coastal Oregon coho were most abundant between Cape Disappointment and Seaside during the Columbia River Plume study ($n = 8$, mean catch/set = 0.29) and from Grays Harbor north during the later coastwide survey ($n=6$, mean catch/set = 0.30). Tagged juvenile coho released from or offshore of Coos Bay by Anadromous Inc. were also found well to the north of where they entered the ocean. Apparent rates of northward migration ranged from 1.2 to 6.9 km/day (mean = 3.2 km/day) for coastal Oregon public hatchery coho and ranged from 5.8 to 23.5 km/day (mean = 13.3 km/day) for Anadromous Inc. fish released from Coos Bay. The Anadromous Inc. coho collected probably entered the ocean a month and more after the coastal public hatchery fish.

In contrast to these coastal Oregon groups, CWT'd coho from coastal Washington were found both north and south of where they entered the ocean but none was found south of Seaside. CWT'd coho from the Columbia River were

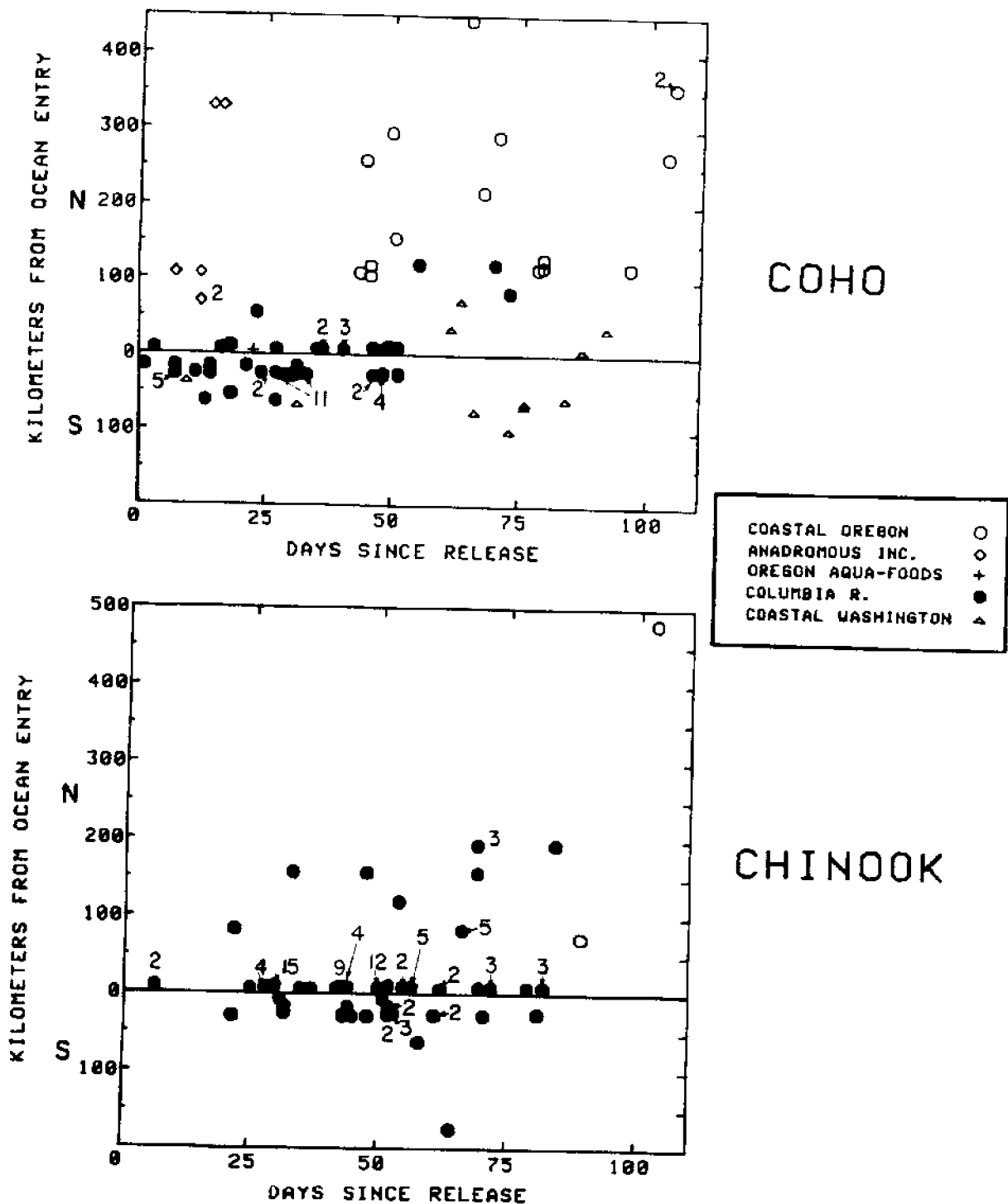


Figure 9. North - south movement in the ocean of CWT'd juvenile coho and chinook salmon vs. days since release.

found mainly near the mouth of the Columbia River between Cape Disappointment and Seaside up to 50 days after release. Four were found farther to the north. None was found farther to the south than Nehalem Bay.

Almost all CWT'd juvenile chinook were from the Columbia River. Most of these were recovered near the mouth of the Columbia River between Cape Disappointment and Seaside, although 14 were recovered farther to the north and only 2 farther to the south. Two coastal Oregon chinook were collected north of where they entered the ocean. One was 479 km north indicating an average rate of northward migration since release of 4.7 km/day.

Recoveries of Floy Tagged Adult Salmon

Nine of 215 (4.2%) tagged adult coho, 4 of 37 (10.8%) tagged adult chinook and 1 of 6 (16.7%) tagged adult chum were recovered as of November 11, 1985.

REFERENCE

- Scarnecchia, D.L. 1979. Factors affecting coho salmon production in Oregon. M.S. Thesis, Oregon State University, Corvallis, OR, 100 pp.

Appendix A. Dates, locations, times and environmental data for purse seine sets. (Under "Set Status" N = nonquantitative set, A = aborted set, P = partial set and T = towed set.)

Set	Date	Transect	Latitude	Longitude	Distance (km)	Time	Depth (m)	Bearing (deg. true)	Temperature (Celsius)	Salinity (ppt)	Secchi (m)	Chlor. (µg/l)	Set Status
1	29 May 85	Cape Disappointment	46-28.1	124-11.1	9	0928	31	45	13.8	25.3	4.8	2.45	A
2	29 May 85	Cape Disappointment	46-28.8	124-18.3	19	1228	81	88	13.6	20.3	3.0	4.87	A
3	30 May 85	Warrenton	46-18.6	124-84.6	6	0717	17	345	13.5	22.7	2.0	4.22	P
4	30 May 85	Warrenton	46-09.4	124-26.1	37	1834	126	---	13.7	17.8	3.5	4.23	P
5	30 May 85	Warrenton	46-16.8	124-31.4	43	1147	137	78	13.2	22.9	3.8	6.16	A
6	30 May 85	Seaside	45-58.9	124-25.1	38	1516	141	358	13.2	27.4	3.5	2.24	A
7	30 May 85	Seaside	46-08.5	124-17.3	28	1638	113	118	14.8	28.5	4.6	5.18	A
8	30 May 85	Seaside	45-59.3	124-17.2	28	1813	119	115	14.2	26.8	2.5	6.58	A
9	31 May 85	Cape Disappointment	46-21.8	124-18.9	8	0838	27	78	13.5	20.8	3.5	3.46	A
10	31 May 85	Cape Disappointment	46-28.1	124-18.1	5	0759	26	48	13.5	23.9	3.0	3.22	A
11	31 May 85	Seaside	46-08.3	123-59.7	5	1318	26	268	13.7	25.6	4.5	2.38	A
12	31 May 85	Seaside	45-59.9	124-03.2	16	1436	49	---	13.8	25.6	4.5	3.22	A
13	31 May 85	Seaside	46-08.4	124-18.8	28	1608	84	238	13.5	25.6	5.8	3.92	A
14	31 May 85	Seaside	46-08.2	124-03.3	18	1721	49	258	14.6	24.6	4.5	3.36	A
15	31 May 85	Cernahan	46-08.8	124-03.3	6	1836	24	---	14.1	23.8	4.8	3.64	A
16	01 June 85	Seaside	46-08.8	124-02.6	7	1815	44	348	13.5	25.8	5.8	1.43	A
17	01 June 85	Seaside	46-01.7	124-03.4	16	1316	51	318	13.5	26.4	5.5	1.85	A
18	01 June 85	Seaside	46-08.8	124-02.9	9	1614	46	388	13.5	25.8	4.8	2.12	A
19	01 June 85	Seaside	44-08.3	123-59.5	5	1738	27	288	13.6	24.4	4.8	2.38	A
20	01 June 85	Seaside	46-08.3	124-08.4	6	1848	29	388	13.6	24.5	4.8	1.96	A
21	01 June 85	Seaside	46-08.4	123-59.2	5	2157	24	28	13.6	24.6	---	2.87	A
22	01 June 85	Seaside	45-59.7	124-07.9	16	2342	82	65	13.3	26.1	---	1.96	A
23	02 June 85	Seaside	46-08.3	124-07.7	15	0305	79	298	13.3	25.8	---	1.68	A
24	02 June 85	Seaside	46-08.3	124-07.8	15	0611	75	338	13.3	25.8	5.8	1.55	A
25	02 June 85	Seaside	46-08.1	124-07.8	15	0863	77	98	13.6	28.3	6.8	1.28	A
26	03 June 85	Cape Disappointment	46-28.8	124-11.4	19	1553	31	118	13.5	19.7	3.8	8.68	A
27	03 June 85	Cape Disappointment	46-19.4	124-18.4	9	1857	82	128	13.2	22.2	2.5	11.28	A
28	05 June 85	Cape Disappointment	46-28.1	124-18.7	9	1812	27	---	15.3	19.8	2.5	3.88	A
29	05 June 85	Cape Disappointment	46-19.9	124-26.9	29	2085	124	178	14.3	22.1	---	5.61	A
30	05 June 85	Cape Disappointment	46-19.9	124-32.5	37	2187	154	78	14.3	23.5	---	2.38	A
31	05 June 85	Cape Disappointment	45-27.7	124-39.7	46	2216	191.5	---	13.2	26.9	---	2.38	A
32	18 June 85	Cobs Bay	43-27.2	124-17.3	1	0651	27	133	11.7	32.1	6.8	0.78	A
33	18 June 85	Cobs Bay	43-27.2	124-23.2	9	0758	92	268	12.6	38.9	6.8	1.82	A
34	18 June 85	Cobs Bay	43-27.6	124-38.5	19	0918	123	168	13.5	38.4	6.8	1.81	A
35	18 June 85	Cobs Bay	43-27.4	124-38.8	28	1835	285	178	13.9	38.4	8.8	0.68	A
36	18 June 85	Cobs Bay	43-41.3	124-32.4	28	1381	187	288	14.6	25.3	8.8	0.35	A
37	18 June 85	Unpqua	43-48.9	124-24.8	17	1416	115	---	14.3	31.3	6.8	8.81	A
38	18 June 85	Unpqua	43-48.9	124-18.1	9	1522	99	348	14.1	31.1	6.8	0.88	A
39	18 June 85	Unpqua	43-41.2	124-13.3	2	1634	26	148	12.8	31.9	6.8	0.66	A
40	18 June 85	Stuslaw River	43-59.7	124-16.5	11	1958	86	268	13.7	38.9	4.8	8.55	A
41	11 June 85	Stuslaw River	43-59.7	124-08.9	2	0613	26	288	11.5	31.9	8.8	8.78	A
42	11 June 85	Stuslaw River	43-59.9	124-09.8	2	0789	27	288	11.1	31.4	8.8	8.74	A
43	11 June 85	Stuslaw River	43-59.8	124-16.1	11	0811	84	---	13.4	31.8	7.8	1.86	A
44	11 June 85	Stuslaw River	43-59.8	124-22.7	19	0918	115	155	14.3	31.8	9.8	0.28	A
45	11 June 85	Stuslaw River	43-59.8	124-38.4	38	1852	137	178	14.8	38.4	6.8	8.54	A
46	11 June 85	Stuslaw River	44-28.8	124-24.2	27	1483	88	---	15.3	38.8	7.8	0.43	A
47	11 June 85	Yachats	44-19.8	124-19.7	19	1518	77	---	15.8	38.1	16.5	0.48	A
48	11 June 85	Yachats	44-28.1	124-12.2	9	1628	57	153	15.7	29.8	7.8	0.57	A
49	11 June 85	Yachats	44-19.9	124-07.8	2	1729	26	---	15.6	28.8	7.8	0.67	A
50	12 June 85	Yaquina Head	44-39.4	124-06.7	4	0649	27	155	15.6	38.9	7.8	8.98	A
51	12 June 85	Yaquina Head	44-48.1	124-18.9	18	0745	59	---	13.7	38.3	5.8	1.58	A
52	12 June 85	Yaquina Head	44-39.7	124-17.5	18	0858	79	155	14.2	38.4	5.8	1.12	A
53	12 June 85	Yaquina Head	44-08.6	124-25.8	28	1812	92	155	14.8	29.9	6.8	8.29	A
54	12 June 85	Yaquina Head	44-08.1	124-32.8	36	1119	137	155	15.5	29.6	9.8	---	A
55	12 June 85	Yaquina Head	44-39.8	124-18.2	19	1347	79	155	14.6	38.4	4.5	1.79	T
56	12 June 85	Yaquina Head	44-39.8	124-18.4	28	1431	79	328	8.8	---	---	---	T
57	18 June 85	Necoma Beach	44-59.6	124-03.3	3	0645	29	135	12.2	31.5	4.8	1.89	A
58	18 June 85	Necoma Beach	44-59.9	124-07.9	9	0742	82	178	13.8	38.3	4.8	1.69	A
59	18 June 85	Necoma Beach	44-59.9	124-15.2	19	0901	143	288	14.6	38.2	7.3	8.62	A

Appendix A. Continued.

Set	Date	Transect	Latitude	Longitude	Distance (km)	Time	Depth (m)	Bearing (deg. true)	Temperature (Celsius)	Salinity (ppt)	Secchi (m)	Chlorophyll (ug/l)	Set Status
60	13 June 85	Wecoma Beach	45-00.0	124-15.2	19	1014	143	200	15.0	29.6	9.0	0.24	
61	13 June 85	Wecoma Beach	45-00.2	124-21.5	27	1119	196	200	16.6	29.9	11.0	0.27	
62	13 June 85	Wecoma Beach	45-00.2	124-29.0	37	1227	346	---	16.8	29.9	11.0	0.32	
63	13 June 85	Cape Lookout	45-20.4	124-19.3	26	1553	183	313	17.4	28.6	6.5	0.39	
64	13 June 85	Cape Lookout	45-20.2	124-12.8	19	1782	145	200	16.9	28.4	7.0	0.42	
65	13 June 85	Cape Lookout	45-20.0	124-05.7	10	1809	84	---	16.3	30.3	3.0	2.24	
66	13 June 85	Cape Lookout	45-19.3	124-01.0	4	1926	35	155	13.3	32.2	5.0	0.52	
67	14 June 85	Nehalem Bay	45-48.3	123-58.6	3	0912	27	200	14.1	28.2	5.0	0.88	N
68	14 June 85	Nehalem Bay	45-48.3	124-03.3	9	1028	68	65	15.0	24.6	5.5	1.54	
69	14 June 85	Nehalem Bay	45-48.3	124-03.9	10	0631	69	119	11.7	30.8	---	0.91	
70	16 June 85	Nehalem Bay	45-48.2	124-11.1	19	0745	106	148	14.4	26.2	6.0	1.33	
71	16 June 85	Nehalem Bay	45-48.4	124-17.0	28	0927	141	120	14.0	26.4	6.0	1.45	
72	16 June 85	Nehalem Bay	45-48.3	124-25.3	30	1119	170	120	16.0	25.0	7.0	0.77	
73	16 June 85	Nehalem Bay	45-48.3	124-32.1	46	1328	207	150	16.2	24.6	9.0	0.80	A
74	17 June 85	Seaside	46-00.0	124-00.2	6	0648	27	140	12.0	30.8	5.0	2.66	
75	17 June 85	Seaside	46-00.3	124-02.9	9	0748	44	170	11.9	30.4	5.0	3.92	
76	17 June 85	Seaside	46-00.1	124-10.3	19	0917	84	160	13.7	28.6	6.0	1.36	
77	17 June 85	Seaside	46-00.1	124-17.3	28	1135	117	130	15.0	27.5	6.0	1.45	
78	17 June 85	Seaside	46-00.2	124-24.7	30	1252	141	130	16.1	26.9	6.5	1.57	
79	17 June 85	Seaside	46-00.5	124-32.2	40	1418	154	155	16.4	27.9	6.0	1.42	
80	17 June 85	Seaside	46-00.1	124-38.7	56	1525	183	157	15.7	28.4	---	0.80	
81	17 June 85	Seaside	46-00.4	124-46.2	66	1642	203	160	14.1	28.3	6.0	0.71	
82	18 June 85	Cape Disappointment	46-19.4	124-10.8	9	0703	17	350	11.7	29.2	5.0	1.50	
83	18 June 85	Cape Disappointment	46-19.9	124-18.4	19	0821	81	120	13.3	30.7	5.0	3.92	
84	18 June 85	Cape Disappointment	46-20.8	124-27.4	30	0959	126	115	15.7	29.9	7.0	0.67	
85	18 June 85	Cape Disappointment	46-28.7	124-32.0	36	1121	135	110	16.2	29.7	6.5	0.49	
86	18 June 85	Cape Disappointment	46-20.0	124-39.3	46	1245	159	130	15.6	30.3	10.0	0.34	
87	18 June 85	Cape Disappointment	46-19.8	124-18.3	18	1533	82	---	15.3	24.1	4.5	1.82	
88	20 June 85	Cape Disappointment	46-20.8	124-11.0	9	0710	27	---	11.5	31.3	3.0	7.11	
89	20 June 85	Cape Disappointment	46-20.4	124-19.0	19	0980	82	90	12.6	31.4	3.5	4.55	
90	20 June 85	Cape Disappointment	46-20.1	124-25.0	28	1051	124	110	14.5	30.5	7.0	1.04	
91	22 June 85	Grays Harbor	46-59.5	124-15.0	17	0524	55	70	10.4	32.3	3.0	19.50	
92	22 June 85	Grays Harbor	47-00.2	124-25.2	19	0856	75	---	12.9	32.2	4.0	10.58	
93	22 June 85	Grays Harbor	47-00.3	124-32.0	20	1039	101	130	12.4	32.2	3.0	8.68	
94	22 June 85	Grays Harbor	47-00.0	124-39.7	37	1225	139	140	12.6	32.2	4.0	2.24	
95	22 June 85	Grays Harbor	47-00.2	124-46.6	47	1225	139	140	9.0	33.0	4.0	12.00	N
96	23 June 85	Willapa Bay	46-39.0	124-11.0	9	0752	27	140	10.4	32.4	4.0	12.00	
97	23 June 85	Willapa Bay	46-40.3	124-18.4	18	0922	62	140	10.4	32.4	4.0	12.00	
98	23 June 85	Willapa Bay	46-40.2	124-25.5	27	1106	84	120	12.1	32.3	3.0	14.70	
99	23 June 85	Willapa Bay	46-40.2	124-32.8	37	1235	123	150	13.2	32.1	5.0	3.36	
100	23 June 85	Willapa Bay	46-40.5	124-39.7	46	1412	141	130	13.1	32.0	5.0	1.68	
101	24 June 85	Grays Harbor	47-00.3	124-47.6	47	0724	145	110	10.4	32.4	2.5	10.94	
102	24 June 85	Grays Harbor	47-00.2	124-53.0	56	0846	168	120	11.4	32.4	3.0	18.75	
103	24 June 85	Grays Harbor	47-00.4	125-01.1	67	0915	168	110	11.4	32.3	4.0	8.96	
104	24 June 85	Grays Harbor	47-00.0	125-08.3	74	1146	191	130	12.7	32.1	6.0	1.37	
105	24 June 85	Grays Harbor	47-20.1	124-46.7	37	1603	120	120	12.0	32.3	2.5	18.19	
106	24 June 85	Quinalt River	47-20.1	124-39.3	20	1716	95	125	11.4	32.4	4.0	9.52	
107	24 June 85	Quinalt River	47-20.2	124-32.0	10	1017	59	95	10.4	32.7	3.0	12.04	
108	24 June 85	Quinalt River	47-20.7	124-24.6	8	1930	29	120	10.6	33.0	2.5	10.77	A
109	25 June 85	Destruction Island	47-00.0	124-32.5	11	0610	27	---	9.5	33.3	3.0	17.87	
110	25 June 85	Destruction Island	47-40.1	124-30.7	19	0906	51	105	9.4	32.0	3.0	18.09	
111	25 June 85	Destruction Island	47-40.3	124-46.1	28	1021	70	120	10.6	31.9	3.0	14.28	
112	25 June 85	Destruction Island	47-40.0	124-53.2	37	1242	112	60	11.1	31.7	4.5	5.60	N
113	25 June 85	Destruction Island	47-40.1	124-53.4	37	1402	113	140	11.6	---	---	---	
114	25 June 85	Sea Lion Rock	40-00.3	125-10.5	37	1024	154	110	11.4	31.7	4.0	6.30	
115	25 June 85	Sea Lion Rock	40-00.0	125-03.0	27	1740	123	115	11.3	31.7	3.0	12.42	
116	25 June 85	Sea Lion Rock	40-00.0	124-55.8	19	2104	90	120	11.0	31.7	---	6.72	
117	25 June 85	Sea Lion Rock	47-59.7	124-40.3	9	2212	40	---	10.0	31.0	---	15.92	

Appendix B. Catches by set of salmonids.

Set	Coho <=300mm	Coho >=301mm	Chinook <=400mm	Chinook >=401mm	Chum <=300mm	Chum >=301mm	Set Status
1	27	2	339	3	0	0	
2	0	0	0	0	0	0	D
3	1	1	10	2	0	0	
4	2	0	0	2	0	0	D
5	4	2	0	0	0	0	
6	24	3	0	0	0	0	D
7	0	0	0	0	0	0	
8	10	1	14	0	0	0	
9	13	0	4	0	0	0	
10	5	0	6	0	0	0	
11	172	3	10	0	4	0	
12	121	6	7	0	2	0	
13	0	1	0	0	0	0	
14	64	0	5	0	1	0	
15	42	1	28	0	0	0	
16	7	5	5	0	0	0	
17	14	3	5	0	0	0	
18	1	2	7	0	0	0	
19	1	0	15	1	0	0	
20	1	0	0	2	0	1	D
21	0	0	0	0	0	0	
22	14	1	3	0	1	0	
23	12	1	1	0	3	0	
24	1	11	5	0	0	0	
25	5	1	0	0	0	0	
26	7	1	4	0	0	0	
27	5	1	10	0	0	0	
28	0	3	3	7	0	0	
29	2	4	5	2	0	0	
30	120	9	29	0	1	0	
31	7	0	2	0	0	0	
32	0	2	0	0	0	0	
33	0	20	0	0	0	0	
34	0	2	0	0	0	0	
35	0	0	0	0	0	0	
36	0	0	0	0	0	0	
37	0	0	0	0	0	0	
38	0	14	0	0	0	0	
39	9	0	2	2	0	0	
40	2	0	0	0	0	0	
41	4	0	2	0	0	0	
42	0	0	1	0	0	0	
43	30	0	0	0	0	0	
44	0	0	0	0	0	0	
45	0	0	0	1	0	0	
46	0	0	0	0	0	0	
47	2	0	0	0	0	0	
48	49	0	0	0	0	0	
49	1	0	4	1	0	0	
50	0	0	0	0	0	0	
51	0	1	0	0	0	0	
52	15	0	2	0	0	0	
53	0	0	0	0	0	0	
54	0	0	0	0	0	0	
55	6	1	2	0	0	0	T
56	1	0	1	0	0	0	T
57	0	0	0	0	0	0	
58	0	2	0	0	0	0	
59	2	0	0	0	0	0	N

Appendix B. Continued.

Set	Pink >=341mm	Socketeye <=158mm	Socketeye >=481mm	Cutthroat <=418mm	Steelhead <=298mm	Set Status
1	0	2	0	0	0	
2	0	0	0	0	0	A
3	0	0	0	1	0	
4	1	0	0	0	2	P
5	1	0	0	5	3	
6	0	0	0	0	1	
7	0	0	0	0	0	A
8	0	1	0	0	0	
9	0	0	0	0	0	
10	0	1	0	0	0	
11	0	2	0	0	0	
12	0	1	0	1	1	
13	0	0	0	0	0	
14	0	0	0	0	0	
15	0	0	0	0	0	
16	5	0	0	0	0	
17	0	0	0	0	0	
18	0	0	0	0	0	
19	0	0	0	0	0	
20	0	0	0	0	0	
21	0	0	0	0	0	A
22	0	0	0	0	0	
23	0	0	0	0	0	
24	3	0	0	1	0	
25	0	0	0	0	0	
26	0	0	0	0	0	
27	0	0	0	0	0	
28	0	0	0	1	0	
29	1	0	0	1	0	
30	0	1	0	3	0	
31	0	0	0	0	0	
32	0	0	0	0	0	
33	7	0	0	0	0	
34	0	0	0	0	3	
35	0	0	0	0	0	
36	0	0	0	0	0	
37	0	0	0	0	0	
38	0	0	0	1	0	
39	0	0	0	0	0	
40	0	0	0	1	3	
41	0	0	0	0	0	
42	0	0	0	0	0	
43	0	0	0	0	0	
44	0	0	0	0	0	
45	0	0	0	0	0	
46	0	0	0	0	0	
47	0	0	0	0	0	
48	0	0	0	0	0	
49	0	0	0	0	0	
50	0	0	0	0	0	
51	1	0	0	0	0	
52	0	0	0	0	0	
53	0	0	0	2	1	
54	0	0	0	1	0	
55	0	0	0	0	0	T
56	0	0	0	0	0	T
57	0	0	0	0	0	
58	0	0	0	0	0	
59	0	0	0	0	0	N

Appendix B. Continued.

Set	Coho ≤300mm	Coho ≥301mm	Chinook ≤400mm	Chinook ≥401mm	Chum ≤300mm	Chum ≥301mm	Set Status
60	1	3	0	0	0	0	
61	1	0	0	0	0	0	
62	0	0	0	0	0	0	
63	0	2	0	0	0	0	
64	8	3	0	0	0	0	
65	0	7	0	0	0	0	
66	0	0	0	0	0	0	
67	1	0	9	1	0	0	
68	29	1	0	0	0	0	N
69	0	0	1	0	0	0	
70	19	0	2	0	0	0	
71	25	0	2	0	0	0	
72	33	1	0	0	0	0	P
73	3	0	0	0	0	0	
74	0	0	7	0	0	0	
75	0	14	17	0	0	0	
76	0	12	4	0	0	0	
77	2	2	6	0	0	0	
78	47	1	5	0	0	0	
79	59	1	1	0	0	0	
80	45	1	0	0	0	0	
81	12	0	0	0	0	0	
82	10	0	2	0	0	0	
83	50	7	13	4	0	0	
84	25	1	2	0	0	0	
85	32	2	0	0	0	0	
86	18	0	0	0	0	0	
87	17	3	5	0	0	0	
88	0	1	7	3	0	1	
89	39	27	22	10	0	0	
90	124	10	3	0	0	0	
91	0	0	0	0	0	0	
92	1	1	7	0	0	2	
93	8	1	11	1	0	1	
94	67	1	15	0	0	0	
95	13	0	1	0	0	0	N
96	0	0	0	0	0	0	
97	2	0	6	3	1	0	
98	16	0	0	0	0	0	
99	51	17	3	0	0	0	
100	14	10	0	0	6	0	
101	9	4	2	0	0	0	
102	4	10	3	0	3	0	
103	1	0	0	1	1	1	
104	0	0	0	0	0	0	
105	34	20	15	1	10	0	
106	18	1	2	0	7	0	
107	12	3	10	2	30	0	
108	0	0	0	0	0	0	P
109	4	0	4	1	0	0	
110	21	1	20	1	22	0	
111	16	6	7	0	6	0	
112	0	0	1	0	4	1	N
113	11	13	2	0	0	0	
114	0	2	0	0	0	0	
115	0	3	1	0	4	1	
116	5	6	1	4	1	0	
117	2	0	31	0	9	0	

Appendix B. Continued.

Set	Pink >=341mm	Socketeye <=150mm	Socketeye >=481mm	Cutthroat <=410mm	Steelhead <=290mm	Set Status
60	1	0	0	1	0	
61	0	0	0	0	0	
62	0	0	0	0	0	
63	0	0	0	0	1	
64	0	0	0	1	0	
65	22	0	0	1	0	
66	0	0	0	0	0	
67	0	0	0	0	0	N
68	0	0	0	0	0	
69	0	0	0	0	0	
70	0	0	0	0	0	
71	0	0	0	0	0	
72	0	0	0	3	0	A
73	0	0	0	0	0	
74	0	0	0	0	0	
75	0	0	0	0	0	
76	0	0	0	0	0	
77	0	0	0	0	0	
78	2	0	0	0	0	
79	0	0	0	1	0	
80	0	0	0	0	1	
81	0	0	0	0	0	
82	0	0	0	1	0	
83	0	2	0	0	0	
84	2	0	0	0	2	
85	0	0	0	0	0	
86	0	0	0	0	0	
87	0	0	0	0	0	
88	0	0	0	0	1	
89	1	0	0	3	0	
90	0	0	0	0	0	
91	0	0	0	0	0	
92	0	0	0	0	0	
93	0	0	0	0	0	
94	0	4	0	0	0	
95	1	0	0	0	0	N
96	0	0	0	0	0	
97	0	0	0	0	0	
98	1	0	0	0	0	
99	7	0	0	2	0	
100	2	0	0	0	0	
101	1	0	0	0	0	
102	1	0	0	0	0	
103	1	0	0	0	0	
104	0	0	0	0	0	
105	22	0	0	0	0	
106	0	1	0	0	0	
107	0	0	3	0	0	A
108	0	0	0	0	0	
109	0	0	0	0	0	
110	0	1	0	0	0	
111	1	2	0	0	0	N
112	0	0	0	0	0	
113	0	0	0	0	0	
114	2	0	0	0	2	
115	23	0	0	0	0	
116	10	0	0	0	0	
117	0	0	0	0	0	

Appendix C. Release and recovery information for adipose clipped salmonids.
 (Under "Days (Rel. to Rec.)*" = approximate.)

NOBATA	SP	BY	Apr	Release Site	Ocean Entry Site	Release Date	Recovery Date	Days (Rel. to Rec.)	Set	Transect	N-S Distance From Ocean Entry (km)	Fork Length (mm)
051185	chin	03	FMS	Mind River	Columbia R.	15 Apr 85	24 June 85	---	187	Outnait River	---	189
051186	chin	03	FMS	Mind River	Columbia R.	15 Apr 85	30 June 85	---	187	Quinault River	---	182
051187	chin	03	FMS	Mind River	Columbia R.	15 Apr 85	29 May 85	43	6	Seaside	---	169
051188	chin	03	FMS	Mind River	Columbia R.	15 Apr 85	29 May 85	44	30	Cape Disappointment	9	142
051189	chin	03	FMS	Mind River	Columbia R.	15 Apr 85	29 May 85	51	30	Cape Disappointment	7	159
051190	chin	03	FMS	Mind River	Columbia R.	15 Apr 85	29 May 85	44	1	Cape Disappointment	9	155
051214	chin	03	FMS	Mind River	Columbia R.	15 Apr 85	29 May 85	44	1	Cape Disappointment	9	142
051225	chin	03	FMS	Mind River	Columbia R.	15 Apr 85	29 May 85	44	1	Cape Disappointment	9	154
051227	chin	03	FMS	L. Mt. Salmon R.	Columbia R.	08 June 84	17 June 85	374	77	Seaside	-27	226
051233	chin	03	FMS	Yakima River	Columbia R.	12 Apr 85	24 May 85	-3	4	Cape Disappointment	9	177
072749	chin	03	ODFM	Rock Creek	Winchester Bay	14 Mar 85	30 May 85	48	49	Seaside	-29	172
072792	chin	03	ODFM	N. Santiam R.	Columbia R.	11-12 Mar 85	11 June 85	89	117	Sea Lion Rock	479	274
072807	chin	03	ODFM	Tanner Creek	Columbia R.	08 Mar 85	29 May 85	78-79	1	Cape Disappointment	9	295
072807	chin	03	ODFM	Tanner Creek	Columbia R.	08 Mar 85	29 May 85	82	1	Cape Disappointment	9	166
072823	chin	03	ODFM	Tanner Creek	Columbia R.	08 Mar 85	29 May 85	82	1	Cape Disappointment	9	187
072827	chin	03	ODFM	N. Santiam R.	Columbia R.	11-12 Mar 85	29 May 85	82	1	Cape Disappointment	9	219
073127	chin	03	ODFM	Umatilla R.	Columbia R.	12-29 Mar 85	31 May 85	88-81	11	Seaside	9	238
073128	chin	03	ODFM	Deschutes R.	Columbia R.	12-29 Mar 85	29 May 85	61-78	1	Cape Disappointment	9	261
073135	chin	03	ODFM	Deschutes R.	Columbia R.	02-03 Apr 85	30 May 85	62-79	8	Seaside	-25	156
073155	chin	03	ODFM	Lookingsglass Cr.	Columbia R.	05 Apr 85	25 June 85	83-84	115	Seaside	-27	297
102510	chin	03	IDFG	Lookingsglass Cr.	Columbia R.	04 Apr 85	29 May 85	55	1	Sea Lion Rock	194	275
102510	chin	03	IDFG	S. Frk. Salmon R.	Columbia R.	01-04 Apr 85	29 May 85	55	1	Cape Disappointment	9	150
102516	chin	03	IDFG	S. Frk. Salmon R.	Columbia R.	01-04 Apr 85	29 May 85	55-58	1	Cape Disappointment	9	155
102523	chin	03	IDFG	S. Frk. Salmon R.	Columbia R.	01-04 Apr 85	29 May 85	55-58	1	Cape Disappointment	9	138
102524	chin	03	IDFG	S. Frk. Salmon R.	Columbia R.	01-04 Apr 85	29 May 85	55-58	1	Cape Disappointment	9	142
102524	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	55-58	1	Cape Disappointment	9	155
102524	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	57	30	Cape Disappointment	9	147
102524	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	1	Cape Disappointment	9	142
102524	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	1	Cape Disappointment	9	145
102524	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	1	Cape Disappointment	9	146
102526	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	1	Cape Disappointment	9	160
102532	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	1	Cape Disappointment	9	141
102532	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	26	Cape Disappointment	9	178
102532	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	15	Cape Disappointment	7	118
102532	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	3	Carrakhan	-16	149
102532	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	1	Cape Disappointment	9	176
102532	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	1	Cape Disappointment	9	176
102533	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	1	Cape Disappointment	9	166
102533	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	1	Cape Disappointment	9	164
102533	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	1	Seaside	-25	155
102533	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	3	Warrenton	-7	216
102533	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	1	Cape Disappointment	9	129
102533	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	1	Cape Disappointment	9	208
102533	chin	03	IDFG	Eagle Creek	Columbia R.	29 Apr 85	29 May 85	58	1	Cape Disappointment	9	225
231713	chin	03	NHFS	S. Frk. Salmon R.	Columbia R.	01-04 Apr 85	29 May 85	55-58	1	Cape Disappointment	9	149
231713	chin	03	NHFS	S. Frk. Salmon R.	Columbia R.	01-04 Apr 85	29 May 85	55-58	1	Cape Disappointment	9	148
231714	chin	03	NHFS	Priest Rapids	Columbia R.	05-12 May 85	25 June 85	44-51	110	Cape Disappointment	9	135
231748	chin	03	NHFS	Bonneville	Columbia R.	20-26 May 85	30 May 85	18-25	4	Destruction Island	157	188
231748	chin	03	NHFS	Bonneville	Columbia R.	20-26 May 85	29 May 85	3-9	1	Seaside	-29	168
231748	chin	03	NHFS	Bonneville	Columbia R.	20-26 May 85	25 June 85	38-36	110	Destruction Island	157	188

Appendix C. Continued.

DATE	SP	BY	APN	Release Site	Ocean Entry Site	Release Date	Recovery Date	Days (Rel. to Rec.)	Set	Transect	N-S Distance From Ocean Entry (km)	Fork Length (mm)
231748	chin	83	NMFS	Bonneville	Columbia R.	20-26 May 85	29 May 85	9-9	1	Cape Disappointment	9	119
281753	chin	83	NMFS	Priest Rapids	Columbia R.	20-28 Apr 85	03 June 85	36-14	27	Cape Disappointment	7	149
231756	chin	83	NMFS	Bonneville	Columbia R.	27 May-05 June 85	23 June 85	17-26	93	Grays Harbor	83	190
632152	chin	83	MOF	Bonneville	Columbia R.	17 Apr 85	23 June 85	69	117	Sea Lion Rock	194	233
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	22 June 85	66	92	Grays Harbor	93	236
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	18 June 85	62	83	Cape Disappointment	7	247
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	17 June 85	61	74	Seaside	-27	242
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	22 June 85	66	94	Grays Harbor	83	220
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	22 June 85	66	94	Grays Harbor	83	200
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	17 June 85	61	77	Seaside	-27	212
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	30 May 85	49	4	Seaside	-29	184
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	31 May 85	44	14	Seaside	-27	167
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	31 May 85	44	15	Carnahan	-16	176
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	14 June 85	58	67	Carnahan Bay	-62	228
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	29 May 85	42	1	Cape Disappointment	9	188
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	29 May 85	42	117	Sea Lion Rock	194	215
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	29 May 85	42	1	Cape Disappointment	9	187
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	29 May 85	42	1	Cape Disappointment	9	190
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	29 May 85	42	1	Cape Disappointment	9	194
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	29 May 85	42	1	Cape Disappointment	9	170
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	29 May 85	42	1	Cape Disappointment	9	215
632152	chin	83	MOF	Columbia R.	Columbia R.	17 Apr 85	29 May 85	42	1	Cape Disappointment	9	180
632326	chin	83	MOF	Columbia R.	Columbia R.	16 Apr 85	29 May 85	43	1	Cape Disappointment	7	237
632747	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	20 June 85	72	88	Cape Disappointment	-16	220
632747	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	31 May 85	52	15	Carnahan	-16	238
632747	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	31 May 85	52	15	Carnahan	-25	218
632747	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	31 May 85	52	11	Seaside	9	206
632747	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	29 May 85	50	1	Cape Disappointment	9	207
632747	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	29 May 85	50	1	Cape Disappointment	9	182
632747	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	29 May 85	50	1	Cape Disappointment	9	232
632748	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	28 June 85	72	87	Cape Disappointment	9	198
632748	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	12 June 85	64	55	Yaquina Head	-175	229
632748	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	31 May 85	52	11	Seaside	-25	229
632748	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	31 May 85	52	9	Cape Disappointment	11	205
632748	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	31 May 85	52	12	Seaside	-27	213
632748	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	24 May 85	58	1	Cape Disappointment	9	175
632748	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	01 June 85	53	19	Seaside	-25	179
632836	chin	82	MOF	Cowlitz R.	Columbia R.	Apr 84	29 May 85	3489	1	Cape Disappointment	9	462
632857	chin	83	MOF	Columbia R.	Columbia R.	01 May 85	31 May 85	30	9	Cape Disappointment	11	170
632857	chin	83	MOF	Columbia R.	Columbia R.	01 May 85	20 June 85	50	89	Cape Disappointment	9	196
632857	chin	83	MOF	Columbia R.	Columbia R.	01 May 85	28 June 85	50	88	Cape Disappointment	7	190
632857	chin	83	MOF	Columbia R.	Columbia R.	01 May 85	24 June 85	54	105	Quinalt River	120	228
632857	chin	83	MOF	Columbia R.	Columbia R.	01 May 85	29 May 85	28	1	Cape Disappointment	9	186
632857	chin	83	MOF	Columbia R.	Columbia R.	01 May 85	29 May 85	28	1	Cape Disappointment	9	182
632857	chin	83	MOF	Columbia R.	Columbia R.	01 May 85	29 May 85	28	1	Cape Disappointment	9	175
632857	chin	83	MOF	Columbia R.	Columbia R.	01 May 85	29 May 85	28	1	Cape Disappointment	9	184
632854	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	29 May 85	50	1	Cape Disappointment	9	190
632855	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	20 June 85	72	89	Cape Disappointment	9	237
632855	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	31 May 85	52	14	Seaside	-27	215
632855	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	31 May 85	50	1	Cape Disappointment	9	202
632855	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	30 May 85	51	3	Marrenton	-7	195
632856	chin	83	MOF	Cowlitz R.	Columbia R.	09 Apr 85	29 May 85	50	1	Cape Disappointment	9	215

Appendix C. Continued.

OUT	Sp	By	Apr	Release Site	Ocean Entry Site	Release Date	Recovery Date	Days (Rel. to Rec.)	Set	Transect	N-S Distance From Ocean Entry (km)	Fork Length (mm)
633117	chin	83	MDP	Washougal R.	Columbia R.	30 Aug 84	29 May 85	272	1	Cape Disappointment	9	147
633122	chin	83	MDP	Cowlitz R.	Columbia R.	09 Apr 85	29 May 85	58	1	Cape Disappointment	9	194
633122	chin	83	MDP	Cowlitz R.	Columbia R.	09 Apr 85	29 May 85	58	1	Cape Disappointment	9	204
633218	chin	83	MDP	Columbia R.	Columbia R.	17 Apr 85	29 May 85	58	1	Cape Disappointment	9	223
633218	chin	83	MDP	Columbia R.	Columbia R.	17 Apr 85	25 June 85	69	118	Destruction Island	157	226
633218	chin	83	MDP	Columbia R.	Columbia R.	17 Apr 85	25 June 85	66	93	Grays Harbor	83	216
633218	chin	83	MDP	Columbia R.	Columbia R.	17 Apr 85	25 June 85	69	117	Sea Lion Rock	194	221
633218	chin	83	MDP	Columbia R.	Columbia R.	17 Apr 85	22 June 85	62	83	Cape Disappointment	7	220
633218	chin	83	MDP	Columbia R.	Columbia R.	17 Apr 85	22 June 85	66	94	Grays Harbor	83	241
633218	chin	83	MDP	Columbia R.	Columbia R.	17 Apr 85	29 May 85	42	1	Cape Disappointment	9	177
633218	chin	83	MDP	Columbia R.	Columbia R.	17 Apr 85	29 May 85	42	1	Cape Disappointment	9	175
633218	chin	83	PHS	Soc. Secruity L.	Columbia R.	14 June 84	30 May 85	43	8	Seaside	-27	183
NO TAB	chin	---	---	---	---	---	16 June 85	369	82	Cape Disappointment	7	354
NO TAB	chin	---	---	---	---	---	22 June 85	---	93	Grays Harbor	---	288
NO TAB	chin	---	---	---	---	---	23 June 85	---	97	Millega Bay	---	240
NO TAB	chin	---	---	---	---	---	31 May 85	---	15	Carnahan	---	199
NO TAB	chin	---	---	---	---	---	31 May 85	---	15	Carnahan	---	202
NO TAB	chin	---	---	---	---	---	31 May 85	---	15	Carnahan	---	193
NO TAB	chin	---	---	---	---	---	29 May 85	---	1	Cape Disappointment	---	175
NO TAB	chin	---	---	---	---	---	29 May 85	---	1	Cape Disappointment	---	185
NO TAB	chin	---	---	---	---	---	29 May 85	---	1	Cape Disappointment	---	210
NO TAB	chin	---	---	---	---	---	29 May 85	---	1	Cape Disappointment	---	288
NO TAB	chin	---	---	---	---	---	29 May 85	---	1	Cape Disappointment	---	161
NO TAB	chin	---	---	---	---	---	29 May 85	---	1	Cape Disappointment	---	208
NO TAB	chin	---	---	---	---	---	29 May 85	---	1	Cape Disappointment	---	165
NO TAB	chin	---	---	---	---	---	02 June 85	---	24	Seaside	---	375
NO DATA	cho	---	---	---	---	---	13 June 85	---	43	Cape Lookout	---	536
NO DATA	cho	---	---	---	---	---	20 June 85	---	98	Cape Disappointment	---	585
NO DATA	cho	---	---	---	---	---	28 June 85	---	98	Cape Disappointment	---	538
NO DATA	cho	---	---	---	---	---	28 June 85	---	98	Cape Disappointment	---	430
NO DATA	cho	---	---	---	---	---	28 June 85	---	187	Quinalt River	---	617
NO DATA	cho	---	---	---	---	---	22 June 85	---	92	Grays Harbor	---	215
022858	cho	82	ODFO	Thornton Cr.	Ucluellet Inlet	17 Mar 84	22 June 85	462	69	Grays Harbor	-218	538
022859	cho	82	ODFO	Tenderfoot Cr.	Howe Sound	28-30 May 84	22 June 85	366-388	69	Cape Disappointment	-370	445
022723	cho	82	ODFO	Puntledge R.	Str. of Georgia	18 May 84	24 June 85	482	185	Quinalt River	-268	435
022454	cho	83	ODPM	Makeena Pond	Columbia R.	01-18 Aug 84	14 June 85	388-317	68	Nehalem Bay	-62	164
022754	cho	83	ODPM	S. Umqua R.	Winchester Bay	17-18 Apr 85	85 June 85	48-49	38	Cape Disappointment	294	286
022754	cho	83	ODPM	Rock Creek	Winchester Bay	17-18 Apr 85	31 May 85	43-44	111	Seaside	257	287
022761	cho	83	ODPM	Smith R.	Winchester Bay	22 Apr 85	25 June 85	64	111	Destruction Island	444	264
022763	cho	83	ODPM	Salmon R.	Salmon R.	30 Apr-01 May 85	12 June 85	42-43	52	Yaquina Head	189	185
022743	cho	83	ODPM	Salmon R.	Salmon R.	16 Apr 85	25 June 85	70	111	Destruction Island	290	243
022881	cho	83	ODPM	Salmon R.	Salmon R.	16 Apr 85	22 June 85	67	95	Grays Harbor	216	233
022881	cho	83	ODPM	Klaskanine R.	Columbia R.	18 Apr 85	31 May 85	45	12	Seaside	185	214
022811	cho	83	ODPM	Klaskanine R.	Columbia R.	18 Apr 85	22 June 85	73	94	Grays Harbor	83	204
022958	cho	83	ODPM	Cedar Creek	Columbia R.	18 Apr 85	31 May 85	51	11	Seaside	-25	184
022958	cho	83	ODPM	Fall Creek	Alesea Bay	30 Apr 85	31 May 85	31	14	Seaside	-27	174
022958	cho	83	ODPM	Fall Creek	Alesea Bay	19 Mar 85	25 June 85	104	113	Destruction Island	358	233
022962	cho	83	ODPM	Rock Creek	Siletz Bay	13 Mar 85	25 June 85	104	113	Destruction Island	358	243
022962	cho	83	ODPM	Rock Creek	Siletz Bay	13 Mar 85	24 June 85	103	186	Quinalt River	266	264
022962	cho	83	ODPM	Rock Creek	Siletz Bay	13 Mar 85	17 June 85	74	88	Seaside	118	388

pendix C. Continued.

DWT	Sp	BY	Age	Release Site	Ocean Entry Site	Release Date	Recovery Date	Days (Rel. to Rec.)	Set	Transect	N-S Distance From Ocean Entry (km)	Fork Length (mm)
072963	coho	03	DDFM	Rock Creek	Siletz Bay	13 Mar 85	31 May 85	79	15	Carnahan	129	165
072963	coho	03	DDFM	Rock Creek	Siletz Bay	13 Mar 85	30 May 85	78	8	Seaside	114	180
072943	coho	03	DDFM	Rock Creek	Siletz Bay	13 Mar 85	31 May 85	79	12	Seaside	118	179
073026	coho	03	DDFM	Rock Creek	Siletz Bay	16 Apr 85	05 June 85	50	38	Cape Disappointment	155	168
073026	coho	03	DDFM	Rock Creek	Siletz Bay	16 Apr 85	17 June 85	32	79	Seaside	-25	180
073029	coho	03	DDFM	Klaskanine R.	Columbia R.	03 June 85	14 June 85	14	06	Seaside	9	161
073032	coho	03	DDFM	Big Creek	Columbia R.	03 June 85	28 June 85	17	98	Nahalem Bay	-62	164
073032	coho	03	DDFM	Big Creek	Columbia R.	03 June 85	05 June 85	34	39	Cape Disappointment	-25	150
073045	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	17 June 85	48	79	Seaside	-25	180
073045	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	17 June 85	48	85	Cape Disappointment	11	195
073046	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	02 June 85	33	25	Seaside	-27	188
073046	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	05 June 85	34	31	Cape Disappointment	7	168
073047	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	31 May 85	31	15	Carnahan	-16	152
073049	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	31 May 85	31	11	Seaside	-25	146
073049	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	17 June 85	48	81	Seaside	-25	210
073050	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	31 May 85	31	14	Seaside	-27	182
073105	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	31 May 85	31	11	Seaside	-25	159
073106	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	18 June 85	49	87	Cape Disappointment	7	192
073107	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	17 June 85	48	79	Seaside	-25	163
073107	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	31 May 85	31	11	Seaside	-25	168
073108	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	17 June 85	48	79	Seaside	-25	188
073108	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	24 June 85	55	105	Quinalt River	129	216
073108	coho	03	DDFM	Cedar Creek	Columbia R.	30 Apr 85	31 May 85	31	11	Seaside	-25	153
073204	coho	03	DDFM	Columbia R.	Columbia R.	24 May 85	31 May 85	7	14	Seaside	-27	147
073204	coho	03	DDFM	Columbia R.	Columbia R.	24 May 85	31 May 85	7	14	Seaside	-27	156
073204	coho	03	DDFM	Columbia R.	Columbia R.	24 May 85	31 May 85	7	15	Carnahan	-16	141
073204	coho	03	DDFM	Columbia R.	Columbia R.	24 May 85	31 May 85	7	11	Seaside	-25	158
073204	coho	03	DDFM	Columbia R.	Columbia R.	24 May 85	31 May 85	7	12	Seaside	-23	155
073204	coho	03	DDFM	Columbia R.	Columbia R.	24 May 85	31 May 85	7	12	Seaside	-27	151
073204	coho	03	DDFM	Columbia R.	Columbia R.	24 May 85	17 June 85	18	79	Seaside	-53	172
073206	coho	03	DDFM	Off Ocean Park	Off Ocean Park	30 May 85	28 June 85	21	98	Cape Disappointment	-16	172
073206	coho	03	DDFM	Off Ocean Park	Off Ocean Park	30 May 85	22 June 85	23	94	Grays Harbor	55	163
073206	coho	03	DDFM	Off Ocean Park	Off Ocean Park	30 May 85	31 May 85	1	9	Cape Disappointment	-16	134
073207	coho	03	DDFM	Columbia R. Bar	Columbia R.	31 May 85	18 June 85	18	85	Cape Disappointment	-16	168
073208	coho	03	DDFM	Tanner Creek	Columbia R.	17 May 85	24 June 85	14	15	Carnahan	-16	151
073208	coho	03	DDFM	Tucker Cr	Columbia R.	01-30 Apr 85	24 June 85	55-84	106	Quinalt River	128	248
073344	coho	03	DDFM	Portage Bay	Columbia R.	01-30 Apr 85	31 May 85	91-60	12	Seaside	-198	164
111704	coho	03	LN	Tulalip Cr.	Puget Sound	May 84	23 June 85	X404	99	Hillapa Bay	-198	465
211601	coho	02	TULA	Clearwater R.	Puget Sound	June 84	24 June 85	X374	105	Quinalt River	-116	495
211626	coho	03	DDNR	Cook Creek	Queets R.	June 84	02 June 85	X352	24	Seaside	-168	476
211636	coho	03	DDNR	Queets R.	Queets R.	25 Mar 85	25 June 85	92	110	Destruction Island	35	281
211643	coho	03	DDNR	Queets R.	Queets R.	01 Apr 85	24 June 85	84	102	Grays Harbor	-57	254
603645	coho	03	DAF	Yaquina Bay	Yaquina Bay	31 July 84	18 June 85	322	85	Cape Disappointment	190	517
603709	coho	03	DAF	Yaquina Bay	Yaquina Bay	02 Aug 84	15 June 85	315	64	Mecoma Beach	40	497
603723	coho	03	DAF	20 mi off Yaq.	Off Yaquina Bay	21 May 85	12 June 85	22	58	Yaquina Head	3	129
621723	coho	03	ANAD	Cooz Bay	Cooz Bay	June 84	13 June 85	X363	58	Mecoma Beach	181	518
621749	coho	03	ANAD	Cooz Bay	Cooz Bay	18 July-27 Aug 84	01 June 85	298-318	14	Seaside	298	492
623024	coho	03	ANAD	Cooz Bay	Cooz Bay	30 May 85	11 June 85	12	43	Stuslaw River	70	163
623024	coho	03	ANAD	Cooz Bay	Cooz Bay	30 May 85	11 June 85	12	41	Stuslaw River	70	153

Appendix C. Continued.

ENT	Sp	BY	Apn	Release Site	Ocean Entry Site	Release Date	Recovery Date	Days (Rel. to Rec.)	Set	Transect	N-S Distance From Ocean Entry (km)	Fork Length (mm)
430427	coho	83	ANAD	7 mi off Coos	Off Coos Bay	30 May 85	11 June 85	12	48	Yachats	107	166
430428	coho	83	ANAD	Coos Bay	Coos Bay	29 May-18 June 85	18 June 85	8-20	83	Cape Disappointment	329	197
430429	coho	83	ANAD	Coos Bay	Coos Bay	29 May-18 June 85	11 June 85	1-13	48	Yachats	187	175
430430	coho	83	ANAD	Naselle R.	Coos Bay	29 May-18 June 85	28 June 85	10-22	96	Cape Disappointment	329	201
430431	coho	83	MDF	Nemah R.	Willapa Bay	31 Mar-14 May 85	29 May 85	9	1	Cape Disappointment	-37	143
430432	coho	83	MDF	Humtullips R.	Willapa Bay	31 Mar-14 May 85	24 June 85	41-95	185	Quinault River	72	213
430433	coho	83	MDF	Upper Chehalis R	Grays Harbor	03 Apr 85	22 June 85	39-83	94	Grays Harbor	35	237
430434	coho	82	SOAX	Peale Passage	Puget Sound	27 Mar 85	18 June 85	76	82	Cape Disappointment	-66	132
430435	coho	82	MDF	Cowlitz R.	Columbia R.	Feb-June 84	22 June 85	87	94	Grays Harbor	-116	155
430436	coho	82	MDF	Cowlitz R.	Columbia R.	May 84	17 June 85	374-494	182	Quinault River	-116	495
430437	coho	83	MDF	Stevens Cr.	Brays Harbor	May 84	28 June 85	4396	75	Seaside	-25	268
430438	coho	83	MDF	Fork Cr.	Willapa Bay	25 Apr-18 June 85	18 June 85	1491	88	Cape Disappointment	-66	343
430439	coho	82	COOP	Purdy Cr.	Puget Sound	Apr 84	24 June 85	8-54	82	Cape Disappointment	-66	189
430440	coho	82	MDF	Wallace R.	Puget Sound	Apr 84	25 June 85	8335	181	Grays Harbor	35	555
430441	coho	82	MDF	Peale Passage	Puget Sound	June 84	24 June 85	8326	111	Destruction Island	-79	526
430442	coho	82	SOAX	Big Beef Cr.	Puget Sound	June 84	24 June 85	8374	181	Grays Harbor	-151	478
430443	coho	82	MDF	Hahoghal R.	Puget Sound	Apr-May 84	30 May 85	8398-818	6	Seaside	-116	463
430444	coho	83	MDF	Kalama R.	Columbia R.	25 May 85	20 June 85	49	96	Cape Disappointment	9	421
430445	coho	83	MDF	Kalama R.	Columbia R.	28 May 85	16 June 85	27	72	Nehalem Bay	-62	119
430446	coho	83	MDF	Kalama R.	Columbia R.	28 May 85	31 May 85	11	11	Seaside	-25	150
430447	coho	83	MDF	Kalama R.	Columbia R.	28 May 85	05 June 85	16	38	Cape Disappointment	7	143
430448	coho	83	MDF	Kalama R.	Columbia R.	19 Apr-26 May 85	05 June 85	31-62	98	Cape Disappointment	9	157
430449	coho	83	MDF	Kalama R.	Columbia R.	19 Apr-28 May 85	01 June 85	12-43	22	Seaside	-27	163
430450	coho	83	MDF	Kalama R.	Columbia R.	19 Apr-28 May 85	31 May 85	11-42	11	Seaside	-27	162
430451	coho	83	MDF	Cowlitz R.	Columbia R.	01 May 85	02 June 85	19-44	25	Seaside	-27	163
430452	coho	83	MDF	Kalama R.	Columbia R.	07 May 85	18 June 85	48	83	Cape Disappointment	7	188
430453	coho	83	MDF	Kalama R.	Columbia R.	07 May 85	18 June 85	48	83	Cape Disappointment	7	188
430454	coho	83	MDF	Kalama R.	Columbia R.	07 May 85	05 June 85	27	38	Cape Disappointment	7	163
430455	coho	83	MDF	Kalama R.	Columbia R.	09 May 85	02 June 85	24	23	Seaside	-25	148
430456	coho	83	MDF	Kalama R.	Columbia R.	09 May 85	18 June 85	48	83	Cape Disappointment	7	145
430457	coho	83	MDF	Kalama R.	Columbia R.	09 May 85	18 June 85	48	83	Cape Disappointment	7	161
430458	coho	83	MDF	Cowlitz R.	Columbia R.	01 May 85	31 May 85	38	12	Seaside	-27	158
430459	coho	83	MDF	Cowlitz R.	Columbia R.	01 May 85	17 June 85	47	88	Seaside	-27	146
430460	coho	83	MDF	Cowlitz R.	Columbia R.	01 May 85	30 May 85	29	8	Seaside	-27	146
430461	coho	83	MDF	Elkomin R.	Columbia R.	31 May-06 June 85	05 June 85	-1-5	38	Cape Disappointment	7	144
430462	coho	83	MDF	Elkomin R.	Columbia R.	03 Apr-27 May 85	31 May 85	4-38	12	Seaside	-27	167
430463	coho	83	MDF	Grays R.	Columbia R.	03 Apr-27 May 85	30 May 85	3-57	6	Seaside	-29	162
430464	coho	83	MDF	Grays R.	Columbia R.	19 Apr-13 May 85	28 June 85	30-62	98	Cape Disappointment	9	178
430465	coho	83	MDF	Willapa	Columbia R.	19 Apr-13 May 85	05 June 85	23-47	38	Cape Disappointment	7	175
430466	coho	83	MDF	Satop R.	Willapa Bay	38 Apr 85	28 June 85	31	98	Cape Disappointment	9	265
430467	coho	83	MDF	Satop R.	Grays Harbor	12 Apr 85	17 June 85	64	88	Seaside	-74	238
430468	coho	83	MDF	Humtullips R.	Grays Harbor	14 Mar-27 Apr 85	20 June 85	54-98	89	Cape Disappointment	-62	149
430469	coho	83	MDF	Humtullips R.	Grays Harbor	14 Mar-27 Apr 85	17 June 85	51-95	79	Seaside	-79	138
NO TAG	coho	---	---	---	---	---	25 June 85	---	113	Cape Disappointment	-62	168
NO TAG	coho	---	---	---	---	---	25 June 85	---	118	Destruction Island	---	246
NO TAG	coho	---	---	---	---	---	22 June 85	---	93	Grays Harbor	---	228
NO TAG	coho	---	---	---	---	---	17 June 85	---	79	Seaside	---	169
NO TAG	coho	---	---	---	---	---	17 June 85	---	81	Seaside	---	164

Appendix C. Continued.

Out	Sp	By	Age	Release Site	Ocean Entry Site	Release Date	Recovery Date	Days (Rel. to Rec.)	Set	Transect	N-S Distance From Ocean Entry (km)	Fork Length (mm)
NO	TAG			---	---	---	17 June 85	---	78	Seaside	---	266
NO	TAB			---	---	---	17 June 85	---	78	Seaside	---	175
NO	TAB			---	---	---	17 June 85	---	78	Seaside	---	141
NO	TAB			---	---	---	28 June 85	---	98	Cape Disappointment	---	224
NO	TAB			---	---	---	16 June 85	---	39	Upoua	---	178
NO	TAB			---	---	---	14 June 85	---	71	Nehalem Bay	---	159
NO	TAB			---	---	---	01 June 85	---	22	Seaside	---	185
NO	TAB			---	---	---	31 May 85	---	14	Seaside	---	169
NO	TAB			---	---	---	31 May 85	---	14	Seaside	---	159
NO	TAB			---	---	---	11 June 85	---	48	Yachats	---	144
NO	TAB			---	---	---	11 June 85	---	29	Cape Disappointment	---	159
NO	TAB			---	---	---	05 June 85	---	17	Seaside	---	553
NO	TAB			---	---	---	10 June 85	---	33	Cooz Bay	---	159
NO	TAB			---	---	---	17 June 85	---	76	Seaside	---	542
NO	TAB			---	---	---	24 June 85	---	101	Grays Harbor	---	537
NO	TAB			---	---	---	31 May 85	---	12	Seaside	---	231
NO	TAB			---	---	---	02 June 85	---	24	Seaside	---	243
NO	TAB			---	---	---	10 June 85	---	33	Cooz Bay	---	366
NO	TAB			---	---	---	25 June 85	---	113	Sea Lion Rock	---	418
NO	TAB			---	---	---	13 June 85	---	44	Cape Lookout	---	285
NO	TAB			---	---	---	10 June 85	---	48	Stuaw River	---	262
NO	TAB			---	---	---	30 May 85	---	5	Warrenton	---	231
NO	TAB			---	---	---	30 May 85	---	5	Warrenton	---	218
NO	TAB			---	---	---	30 May 85	---	5	Warrenton	---	248
NO	TAB			---	---	---	30 May 85	---	4	Warrenton	---	258
NO	TAB			---	---	---	29 May 85	---	1	Cape Disappointment	---	288