CZES Coastal Zone and Estuarine Studies

ANNUAL REPORT – 1978

Project 712

A study to define the migrational characteristics of Chinook and Coho Salmon and Steelhead Trout in the Columbia River Estuary

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INTRODUCTION

The National Marine Fisheries Service (NMFS), in cooperation with the Pacific Northwest Regional Commission (PNRC), is conducting a 3-year study of the migrational characteristics of juvenile salmon and steelhead in the Columbia River estuary. The objectives of this study are to: 1) define and monitor the survival of selected stocks of hatchery reared juvenile salmonids to the estuary, 2) develop a sampling system to evaluate hatchery production techniques and procedures, and 3) define migrational and behavioral characteristics of juvenile salmonids in the Columbia River estuary.

In 1978, the second year of the study, both beach seine and purse seine sampling were expanded to include the lower estuary, and an initial effort was made to sample the nearshore marine areas adjacent to the river mouth. This report summarizes the results of all research activities conducted during 1978.

METHODS

Beach seines and purse seines were used to sample the juvenile salmonid migrations at various locations within the Columbia River estuary and adjacent marine areas in 1978. Sample catches were used to define migrational timing, travel time to and through the estuary, diel movement patterns, and survival of hatchery stocks to the estuary.

BEACH SEINE SAMPLING

A variable-mesh seine 95 m long by 5 m deep of the type described by Sims and Johnsen (1974) was used to sample the juvenile migrations in the upper and lower estuary (Figure 1). Primary sampling sites were at Jones Beach, Oregon, River Mile (RM) 46.5 and at Sand Island RM 4.5 and Clatsop Spit RM 5.5 in the lower estuary. Sampling at Jones Beach began in January 1978 and continued at various levels throughout the year. Sampling schedules for both the upper and lower estuary are shown in Table 1. Beach seine sampling began at sunrise each day (adjusted weekly) and sets were made at 45-minute intervals for about 7 hours.

PURSE SEINE SAMPLING

A 210 m long by 15 m deep purse seine was used to sample juvenile salmonids within the estuary and in marine areas adjacent to the river mouth. Primary sampling sites were at RM 46.5 and RM 10 (Figure 1). Sampling schedules are shown in

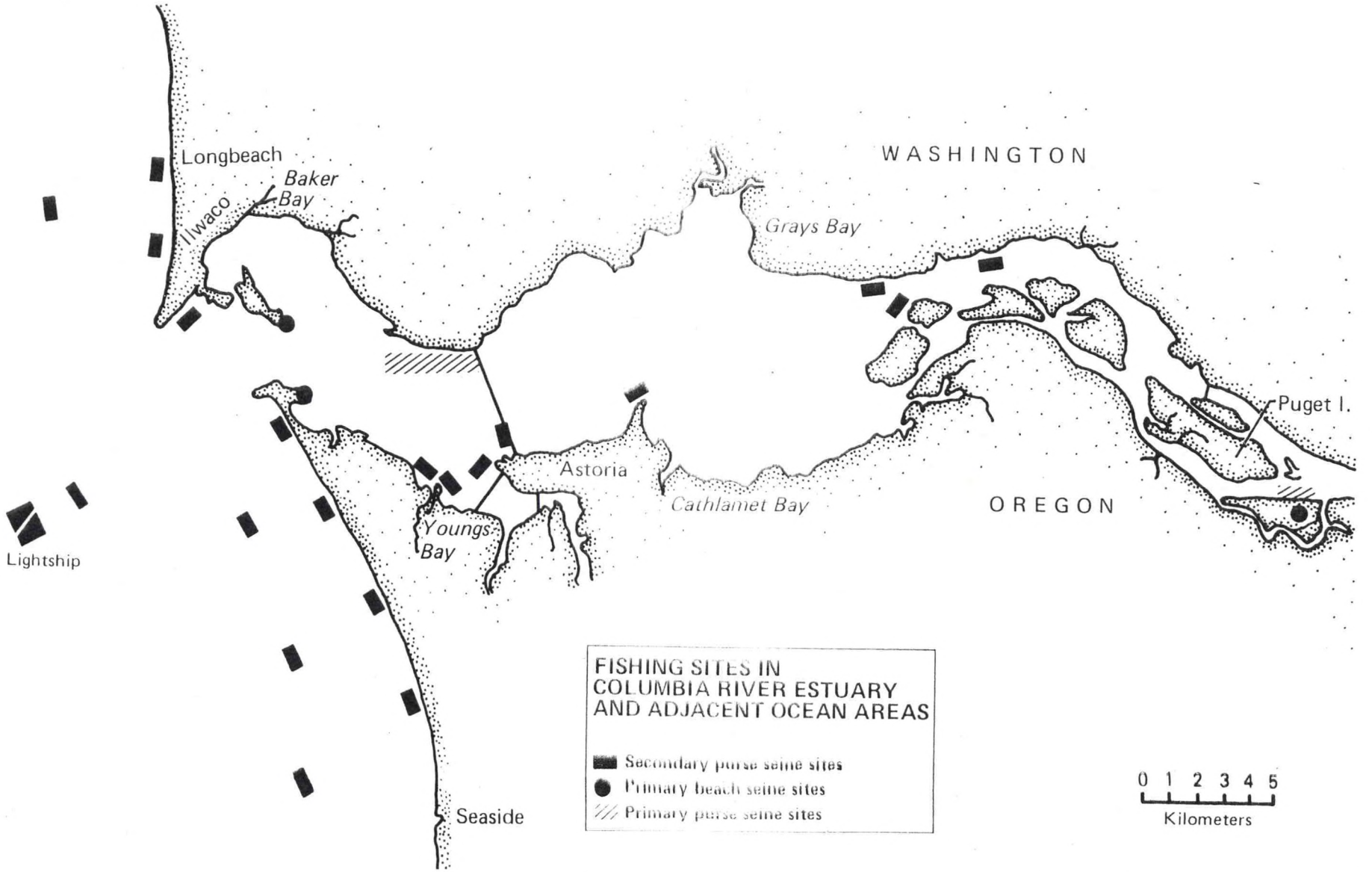

Figure 1.--A map of the Columbia River estuary and Pacific Ocean showing fishing sites used in 1978.

Table 1.- - Schedule for beach seine sampling[a] in the Columbia River estuary, Oct. 1977 - Dec. 1978.

Time Period	Sampling sites[a]			
	Jones Beach, RM 46.5		RM 4 - 5	
	days/wk	sets/day	days/wk	sets/day
Oct. 1, 1977-Mar. 5,1978	1	2	-	-
March 6 - March 19	3	5	-	-
March 20 - April 2	5	10	-	-
April 3 - July 13	6	10	2	9
July 14 - Sept. 8	5	10	2	9
Sept. 9 - Dec. 29	1	2	-	-

Table 2.- - Schedule for purse seine sampling[a] in the Columbia River estuary, 1978.

Time Period	Sampling sites[a]			
	Jones Beach RM 46.5		RM 10	
	days/wk	sets/day	days/wk	sets/day
March 12 - April 22	3	5	3[b]	5
April 23 - May 31	6	5	3	5
June 1 - August 31	3	3	3	5
Sept. 1 - Sept. 30	1	3	1	4
Oct. 1 - Dec. 31	1	1	0	0
	Secondary sites in estuary		Near shore marine waters	
July 28 - Oct. 26	1	1-3	-	-
July 2 - Sept. 16	-	-	1	5

[a] Some deviation from this schedule occurred due to physical problems of fishing and early and late fish releases.
[b] Sampling began on 16 Ap.

Table 2. Fishing techniques used were as described by Johnsen and Sims (1973). Purse seine sampling was also conducted at selected secondary sites within the estuary. The location of these sites and fishing intensity are listed in Appendix Table 1.

Marine areas within a 24 km radius of the river mouth were also sampled by purse seine in 1978 (Figure 1). Sampling dates and fishing intensity are included in Appendix Table 2.

SAMPLE PROCESSING

Beach seine and purse seine catches at Jones Beach (RM 46.5) were processed at permanent fish processing facilities on the beach. Fish taken at lower estuary sampling sites were processed on board the purse seining vessel or at temporary processing facilities on the beach.

All fish were anesthetized with MS-222, enumerated by species, and examined for identifying marks. Juvenile chinook salmon were separated into "subyearling" and "yearling" categories on the basis of fork length. The separation point was determined from length frequency samples. Stock separation by this method allows for a certain amount of overlap, but, in general, it is quite satisfactory.

Mark recaptures were recorded by species, number, fork length, sampling gear, date, and sampling area. After processing, all fish were allowed to recover from the effects of the anesthetic and then transported out of the sampling area and released back into the river.

Salmonids with a clipped adipose fin were subsampled for coded wire tags (CWT). About 100 fish per day per species were sacrificed for tag identification. Extrapolation of the subsample was made to determine the tag distribution of the entire adipose clip sample. At the request of Washington Department of Fisheries (WDF) only 25% of ad-clipped chinook salmon over 160 mm fork length were sacrificed from 20 March through 29 April, 1978.

Gill tissue samples were collected for adenosine triphosphatase (Na^+-K^+ ATPase) analysis in cooperation with researchers from NMFS (Smoltification Study) and the Oregon Department of Fish and Wildlife (ODFW) at Springfield, Oregon. Tissue samples were removed from ad-clipped fish and later identification was made from CWT information as to origin and timing of the individual fish examined.

RELEASE OF MARKED HATCHERY FISH

Marked hatchery fish were released at many locations throughout the Columbia River system in 1978 (Figure 2). Recoveries from these marked releases have been used to identify stocks, provide sampling efficiencies, measure survival, and define migrational and behavioral characteristics.

In order to examine the relationship between juvenile survival to the estuary and adult return, selected groups of coded wire tagged hatchery fish from Spring Creek, Little White Salmon, and Sandy Hatcheries were branded and released at

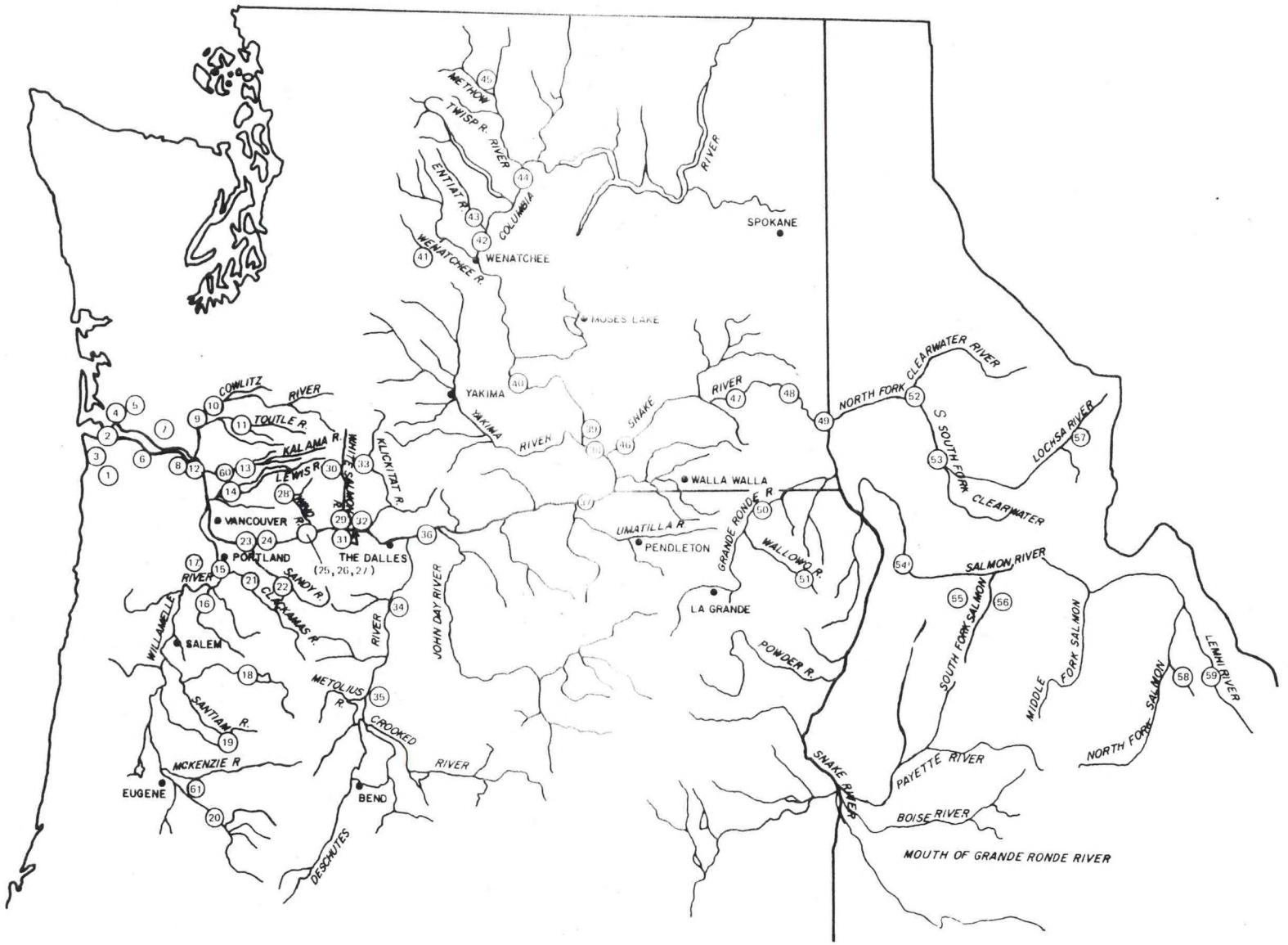

Figure 2.--A map of the Columbia River basin showing release sites for marked fish captured in the Columbia River estuary in 1978. Legend on following page.

Figure 2 .- - Release locations of marked juvenile salmonids recaptured in Columbia River Estuary, 1978.

LEGEND

1. Klaskanine Hatchery
2. Columbia R. @ Hammond
3. Stavebolt Creek
4. Grays R. Hatchery
5. Elokomin Hatchery
6. Big Creek Hatchery
7. Abernathy Research Station
8. Columbia River @ Jones Beach
9. Cowlitz Trout Hatchery
10. Cowlitz Salmon Hatchery
11. Toutle River Hatchery
12. Columbia River @ Prescott
13. Kalama Falls Hatchery
14. Lewis River Hatchery
15. Willamette River, falls area
16. Mollalla River
17. Tualatin River
18. N. F. Santiam - Minto
19. S. Santiam Hatchery
20. Willamette River Hatchery
21. Sandy Hatchery
22. Eagle Creek Hatchery
23. Skamania Hatchery
24. Washougal Hatchery
25. Bonneville Dam
26. Bonneville Salmon Hatchery
27. Cascade Hatchery
28. Carson Hatchery
29. Little White Salmon Hatchery
30. Willard Hatchery
31. Spring Creek Hatchery
32. Big White Rearing Pond
33. Klickitat Hatchery
34. Oak Springs Hatchery
35. Round Butte Hatchery
36. John Day Dam
37. McNary Dam
38. Columbia River @ Pasco
39. Ringold Hatchery
40. Priest Rapids Spawning channel
41. Leavenworth Hatchery
42. Rocky Reach Spawning Channel
43. Entiat Hatchery
44. Wells Salmon Pond
45. Winthrop Hatchery
46. Ice Harbor Dam
47. Little Goose Dam
48. Lower Granite Dam
49. Clarkston, Wa.
50. Grande Ronde River
51. Wallowa Hatchery
52. Dworshak Hatchery
53. Kooskia, Hatchery
54. Riggins, Idaho
55. Rapid River Hatchery
56. McCall Hatchery @ S. fk. Salmon River
57. Lochsa River
58. Niagra Springs @ Pahsimeroi
59. Hayden Creek Pond, Lemhi R.
60. Lower Kalama
61. Mckenzie@ Leaburg

Prescott, Oregon (RM 72). Recovery rates of these efficiency releases and of replicate releases at the hatchery have been used to estimate survival. This marking program was accomplished with the cooperation of Steve Leek, Elmo Barney, Jack Bodle, Jerry Rogers, and Jack Manning, U.S. Fish and Wildlife Service (USFWS) and Jean Legassee and Richard Harrison (ODFW).

MIGRATIONAL TIMING AND TRAVEL TIME

Migrational timing of subyearling chinook salmon is based on beach seine catches at the primary sampling sites. Timing of all other species is based on purse seine catches. Travel time to and through the estuary is based on dates of median recapture of marked fish--date of median recapture subtracted from the release date equals travel time. Rates of movement are based on distance traveled and the calculated travel time.

DIEL MOVEMENT

Diel movement patterns of subyearling chinook and coho salmon at the Jones Beach site were examined on two occasions in 1978. On 18-19 May and 14-15 June, beach seine sets were made every 45 minutes over a 24-hour period. Catch results are used to define day/night movement patterns.

RESULTS

Sampling operations in the Columbia River estuary produced a catch of 339,392 juvenile chinook and coho salmon and steelhead trout in 1978. Weekly sampling summaries for these target species are presented in Appendix Tables 1 - 6.

Beach seine sampling in 1978 was expanded to include the lower estuary (RM 4-5) as well as Jones Beach (RM 46.5). Catch totals from 1390 sets made at RM 46.5 and 265 sets made at RM 4-5 were193,139 subyearling chinook salmon, 5,182 yearling chinook salmon, 7,537 coho salmon, and 475 steelhead trout (Table 3).

Sampling effort at Jones Beach in 1978 was about the same as in 1977 (1,428 sets in 1977); however, the total beach seine catch of target species was much reduced compared to the catch in 1977 (197,044 in 1978 as to 358,888 in 1977). This reduction reflects a slightly lower sampling efficiency in 1978 resulting from higher river flows and a decrease to 6 days sampling per week during May and June but does not necessarily indicate a reduced population.

Purse seine sampling effort in the estuary was significantly increased in 1978. This increased effort (662 sets as compared to 38 in 1977) produced a catch of 57,577 subyearling chinook salmon, 18,084 yearling chinook salmon, 35,984 coho salmon, and 18,818 steelhead trout (Table 4). An additional 49 sets were made in near shore marine waters adjacent to the river mouth, which produced a catch of 2,582 subyearling and 14 yearling chinook salmon.

Table 3.---Beach seine catches of juvenile chinook and coho salmon and steelhead trout from the Columbia River estuary, 1978.

Sampling Area[a/]	No. sets	Catch: Subyearling chinook (0's)	Yearling chinook (1's)	Coho	Steelhead
Upper estuary (R M 46.5)	1,390	185,951	4,990	5,933	170
Lower estuary (R M 4 - 5)	265	7,188	192	1,604	305
Totals	1,655	193,139	5,182	7,537	475

Table 4.- - Purse seine catches of juvenile chinook and coho salmon and steelhead trout from the Columbia River estuary, 1978.

Sampling Area[a/]	No. sets	Subyearling chinook (0's)	Yearling chinook (1's)	Coho	Steelhead
Upper estuary (R M 46.5)	414	17,472	12,929	25,605	14,459
Lower estuary (R M 5-10)	224	39,243	5,134	10,228	4,349
Secondary sites	24	862	21	151	10
Near-shore marine	49	2,582	14	0	0
Totals	711	60,159	18,098	35,984	18,818

a/ See Figure 1.

Marked fish from 61 experimental release sites in the Columbia River system were recovered in the estuary in 1978 (Table 5). All mark recovery data combined with release information have been summarized and are presented in Appendix Table 7. While the majority of mark recoveries in 1978 represented 1978 releases, 47 marked fish were recaptured in 1978 that were released in 1977 (Appendix Table 8).

MIGRATIONAL TIMING

Timing of the various juvenile salmonid migrations into the Columbia River estuary was defined by beach seine and purse seine sampling at Jones Beach. Temporal catch distributions for subyearling and yearling chinook salmon, coho salmon, and steelhead trout are shown in Figure 3.

Subyearling chinook salmon began to enter the estuary in mid-April 1978, and the migration continued through September. The migration peaked at Jones Beach on 14 June 1978, about 4 weeks later than in 1977. Since the river flows during the migration period in 1978 (Figure 4) were much higher than the record low flows of 1977, and water temperatures (Figure 4) were similar to 1977, this later migration peak most probably reflects the later release dates from the Bonneville Hatchery complex in 1978. As in 1977, the catch distribution of subyearling chinook salmon was significantly different than that observed in the late 1960's (Figure 5). Late summer migrational peaks again did not occur in 1978. These changes in catch distribution are most probably the result of changing hatchery

Table 5. - - Recoveries of marked juvenile salmonids from the Columbia River estuary, 1978.

Species	No. recovered				
	Coded wire tags (CWT)	Ad. clip (No CWT)	Brands	Fin clips	Total
Chinook salmon - subyearlings	7622	450	375	20	8,467
Chinook salmon - yearlings	3820	170	370	3	4,363
Coho salmon	880	85	610	125	1,700
Sockeye salmon	2	0	13	0	15
Steelhead trout	465	100	1,250	720	2,535
Totals	12,789	805	2,618	868	17,080

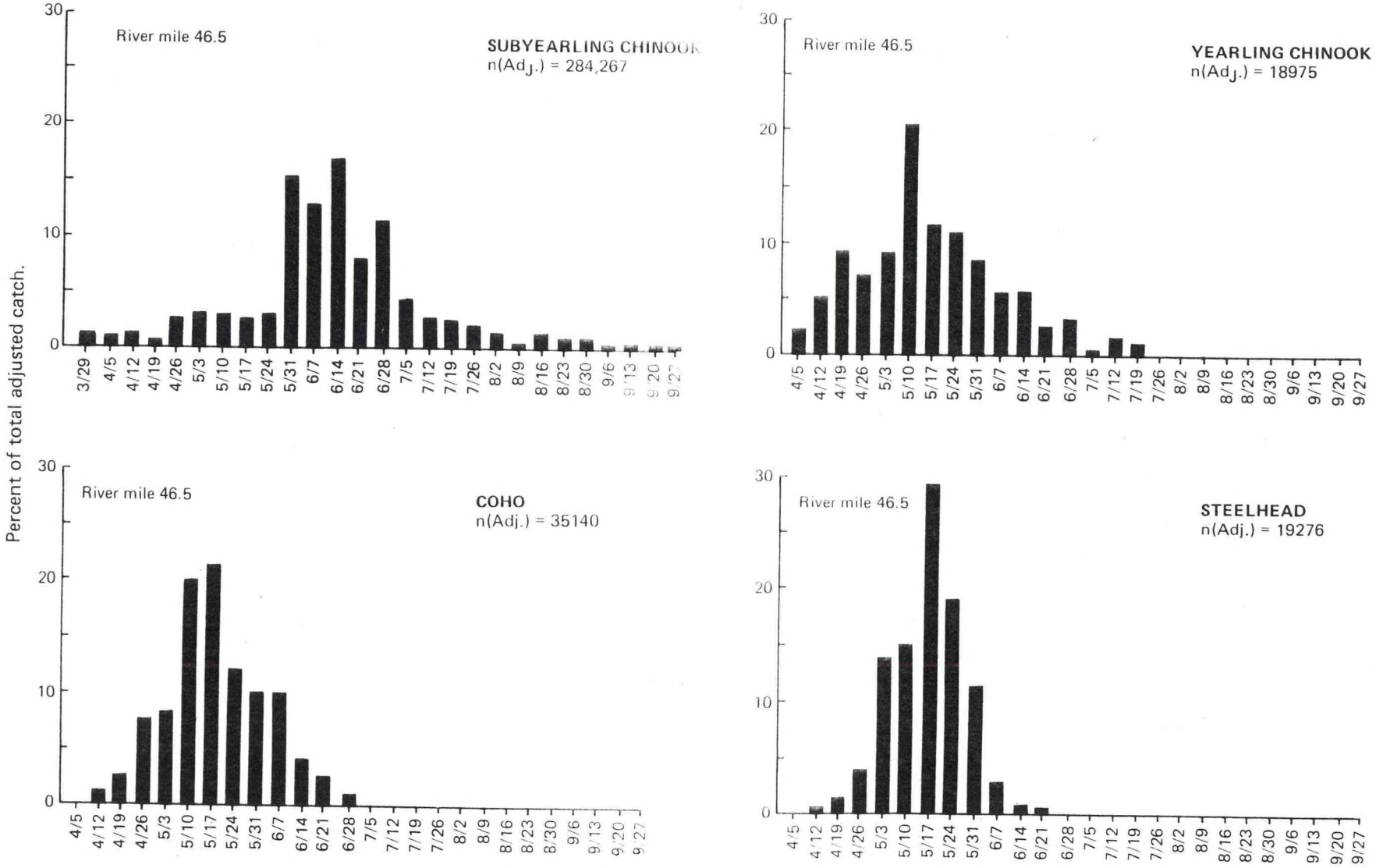

Figure 3.--Temporal catch distribution of subyearling chinook salmon captured using a beach seine and yearling chinook and coho salmon and steelhead trout outmigrants using a purse seine at Jones Beach, Oregon, 1978.

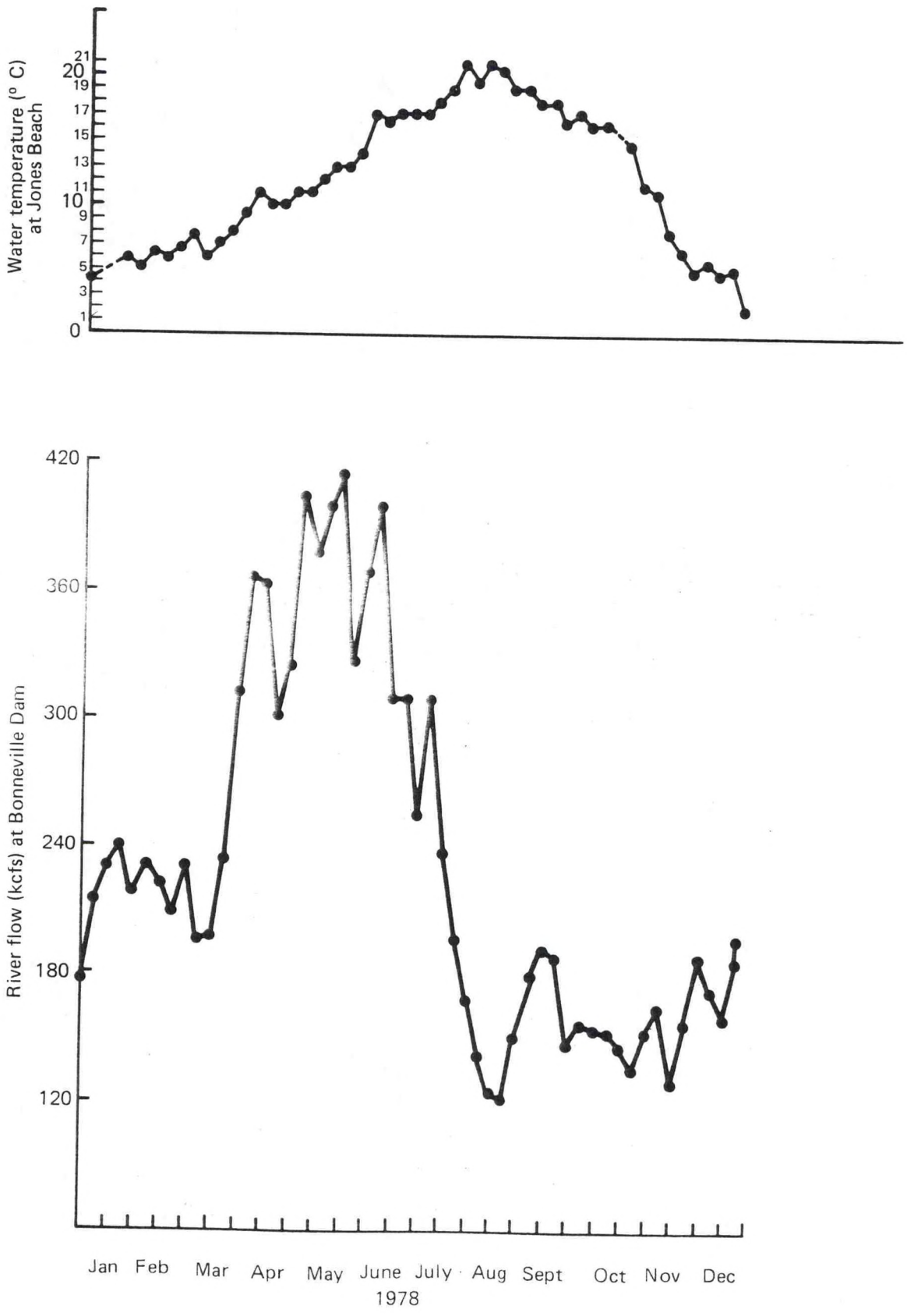

Figure 4.--Water flow and temperature in the Columbia River, 1978.

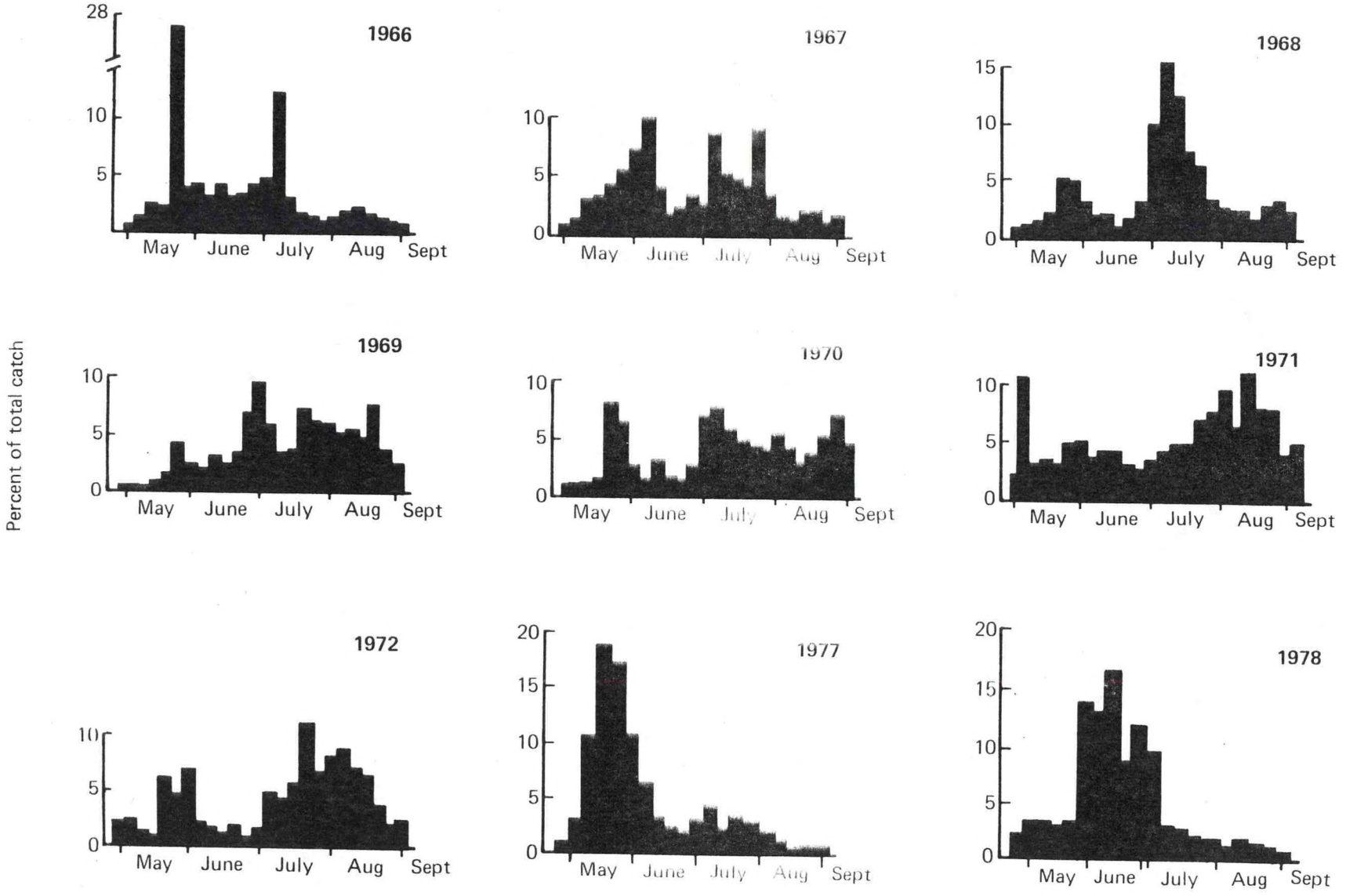

Figure 5.--Temporal catch distribution of subyearling chinook salmon at Jones beach, Oregon, 1966-72, 1977 and 1978.

release practices, particularly the decline in the number of late summer releases of subyearling chinook salmon in 1977 and 78.

The 1978 migration of yearling chinook salmon past Jones Beach began in early April, peaked on 10 May, and was over by 1 July. Coho salmon and steelhead trout began to arrive at Jones Beach in early April. Both migrations peaked on 17 May and were over by 1 July.

TRAVEL TIME AND RATES OF DOWNSTREAM MOVEMENT

Recoveries of marked hatchery fish in 1978 provide considerable information relative to travel time and rates of downstream movement to the estuary (Table 6). Downstream movement was considerably faster in 1978 than in 1977, reflecting the higher river flows during the 1978 migration period. The rate of downstream movement for subyearling chinook salmon released from Spring Creek Hatchery in the spring of 1978 was the same as observed in 1970 (15 days at about 13 km per day--Sims 1975)[1/] Similar releases at Spring Creek Hatchery in 1977 averaged 26 days to reach the estuary and moved downstream at a rate of about 7 km per day. Subyearling chinook salmon from Wells Hatchery released below Priest Rapids Dam averaged 21 days to reach the Jones Beach site (RM 46.5) and moved downstream at a rate of 19 km per day. Yearling chinook salmon from Leavenworth Hatchery released at Priest Rapids Dam in 1978 averaged only 15 days.

1/ Sims, C.W. 1975: "Migrational characteristics of juvenile fall chinook salmon, Oncorhynchus tshawytscha in the Columbia River." Manuscript in review. National Marine Fisheries Service, Coastal Zone and Estuarine Studies, 2725 Montlake Blvd. E, Seattle, Wa. 98112.

TABLE 6.--Travel time and rate of movement for selected groups of marked hatchery fish from release sites to Jones Beach (RM 46.5), 1978.

Mark Ag, D1, D2[a]	Hatchery	Release information: Site	Release information: Date (mo/day)	Release information: No./lb	Release information: No. (thous)	Recapture information: Adjusted catch (No.)	Recapture information: Adjusted catch (%)	Recapture information: Date of median recapture (mo/day)	Passage time (days)	Rate of movement (km/day)
			Subyearling Chinook Salmon[b]							
05-56-01	Spring Creek	Spring Creek	3/21	104	149.7	215	0.14	4/10	20	10
01-01-01	Wild	Lewis River	4/11	200	50.8	23	0.05	7/22	102	1
05-62-01	Spring Creek	Spring Creek	4/18	68	92.3	198	0.21	5/3	15	13
05-58-01	Abernathy	Abernathy Creek	4/18	69	150.4	110	0.07	4/23	5	18
05-54-01	Spring Creek	Below Bonneville	4/20	79	98.1	208	0.21	5/1	11	14
63-16-18	Wild	Lewis River	5/1-6/13	5	19.8	45	0.23	7/23	62[c]	2
05-55-01	Spring Creek	Big White	5/12	61	144.2	151	0.10	5/23	14	14
05-59-01	Abernathy	Abernathy Creek	5/15	44	147.6	29	0.02	5/19	4	23
63-17-48	Lewis River	Lewis River	5/17-22	165	82.4	449	0.54	6/5	16	6
05-57-01	Spring Creek	Spring Creek	5/18	56	155.1	91	0.06	5/26	8	24
05-03-42	Little White	Little White	5/24	123	50.5	153	0.30	6/7	14	13
05-03-45	Little White	Little White	5/25	131	52.1	185	0.35	6/5	11	17
07-17-09	S. Santiam	Willamette River	5/31	46	51.2	101	0.20	6/10	10	52
63-17-42	L. Kalama	Kalama River	5/30	61	129.7	96	0.07	6/5	6	8
07-17-13	S. Santiam	Willamette River	6/1	80	47.5	54	0.11	6/19	18	18
63-16-19	Wild	Lewis River	6/1-7/6	150	15.8	78	0.49	7/31	42[c]	2
63-17-41	Klickitat	Priest Rapids	6/1-6/31	124	152.5	74	0.05	7/22	37	15
07-17-06	S. Santiam	Willamette River	6/5	46	48.6	32	0.07	6/24	19	17
63-16-63	Klickitat	Klickitat	6/6	87	136.3	78	0.06	6/18	12	24
63-17-63	Toutle	Green River	6/19	98	142.7	682	0.48	6/30	11	10
63-18-02	Cowlitz	Cowlitz River	6/19	133	146.0	441	0.30	7/1	12	10
63-17-45	Ringold	Ringold Hatchery	6/23	35	146.6	94	0.06	7/14	21	24
63-17-49	Wells	Priest Rapids	6/26	45	154.0	127	0.08	7/17	21	27
63-18-03	Washougal	Washougal River	6/26	62	151.3	298	0.20	7/14	18	7
63-16-11	Wild	Lewis River	7/1-7/31	140	48.8	132	0.27	8/5	20[c]	5
63-18-01	Toutle	Green River	7/7	72	126.5	247	0.20	7/26	19	6
05-03-57	Little White	Little White	7/12	104	39.1	41	0.10	7/28	16	12
63-17-47	Kalama Falls	Kalama River	7/12	108	150.5	914	0.61	7/26	14	3
63-17-47	Kalama Falls	Kalama River	9/15	34	140.8	347	0.25	9/22	7	6

TABLE 6 .--Continued.

Mark Ag, D1,D2[a]	Hatchery	Release information: Site	Release information: Date (mo/day)	Release information: No./lb	Release information: No.(thous)	Recapture information: Adjusted catch (No.)	Recapture information: Adjusted catch (%)	Recapture information: Date of median recapture (mo/day)	Passage time (days)	Rate of movement (km/day)
			Yearling Chinook Salmon[b]							
63-16-12	Cowlitz	Cowlitz	3/8	4	28.2	10	0.03	4/21	44	3
63-17-09	Cowlitz	Cowlitz	3/8	5	89.4	58	0.07	4/13	13	9
63-17-12	Cowlitz	Cowlitz	3/8	5	56.9	10	0.02	4/12	16	7
63-17-17	Cowlitz	Cowlitz	3/8	6	71.3	28	0.04	4/20	17	7
63-16-09	Klickitat	Ringold	3/13	10	98.5	61	0.06	4/21	39	13
09-16-21	Willamette H.	Above falls	3/14	10	25.0	21	0.09	4/9	26	5
09-16-23	S. Santiam H.	Below falls	3/14	10	36.9	23	0.09	4/12	11	12
09-16-91	Marion Forks	Minto	3/14	16	48.6	26	0.05	4/19	36	9
63-17-05	Kalama Falls	Kalama River	3/23	5	51.5	21	0.04	4/14	16	4
10-02-14	Rapid River	Rapid River	3/27	14	127.9	38	0.03	4/29	33	27
63-16-01	Klickitat	Klickitat	3/31	10	144.8	81	0.06	4/22	22	13
10-03-23	McCall	S. Fork Salmon	4/8	40	72.2	43	0.06	5/22	44	25
10-03-30	Kooskia	N. Fork Clearwater	4/12	25	40.0	47	0.12	5/6	24	31
10-13-14	Kooskia	Lochsa River	4/20	30	52.6	23	0.04	5/24	34	28
09-16-58	Eagle Creek	Eagle Creek	4/24	15	97.2	73	0.08	5/12	18	9
63-17-02	Leavenworth	Icicle River	4/25	15	95.2	95	0.10	5/22	27	26
63-17-23	Winthrop	Methow River	4/25	14	80.5	25	0.03	5/24	29	29
63-17-25	Entiat	Entiat	4/25	10	87.8	47	0.05	5/19	24	30
63-17-04	Leavenworth	Priest Rapids	5/9	15	94.6	105	0.11	5/24	15	38
10-03-27	Pahsimeroi R.	Pahsimeroi River	5/13	41	100.8	33	0.03	6/16	34	37
63-16-43	Wells	Wells	5/16	9	132.6	66	0.05	6/4	19	40
07-16-09	Round Butte	Deschutes River	5/22	36	66.5	141	0.21	6/8	17	24

TABLE 6.--Continued.

Mark Ag, D1, D2[a]	Hatchery	Site	Release information: Date (mo/day)	Release information: No./lb	Release information: No. (thous)	Recapture information: Adjusted catch (No.)	Recapture information: Adjusted catch (%)	Recapture information: Date median recapture (mo/day)	Passage time (days)	Rate of movement (km/day)
			Coho Salmon[b]							
09-16-57	Eagle Creek	Eagle Creek	4/24	15	74.6	124	0.17	5/21	27	6
63-16-52	Klickitat	Klickitat River	4/28	14	57.7	42	0.07	5/14	16	18
09-16-47	Sandy	Sandy	5/2	14	33.6	36	0.11	5/11	9	17
63-16-45	Rocky Reach	Turtle I.	5/2	12	95.8	76	0.08	5/27	25	28
63-16-53	Klickitat	Klickitat River	5/4	13	59.7	28	0.05	6/1	28	10
09-16-54	Big Creek	Tualatin	5/8	16	68.8	106	0.15	5/25	17	14
			Steelhead[b]							
63-16-60	Skamania	Washougal River	4/1-30	7	23.7	23	0.10	5/16	31[c]	4
63-17-07	Ringold	Ringold	4/15-5/15	7	40.7	23	0.06	5/13	13	38
10-03-49	Dworshak	Pahsimeroi River	4/18	9	33.5	32	0.10	5/23	35	36
10-02-31	Dworshak	Dworshak Hatchery	4/21	7	90.6	113	0.12	5/12	21	38
09-16-56	Eagle Creek	Eagle Creek	4/24	6	44.1	94	0.21	5/15	21	8
10-13-15	Kooskia	Clear Creek	4/24	10	48.2	74	0.15	5/8	14[d]	57
09-06-13	Wallowa	Wallowa Hatchery	5/8	6	66.9	47	0.07	5/30	22	39
63-17-60	Cowlitz	Cowlitz	5/31	6	24.0	46	0.19	6/4	4	27

a/ Binary coded wire tags where; Ag = Agency code, D1 = Data 1 code and D2 = Data 2 code.

b/ Only groups with >20 recaptures are presented and only one group for any multiple release.

c/ Calculated from mean date of release.

d/ Probably transported from Lower Granite or Little Goose Dam to below Bonneville Dam.

(38 days in 1977) to reach the estuary, and moved at a rate of 25 km per day. Coho salmon released in the upper Columbia River above Rocky Reach Dam (RM 475) moved downstream at a rate of 30 km per day and reeached the estuary 25 days after release (36 days in 1977).

Mark recoveries also provide some information relative to movement rates through the estuary. Median recovery dates at Jones Beach and at the lower estuary sampling sites can be used to approximate movement through the estuary (Table 7). Yearling migrants (yearling chinook salmon, coho salmon, and steelhead) appear to move through the system in only a few days time. The movement of subyearling chinook salmon through the estuary appears to be more flow related. Rates of movement appear to vacillate in proportion to river flow throughout the migration period.

From 2 July through 16 September 1978, 64 marks (representing 24 mark releases) were recovered from near shore marine areas adjacent to the mouth of the Columbia River (Table 8). The time between release and ocean recapture of these fish ranged from 11 to 148 days and averaged 49 days. Two subyearling chinook salmon released at John Day Dam on 23 July 1978 were recovered in the ocean 11 days later. This indicates a minimum rate of downstream movement of almost 32 km per day. At the other extreme, a subyearling chinook salmon released below Bonneville Dam on 20 April 1978, was taken near the river mouth in August 1978, 105 days after release. A single yearling chinook

Table 7.- - Travel time and rate of movement for selected groups[a] of marked hatchery fish from Jones Beach (RM 46.5) to the lower estuary (RM 5 - 10), 1978.

Mark (Aq,Dl,D2)	Release Site	Recapture Information[b] R.M. 46.5[c] # Recap.	Date 1st	Median	Last	Recapture Information[b] R.M. 5 - 10[c] # Recap.	Date 1st	Median	Last	Days for median passage thru Estuary	Rate of movement km/day
		SUBYEARLING CHINOOK									
5-56-1	Spring Creek	176	3/27	4/22	6/3	22	5/16	5/23	6/14	31	2
5-58-1	Abernathy	105	4/18	4/23	6/10	35	5/1	5/10	6/5	17	4
5-60-1	Spring Creek	151	4/22	4/29	6/5	24	5/5	5/21	6/7	22	3
5-54-1	Below Bonneville	192	4/21	5/1	6/6	27	5/2	5/23	6/16	22	3
5-62-1	Spring Creek	180	4/22	5/2	6/16	30	5/22	6/1	6/12	30	2
5-59-1	Abernathy	30	5/16	5/19	5/31	38	5/19	6/1	6/8	13	5
5-55-1	Big White	143	5/17	5/23	6/16	61	5/23	6/2	6/23	10	6
5-57-1	Spring Creek	112	5/21	5/25	8/28	63	5/17	6/2	6/16	8	8
5-3-45	Little White	126	5/28	6/7	7/7	15	6/16	6/23	6/30	16	4
7-17-9	Willammette Falls	170	6/6	6/9	6/28	19	6/8	6/19	7/1	10	6
7-17-10	Willammette Falls	46	6/6	6/12	7/6	19	5/25	6/23	7/28	11	6
63-17-42	Kalama R.	131	5/28	6/18	7/23	57	6/2	6/18	7/24	<1	>63
7-17-13	Willammette Falls	35	6/7	6/27	7/20	21	6/12	7/2	7/28	5	13
63-16-63	Klickitat R.	96	6/11	7/1	8/21	25	6/12	7/21	8/7	20	3
		YEARLING CHINOOK									
63-16-1	Klickitat R.	73	4/6	4/22	5/8	25	4/20	4/26	4/28	4	16
63-16-2	Klickitat R.	79	4/9	4/26	6/3	46	4/20	4/24	4/28	<1	>63
9-16-58	Eagle Creek	55	4/29	5/12	7/2	27	5/3	5/12	5/22	<1	>63
63-17-4	Priest Rapids	83	5/20	5/23	6/4	37	5/22	5/26	6/5	3	21
63-17-31	Methow R.	99	5/21	5/24	6/14	21	5/23	6/1	6/5	8	8
7-16-10	Below Bonneville	108	6/1	6/3	6/15	43	6/2	6/5	6/30	2	31
7-16-11	Deschutes R.	35	6/6	6/12	7/7	18	6/12	6/19	7/3	7	9
7-16-12	Deschutes R.	35	6/7	6/16	7/2	23	6/16	6/22	7/7	6	10
		COHO SALMON									
9-16-57	Eagle Creek	96	5/3	5/21	6/27	25	5/1	5/22	6/2	<1	>63
9-16-54	Tualatin R.	84	5/10	5/24	6/14	18	5/17	5/27	6/12	3	21
63-16-45	Turtle Island	56	5/21	5/28	6/10	8	5/23	6/1	7/21	4	16
9-16-53	Tualatin R.	79	5/18	6/4	6/21	27	5/21	6/1	6/22	<1	>63
		STEELHEAD TROUT									
10-2-31	N. fk. Clearwater	79	5/3	5/14	6/17	7	5/8	5/11	6/5	<1	>63
9-16-56	Eagle Creek	54	4/29	5/15	6/7	31	5/1	5/12	6/5	<1	>63
63-17-60	Cowlitz R.	30	6/2	6/3	6/26	9	6/5	6/5	6/5	2	31

a/ Only subyearling chinook groups with ≥15 recaptures and yearling chinook, coho, and steelhead groups with ≥7 recaptures at each site are presented.
b/ All #'s recap. and dates combined beach and purse seine catches.
c/ (mo/day)

Table 8.--Travel time for marked juvenile salmon recaptured in marine waters within 24 km of the Columbia River, 1978.

Mark	Release information Site	Date (mo/day)	Recapture Information #Recap	Date of median recap.	Days from rel. to recap.[a]
		SUBYEARLING CHINOOK			
5-54-1	Below Bonneville	4/20	1	8/3	105
5-2-38	Abernathy Creek	5/15	1	8/3	80
5-2-60	Abernathy Creek	5/15	1	8/3	80
63-17-48	Lewis River	5/17-22	2	7/25	67[b]
5-61-1	Little White	5/24	1	7/25	62
63-17-42	Lower Kalama	5/30	1	7/25	56
7-17-13	Willamette Falls	6/1	1	8/2	62
63- 7-41	Priest Rapids	6/1-31	6	8/3	50[b]
63-17-44	Elochoman River	6/1-31	4	7/25	41[b]
63-16-63	Klickitat River	6/6	5	8/3	58
63-17-63	Toutle River	6/19	6	8/3	45
63-18-2	Cowlitz River	6/19	6	8/3	45
63-17-45	Ringold H.	6/23	3	8/2	40
63-17-49	Priest Rapids	6/26	2	8/3	38
63-18-3	Washougal R.	6/26	7	8/2	37
63-16-11	Lewis River	7/1-31	1	8/3	18[b]
63-18-1	Toutle	7/7	5	8/3	27
5-3-55	Little White	7/12	1	8/2	21
5-3-56	Little White	7/12	1	8/22	41
63-17-46	Kalama Falls	7/12	2	8/2	21
RA-1C-3	Below Bonneville	7/19-8/30	3	8/3	15[c]
LD- -3	John Day	7/23	2	8/3	11
5-3-41	Spring Creek	8/18	1	9/5	18
		YEARLING CHINOOK			
63-17-9	Cowlitz	3/8	1	8/3	148

a/ Days of migration may be artifically long because of no fishing effort before July.
b/ Calculated on mean date of release.
c/ Calculated on 1st day of release.

salmon was recovered in the ocean in August 1978, 148 days after it was released from the Cowlitz Hatchery.

DIEL MOVEMENT PATTERNS IN THE ESTUARY

Diel movement patterns of juvenile subyearling chinook salmon were defined at Jones Beach (RM 46.5) during May and June, 1978 (Figure 6). Beach catches of subyearling chinook salmon show that peak movement occurred about 2 h after sunrise and about 1½ h before sunset. Very little movement after sunset was indicated. The movement pattern of subyearling chinook salmon in 1978 was essentially the same as observed at Jones Beach in 1966 (Sims 1975).[1/]

Diel movement patterns of coho salmon were also examined in May 1978 (Figure 6). Movement was greatest during the period extending from mid-morning to early afternoon. Little night movement was evident. Coho salmon movement patterns in 1978 were similar to those observed by Durkin and Sims (1976).[2/]

SIZE CHARACTERISTICS OF JUVENILE MIGRANTS

Size characteristics of juvenile salmonids sampled at Jones Beach during the 1978 migration are shown in Figure 7.

2/ Durkin, J.T. and C.W. Sims, 1976: "Migrations of juvenile coho salmon Oncorhynchus kisutch into the Columbia River estuary. Manuscript in review. National Marine Fisheries Service, Coastal Zone and Estuarine Studies, P. O. Box 155, Hammond, Or. 97121.

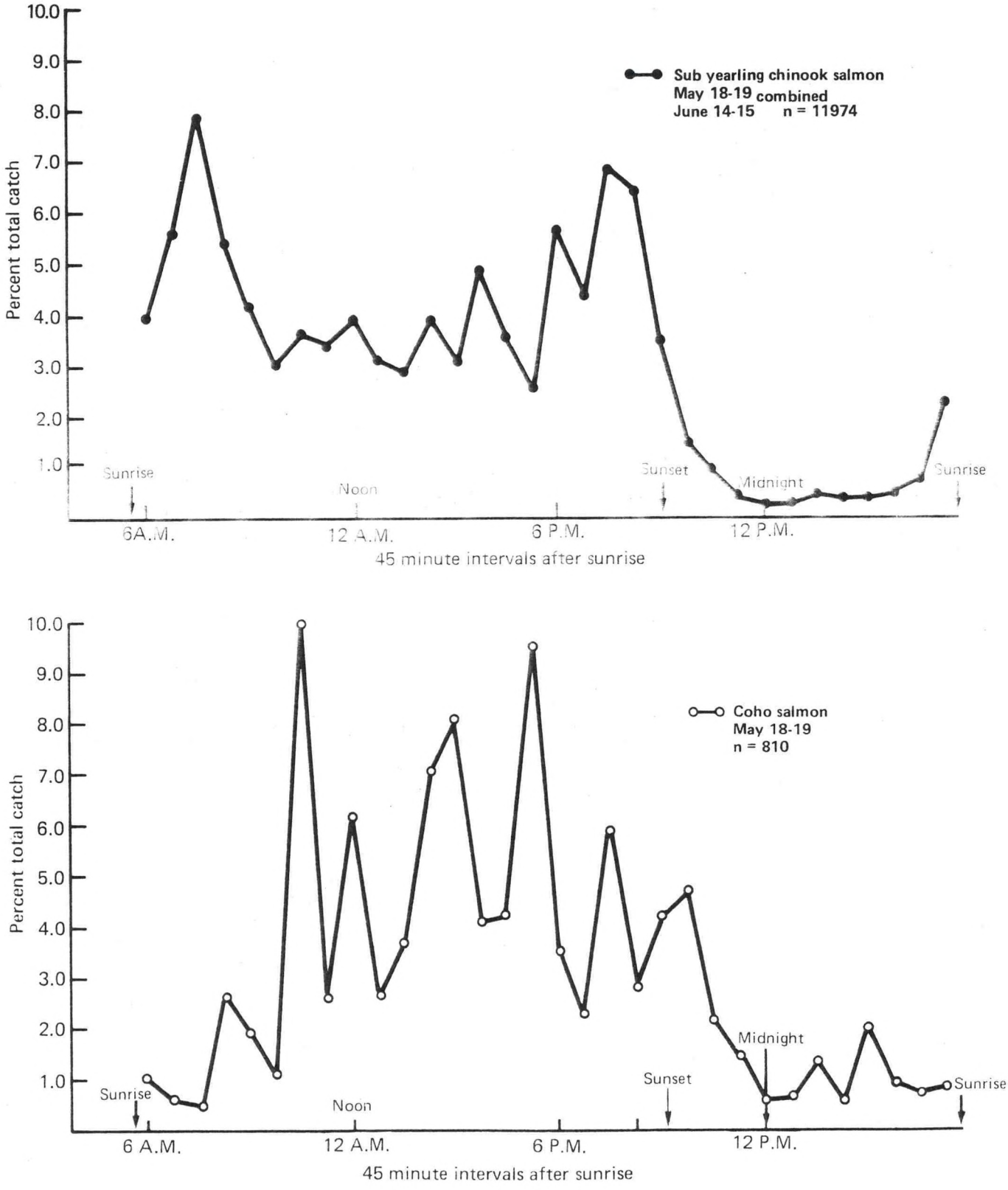

Figure 6.--Diel catch pattern of subyearling chinook salmon and coho salmon from beach seining at Jones Beach, Oregon, 1978.

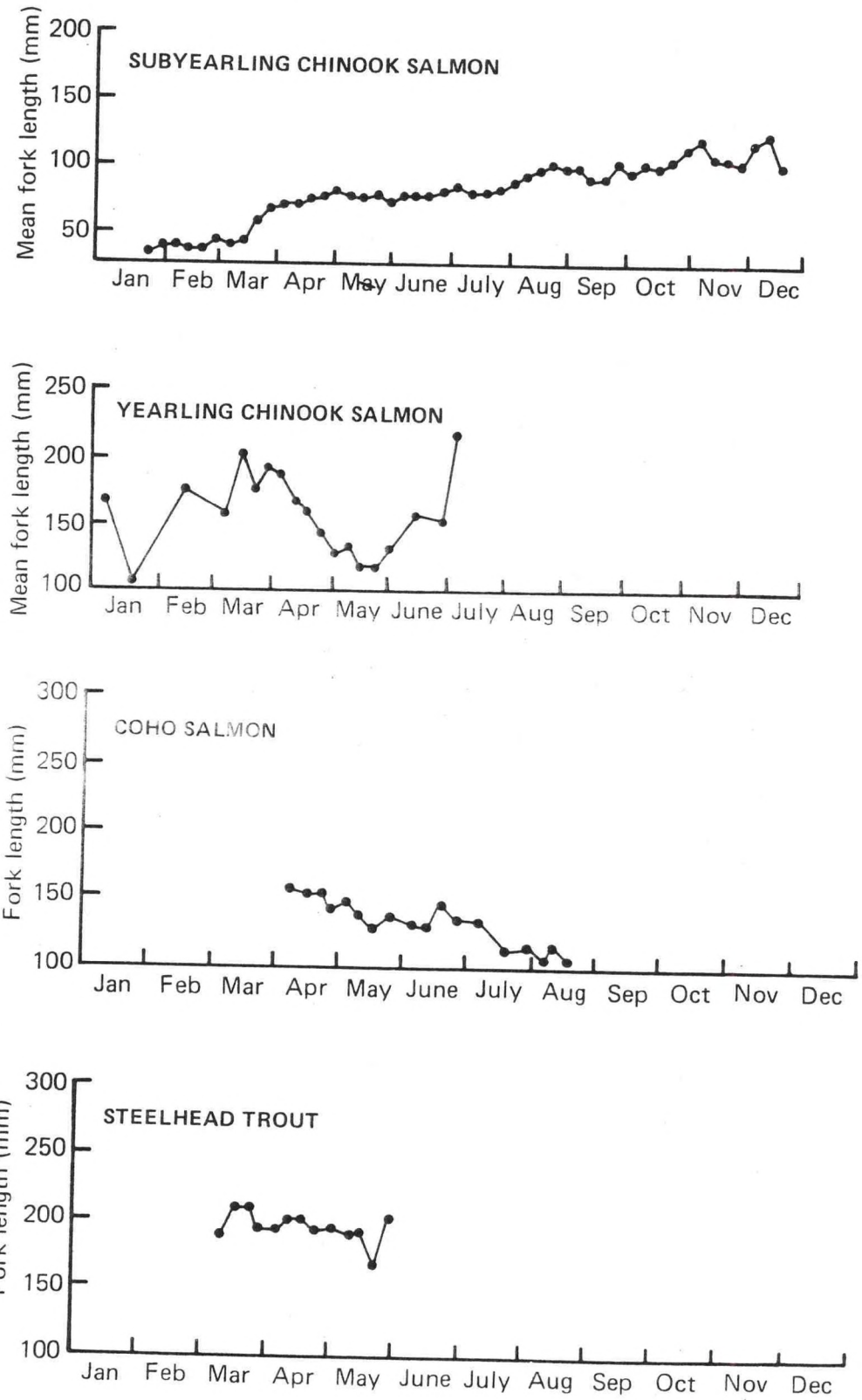

Figure 7.--Mean fork lengths of subyearling and yearling chinook salmon, coho salmon and steelhead trout outmigrants captured at Jones Beach Oregon, 1978.

Subyearling chinook salmon averaged about 75 mm fork length in late April, generally increased in size during the migration period, and averaged about 105 mm by 1 September. Because of the extended migration period, it is obvious that changes in the average size of subyearling chinook salmon reflect the influence of individual hatchery releases and do not represent growth of individual release groups.

As observed in 1977, the average size of yearling chinook salmon, coho salmon, and steelhead decreased as the outmigration progressed. This probably is due to the faster rate of downstream movement of the larger fish.

The average size of subyearling chinook salmon taken in the lower estuary (RM 5-10) was almost identical at all times to those taken at Jones Beach (RM 46.5) (Figure 3). This corroborates the observations of rapid movement of marked fish to and through the estuary.

SURVIVAL OF HATCHERY RELEASES

Relative survival of various groups of marked hatchery fish has been estimated based on comparative recovery rates at Jones Beach (Table 9). Spring chinook salmon from Round Butte Hatchery (Deschutes River) and fall chinook salmon from Spring Creek Hatchery that were transported and released below Bonneville Dam in 1978 did not show any appreciable difference in survival when compared to control releases made at the respective hatcheries. Transporting fish below Bonneville Dam in 1977 increased survival by about 35%. Water was being

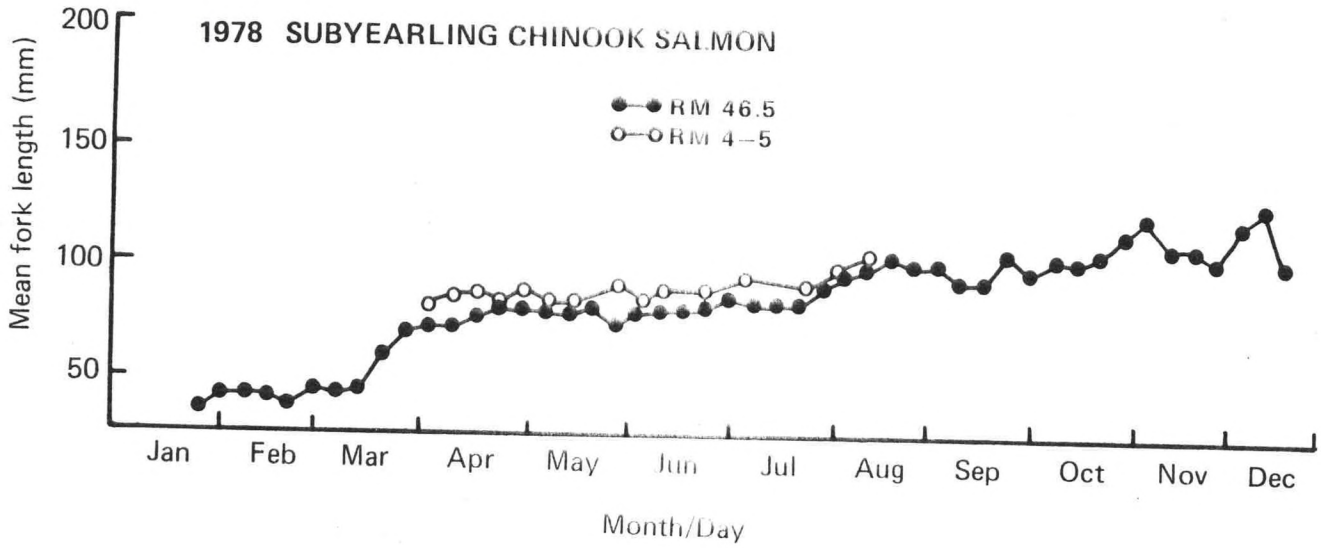

Figure 8.--Comparison of mean fork lengths for subyearling chinook salmon captured by beach seine from the upper estuary (RM 46.5) to those from the lower estuary (RM 4-5) of the Columbia River, 1978.

Table 9 - - Recovery rate and relative survival of juvenile chinook salmon released above and below hydro-electric plants then recaptured at Jones Beach, Or. (RM 46.5) in 1978.

Mark Ag,D1,D2	Release information				Recapt. information		Rel. surv. rate
	Site	Date (mo/day)	# (Thou)	Size #/lb	Adjusted recap. #	%	
5-62-1	Spring Creek (Control)	4/18	92.3	(84)	198	0.21	100
5-54-1	Below Bonneville (Test)	4/20	98.2	(78)	208	0.21	99
7-16-9	Deschutes R.@Hat. (Control)	5/22	66.5	(36)	141	0.21	100
7-16-10	Below Bonneville (Test)	5/30	71.5	(33)	134	0.19	88
9-16-21,22,26	Abv.Willamette Fls(Control)	3/13	69.4	(8.4)	45	0.06	100
9-16-23,24,25	Bel.Willamette Fls (Test)	3/13	64.9	(8.0)	60	0.09	143

spilled at both The Dalles and Bonneville Dams during the transport experiment in 1978; whereas, there was no spill in 1977. This would suggest that the benefits of transporting smolts from hatcheries in the lower Columbia River system are much greater during periods of low river flow when all water and fish are passed through the turbines of the hydroelectric dams.

Spring chinook salmon released below Willamette Falls in 1978 showed a 43% increase in survival over fish released above the falls and hydroelectric plant. A 25% survival benefit resulted from releasing fall chinook salmon below the falls in 1977.

Survival of four selected groups of wire-tagged hatchery fall chinook salmon from Spring Creek and Little White Salmon Hatcheries was measured in 1978 by comparing recovery rates of the fish released at the hatchery to recovery rates of replicate groups released at RM 72 (approximately 41 km above the Jones Beach sampling site). Recovery rates provide an estimate of survival from the hatchery to RM 72 (Table 10). Survival of these four groups ranged from 26 to 48%. It is interesting to note that the group of fish showing the poorest survival (26%) and the longest travel time (20 days) also had the lowest Na^+-K^+ATPase levels at time of release (group 1 from Spring Creek Hatchery). Information from these releases will be used to examine the relationship between smolt survival to the estuary and future adult returns.

Table 10 - - Recovery rate and estimated survival of selected groups of marked subyearling chinook salmon recaptured at Jones Beach, Oregon, 1978.

Release Site	Release date (mo/day)	Size #/lb.	Recovery rate (%) adjusted	Survival (%)
Spring Creek (1)				
Hatchery release (RM 167)	3/21	106	0.14	26
Efficiency release (RM72)	4/5	106	0.53	100
Spring Creek (2) (RM 167)				
Hatchery release	4/18	66	0.21	48
Efficiency release (RM 72)	5/4	66	0.44	100
Spring Creek (3)				
Hatchery release (RM 167)	5/18	56	0.06	40
Efficiency release (RM 72)	6/1	56	0.15	100
Little White Salmon				
Hatchery release (RM 162)	5/25	118	0.30	48
Efficiency release (RM 72)	6/8	118	0.63	100

INCIDENTAL CATCH

Beach seine and purse seine sampling in 1978 often produced large catches of incidental species other than target species. This catch information has been summarized by month and is presented in Appendix Tables 9-13.

SUMMARY AND CONCLUSIONS

1. In 1978, the major objectives of the study were as follows:

a. Define and monitor the survival of selected stocks of hatchery reared juvenile salmonids to the estuary.

b. Develop a sampling system to evaluate hatchery production techniques and procedures.

c. Define migrational and behavioral characteristics of juvenile salmonids in the Columbia River estuary.

2. To accomplish our objectives, we added the following sampling efforts to those established in 1977:

a. Consistent purse seining at RM 46.5 for assessing survival and timing of yearling chinook and coho salmon and steelhead into the upper end of the estuary.

b. Beach and purse seining near the mouth of the Columbia River to evaluate timing of subyearling salmon and yearling chinook salmon, and coho salmon, and steelhead through the estuary.

c. Intermittent purse seining in marine waters adjacent to the Columbia River to examine movement rate of subyearling salmon and yearling chinook salmon, coho salmon, and steelhead into the ocean.

3. The following basic conclusions were reached as a result of our efforts in 1978.

a. Primarily due to higher river flows in 1978 subyearling chinook salmon were caught at a lower rate than in 1977.

b. The peak of subyearling chinook salmon migration (14 June) was 4 weeks later in 1978 than in 1977. The change was caused by later release dates for hatchery reared fish, as the actual rate of movement through the river was faster due to the higher river flow.

c. Migration timing of yearling chinook and coho salmon and steelhead appeared normal; the peaks of migration were 10 May, 17 May, and 17 May, respectively.

d. Average movement rates through the estuary were as follows: Subyearling chinook salmon, 15 days; yearling chinook salmon, 11 days; coho salmon 1 day; and steelhead, < 1 day.

e. Due to the late starting date, sampling in marine waters provided recaptures of subyearling chinook salmon almost exclusively. Rates of movement into the ocean could not be defined from our limited sampling.

f. Peak periods of movement for subyearling chinook salmon took place after sunrise and before sunset; whereas, peak movement

for coho salmon took place from mid-morning to early afternoon. Both species showed a cessation of movement during darkness.

g. Temporal changes in fork length of subyearling chinook salmon related to the timing of various hatchery releases rather than growth during the freshwater migration, even though there appeared to be a size increase during the outmigration.

h. Transporting fish past Bonneville Dam did not appear to increase survival in 1978 during a period of high spill; whereas, a 35% increase in survival was observed in 1977 during no spill conditions.

Transportation around Willamette Falls and Sullivan Plant generators produced a 43% increase in survival for yearling chinook salmon.

i. Survival rates of four groups of subyearling chinook salmon migrating from Spring Creek and Little White Salmon Hatcheries to RM 72 ranged from 26 to 48%. The lowest survival rate was coincident with the longest travel time and the lowest Na^{+} K^{+} ATPase level.

4. Work in 1979 will be similar to that of 1978 except that:

a. Beach seining at RM 4-5 will be eliminated.

b. Beach and purse seining at RM 46.5 will be increased to 7 days per week during the peak of migration.

c. Purse seining in marine waters to collect migration rate information on yearling migrants will begin in May.

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APPENDIX

Tables 1 through 13

Appendix Table 1. -- Purse seine catches at secondary sampling sites in the Columbia River Estuary, 1978.

Site	Date	No. sets	Total catch: Chinook 0's	Chinook 1's	Coho	Steelhead	Catch per set: Chinook 0's	Chinook 1's	Coho	Steelhead
Three Tree Point, RM 31										
	7/28	1	513	1	1	0	513	1	1	0
Woody Island Channel, RM 28 & 29										
	7/28	1	108	0	0	0	108	0	0	0
Pillar Rock, RM 27										
	7/28	1	112	0	0	0	112	0	0	0
Tongue Point, RM 18										
	10/12	1	64	0	0	0	64	0	0	0
	10/19	4	18	0	0	0	5	0	0	0
Interstate Bridge (Oregon), RM 13										
	10/23	3	5	0	0	0	1	0	0	0
	10/26	2	4	0	0	0	2	0	0	0
Young's Bay Entrance, RM 10										
	9/8	3	14	0	0	0	5	0	0	0
Skipanon River, RM 9										
	5/10	1	7	17	61	5	7	17	61	5
	5/22	1	81	3	89	5	81	3	89	5
Tansy Point, RM 8										
	10/6	2	2	0	0	0	1	0	0	0
	10/12	2	5	0	0	0	3	0	0	0
	10/26	1	4	0	0	0	4	0	0	0
North Jetty, RM 1										
	10/6	1	0	0	0	0	0	0	0	0
Totals		24	937	21	151	10				

Appendix Table 2.-- Purse seine catches in marine waters adjacent to the Columbia River (within 24 km), 1978.

Date (mo/day)	No. sets	Total catch				Catch per set			
		Chinook				Chinook			
		0's	1's	Coho	Steelhead	0's	1's	Coho	Steelhead
7/2 - 7/8	5	373	7	0	0	75	1	0	0
7/9 - 7/15	0	-	-	-	-	-	-	-	-
7/16 - 7/22	4	310	3	0	0	78	1	0	0
7/23 - 7/29	9	294	2	0	0	33	0	0	0
7/30 - 8/5	4	1410	2	0	0	353	1	0	0
8/6 - 8/12	4	6	0	0	0	2	0	0	0
8/13 - 8/19	8	142	0	0	0	18	0	0	0
8/20 - 8/26	0	-	-	-	-	-	-	-	-
8/27 - 9/2	5	15	0	0	0	3	0	0	0
9/3 - 9/9	5	23	0	0	0	5	0	0	0
9/10 - 9/16	5	9	0	0	0	2	0	0	0
Totals	49	2582	14	0	0				

Appendix Table 3.--Beach Seine catches in the Columbia River estuary, 1978 at Jones Beach, Oregon, RM 46.5, 1978.

Date (mo/day)	No. sets	Total catch				Catch per set			
		Chinook				Chinook			
		0's	1's	Coho	Steelhead	0's	1's	Coho	Steelhead
1/1 - 1/7	2	0	1	0	0	0	0	0	0
1/8 - 1/14	2	0	0	0	0	0	0	0	0
1/15 - 1/21	2	1	2	0	0	0	1	0	0
1/22 - 1/28	1	2	0	0	0	2	0	0	0
1/29 - 2/4	2	2	0	0	0	1	0	0	0
2/5 - 2/11	2	5	0	0	0	2	0	0	0
2/12 - 2/18	2	3	1	0	0	2	0	0	0
2/19 - 2/25	2	11	0	0	0	6	0	0	0
2/26 - 3/4	1	3	0	0	0	3	0	0	0
3/5 - 3/11	15	144	3	0	0	10	0	0	0
3/12 - 3/18	17	74	46	0	0	4	3	0	0
3/19 - 3/25	39	384	431	0	0	10	11	0	0
3/26 - 4/1	50	2419	858	0	0	48	17	0	0
4/2 - 4/8	58	1783	1074	36	4	31	18	1	0
4/9 - 4/15	70	2157	786	431	6	31	11	6	0
4/16 - 4/22	50	769	479	560	6	15	10	11	0
4/23 - 4/29	56	4873	284	989	25	87	5	18	0
4/30 - 5/6	60	7153	425	1029	34	119	7	17	1
5/7 - 5/13	55	6032	348	618	24	110	6	11	0
5/14 - 5/20	57	5502	131	1322	39	96	2	23	1
5/21 - 5/27	55	6652	29	556	6	121	1	10	0
5/28 - 6/3	48	27834	17	92	20	580	1	5	1
6/4 - 6/10	50	24123	13	190	6	482	0	4	0
6/11 - 6/17	48	30449	14	46	0	634	0	1	0
6/18 - 6/24	50	14917	18	42	0	298	0	1	0
6/25 - 7/1	47	20435	16	17	0	434	0	0	0
7/2 - 7/8	34	6079	11	1	0	179	0	0	0
7/9 - 7/15	50	4763	1	3	0	95	0	0	0
7/16 - 7/22	49	4414	2	1	0	90	0	0	0
7/23 - 7/29	49	3530	0	0	0	72	0	0	0
7/30 - 8/5	50	3160	0	0	0	63	0	0	0
8/6 - 8/12	29	677	0	0	0	23	0	0	0
8/13 - 8/19	29	1793	0	0	0	62	0	0	0
8/20 - 8/26	30	1314	0	0	0	44	0	0	0
8/27 - 9/2	45	1862	0	0	0	41	0	0	0
9/3 - 9/9	44	799	0	0	0	18	0	0	0
9/10 - 9/16	29	672	0	0	0	23	0	0	0
9/17 - 9/23	9	203	0	0	0	23	0	0	0
9/24 - 9/30	19	331	0	0	0	17	0	0	0
10/1 - 10/7	6	90	0	0	0	15	0	0	0
10/8 - 10/14	7	83	0	0	0	12	0	0	0
10/15 - 10/21	7	78	0	0	0	11	0	0	0
10/22 - 10/28	5	35	0	0	0	7	0	0	0
10/29 - 11/4	4	30	0	0	0	8	0	0	0
11/5 - 11/11	20	215	0	0	0	11	0	0	0
11/12 - 11/18	13	41	0	0	0	3	0	0	0
11/19 - 11/25	7	15	0	0	0	2	0	0	0
11/26 - 12/2	2	5	0	0	0	2	0	0	0
12/3 - 12/9	3	12	0	0	0	4	0	0	0
12/10 - 12/16	5	21	0	0	0	4	0	0	0
12/17 - 12/23	2	2	0	0	0	1	0	0	0
12/24 - 12/31	2	0	0	0	0	0	0	0	0
Totals	1390	185951	4990	5933	170				

Appendix Table 4--Beach Seine catches in the Columbia River estuary at Sand Island Rm 4.5 and Clatsop Spit RM 5.5 combined, 1978.

Date (mo/day)	No. sets	Total catch: Chinook 0's	Total catch: Chinook 1's	Total catch: Coho	Total catch: Steelhead	Catch per set: Chinook 0's	Catch per set: Chinook 1's	Catch per set: Coho	Catch per set: Steelhead
4/2 - 4/8	14	137	23	4	0	10	2	0	0
4/9 - 4/15	22	126	14	5	2	6	1	0	0
4/16 - 4/22	27	196	10	10	2	11	0	0	0
4/23 - 4/29	17	288	14	29	0	17	1	2	0
4/30 - 5/6	18	379	41	278	43	21	2	15	2
5/7 - 5/13	18	605	15	90	12	34	1	5	1
5/14 - 5/20	7	789	33	891	152	113	5	127	22
5/21 - 5/27	9	234	9	7	5	26	1	1	1
5/28 - 6/3	18	971	26	198	78	54	1	11	1
6/4 - 6/10	18	1692	3	61	10	94	0	3	1
6/11 - 6/17	18	1196	1	17	1	66	0	1	0
6/18 - 6/24	0	-	-	-	-	-	-	-	-
6/25 - 7/1	18	191	1	8	0	11	0	0	0
7/2 - 7/8	0	-	-	-	-	-	-	-	-
7/9 - 7/15	18	200	2	5	0	11	0	0	0
7/16 - 7/22	9	26	0	1	0	3	0	0	0
7/23 - 7/29	0	-	-	-	-	-	-	-	-
7/30 - 8/5	9	65	0	0	0	7	0	0	0
8/6 - 8/12	9	43	0	0	0	5	0	0	0
8/13 - 8/19	0	-	-	-	-	-	-	-	-
8/20 - 8/26	9	27	0	0	0	3	0	0	0
8/27 - 9/2	0	-	-	-	-	-	-	-	-
9/2 - 9/8	7	23	0	0	0	3	0	0	0
Totals	265	7188	192	1604	305				

Appendix Table 5.-- Purse seine catches in the Columbia River estuary at Jones Beach, Oregon, RM 46.5, 1978.

Date (mo/day)	No. sets	Total catch				Catch per set			
		Chinook				Chinook			
		0's	1's	Coho	Steelhead	0's	1's	Coho	Steelhead
3/12 - 3/18	9	0	17	0	0	0	2	0	0
3/19 - 3/25	5	0	8	0	0	0	2	0	0
3/26 - 4/1	11	47	76	0	0	4	7	0	0
4/2 - 4/8	15	2	155	9	11	0	10	1	1
4/9 - 4/15	15	5	378	166	59	0	25	11	4
4/16 - 4/22	15	71	707	347	138	5	47	23	9
4/23 - 4/29	34	870	1208	2507	763	26	36	74	22
4/30 - 5/6	28	229	1268	2203	2122	8	45	79	76
5/7 - 5/13	29	706	3083	5644	2374	24	106	195	82
5/14 - 5/20	25	783	1451	5268	4014	31	58	211	161
5/21 - 5/27	28	1791	1594	3331	2945	64	57	119	105
5/28 - 6/3	23	3440	989	2293	1458	150	43	100	63
6/4 - 6/10	24	1811	640	2376	415	75	27	99	17
6/11 - 6/17	20	1033	562	746	102	52	28	37	5
6/18 - 6/24	20	1364	282	464	47	69	14	23	2
6/25 - 7/1	24	1453	394	230	11	60	10	11	0
7/2 - 7/8	3	95	7	1	0	32	2	1	0
7/9 - 7/15	9	703	69	10	0	78	8	1	0
7/16 - 7/22	8	737	30	6	0	92	4	1	0
7/23 - 7/29	9	809	5	4	0	90	1	0	0
7/30 - 8/5	9	554	3	0	0	62	0	0	0
8/6 - 8/12	9	371	3	0	0	41	0	0	0
8/13 - 8/19	8	294	0	0	0	37	0	0	0
8/20 - 8/26	6	95	0	0	0	16	0	0	0
8/27 - 9/2	1	7	0	0	0	1	0	0	0
9/3 - 9/9	1	6	0	0	0	6	0	0	0
9/10 - 9/16	0	-	-	-	-	-	-	-	-
9/17 - 9/23	1	8	0	0	0	8	0	0	0
9/24 - 9/30	2	22	0	0	0	11	0	0	0
10/1 - 10/7	1	1	0	0	0	1	0	0	0
10/8 - 10/14	0	-	-	-	-	-	-	-	-
10/15 - 10/21	0	-	-	-	-	-	-	-	-
10/22 - 10/28	0	-	-	-	-	-	-	-	-
10/29 - 11/4	1	2	0	0	0	2	0	0	0
11/5 - 11/11	9	86	0	0	0	10	0	0	0
11/12 - 11/18	5	35	0	0	0	7	0	0	0
11/19 - 11/25	2	15	0	0	0	8	0	0	0
11/26 - 12/2	1	6	0	0	0	6	0	0	0
12/3 - 12/9	2	17	0	0	0	9	0	0	0
12/10 - 12/16	2	4	0	0	0	2	0	0	0
12/17 - 12/23	0	-	-	-	-	-	-	-	-
12/24 - 12/31	0	-	-	-	-	-	-	-	-
Totals	414	17472	12929	25605	14459				

Appendix Table 6.-- Purse seine catches in the Columbia River estuary at the Astoria bridge (Washington side), RM 10, 1978.

Date (mo/day)	No. sets	Total catch				Catch per set			
		Chinook				Chinook			
		0's	1's	Coho	Steelhead	0's	1's	Coho	Steelhead
4/2 - 4/8	4	0	39	2	1	0	10	0	0
4/9 - 4/15	0	-	-	-	-	-	-	-	-
4/16 - 4/22	11	27	268	110	45	2	24	10	4
4/23 - 4/29	14	38	313	428	191	3	22	31	14
4/30 - 5/6	15	126	880	914	332	8	59	61	22
5/7 - 5/13	13	148	716	1431	1099	11	55	110	85
5/14 - 5/20	17	456	1360	1040	1242	27	80	61	73
5/21 - 5/27	15	3050	1177	2654	942	203	78	177	63
5/28 - 6/3	8	4005	153	702	126	501	19	88	16
6/4 - 6/10	11	7842	128	1509	292	713	12	137	27
6/11 - 6/17	15	4201	37	473	48	280	2	32	3
6/18 - 6/24	20	9316	46	453	24	466	2	23	1
6/25 - 7/1	8	3344	6	481	3	418	1	60	0
7/2 - 7/8	9	2038	7	22	1	226	1	2	0
7/9 - 7/15	0	-	-	-	-	-	-	-	-
7/16 - 7/22	5	1283	0	3	0	257	0	1	0
7/23 - 7/29	10	2245	3	1	3	225	0	0	0
7/30 - 8/5	5	247	1	5	0	49	0	1	0
8/6 - 8/12	5	185	0	0	0	37	0	0	0
8/13 - 8/21	0	-	-	-	-	-	-	-	-
8/20 - 8/26	3	343	0	0	0	114	0	0	0
8/27 - 9/2	5	67	0	0	0	13	0	0	0
9/3 - 9/9	6	103	0	0	0	17	0	0	0
9/10 - 9/16	9	44	0	0	0	5	0	0	0
9/17 - 9/23	4	29	0	0	0	7	0	0	0
9/24 - 9/30	4	73	0	0	0	18	0	0	0
10/1 - 10/7	4	21	0	0	0	5	0	0	0
10/8 - 10/14	0	-	-	-	-	-	-	-	-
10/15 - 10/21	4	12	0	0	0	3	0	0	0
10/22 - 10/28	0	-	-	-	-	-	-	-	-
10/29 - 11/4	0	-	-	-	-	-	-	-	-
11/5 - 11/11	0	-	-	-	-	-	-	-	-
11/12 - 11/18	0	-	-	-	-	-	-	-	-
11/19 - 11/25	0	-	-	-	-	-	-	-	-
11/26 - 12/2	0	-	-	-	-	-	-	-	-
12/3 - 12/9	0	-	-	-	-	-	-	-	-
12/10 - 12/16	0	-	-	-	-	-	-	-	-
12/17 - 12/23	0	-	-	-	-	-	-	-	-
12/24 - 12/31	0	-	-	-	-	-	-	-	-
Totals	224	39243	5134	10228	4349				

Appendix Table 7. -- Mark release and recapture information, Columbia River estuary, 1978.

LEGEND

Mark-Binary wire tag recaptures are listed with a six digit number; the first two digits being agency code; second two--data one; and third two--data two.

NNNNNN - represents fish with excised adipose fin with no CWT.

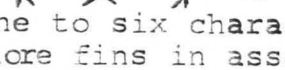
LLLLLL - represents fish with excised adipose fin which were released due to limitation of number sacrificed.

OOOOOO - represents fish with blank tag.

Color coded wire tag recaptures are listed with up to eight letters--two per color (see abbreviation list for color codes).

Brand recaptures are indicated as follows: The first two letters indicate position on fish (e.g., LA-left anterior). The next one or two characters indicate the actual freeze brand used (see abbreviation list for brand codes). The next number (1,2,3, or 4) indicates the rotation of the brand on the fish: e.g.,

Rotation 1 2 3 4

Brand 

The next one to six characters are letters indicating the absence of one or more fins in association with that brand. Example of a complete brand with clip:

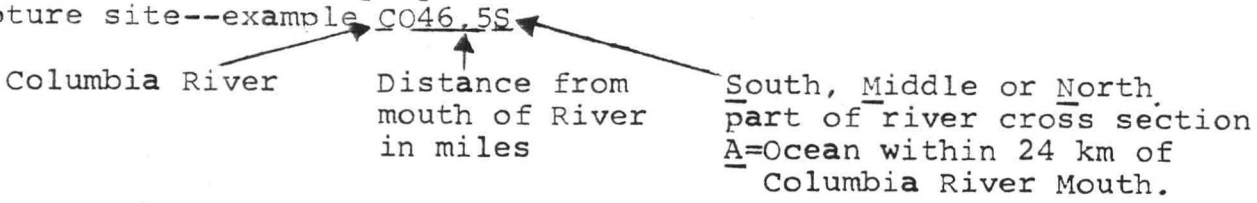
Left posterior LP "K" brand K 1st position 1

Excised adipose and right pectoral fins ADRP

Clip. Recaptures with fin clips exclusively are indicated by the common letter abbreviations of the excised fin or fins.

Release date--Month, day, year.

Recapture site--example C046.5S



Gear code - 4 - beach seine
3 - purse seine

No. recap.- Recapture numbers, actual and adjusted to 10 sets/day for
Act. ADJ. the beach seine and 5 sets/day for the purse seine for river mile 46.5 only.

Recapture date of - Date on which the 50th percent of the total recapture
Med. fish was recaptured, using the adjusted figures.

Mean Length - Average fork length of the fish captured on or about (3 days before and after) the median date.

Appendix Table 7. - - continued

LEGEND

BRAND	ABBREVIA.	BRAND	ABBREVIA.	BRAND	ABBREVIA.	COLOR	ABBREVIA.
2	2		PI	+L	+L	Red	RD
4	4		DT	+Y	+Y	Green	GN
9	9		PP	+R	+R	Blue	BL
10	10		SQ	+F	+F	Gray	GY
13	13	IF	IF	+K	+K	Brown	BR
17	17	IZ	IZ	+J	+J	Yellow	YW
V	V	IM	IM	+N	+N	Oxide Yellow	XY
R	R	IN	IN	52	52	Oxide Red	XR
W	W	IV	IV	3	3	Light Blue	LB
P	P	WG	WG			Light Green	LG
U	U	E	EP			Pink	PK
E	E		TT			Purple	PU
T	T		1-			Orange	OR
J	J		B4			Tan	TN
H	H		32			White	WH
S	S		FL			Black	BK
Z	Z		FR			Oxide Brown	XB
Y	Y		D			Chrome Yellow	CY
L	L		UP			Medium Green	MG
+	+		TI			Gold	GD
G	G		ØØ			Dark Green	DG
K	K		EC			Dark Red	DR
IΔ	ID		GL			Medium Orange	MO
IY	IY		SP			Mixed	MX
I+	I+	O	O			Metallic Grey	GM
	HE	IH	IH			Lavender	LA
IC	IC	+P	+P				
IT	IT	+Z	+Z				
IJ	IJ	IX	IX				
IS	IS	IL	IL				
IU	IU	IY	IY				
X3	X3	IR	IR				
	AN	+0	+0				
IK	IK	+T	+T				
	SU	+U	+U				

SPECIES: CHINOOK 0755

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
010101	LEWIS RIVER WILD STOCK-SEINED-TAGGED & RELEASE	LEWIS RIVER	04/11/78		200	50.8	C046.5S	4	15	23	0.029	0.045	07/22/78	97
							C046.5M	3	3	13	0.005	0.024	07/29/78	105
							C010.0N	3	5		0.009		07/24/78	110
050125	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	1	2	0.050	0.085	05/16/78	115
050130	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	1	2	0.050	0.085	05/16/78	115
050134	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	1	2	0.050	0.085	05/16/78	100
050136	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5S	4	1	1	0.050	0.058	05/19/78	100
050138	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	2	3	0.100	0.170	05/16/78	100
050145	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C010.0N	3	1		0.050		05/26/78	110
050152	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	1	1	0.050	0.061	05/17/78	105
050220	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C010.0N	3	1		0.050		05/19/78	145
050224	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	1	1	0.050	0.061	05/17/78	135
050227	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	3	4	0.150	0.210	05/17/78	110
050230	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	1	1	0.050	0.053	05/25/78	105
050231	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	3	3	0.150	0.170	05/16/78	111
050236	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	1	1	0.050	0.063	05/26/78	95
050237	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	1	2	0.050	0.085	05/16/78	125
050238	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	25	23	2.0	C000.0A	3	1		0.050		08/03/78	200
050244	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	1	1	0.050	0.061	05/17/78	120
050245	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	1	2	0.050	0.085	05/16/78	125
050247	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	1	1	0.050	0.061	05/17/78	135
050248	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	2	3	0.100	0.146	05/17/78	105
050251	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C046.5M	3	1	1	0.050	0.060	06/27/78	105
050260	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C000.0A	3	1		0.050		08/03/78	200
050263	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C010.0N	3	1		0.050		05/23/78	100

Appendix Table 7 -- continued

SPECIES: CHINOOK 0'S

MARK	HATCH ORIGIN OR MARKING SITE / PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
050339	ABERNATHY GENETICS	ABERNATHY CREEK	05/15/78	125	23	2.0	C010.ON	3	1		0.050		07/05/78	95
050337	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C004.5S	4	1		0.000		07/13/78	90
050339	SPRING CREEK HATCHERY EVALUATION	COLUMBIA RIVER	08/18/78	138	16	49.9	C046.5S	4	5	10	0.010	0.020	08/23/78	134
							C046.5M	3	2	8	0.004	0.016	08/24/78	120
050340	SPRING CREEK HATCHERY EVALUATION	COLUMBIA RIVER	08/18/78	138	16	52.0	C046.5S	4	5	10	0.009	0.019	08/23/78	131
							C046.5M	3	3	12	0.005	0.023	08/22/78	145
050341	SPRING CREEK HATCHERY EVALUATION	COLUMBIA RIVER	08/18/78	138	16	50.5	C046.5S	4	1	2	0.001	0.003	08/23/78	120
							C046.5M	3	3	9	0.005	0.018	08/22/78	152
							C000.0A	3	1		0.001		09/05/78	165
050342	L.WHITE SALMON SPRING CREEK HTCY. EVALUATION	L.WHITE S.R.@LWS,NFH	05/24/78	74	123	50.5	C046.5S	4	101	153	0.199	0.303	06/07/78	72
							C046.5M	3	5	8	0.009	0.015	06/02/78	70
							C010.ON	3	7		0.013		06/26/78	95
							C004.5S	4	3		0.005		06/06/78	75
050343	L.WHITE SAL WLRD L.SALMON R.@LWS,NFH LITTLE W SALMON HTCY EVAL.		05/25/78		135	49.5	C046.5S	4	93	142	0.187	0.286	06/07/78	70
							C046.5M	3	2	3	0.004	0.005	06/03/78	72
							C010.ON	3	6		0.012		06/22/78	90
							C005.5N	4	2		0.004		06/15/78	90
							C004.5S	4	1		0.002		06/06/78	70
050344	L WHITE SAL WLRD L WHITE SAL R@LWS NFH LITTLE W SALMON HTCY EVAL.		05/25/78		139	51.3	C046.5S	4	100	147	0.194	0.285	06/06/78	71
							C046.5M	3	4	8	0.007	0.016	06/01/78	80
							C010.ON	3	8		0.015		06/21/78	87
							C005.5N	4	1		0.001		06/15/78	90
							C004.5S	4	2		0.003		06/06/78	80
050345	L WHITE SAL WLRD L WHITE SAL R@LWS,NFH LITTLE WHITE SALMON HTCY.EVAL		05/25/78		131	52.1	C046.5S	4	122	185	0.233	0.354	06/05/78	70
							C046.5M	3	4	5	0.007	0.010	06/03/78	67
							C010.ON	3	14		0.026		06/23/78	91
							C005.5N	4	1		0.001		06/15/78	75
050346	L WHITE SAL WLRD L WHITE SAL R@LWS,NFH LITTLE WHITE SALMON HTCY.EVAL.		05/25/78		110	49.8	C046.5S	4	105	160	0.210	0.321	06/05/78	73
							C046.5M	3	9	12	0.018	0.024	06/02/78	65
							C010.ON	3	10		0.020		06/22/78	89
							C004.5S	4	4		0.008		06/06/78	70
050347	L WHITE SAL WLRD L WHITE SAL R@LWS,NFH LITTLE WHITE SALMON HTCY. EVAL.		05/25/78		113	49.4	C046.5S	4	90	134	0.182	0.271	06/04/78	71
							C046.5M	3	6	8	0.012	0.015	06/01/78	90
							C010.ON	3	11		0.022		06/26/78	87
050348	L WHITE SAL WLRD L WHITE SAL R@LWS,NFH LITTLE WHITE SALMON HTCY. EVAL.		05/25/78		122	49.5	C046.5S	4	121	181	0.244	0.366	06/05/78	70
							C046.5M	3	7	10	0.014	0.021	06/02/78	76
							C010.ON	3	7		0.014		06/22/78	90
							C004.5S	4	1		0.002		06/06/78	80
050352	L WHITE SAL WLRD L WHITE SAL R@LWS,NFH LITTLE WHITE SALMON HTCY. EVAL.		11/01/78	104	39	35.5	C046.5S	4	3	18.	0.008	0.050	12/12/78	113
050355	L WHITE SAL WLRD L WHITE SAL R@LWS,NFH LITTLE WHITE SALMON HTCY. EVAL.		07/12/78	73	100	39.3	C046.5S	4	7	12	0.017	0.029	07/28/78	77
							C046.5M	3	7	28	0.017	0.071	07/22/78	90
							C010.ON	3	2		0.005		08/01/78	75
							C000.0A	3	1		0.002		08/02/78	90
050356	L WHITE SAL WLRD L WHITE SAL R@LWS,NFH LITTLE WHITE SALMON HTCY. EVAL.		07/12/78	73	109	40.1	C046.5S	4	18	30	0.044	0.075	07/29/78	79

SPECIES: CHINOOK O*S

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
050356	L WHITE SAL WLRD L WHITE SAL R@LWS,NFH LITTLE WHITE SALMON HTCY. EVAL.		07/12/78	73	109	40.1	C046.5M	3	1	4	0.002	0.010	08/11/78	105
							C010.0N	3	5		0.012		07/26/78	86
							C000.0A	3	1		0.002		08/22/78	110
050357	L WHTE SAL WLRD L WHTE SAL R@LWS,NFH LITTLE WHITE SALMON HTCY. EVAL.		07/12/78	73	104	39.1	C046.5S	4	24	41	0.061	0.104	07/28/78	82
							C046.5M	3	5	23	0.012	0.058	07/22/78	85
055401	SPRING CREEK BARGING=CONTRIBUTION	BELOW BONN DAM COL R	04/20/78	78	79	98.1	C046.5S	4	174	208	0.177	0.211	05/01/78	82
							C046.5M	3	18	22	0.018	0.013	04/26/78	80
							C010.0N	3	24		0.024		06/01/78	98
							C005.5N	4	3		0.003		05/02/78	80
							C004.5S	4	4		0.004		05/09/78	90
							C000.0A	3	1		0.001		08/03/78	135
055501	SPRING CREEK BIGWHITE SALMON RIVER HATCHERY CONTRIBUTION		05/12/78	85	61	144.2	C046.5S	4	123	151	0.085	0.104	05/23/78	86
							C046.5M	3	20	25	0.013	0.017	05/26/78	85
							C010.0N	3	60		0.041		06/02/78	91
055601	SPRING CREEK HATCHERY CONTRIBUTION	COLUMBIA RIVER	03/21/78	73	104	149.7	C005.5N	4	1		0.000		05/30/78	100
							C046.5S	4	170	215	0.113	0.143	04/10/78	80
							C046.5M	3	6	8	0.004	0.005	05/19/78	113
							C010.0N	3	14		0.009		06/01/78	106
							C005.5N	4	4		0.002		04/18/78	78
							C004.5S	4	4		0.002		05/04/78	80
055701	SPRING CREEK HATCHERY CONTRIBUTION	COLUMBIA RIVER	05/18/78	92	56	155.1	C046.5S	4	79	91	0.050	0.058	05/26/78	88
							C046.5M	3	33	43	0.021	0.027	05/23/78	92
							C010.0N	3	57		0.036		06/02/78	94
							C005.5N	4	2		0.001		05/30/78	95
							C004.5S	4	4		0.002		05/09/78	102
055801	ABERNATHY CONTRIBUTION,HTCY. EVAL.	ABERNATHY CREEK	04/18/78	83	69	150.4	C046.5S	4	79	110	0.052	0.073	04/23/78	86
							C046.5M	3	26	52	0.017	0.034	04/20/78	90
							C010.0N	3	16		0.010		05/23/78	100
							C005.5N	4	8		0.005		04/25/78	88
							C004.5S	4	11		0.007		04/27/78	87
055901	ABERNATHY CONTRIBUTION,HTCY. EVAL.	ABERNATHY CREEK	05/15/78	93	44	147.6	C046.5S	4	23	29	0.015	0.019	05/19/78	94
							C046.5M	3	7	9	0.004	0.006	05/17/78	97
							C010.0N	3	37		0.025		06/01/78	100
							C005.5N	4	1		0.000		05/30/78	115
056001	SPRING CREEK VIBRIO.VACC. HTCY. EVAL.	COLUMBIA RIVER	04/18/78	84	64	98.1	C046.5S	4	125	155	0.127	0.158	04/29/78	87
							C046.5M	3	26	27	0.026	0.027	04/25/78	86
							C010.0N	3	19		0.019		05/25/78	95
							C005.5N	4	3		0.003		05/02/78	82
							C004.5S	4	2		0.002		05/04/78	100
056101	L WHITE SAL WLRD L WHITE SAL RIVER SPRING CREEK STOCK EVAL.		05/24/78	74	118	48.4	C046.5S	4	107	161	0.220	0.331	06/03/78	71
							C046.5M	3	10	16	0.020	0.032	06/02/78	72
							C010.0N	3	8		0.016		06/02/78	108
							C005.5N	4	1		0.002		06/15/78	75
							C004.5S	4	3		0.006		06/06/78	63
							C000.0A	3	1		0.002		07/25/78	105
056201	SPRING CREEK VIBRO.UNVACC.HTCY	COLUMBIA RIVER	04/18/78	84	68	92.3	C046.5S	4	164	198	0.177	0.214	05/03/78	85

Appendix Table 7 -- continued

SPRING CHINOOK OTS

MARK	HATCH (ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE FISH/LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
056201	SPRING CREEK VIRRO.UNVACC.HTCY	COLUMBIA RIVER	04/18/78	84	68	92.3	C046.5M	3	17	17	0.018	0.018	05/01/78	87
							C010.ON	3	26		0.028		06/01/78	105
							C005.5N	4	3		0.003		05/02/78	90
							C004.5S	4	1		0.001		05/04/78	80
056301	L.W.SAL/WLRD SPRING CREEK STOCK EVAL	L.W.SALMON RIVER	05/24/78	74	117	52.2	C046.5S	4	94	138	0.179	0.264	06/04/78	71
							C046.5M	3	8	12	0.015	0.023	06/03/78	78
							C010.ON	3	11		0.021		06/22/78	90
							C004.5S	4	1		0.001		06/06/78	75
070200	DESCHUTES/WILD DESCHUTES R. EVAL OF WILD CHINOOK	DESCHUTES RIVER	04/03/78-04/21/78			0.9	C010.ON	3	1		0.102		07/07/78	110
070204	DESCHUTES/WILD DESCHUTES RIVER EVAL OF WILD CHINO	DESCHUTES RIVER	04/17/78-07/31/78			33.3	C046.5S	4	2	3	0.005	0.008	07/07/78	100
							C040.5M	3	5	40	0.014	0.119	07/07/78	107
							C010.ON	3	3		0.008		07/24/78	120
070205	DESCHUTES/WILD DESCHUTES R. EVAL OF WILD CHINOOK	DESCHUTES RIVER	04/03/78-07/31/78			4.0	C010.ON	3	1		0.024		06/19/78	105
071674	BONNEVILLE RELEASE TIMING @ WILLAM R. COWLITZ	WILLAM R. @ MILL CRK	11/08/78-11/09/78	108	23	51.5	C046.5M	3	1	1	0.001	0.001	12/13/78	150
071656	BONNEVILLE TULE, EVAL. & TIMING SNAKE R EGG B	BONNEVILLE	10/30/78		2	50.9	C046.5S	4	11	48	0.021	0.093	11/08/78	135
							C046.5M	3	1	4	0.001	0.007	11/13/78	160
071658	BONNEVILLE TULE, EVAL. & TIMING SNAKE R. EGG	BONNEVILLE	10/30/78	119	20	44.8	C046.5S	4	13	39	0.028	0.085	11/08/78	130
							C046.5M	3	1	4	0.002	0.009	11/06/78	130
071659	BONNEVILLE TULE, EVAL. & TIMING SNAKE R. EGG	BONNEVILLE	10/30/78		14	37.8	C046.5S	4	8	44	0.021	0.115	11/09/78	136
071660	BONNEVILLE TULE, EVAL. & TIMING SNAKE R. EGG	BONNEVILLE	10/30/78	119	24	44.4	C046.5S	4	9	31	0.020	0.069	11/07/78	126
							C046.5M	3	7	26	0.015	0.058	11/08/78	132
071704	BIG CREEK DIET-COMP-AB GROUP	COL.R-BIG CRK	05/12/78	83	70	105.2	C010.ON	3	44		0.041		06/05/78	89
							C005.5N	4	5		0.004		05/30/78	90
							C004.5S	4	8		0.007		05/18/78	84
071705	BIG CREEK DIET-COMP-OMP GROUP	COL.R-BIG CRK	05/12/78	79	82	106.4	C010.ON	3	41		0.038		06/05/78	86
							C005.5N	4	1		0.000		06/15/78	100
							C004.5S	4	5		0.004		06/06/78	83
071706	S SANTIAM STK-EVAL-WILLAM R	WILLAMETTE R-MILL	06/05/78	97	46	48.6	C046.5M	3	20	32	0.041	0.066	06/24/78	115
							C010.ON	3	10		0.020		06/23/78	112
071707	S SANTIAM STK-EVAL-WILLAM R	WILLAMETTE R-MILL	06/05/78	97	47	51.5	C046.5S	4	1	1	0.001	0.002	06/27/78	120
							C046.5M	3	11	16	0.021	0.030	06/23/78	110
							C010.ON	3	11		0.021		06/26/78	125
071708	S SANTIAM TURBINE EVAL. SULLVN FOREBAY	WILLAM R@FALLS AREA	05/31778	99	47	50.9	C046.5M	3	42	64	0.080	0.124	06/12/78	105
							C010.ON	3	21		0.041		06/21/78	114
							C005.5N	4	1		0.001		06/15/78	100
071709	S.SANTIAM TURBINE EVAL +STK EVAL DC	WILLAM.R@FALLS AREA	05/31/78	101	46	51.2	C046.5S	4	2	3	0.003	0.005	06/24/78	117
							C046.5M	3	68	101	0.132	0.196	06/10/78	103
							C010.ON	3	18		0.035		06/19/78	111
							C005.5N	4	1		0.001		06/15/78	100
071710	S.SANTIAM TURBINE EVAL SULLVN FOREBAY	WILLAM.R@FALLS AREA	06/01/78	99	44	51.1	C046.5S	4	5	7	0.009	0.014	06/18/78	85
							C046.5M	3	46	77	0.089	0.149	06/10/78	104
							C010.ON	3	19		0.037		06/22/78	115

Appendix Table 7 -- continued

SPECIES: CHINOOK SALMON

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED.	RECAPTURE DATE OF FISH	MEAN LENGTH (MM)
071711	KLASKANINE STOCK EVAL H.S. PRNC	KLASKANINE R @ HTCY	05/03/78		79	50.9	C046.5M	3	1	1	0.001	0.002	06/20/78		96
							C010.0N	3	5		0.009		06/05/78		88
							C005.5N	4	1		0.001		05/30/78		90
071712	KLASKANINE STOCK EVAL H.S.PNRC	KLASKANINE R @ HTCY	05/19/78		72	50.0	C004.5S	4	14		0.027		05/18/78		81
							C010.0N	3	10		0.019		06/12/78		110
							C005.5N	4	3		0.005		05/30/78		72
071713	S.SANTIAM STOCK EVAL BELOW DCF	WILLAM R@ FALLS AREA	06/01/78	91	80	47.5	C004.5S	4	8		0.015		06/06/78		83
							C046.5S	4	2	3	0.004	0.006	06/25/78		112
							C046.5M	3	33	54	0.069	0.114	06/19/78		103
							C010.0N	3	19		0.039		06/30/78		119
							C005.5N	4	2		0.004		06/15/78		90
							C000.0A	3	1		0.002		08/02/78		125
071737	DEXTER CONTRIBUTION BY SIZE AT REL	N. FORK, WILLAMETTE	11/07/78		9	22.9	C046.5M	3	3	16	0.013	0.069	11/22/78		165
071738	OAKRIDGE CONTRIBUTION BY SIZE AT REL	N. FORK, WILLAMETTE	11/07/78		8	23.9	C046.5M	3	2	15	0.008	0.062	12/05/78		177
071926	SOUTH SANTIAM SMOLT SURVIVAL (EFFECTS OF REL SIT	SOUTH SANTIAM	11/07/78	165	8	31.5	C046.5M	3	1	8	0.003	0.023	12/05/78		170
071928	SOUTH SANTIAM SMOLT SURVIVAL (EFFECTS OF REL SIT	FOSTER	11/07/78	167	7	21.1	C046.5M	3	2	15	0.009	0.071	12/05/78		170
071929	SOUTH SANTIAM SMOLT SURVIVAL (EFFECTS OF REL SIT	BELOW OR CY FALLS	11/07/78	166	8	32.6	C046.5S	4	1	15	0.003	0.045	11/27/78		190
							C046.5M	3	2	10	0.006	0.030	11/15/78		182
071930	SOUTH SANTIAM SMOLT SURVIVAL (EFFECTS OF REL SIT	BELOW OR CY FALLS	11/07/78	169		32.8	C046.5M	3	5	21	0.015	0.063	11/13/78		202
631604	ELOKOMIN RIVER STOCK EVALUATION	ELOKOMIN R HATCHERY	06/16/77		103	145.0	C046.5S	4	1	1	0.000	0.000			190
631611	LEWIS RIVERWILD LEWIS RIVER WILD STOCK REARED		07/01/78-07/31/78		140	48.8	C046.5S	4	76	132	0.155	0.271	08/05/78		82
							C046.5M	3	4	15	0.008	0.029	08/03/78		95
							C029.0S	4			0.002		09/28/78		100
							C010.0S	3	1		0.002		09/09/78		115
							C010.0N	3	4		0.008		08/31/78		102
							C000.0A	3	1		0.002		08/03/78		95
631618	LEWIS RIVERWILD LEWIS RIVER DENSITY STUDY		05/01/78-06/13/78		5	19.8	C046.5S	4	25	45	0.126	0.226	07/23/78		86
631619	LEWIS RIVERWILD LEWIS RIVER NATIVE FISH		06/01/78-07/06/78		150	15.8	C046.5M	3	2	9	0.010	0.042	07/29/78		100
							C046.5S	4	40	78	0.251	0.488	07/31/78		80
							C046.5M	3	2	9	0.012	0.054	08/14/78		95
							C029.0S	4	1		0.006		09/28/78		115
							C010.0N	3	1		0.006		07/26/78		110
631655	KALAMA FALLS PROD. EVALUATION	KALAMA FALLS HTCY	06/23/77		76	97.3	C046.5S	4	2	2	0.002	0.002	02/16/78		100
							C046.5M	3	1	1	0.001	0.001	05/03/78		130
631663	KLICKITAT PROD. EVALUATION	KLICKITAT RIVER	06/06/78		87	136.3	C046.5S	4	54	78	0.039	0.057	06/18/78		83
							C046.5M	3	42	150	0.030	0.110	07/02/78		98
							C031.0N	3	4		0.002		07/28/78		106
							C010.0N	3	25		0.018		07/07/78		104

Appendix Table 7 -- continued

SPRING CHINOOK 1978

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
631663	KLICKITAT PROD. EVALUATION	KLICKITAT RIVER	06/06/78		87	136.3	C000.0A	3	5		0.003		08/03/78	111
631719	KALAMA FALLS SNAKE RIVER EGG BANK	KALAMA FALLS HTCY	10/28/77		19	87.4	C046.5S	3	8	14	0.009	0.016	04/0 /78	110
							C046.5M	4	3	4	0.003	0.005	05/05/78	130
							C010.0N	3	1		0.001		05/05/78	125
							C004.5S	4	1		0.001		05/04/78	160
631741	KLICKITAT PROD. EVALUATION	PRIEST RAPIDS	06/01/78-06/31/78		124	152.5	C046.5S	4	2	3	0.001	0.001	06/02/78	90
							C046.5M	3	19	74	0.012	0.048	07/22/78	106
							C031.0N	3	3		0.001		07/28/78	110
							C027.0N	3	1		0.000		07/28/78	100
							C010.0N	3	16		0.010		07/26/78	109
							C000.0A	3	6		0.003		08/03/78	110
631742	L. KALAMA PROD. EVALUATION	KALAMA RIVER	05/30/78		61	129.7	C046.5S	4	69	96	0.053	0.073	06/05/78	81
							C046.5M	3	62	84	0.047	0.065	06/01/78	82
							C010.0N	3	40		0.030		06/23/78	96
							C005.5N	4	1		0.000		06/15/78	90
							C004.5S	4	16		0.012		06/06/78	79
							C000.0A	3	1		0.000		07/25/78	105
631743	GRAYS R. ODUCT EVALUATION	GRAYS R.	05/26/78		73	143.1	C046.5M	3	2	3	0.001	0.002	05/12/78	125
							C010.0N	3	30		0.020		06/16/78	96
							C005.5N	4	3		0.002		06/15/78	85
							C004.5S	4	6		0.004		06/06/78	82
631744	ELOKOMIN PROD. EVALUATION	ELOKOMIN RIVER	06/01/78-06/31/78		115	147.9	C010.0N	3	25		0.016		06/26/78	92
							C004.5S	4	1		0.000		06/29/78	85
							C000.0A	3	4		0.002		07/25/78	100
631745	RINGOLD PROD. EVALUATION	RINGOLD	06/23/78		35	146.6	C046.5S	4	1	1	0.000	0.000	07/10/78	125
							C046.5M	3	23	94	0.015	0.063	07/14/78	129
							C029.0S	3	1		0.000		07/28/78	130
							C010.0N	3	5		0.003		07/21/78	117
							C000.0A	3	3		0.002		08/02/78	115
631746	KALAMA FALLS PROD. EVALUATION	KALAMA RIVER	07/12/78	68	108	150.5	C046.5S	4	520	914	0.352	0.607	07/26/78	80
							C046.5M	3	11	53	0.007	0.035	07/17/78	85
							C010.0S	3	2		0.001		09/08/78	110
							C010.0N	3	14		0.009		07/24/78	90
							C004.5S	4	1		0.000		06/06/78	75
							C000.0A	3	2		0.001		08/02/78	97
631747	KALAMA FALLS ATPase RELEASE	KALAMA RIVER	09/15/78		34	140.8	C046.5S	4	101	347	0.071	0.246	09/22/78	93
							C029.0S	4	7		0.004		09/28/78	96
							C018.0S	3	2		0.001		10/12/78	115
							C010.0N	3	2		0.001		09/29/78	115
631748	LEWIS RIVER WILD STOCK EGGS	LEWIS RIVER	05/17/78-05/22/78		105	82.4	C046.5S	4	302	449	0.366	0.544	06/05/78	72
							C046.5M	3	21	42	0.025	0.050	06/16/78	83
							C018.0S	3	1		0.001		10/12/78	125
							C010.0N	3	20		0.024		06/30/78	101
							C004.5S	4	1		0.001		07/13/78	90
							C000.0A	3	2		0.002		07/25/78	110
631749	WELLS HAULING STUDY	PRIEST RAPIDS	06/26/78		45	154.0	C046.5S	4	2	3	0.001	0.001	07/20/78	125

Appendix Table 7 -- continued

SPECIES: CHINOOK 0'S

MARK	HATCH ORIGIN OR MARKING SITE / PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO. RECAP. ACT.	NO. RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
631749	WELLS HAULING STUDY	PRIEST RAPIDS	06/26/78		45	154.0	C046.5M	3	33	127	0.021	0.082	07/17/78	116
							C031.0N	3	2		0.001		07/28/78	115
							C013.0S	3	1		0.000		10/23/78	155
							C010.0N	3	18		0.011		07/21/78	110
							C000.0A	3	2		0.000		08/03/78	125
631763	TOUTLE PROD. EVALUATION	GREEN RIVER	06/19/78	68	98	142.7	C046.5S	4	434	682	0.303	0.477	06/30/78	78
							C046.5M	3	26	88	0.018	0.061	06/28/78	90
							C031.0N	3	1		0.000		07/28/78	105
							C010.0N	3	35		0.024		07/24/78	97
							C005.5N	4	2		0.001		06/27/78	70
							C004.5S	4	1		0.000		07/13/78	85
							C000.0A	3	6		0.004		08/03/78	96
631801	TOUTLE ATPase RELEASE	GREEN RIVER	07/07/78		72	126.5	C046.5S	4	141	247	0.111	0.195	07/26/78	89
							C046.5M	3	23	89	0.018	0.070	07/16/78	92
							C031.0N	3	2		0.001		07/28/78	92
							C027.0N	3	1		0.000		07/28/78	85
							C010.0N	3	19		0.015		07/24/78	94
							C000.0A	3	5		0.003		08/03/78	95
631802	COWLITZ PROD. EVALUATION	COWLITZ RIVER	06/19/78	65	133	146.0	C046.5S	4	269	441	0.184	0.302	07/01/78	78
							C046.5M	3	34	145	0.023	0.099	07/17/78	88
							C031.0N	3	3		0.002		07/28/78	101
							C029.0S	4	1		0.000		09/28/78	100
							C010.0N	3	13		0.008		08/01/78	102
							C004.5S	4	1		0.000		07/13/78	85
							C000.0A	3	6		0.004		08/03/78	100
631803	WASHOUGAL PROD. EVALUATION	WASHOUGAL RIVER	06/26/78		62	151.3	C046.5S	4	189	298	0.124	0.197	07/14/78	90
							C046.5M	3	23	104	0.015	0.069	07/06/78	92
							C031.0N	3	2		0.001		07/28/78	95
							C029.0S	3	1		0.000		07/28/78	95 ?
							C029.0S	4	1		0.000		09/28/78	130
							C010.0N	3	29		0.019		07/24/78	96
							C000.0A	3	7		0.004		08/02/78	105
071708	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	1	1	0.000	0.000	06/20/78	110
LLLLLL	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5S	4	3	9	0.000	0.000	11/08/78	0
NNNNNN	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5S	4	6	30	0.000	0.000	10/19/78	102
							C018.0S	3	1		0.000		10/12/78	120
							C010.0N	3	28		0.000		06/19/78	93
							C005.5N	4	1		0.000		05/02/78	85
							C004.5S	4	8		0.000		05/03/78	95
							C000.0A	3	3		0.000		08/02/78	95

Appendix Table 7 -- continued

SPECIES: CHINOOK 0'S

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
LLLLLL	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5S	4	239	404	0.000	0.000	06/06/78	74
						C046.5M	3	1	2	0.000	0.000	06/21/78	0
NNNNNN	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5S	4	369	231	0.000	0.000	06/07/78	74
						C046.5M	3	31	63	0.000	0.000	06/02/78	90
WHSKGTOK	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5S	4	1	1	0.000	0.000	07/13/78	90
UNCRYSYW	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C004.5S	4	1		0.000		05/22/78	115

SPECIES: CHINOOK O'S

MARK	HATCH ORIGIN OR MARKING SITE / PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM / LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
LD H 1	MCNARY					C046.5S	4	1	2	0.000	0.000	06/09/78	70
LA U 3	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C010.ON	3	1		0.000		06/01/78	105
LD U 1 L	WH SALMON ESTUARY EFFICIENCY	PRESCOTT (RM 72)	06/08/78	71	14.6	C046.5S	4	66	93	0.449	0.633	06/12/78	73
						C046.5M	3	1	2	0.006	0.010	06/09/78	80
LD U 3	SPRING CREEK ESTUARY EFFICIENCY	PRESCOTT (RM 72)	09/03/78-09/05/78	133	15.8	C046.5S	4	2	3	0.012	0.017	09/05/78	140
RA U 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5S	4	2	3	0.000	0.000	04/28/78	87
RD U 1	SPRING CREEK ESTUARY EFFICIENCY	PRESCOTT (RM 72)	04/05/78	77	16.1	C046.5S	4	50	56	0.309	0.345	04/13/78	81
RD U 2	SPRING CREEK ESTUARY EFFICIENCY	PRESCOTT (RM 72)	06/01/78	98	12.7	C046.5S	4	14	18	0.109	0.142	06/04/78	100
						C046.5M	3	3	4	0.023	0.031	06/02/78	100
						C010.ON	3	4		0.031		06/05/78	106
RD U 3	SPRING CREEK ESTUARY EFFICIENCY	PRESCOTT (RM 72)	05/04/78	83	13.7	C446.5S	4	2		0.014		05/06/78	85
						C046.5S	4	47	60	0.341	0.433	05/07/78	86
						C046.5M	3	2	3	0.014	0.021	05/06/78	82
						C010.ON	3	3		0.021		06/02/78	102
LD HE 1	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	07/21/78		6.0	C010.ON	3	1		0.016		08/07/78	120
LD HE 2	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	07/22/78		5.3	C000.0A	3	4		0.075		07/28/78	116
LD HE 3	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	07/23/78		4.7	C046.5M	3	1	4	0.021	0.088	07/28/78	115
						C010.ON	3	2		0.042		08/01/78	110
						C000.0A	3	2		0.042		08/03/78	117
RA HE 1	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	07/14/78		1.0	C046.5M	3	1	4	0.098	0.411	07/28/78	125
RD HE 3	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	07/30/78		2.7	C046.5M	3	3	27	0.109	0.969	08/04/78	113
						C010.ON	3	2		0.072		08/07/78	112
LA I+ 1	JONES BEACH46.5 RECAPTURE RATES	JONES BEACH 46.5	06/09/78		1.3	C046.5S	4	13	18	0.990	1.359	06/17/78	78
LD I+ 1	JONES BEACH46.5 RECAPTURE RATES	JONES BEACH 46.5	06/04/78		1.3	C046.5S	4	17	24	1.245	1.758	06/14/78	76
LD I+ 3	JONES BEACH46.5 RECAPTURE RATES	JONES BEACH 46.5	05/26/78		0.8	C046.5S	4	11	15	1.245	1.661	06/05/78	72
LP I+ 1	JONES BEACH46.5	JONES BEACH46.5	06/17/78		1.0	C046.5S	4	3	4	0.277	0.400	06/25/78	78
						C010.ON	3	1		0.092		06/23/78	85
LP I+ 3	JONES BEACH46.5 RECAPTURE RATES	JONES BEACH 46.5	06/21/78		3.0	C046.5S	4	12	18	0.392	0.605	06/28/78	78

Appendix Table 7 -- continued

SPECIES: CHINOOK 0'S

MARK	HATCH ORIGIN OR MARKING SITE / PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO. RECAP. ACT.	NO. RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
RA I+ 1	JONES BEACH46.5 RECAPTURE RATES	JONES BEACH 46.5	06/07/78		1.9	C046.5S	4	14	20	0.706	0.992	06/13/78	80
RA I+ 3	JONES BEACH46.5 RECAPTURE RATES	JONES BEACH 46.5	05/30/78		1.7	C046.5S	4	1	1	0.057	0.076	07/10/78	80
						C010.ON	3	1		0.057		06/02/78	125
RD I+ 1	JONES BEACH46.5 RECAPTURE RATES	JONES BEACH 46.5	06/02/78		1.3	C046.5S	4	11	16	0.814	1.159	06/11/78	77
						C010.ON	3	1		0.074		06/26/78	105
RD I+ 3	JONES BEACH46.5 RECAPTURE RATES	JONES BEACH 46.5	05/24/78		1.1	C046.5S	4	13	21	1.097	1.758	06/27/78	80
						C010.ON	3	1		0.084		06/26/78	95
RP I+ 1	JONES BEACH46.5 RECAPTURE RATES	JONES BEACH 46.5	06/19/78		0.3	C046.5S	4	2	3	0.526	0.745	06/22/78	90
RP I+ 3	JONES BEACH46.5 RECAPTURE RATES	JONES BEACH 46.5	06/23/78		2.9	C046.5S	4	14	20	0.482	0.706	06/30/78	74
LA IC 1	MCNARY												
LA IC 3	MCNARY					C046.5M	3	1	4	0.000	0.000	08/14/78	105
						C010.ON	3	3		0.000		08/07/78	116
RA IC 1	MCNARY TRANSPORT	MCNARY	06/28/78-07/13/78		16.9	C046.5M	3	6	22	0.035	0.129	07/14/78	102
RA IC 3	MCNARY TRANSPORT	MCNARY	07/19/78-08/30/78		3.3	C046.5S	4	3	5	0.088	0.133	08/30/78	63
						C046.5M	3	4	17	0.118	0.494	07/31/78	100
						C010.ON	3	1		0.029		08/01/78	100
						C000.0A	3	3		0.088		08/03/78	111
LA IF 1	MCNARY CONTROL	MCNARY	06/29/78-07/14/78		15.0	C046.5M	3	3	16	0.019	0.107	07/17/78	120
						C010.ON	3	2		0.013		07/21/78	110
						C000.0A	3	1		0.006		07/28/78	110
						C046.5M	3	1	1	0.000	0.000	05/26/78	105
LD IT 1	JONES BEACH46.5 RECAPTURE RATES	JONES BEACH 46.5	07/10/78		1.1	C046.5S	4	2	3	0.172	0.258	07/16/78	90
RA IT 1	JONES BEACH46.5 RECAPTURE RATES	JONES BEACH 46.5	07/12/78		0.8	C046.5S	4	1	1	0.124	0.145	07/20/78	75
RD IT 1	JONES BEACH46.5 RECAPTURE RATES	JONES BEACH 46.5	06/30/78-06/01/78		3.4	C046.5S	4	12	19	0.344	0.549	07/06/78	80
						C046.5M	3	1	4	0.028	0.119	07/10/78	80

Appendix Table 7 -- continued
SPECIES: CHINOOK 0'S

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM /1 G (THOUS)	NO. MKD	RECAPT. SITE	GEAR CODE	NO. RECAP. ACT.	NO. RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
ADLM	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C010.0N	3	1		0.000		08/01/78	310
ADRV	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C010.0N	3	7		0.000		05/17/78	120
						C004.5S	4	2		0.000		05/18/78	117
LP	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C010.0N	3	1		0.000		05/22/78	95
LVRV	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/09/78	255
RP	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C010.0N	3	1		0.000		05/17/78	120
RV	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C010.0N	3	6		0.000		05/01/78	143
TC	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5S	4	1	1	0.000	0.000	05/19/78	80

Appendix Table 7 -- continued

SPECIES: CHINOOK 1 YR

MARK	HATCH ORIGIN OR MARKING SITE / PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
000000	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C004.5S	4	3		0.000		05/15/78	185
071609	ROUND BUTTE HTCY.STOCK EVALUATION	DESCHUTES R. HTCY	05/22/78	106	36	66.5	C046.5M	3	90	141	0.135	0.212	06/08/78	120
							C010.ON	3	17		0.025		06/19/78	122
071610	ROUND BUTTE HATCHERY STOCK EVAL	BONNEVILLE	05/30/78	107	33	71.5	C046.5S	4	10	15	0.013	0.020	06/06/78	99
							C046.5M	3	98	134	0.137	0.187	06/03/78	111
071611	ROUND BUTTE HTCY.EVAL+VIBRIO 1MM.	DESCHUTES R. HATCH.	05/31/78	111	28	46.4	C010.ON	3	43		0.060		06/05/78	105
							C046.5S	4	1	2	0.002	0.003	07/07/78	125
							C046.5M	3	34	58	0.073	0.123	06/12/78	120
071612	ROUND BUTTE HTCY EVAL =NON-VIBRIO 1MM.	DESCHUTES R. HTCY	05/31/78	108	32	46.2	C010.ON	3	18		0.038		06/19/78	128
							C046.5M	3	35	57	0.075	0.123	06/11/78	119
071615	ROUND BUTTE HATCHERY EVAL +LRGE GRD GROUP	DESCHUTES R. HTCY	05/31/78	118	24	26.0	C010.ON	3	23		0.049		06/22/78	126
							C046.5M	3	29	45	0.111	0.170	06/10/78	122
071654	ROUND BUTTE HTCY EVAL + VIBRIO 1MM.	DESCHUTES R. HATCY	10/04/78		13	24.3	C010.ON	3	7		0.026		06/21/78	131
							C046.5M	3	1	1	0.004	0.004	11/27/78	195
090611	EAGLE CREEK STOCK EVALUATION	EAGLE CREEK HATCY	04/29/77		14	85.7	C046.5M	3	1	2	0.001	0.001	05/08/78	200
091621	WILLAM.HTCY FALL/SPRING RELEASE COMPARISON	WILLAM.R ABOVE FALLS	03/13/78-03/14/78	154	10	25.0	C046.5S	4	2	6	0.007	0.024	03/27/78	195
							C046.5M	3	8	21	0.031	0.085	04/09/78	162
091622	S.SANTIAM HTCY FALL/SPRG.REL COMP.,ABOVE & BELOW	WILLAM.R ABOVE FALLS	03/13/78-03/15/78	164	8	29.5	C046.5S	4	1	3	0.003	0.011	03/31/78	160
							C046.5M	3	4	8	0.013	0.028	04/14/78	150
091625	S.SANTIAM HTCY FALL/SPRG REL COMP.,ABOVE &BELOW F	WILLAM.R BELOW FALLS	03/13/78-03/15/78	153	10	26.9	C046.5S	4	20	36	0.074	0.135	03/25/78	215
							C046.5M	3	11	26	0.041	0.097	04/12/78	167
091624	S.SANTIAM HTCY SITE COMP. ALSO HTCY.STOCK EVAL.	WILLAM.R BELOW FALLS	03/13/78-03/15/78	150	10	24.6	C010.ON	3	1		0.003		04/21/78	140
							C046.5S	4	14	27	0.056	0.109	04/01/78	168
							C046.5M	3	11	27	0.044	0.108	04/10/78	166
091625	S.SANTIAM HTCY SITE COMP.ALSO HTCY. STOCK EVAL	WILLAM.R BELOW FALLS	03/13/78-03/15/78	166	8	13.4	C046.5S	4	9	16	0.067	0.117	03/30/78	185
							C046.5M	3	3	7	0.022	0.055	04/11/78	177
091626	S.SANTIAM HTCY SITE COMP. ALSO HTCY. STOCK EVAL.	WILLAM.R ABOVE FALLS	03/13/78-03/15/78	172	7	14.9	C010.ON	3	1		0.007		04/26/78	145
							C046.5S	4	3	6	0.020	0.042	03/26/78	230
							C046.5M	3	8	16	0.053	0.107	04/07/78	230
091627	S.SANTIAM HTCY SITE COMP. ALSO HTCY STOCK EVAL.	S FK SANTIAM @ HTCY.	11/07/77	139	13	28.7	C010.ON	3	1		0.006		05/15/78	165
							C046.5S	4	1	2	0.003	0.005	04/11/78	140
							C046.5M	3	1	1	0.003	0.004	05/02/78	155
091629	S.SANTIAM HTCY SITE COMP. ALSO HTCY STOCK EVAL.	S FK SANTIAM @ HTCY.	11/07/78	144	11	28.7	C010.ON	3	2		0.006		04/28/78	145
							C046.5M	3	1	1	0.003	0.004	04/28/78	140
091630	S.SANTIAM HTCY SITE COMP. ALSO HTCY. STOCK EVAL	WILLAM. R BELOW FALL	11/08/77	141	11	25.9	C046.5S	4	1	3	0.003	0.010	03/27/78	150
							C046.5M	3	3	5	0.011	0.020	04/18/78	130
091631	S.SANTIAM HTCY SITE COMP. ALSO HTCY. STOCK EVAL.	WILLAM. R BELOW FALL	11/08/77	143	12	29.0	C046.5S	4	2	6	0.006	0.019	03/20/78	140
							C046.5M	3	1	3	0.003	0.008	04/10/78	170
							C010.ON	3	1		0.003		05/05/78	175
091632	S.SANTIAM HTCY SITE COMP. ALSO HTCY. STOCK EVAL.	WILLAM. R BELOW FALL	11/08/77	150		29.5	C046.5S	4	4	9	0.013	0.029	03/26/78	202
							C046.5M	3	4	12	0.013	0.041	04/01/78	145
							C010.ON	3	1		0.003		04/21/78	125

Appendix Table 7 -- continued

SPECIES: CHINOOK 3'S

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE FD	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
091658	EAGLE CREEK STOCK EAVALUATION	EAGLE CRK. CLACKAMAS	04/24/78	157	15	97.2	C046.5S	4	1	1	0.001	0.001	05/03/78	160
							C046.5M	3	54	73	0.055	0.075	05/12/78	145
							C010.ON	3	27		0.027		05/12/78	144
091659	MARION FORKS STOCK EVALUATION	MINTO-N.F.SANTIAM	11/09/77	109	3	45.9	C046.5M	3	5	8	0.010	0.016	05/02/78	130
							C010.ON	3	2		0.004		05/01/78	135
091660	MARION FORKS STOCK EVALUATION	MINTO-N.F.SANTIAM	11/09/77	110	25	47.7	C046.5M	3	6	12	0.012	0.024	04/19/78	141
091661	MARION FORKS STOCK EVALUATION	MINTO-N.F.SANTIAM	03/13/78-03/14/78	129	16	48.6	C046.5S	4	2	3	0.004	0.006	04/18/78	160
							C046.5M	3	16	26	0.032	0.053	04/19/78	140
							C010.ON	3	14		0.028		05/01/78	141
091662	MARION FORKS STOCK EVALUATION	MINTO-N.F.SANTIAM	03/13/78-03/14/78	129	17	45.9	C046.5S	4	3	4	0.006	0.009	04/06/78	172
							C046.5M	3	19	30	0.041	0.065	04/22/78	140
							C010.ON	3	9		0.019		05/01/78	150
091663	MARION FORKS STOCK EVALUATION	MINTO-N.F.SANTIAM	03/13/78-03/14/78	129	15	50.2	C046.5S	4	4	5	0.007	0.010	04/08/78	192
							C046.5M	3	13	23	0.025	0.046	04/18/78	155
							C010.ON	3	3		0.005		05/17/78	130
091701	MARION FORKS STOCK EVALUATION	MINTO-N.F.SANTIAM	03/13/78-03/15/78	139	12	49.1	C046.5S	4	3	3	0.006	0.006	04/06/78	175
							C046.5M	3	25	40	0.050	0.080	04/24/78	161
							C010.ON	3	15		0.030		05/05/78	140
091702	MARION FORKS STOCK EVALUATION	MINTO-N.F.SANTIAM	03/13/78-03/15/78	139	13	49.6	C046.5S	4	3	6	0.006	0.011	04/06/78	190
							C046.5M	3	19	35	0.038	0.070	04/14/78	168
							C010.ON	3	1		0.002		05/03/78	140
091703	MARION FORKS STOCK EVALUATION	MINTO-N.F.SANTIAM	03/13/78-03/15/78	139	12	50.0	C046.5S	4	2	3	0.003	0.006	04/14/78	175
							C046.5M	3	20	34	0.039	0.067	04/19/78	153
							C010.ON	3	6		0.011		05/01/78	137
100214	RAPID RIVER EVALUATION=IDENT	RAPID RIVER	03/27/78		14	127.9	C046.5S	4	1	1	0.000	0.001	04/25/78	125
							C046.5M	3	27	38	0.021	0.029	04/29/78	130
							C010.ON	3	8		0.006		05/01/78	122
							C005.5N	4	1		0.000		04/14/78	85
100321	HAYDEN CREEK AGE "0" RELEASE VS AGE"1"RELEASE	HAYDEN CREEK	09/22/77		14	84.1	C010.ON	3	1		0.001		04/20/78	135
100322	HAYDEN CREEK AGE "0"RELEASE VS AGE"1" RELEASE	HAYDEN CREEK	03/23/78	187	6	15.0	C046.5M	3	5	11	0.033	0.071	04/08/78	190
100323	MCCALL S. FORK PRESERVATION	S. FORK SALMON	04/08/78		40	72.2	C046.5S	4	2	2	0.002	0.003	06/12/78	150
							C046.5M	3	32	43	0.044	0.059	05/22/78	134
							C010.ON	3	2		0.002		05/26/78	120
100327	PAHSIMEROI UPRIVER EVALUTAION	PAHSIMEROI RIVER	05/13/78	107	41	100.8	C046.5M	3	21	33	0.020	0.032	06/16/78	119
							C010.ON	3	6		0.005		06/05/78	95
100329	KOOSKIA	N F CLEARWATER	05/13/78		25	60.7	C046.5M	3	37	61	0.061	0.100	06/12/78	118
							C010.ON	3	3		0.005	0.005	06/19/78	121
100330	KOOSKIA CONTROL	N F CLEARWATER	04/12/78	125	25	40.0	C046.5S	4	1	1	0.002	0.003	05/06/78	120
							C046.5M	3	36	47	0.089	0.116	05/06/78	127
							C010.ON	3	6		0.014		05/05/78	106
							C005.5N	4	1		0.002		05/30/78	90
101314	KOOSKIA AGE"1" RELEASE	LOCHSA RIVER	04/20/78		30	52.6	C046.5S	4	2	3	0.003	0.005	05/06/78	117
							C046.5M	3	16	23	0.030	0.042	05/24/78	135

Appendix Table 7 -- continued

SPECIES: CHINOOK 1975

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE FISH/LB	NO. RELEASED (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
101314	KOOSKIA AGE"1" RELEASE	LOCHSA RIVER	04/20/78		50	52.6	C010.ON	3	10		0.018		05/17/78	140
631601	KLICKITAT VACC.CONTR.PROD. EVAL	KLICKITAT RIVER	03/31/78		10	144.8	C046.5S	4	23	34	0.015	0.023	04/13/78	146
							C046.5M	3	50	81	0.034	0.056	04/22/78	150
							C010.ON	3	25		0.017		05/01/78	152
631602	KLICKITAT TEST VAC. SEPTICEM	KLICKITAT RIVER	03/31/78		10	146.3	C046.5S	4	22	31	0.015	0.021	04/20/78	147
							C046.5M	3	57	85	0.038	0.058	04/25/78	149
							C010.ON	3	44		0.030		05/01/78	145
							C005.5N	4	1		0.000		05/02/78	140
							C004.5S	4	1		0.000		05/04/78	155
631608	KLICKITAT PROD EVALUATION	KLICKITAT RIVER	03/31/78		10	91.5	C046.5S	4	72	109	0.078	0.118	04/12/78	169
							C046.5M	3	18	30	0.019	0.032	04/20/78	162
							C010.ON	3	19		0.020		04/28/78	164
631609	KLICKITAT PROD. EVALUATION	RINGOLD	03/13/78		10	98.5	C046.5S	4	6	9	0.006	0.009	04/08/78	195
							C046.5M	3	38	61	0.038	0.062	04/21/78	180
							C010.ON	3	8		0.008		05/03/78	155
631612	COWLITZ DENSITY STUDY	COWLITZ RIVER	03/08/78		4	28.2	C046.5S	4	28	59	0.099	0.210	03/20/78	225
							C046.5M	3	5	10	0.017	0.034	04/21/78	215
							C010.ON	3	1		0.003		04/20/78	200
							C004.5S	4	1		0.003		04/19/78	220
631613	COWLITZ DENSITY STUDY	COWLITZ RIVER	03/08/78		5	27.7	C046.5S	4	24	52	0.086	0.187	03/27/78	208
							C046.5M	3	3	6	0.010	0.022	04/18/78	212
							C010.ON	3	2		0.007		04/28/78	207
631639	KALAMA FALLS	KALAMA FALLS HD'G	06/22/77		113	145.7	C046.5S	4	2	4	0.001	0.002	03/23/78	220
631640	TOUTLE RIVER	TOUTLE RIVER HTCY	06/29/77		117	132.5	C046.5S	4	1	2	0.000	0.001	03/22/78	190
							C010.ON	3	1		0.000		05/15/78	165
631643	WELLS PROD. EVALUATION	WELLS	05/16/78		9	132.6	C046.5S	4	1	1	0.000	0.000	08/03/78	85
							C046.5M	3	42	66	0.031	0.049	06/04/78	177
							C010.ON	3	15		0.011		06/22/78	162
631702	LEAVENWORTH PROD. EVAL. STA. REL.	ICICLE RIVER	04/25/78	140	15	95.2	C046.5M	3	69	95	0.072	0.100	05/22/78	148
							C010.ON	3	16		0.016		05/22/78	156
631703	LEAVENWORTH HAULING STUDY	ICICLE RIVER	04/25/78	140	15	94.3	C046.5S	4	1	2	0.001	0.001	04/14/78	155
							C046.5M	3	46	61	0.048	0.064	05/23/78	146
							C010.ON	3	16		0.016		05/22/78	152
631704	LEAVENWORTH HAULING STUDY,P.R. REL	PRIEST RAPIDS DAM	05/08/78-05/09/78	140	15	94.6	C046.5M	3	83	105	0.087	0.110	05/24/78	146
							C010.ON	3	35		0.036		05/25/78	155
							C005.5N	4	2		0.002		05/30/78	155
631705	KALAMA FALLS STOCK EVALUATION	KALAMA RIVER	03/23/78		5	51.5	C046.5S	4	67	115	0.130	0.224	04/08/78	160
							C046.5M	3	10	21	0.019	0.041	04/14/78	205
							C010.ON	3	6		0.011		04/26/78	142
631709	COWLITZ DENSITY STUDY	COWLITZ RIVER	03/08/78		5	89.4	C046.5S	4	101	229	0.112	0.256	03/21/78	207
							C046.5M	3	28	58	0.031	0.065	04/13/78	222
							C010.ON	3	8		0.008		04/28/78	185
							C005.5N	4	2		0.002		04/25/78	240

Appendix Table 7 -- continued

SPECIES: CHINOOK 1975

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	/LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO. RECAP. ACT.	NO. RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
631709	COWLITZ DENSITY STUDY	COWLITZ RIVER	03/08/78		5	89.4	C004.5S	4	1		0.001		05/09/78	235
							C000.0A	3	1		0.001		08/03/78	110
631710	COWLITZ DENSITY STUDY	COWLITZ RIVER	03/08/78		6	87.9	C046.5S	4	91	195	0.103	0.221	03/23/78	208
							C046.5M	3	25	48	0.028	0.054	04/04/78	213
							C010.0N	3	14		0.015		05/01/78	201
							C004.5S	4	3		0.003		04/17/78	215
631711	COWLITZ DENSITY STUDY	COWLITZ RIVER	03/08/78		5	58.2	C046.5S	4	61	131	0.104	0.224	03/21/78	215
							C046.5M	3	16	33	0.027	0.057	04/12/78	218
							C010.0N	3	5		0.008		05/05/78	212
631712	COWLITZ DENSITY STUDY	COWLITZ RIVER	03/08/78		5	56.9	C046.5S	4	79	165	0.138	0.290	03/24/78	215
							C046.5M	3	6	10	0.010	0.018	04/12/78	215
							C010.0N	3	9		0.015		05/12/78	180
							C005.5N	4	1		0.001		04/11/78	235
							C004.5S	4	1		0.001		04/17/78	195
631715	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5S	4	1	2	0.000	0.000	04/04/78	175
631716	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5S	4	1	1	0.000	0.000	05/24/78	85
631717	COWLITZ DENSITY STUDY	COWLITZ RIVER	03/08/78		6	71.3	C046.5S	4	54	116	0.075	0.163	03/25/78	199
							C046.5M	3	16	28	0.022	0.039	04/20/78	205
							C010.0N	3	10		0.014		05/01/78	195
							C005.5N	4	1		0.001		04/14/78	210
631718	COWLITZ DENSITY STUDY	COWLITZ RIVER	03/08/78		5	69.4	C004.5S	4	1		0.001		04/17/78	235
							C046.5S	4	54	115	0.077	0.164	03/25/78	201
							C046.5M	3	10	17	0.014	0.023	04/17/78	192
							C010.0N	3	13		0.018		04/28/78	197
							C005.5N	4	1		0.001		04/11/78	250
							C004.5S	4	1		0.001		04/27/78	225
631723	WINTHROP PROD. EVALUATION	METHOW RIVER	04/25/78		14	80.5	C046.5M	3	19	25	0.023	0.031	05/24/78	155
							C010.0N	3	6		0.007		05/26/78	155
631724	WINTHROP HAULING STUDY	METHOW RIVER	04/26/78		14	86.7	C046.5S	4	1	1	0.001	0.001	06/30/78	80
							C046.5M	3	32	45	0.036	0.051	05/24/78	157
							C010.0N	3	7		0.008		06/01/78	112
631725	ENTIAT PROD. EVALUATION	ENTIAT RIVER	04/25/78	150	10	87.8	C005.5N	4	1		0.001		05/30/78	155
							C046.5M	3	35	47	0.039	0.053	05/19/78	148
631731	WINTHROP HAULING STUDY	METHOW RIVER	05/10/78-05/11/78		14	91.3	C010.0N	3	10		0.011		05/17/78	145
							C046.5M	3	99	130	0.108	0.141	05/26/78	154
							C010.0N	3	21		0.022		06/01/78	143
631762	WELLS PROD. EVALUATION	WELLS	06/13/78		52	153.6	C046.5M	3	2	.5	0.001	0.003	07/27/78	140
							C010.0N	3	1		0.000		08/07/78	145
NNNNNN	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C010.0N	3	21		0.000		05/26/78	148
							C004.5S	4	5		0.000		05/16/78	141

SPRING/SUMMER CHINOOK 0.7 YR

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO. RECAP. ACT.	NO. RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
LLLLLL	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5S	4	818	1646	0.000	0.000	03/29/78	210
						C046.5M	3	75	160	0.000	0.000	04/07/78	209
NNNNNN	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5S	4	55	106	0.000	0.000	03/28/78	189
						C046.5M	3	87	129	0.000	0.000	05/06/78	132
WHORRL	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/02/78	140
WRSY	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C010.0N	3	2		0.000		04/28/78	132
WRSYWH	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/10/78	145
						C010.0N	3	3		0.000		04/26/78	133
WRORW	LOWER GRANITE 24 HR. FRSHWATER TRANSPORT	LOWER GRANITE	04/13/78-05/30/78		39.0	C046.5S	4	1	2	0.002	0.004	04/18/78	145
						C046.5M	3	7	9	0.017	0.023	05/11/78	117
WSORLB	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C004.5S	4	1		0.000		05/23/78	145
WRDRDR	LOWER GRANITE 24 HR. SALTWATER TRANSPORT	LOWER GRANITE	04/18/78-05/25/78		41.0	C046.5S	4	2	1	0.004	0.002	04/22/78	140
						C046.5M	3	4	5	0.009	0.011	05/25/78	118
WRGWPK	LITTLE GOOSE TAILRACE CONTROL	LITTLE GOOSE	04/11/78-04/21/78		17.1	C004.5S	4	1		0.005		05/12/78	135
WRPU	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/18/78	145
WRPUPU	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/05/78	195
WRRDSR	LOWER GRANITE FRESHWATER TRANSPORT	LOWER GRANITE	05/01/78-06/02/78		10.2	C046.5M	3	2	2	0.019	0.020	05/27/78	110
						C010.0N	3	1		0.009		06/05/78	95
WRRDGN	LOWER GRANITE FRESHWATER TRANSPORT	LOWER GRANITE	04/06/78-04/26/78		33.6	C046.5S	4	1	2	0.002	0.004	04/18/78	140
						C010.0N	3	2		0.005		04/26/78	137
WRRDLB	KOOSKIA TEST	BONNEVILLE	04/26/78	125 25	37.0	C046.5M	3	4	5	0.010	0.013	06/01/78	135
						C004.5S	4	1		0.002		05/05/78	115
WRRDOR	LITTLE GOOSE FRESHWATER TRANSPORT	LITTLE GOOSE	05/08/78-05/12/78		4.3	C010.0N	3	7		0.137		04/28/78	122
WRRDORRD	MCNARY MCNARY CONTROL	MCNARY	06/05/78-06/12/78		5.0	C046.5M	3	1	2	0.019	0.036	05/30/78	150
WRRDRD	LOWER GRANITE BARGE TRANSPORT	LOWER GRANITE	04/11/78-04/28/78		41.6	C046.5S	4	3	4	0.007	0.010	04/19/78	125
						C010.0N	3	1		0.002		04/28/78	110
WRRDRDR	LOWER GRANITE BARGE TRANSPORT	LOWER GRANITE	05/01/78-05/31/78		14.9	C046.5M	3	5	8	0.033	0.051	05/14/78	130
WRRDWH	LOWER GRANITE FOREBAY CONTROL	LOWER GRANITE	04/05/78-04/15/78		14.3	C046.5M	3	1	1	0.006	0.007	05/10/78	150
						C004.5S	4	1		0.006		06/06/78	110
WRRDXY	KOOSKIA TEST	BONNEVILLE	04/28/78	125 25	37.1	C010.0N	3	2		0.005		06/02/78	130
WRRDYW	KOOSKIA					C046.5M	3	10	14	0.000		06/02/78	125
						C004.5S	4	1		0.000		05/26/78	120
WRRDYWYW	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	06/02/78	120
						C004.5S	4	1		0.000		05/26/78	120
WRYWW	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C004.5S	4	1		0.000		05/26/78	170
WHORYW	LOWER GRANITE					C004.5S	4	2		0.000		05/31/78	120

SPECIES: CHINOOK 1/S

MARK	HATCH ORIGIN OR MARKING SITE / PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
RA C 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	3	5	0.000	0.000	05/06/78	115
RA E 1	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/12/78			0.5	C046.5M	3	2	2	0.393	0.483	05/17/78	167
RA E 2	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/13/78			0.4	C046.5M	3	2	2	0.453	0.531	05/19/78	177
RP E 4	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/19/78			0.2	C046.5M	3	1	1	0.492	0.625	05/26/78	155
							C010.ON	3	3		1.477		05/25/78	138
LA H 1	MCNARY MCNARY CONTROL	MCNARY	04/17/78-05/05/78			10.5	C046.5M	3	7	8	0.066	0.080	05/12/78	133
							C010.ON	3	2		0.019		05/08/78	155
LA H 2	MCNARY MCNARY CONTROL	MCNARY	04/17/78-05/05/78			10.6	C046.5M	3	9	12	0.084	0.111	05/19/78	142
							C010.ON	3	2		0.018		05/25/78	135
LD H 1	MCNARY						C046.5M	3	1	1	0.000	0.000	05/03/78	130
RA J 1	LITTLE GOOSE FRESHWATER TRANSPORT	LITTLE GOOSE	04/10/78-05/06/78			44.9	C046.5S	4	1	1	0.002	0.002	06/13/78	220
							C046.5M	3	34	50	0.075	0.110	04/28/78	128
							C010.ON	3	5		0.011		04/28/78	127
RA J 2	LITTLE GOOSE SALTWATER TRANSPORT	LITTLE GOOSE	04/12/78-05/05/78			45.2	C046.5S	4	1	1	0.002	0.002	04/28/78	120
							C046.5M	3	21	35	0.046	0.078	04/19/78	125
							C010.ON	3	18		0.039		05/01/78	138
RA J 3	LITTLE GOOSE FRESHWATER TRANSPORT	LITTLE GOOSE	05/15/78-05/30/78			1.6	C046.5M	3	2	2	0.122	0.126	05/11/78	135
RA J 4	LITTLE GOOSE SALTWATER TRANSPORT	LITTLE GOOSE	05/16/78-06/02/78			0.8	C046.5M	3	4	6	0.465	0.645	05/20/78	126
RD J 4	LITTLE GOOSE						C046.5M	3	1	1	0.000	0.000	05/05/78	150
LA L 3	KOOSKIA						C046.5M	3	1	1	0.000	0.000	05/10/78	120
RA L 1	KOOSKIA TEST	BONNEVILLE	04/26/78	125	25	37.0	C046.5S	4	9	10	0.024	0.027	05/04/78	125
							C046.5M	3	13	16	0.035	0.044	05/02/78	112
							C010.ON	3	7		0.018		05/08/78	136
RA L 2	KOOSKIA TEST	BONNEVILLE	04/26/78	125	25	36.9	C046.5S	4	8	9	0.021	0.025	05/06/78	132
							C046.5M	3	13	16	0.035	0.042	05/03/78	117
							C010.ON	3	5		0.013		05/08/78	136
RA L 3	KOOSKIA TEST	BONNEVILLE	04/28/78	125	25	35.4	C046.5S	4	6	7	0.016	0.019	05/05/78	121
							C046.5M	3	11	13	0.031	0.036	05/04/78	120
							C010.ON	3	10		0.028		05/08/78	133
RA L 4	KOOSKIA TEST	BONNEVILLE	04/28/78	125	25	37.1	C446.5S	4	1		0.002		05/04/78	135
							C046.5S	4	7	8	0.018	0.021	05/05/78	130
							C046.5M	3	5	6	0.013	0.016	05/03/78	120
							C011.0S	3	1		0.002		05/10/78	110
							C010.ON	3	9		0.024		05/10/78	120
							C004.5S	4	2		0.005		05/04/78	105
RD L 2	KOOSKIA						C046.5M	3	1	1	0.000	0.000	05/03/78	110
RD L 3	KOOSKIA						C046.5M	3	1	1	0.000	0.000	05/03/78	130
RD L 4	KOOSKIA						C046.5M	3	1	2	0.000	0.000	05/06/78	140
RA N 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C010.ON	3	1		0.000		05/08/78	140
LA P 1	LOWER GRANITE FOREBAY CONTROL	LOWER GRANITE	04/05/78-04/15/78			14.3	C046.5M	3	7	9	0.048	0.065	05/01/78	108
							C010.ON	3	7		0.048		04/26/78	128
LA P 2	LOWER GRANITE FOREBAY CONTROL	LOWER GRANITE	04/18/78-04/27/78			15.2	C046.5M	3	7	9	0.045	0.057	05/07/78	156

SPECIES: CHINOOK 1'S

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
LA P 2	LOWER GRANITE FOREBAY CONTROL	LOWER GRANITE	04/18/78-04/27/78		15.2	C010.ON	3	2		0.013		05/12/78	130
LA P 3	LOWER GRANITE FOREBAY CONTROL	LOWER GRANITE	04/29/78		2.1	C046.5M	3	1	1	0.046	0.065	05/22/78	147
						C010.ON	3	1		0.046		05/12/78	145
LA P 4	LOWER GRANITE FOREBAY CONTROL	LOWER GRANITE	05/02/78-06/01/78		14.4	C046.5M	3	13	19	0.090	0.129	05/22/78	135
LD P 2	LOWER GRANITE					C046.5M	3	1	2	0.000	0.000	05/06/78	140
LA R 1	SALMON RIVER TIMING & EFFICIENCY	RIGGINS TRAP	04/24/78-04/28/78		1.3	C046.5M	3	3	3	0.152	0.225	05/13/78	117
LA R 2	SALMON RIVER TIMING & EFFICIENCY	RIGGINS TRAP	04/29/78-05/01/78		4.0	C046.5M	3	4	5	0.098	0.130	05/14/78	108
LA R 3	SALMON RIVER TIMING & EFFICIENCY	RIGGINS TRAP	05/02/78-05/03/78		1.1	C010.ON	3	1		0.088		05/22/78	105
RA R 1	SALMON RIVER TIMING & EFFICIENCY	RIGGINS TRAP	03/14/78-03/23/78		2.5	C046.5M	3	2	4	0.077	0.158	04/21/78	112
RA R 2	SALMON RIVER TIMING & EFFICIENCY	RIGGINS TRAP	03/24/78-03/26/78		2.7	C046.5M	3	2	1	0.036	0.042	04/28/78	110
RA R 3	SALMON RIVER TIMING & EFFICIENCY	RIGGINS TRAP	03/27/78-03/29/78		1.0	C046.5M	3	1	3	0.095	0.238	04/14/78	110
RA R 4	SALMON RIVER TIMING & EFFICIENCY	RIGGINS TRAP	03/30/78-04/01/78		3.4	C046.5M	3	2	2	0.058	0.069	05/09/78	112
						C010.ON	3	1		0.029		05/01/78	109
RD R 1	SALMON RIVER TIMING & EFFICIENCY	RIGGINS TRAP	04/02/78-04/04/78		1.1	C046.5M	3	4	6	0.337	0.486	04/23/78	112
RD R 2	SALMON RIVER TIMING & EFFICIENCY	RIGGINS TRAP	04/05/78-04/08/78		1.1	C046.5M	3	1	1	0.088	0.105	05/09/78	120
						C010.ON	3	2		0.177		05/12/78	102
RD R 4	SALMON RIVER TIMING & EFFICIENCY	RIGGINS TRAP	04/17/78-04/23/78		1.4	C046.5M	3	2	3	0.133	0.186	05/05/78	125
LA S 1	MCNARY MCNARY CONTROL	MCNARY	05/22/78-06/01/78		5.1	C046.5M	3	11	16	0.213	0.306	06/01/78	148
						C010.ON	3	1		0.019		06/01/78	160
LA S 2	MCNARY MCNARY CONTROL	MCNARY	06/05/78-06/12/78		5.0	C046.5M	3	4	7	0.078	0.131	06/19/78	131
LA U 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/03/78	110
LA U 4	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	2	0.000	0.000	06/16/78	130
RA U 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	4	5	0.000	0.000	05/06/78	136
RA U 2	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/04/78	150
LA V 1	MCNARY					C046.5M	3	1	1	0.000	0.000	05/12/78	120
LA V 2	MCNARY					C046.5M	3	4	6	0.000	0.000	06/10/78	120
RA V 1	MCNARY MCNARY TRANSPORT	MCNARY	04/21/78-05/19/78		22.8	C046.5M	3	29	36	0.126	0.158	05/08/78	148
						C010.ON	3	19		0.083		05/08/78	140
						C004.5S	4	1		0.004		05/09/78	144
RA V 2	MCNARY MCNARY TRANSPORT	MCNARY	05/22/78-06/08/78		9.2	C046.5M	3	23	31	0.248	0.330	06/04/78	133
						C010.ON	3	10		0.108		06/02/78	132
RA V 4	MCNARY					C046.5M	3	1	1	0.000	0.000	05/24/78	150
RD V 1	MCNARY					C046.5M	3	2	3	0.000	0.000	05/05/78	150
LA W 4	LOWER GRANITE					C046.5M	3	1	1	0.000	0.000	05/20/78	160
LD W 1	LOWER GRANITE					C046.5S	4	1	1	0.000	0.000	05/27/78	130

Appendix Table 7 -- continued

SPECIES: CHINOOK 1 YS

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO. RECAP. ACT.	NO. RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
RA W 1	LOWER GRANITE FRESHWATER TRANSPORT	LOWER GRANITE	04/06/78-04/26/78		33.6	C046.5S	4	4	5	0.011	0.016	04/20/78	150
						C046.5M	3	14	14	0.042	0.042	04/16/78	116
RA W 2	LOWER GRANITE FRESHWATER TRANSPORT	LOWER GRANITE	05/01/78-06/02/78		10.2	C010.ON	3	5		0.014		05/01/78	115
						C046.5M	3	3	4	0.029	0.043	05/22/78	130
RA W 3	LOWER GRANITE BARGE TRANSPORT	LOWER GRANITE	04/11/78-04/28/78		41.6	C010.ON	3	11		0.108		05/20/78	121
						C046.5S	4	3	3	0.007	0.007	04/20/78	142
						C046.5M	3	31	42	0.074	0.099	04/23/78	124
RA W 4	LOWER GRANITE BARGE TRANSPORT	LOWER GRANITE	05/01/78-05/31/78		14.9	C010.ON	3	7		0.016		05/01/78	142
						C046.5S	4	2	2	0.013	0.013	05/13/78	120
						C046.5M	3	17	22	0.107	0.147	05/15/78	117
RD W 3	LOWER GRANITE					C010.ON	3	15		0.100		06/01/78	105
						C046.5S	4	1	1	0.000	0.000	04/18/78	115
						C046.5M	3	1	1	0.000	0.000	05/03/78	110
LA AN 4	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK												
LD AN 1	ENTIAT TEST-NO SPILL	ROCKY REACH POOL	04/14/78	135	39.2	C046.5M	3	1	1	0.000	0.000	05/18/78	120
						C046.5M	3	11	15	0.028	0.037	05/16/78	155
						C011.OS	3	1		0.002		05/22/78	115
						C010.ON	3	4		0.007		05/24/78	134
LD AN 2	ENTIAT TEST (4 HR. SPILL)	ROCKY REACH POOL	05/01/78	135	31.7	C004.5S	4	1		0.002		05/18/78	115
						C046.5M	3	2	1	0.006	0.006	05/30/78	135
LD AN 3	ENTIAT TEST (8 HR. SPILL)	ROCKY REACH POOL	05/15/78	135	33.0	C010.ON	3	2		0.006		06/01/78	140
						C046.5M	3	7	10	0.021	0.029	06/06/78	142
LD AN 4	ENTIAT CONTROL	VERNITA BRIDGE	05/02/78	135	16.5	C010.ON		1		.003		06/08/78	150
						C046.5M	3	11	15	0.066	0.088	05/23/78	125
						C010.ON	3	3		0.018		06/01/78	135
LP AN 4	ENTIAT					C004.5S	4	1		0.006		05/18/78	110
RA AN 2	ENTIAT					C046.5M	3	1	1	0.000	0.000	05/24/78	130
RA AN 3	ENTIAT					C046.5M	3	1	2	0.000	0.000	06/10/78	125
RD AN 1	ENTIAT CONTROL	VERNITA BRIDGE	05/15/78	135	0.0	C046.5M	3	2	3	0.000	0.000	05/23/78	137
						C046.5M	3	2	3	#.###	#.###	06/02/78	125
RD AN 2	ENTIAT CONTROL	VERNITA BRIDGE	05/25/78	135	17.5	C010.ON	3	1		#.###		06/05/78	120
						C046.5M	3	3	5	0.017	0.026	06/07/78	135
RD AN 3	ENTIAT TEST (4 HR. SPILL)	ENTIAT HATCHERY	04/26/78	135	35.7	C046.5M	3	4	7	0.011	0.019	05/17/78	135
						C010.ON	3	2		0.005		05/17/78	145
RD AN 4	ENTIAT CONTROL	VERNITA BRIDGE	05/15/78	135	17.0	C010.ON	3	5		0.029		06/07/78	122
RD B2 1	LOWER GRANITE					C010.ON	3	2		0.000		05/22/78	122

SPECIES: CHINOOK 1 / S

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
RA IK 2	ICE HARBOR TIMING & EFFICIENCY	ICE HARBOR	04/24/78-04/28/78			1.9	CO46.5M	3	1	2	0.050	0.076	05/06/78	115
RA IK 3	ICE HARBOR TIMING & EFFICIENCY	ICE HARBOR	05/01/78-05/06/78			3.0	CO46.5M	3	1	1	0.032	0.034	05/10/78	130
LA IS 3	LOWER GRANITE TAILRACE CONTROL	LOWER GRANITE	04/27/78-04/29/78			5.9	CO46.5M	3	1	1	0.016	0.024	05/13/78	120
LD IS 2	LOWER GRANITE						CO46.5M	3	1	1	0.000	0.000	05/26/78	145
LD IS 3	LOWER GRANITE						CO46.5M	3	1	1	0.000	0.000	05/09/78	140
RA IS 1	LOWER GRANITE 24 HR. FRSHWATER TRANSPORT	LOWER GRANITE	04/13/78-05/30/78			39.0	CO46.5S	4	1	2	0.002	0.005	04/24/78	105
							CO46.5M	3	32	32	0.082	0.082	04/28/78	116
							CO10.ON	3	2		0.005		04/20/78	127
RA IS 2	LOWER GRANITE	LOWER GRANITE	04/18/78-05/25/78			41.0	CO46.5M	3	24	39	0.058	0.095	04/20/78	121
							CO46.5S	4	1	1	0.000	0.000	04/24/78	95
	24 HR. SALTWATER TRANSPORT						CO10.ON	3	11		0.027		04/28/78	127
RA IS 3	LOWER GRANITE						CO46.5M	3	1	1	0.000	0.000	05/10/78	140
RD IS 1	LOWER GRANITE						CO46.5M	3	1	2	0.000	0.000	04/21/78	150
RD IS 2	LOWER GRANITE						CO46.5M	3	1	2	0.000	0.000	04/21/78	160
LA PI 1	LITTLE GOOSE TAILRACE CONTROL	LITTLE GOOSE	04/11/78-04/21/78			17.1	CO46.5M	3	8	10	0.046	0.056	05/04/78	121
LA PI 2	LITTLE GOOSE TAILRACE CONTROL	LITTLE GOOSE	04/24/78-04/28/78			9.6	CO46.5M	3	1	1	0.010	0.015	05/13/78	120
							CO10.ON	3	8		0.082		05/08/78	120
LA PI 3	LITTLE GOOSE TAILRACE CONTROL	LITTLE GOOSE	05/01/78-05/06/78			4.5	CO46.5M	3	2	1	0.045	0.045	05/13/78	150
							CO10.ON	3	1		0.022		05/17/78	155
LA PI 4	LITTLE GOOSE TAILRACE CONTROL	LITTLE GOOSE	05/18/78-06/05/78			3.7	CO46.5M	3	2	3	0.054	0.078	06/02/78	125
							CO10.ON	3	7		0.189		06/01/78	130
LD PI 1	LITTLE GOOSE						CO46.5M	3	2	3	0.000	0.000	05/06/78	125
LD PI 3	LITTLE GOOSE						CO46.5M	3	1	2	0.000	0.000	05/06/78	130
RA PI 1	LITTLE GOOSE						CO46.5M	3	1	1	0.000	0.000	04/28/78	110
RD PI 2	LITTLE GOOSE						CO46.5M	3	1	2	0.000	0.000	05/06/78	135
LA PP 2	KOOSKIA IDENTIFICATION-AGE 1	CLEAR CREEK	04/12/78	125	26	40.0	CO46.5M	3	16	22	0.040	0.055	05/12/78	130
							CO10.ON	3	8		0.020		05/12/78	107
RD PP 1	KOOSKIA	CLEAR CREEK					CO46.5S	4	1	1	0.000	0.000	05/06/78	130
LD PP 2	KOOSKIA						CO46.5M	3	2	3	0.000	0.000	05/06/78	125
LA SU 3	KOOSKIA						CO46.5M	3	5	8	0.000	0.000	06/13/78	117
LD SU 1	KOOSKIA AGE "1" RELEASE	LOCHSA RIVER	04/20/78		30	10.6	CO46.5M	3	11	15	0.102	0.137	05/12/78	123
							CO10.ON	3	3		0.028		05/26/78	115
RD SU 1	KOOSKIA	LOCHSA RIVER					CO04.5S	4	1	1	0.000	0.000	04/10/78	77
LD SU 3	KOOSKIA						CO46.5M	3	1	1	0.000	0.000	05/23/78	125
RD SU 3	KOOSKIA						CO10.ON	3	1		0.000		05/23/78	90
							CO11.0S	3	1				05/22/78	83
							Co46.5M	3	1				06/02/78	100

RELEASE AND RECAPTURE INFORMATION — COLUMBIA RIVER ESTUARY 1978

Appendix Table 7 -- continued

SPECIES: CHINOOK 1'S

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	NO. MKD /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
LP	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5S	4	1	1	0.000	0.000	05/10/78	135
							C046.5M	3	1	1	0.000	0.000	05/23/78	110
TC	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	1	0	0.000	0.000	05/23/78	140

SPECIES: COHO

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
000000	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C010.0N	3	1		0.000		06/14/78	130
							C005.5N	4	1		0.000		05/11/78	130
							C004.5S	4	3		0.000		05/31/78	107
091644	SANDY DIET STUDY RESEARCH	SANDY R. HTCY	05/02/78	147	14	33.1	C046.5S	4	4	4	0.012	0.012	05/11/78	145
							C046.5M	3	21	26	0.063	0.077	05/13/78	150
							C010.0N	3	6		0.018		05/12/78	160
							C004.5S	4	2		0.006		05/18/78	150
091645	SANDY DIET STUDY RESEARCH	SANDY R. HTCY	05/02/78	146	14	33.9	C046.5S	4	1	1	0.002	0.003	05/10/78	150
							C046.5M	3	13	15	0.038	0.045	05/11/78	160
							C010.0N	3	8		0.020		05/12/78	151
091646	SANDY DIET STUDY RESEARCH	SANDY R. HTCY	05/02/78	147	14	32.4	C046.5M	3	16	20	0.049	0.062	05/12/78	149
							C010.0N	3	4		0.012		05/12/78	152
							C004.5S	4	1		0.003		05/18/78	135
091647	SANDY DIET STUDY RESEARCH	SANDY R. HTCY	05/02/78	147	14	33.6	C046.5M	3	27	36	0.080	0.105	05/11/78	152
							C010.0N	3	6		0.017		05/12/78	150
							C004.5S	4	1		0.002		05/09/78	105
091648	SANDY DIET STUDY RESEARCH	SANDY R. HTCY	05/02/78	148	14	33.6	C046.5M	3	15	20	0.044	0.060	05/13/78	148
							C010.0N	3	4		0.011		05/12/78	151
091649	SANDY DIET STUDY RESEARCH	SANDY R. HTCY	05/04/78	144	15	33.9	C046.5S	4	2	1	0.005	0.002	05/09/78	160
							C046.5M	3	20	26	0.058	0.075	05/13/78	149
							C010.0N	3	5		0.014		05/12/78	150
091650	SANDY DIET STUDY RESEARCH	SANDY R. HTCY	05/04/78	145	14	33.2	C046.5M	3	24	32	0.072	0.095	05/13/78	151
							C010.0N	3	4		0.012		05/12/78	150
091651	SANDY DIET STUDY RESEARCH	SANDY R. HTCY	05/04/78	145	14	34.3	C046.5M	3	19	25	0.055	0.073	05/13/78	150
							C010.0N	3	5		0.014		05/12/78	143
091652	SANDY DIET STUDY RESEARCH	SANDY R. HTCY	05/04/78	146	15	33.0	C046.5S	4	1	1	0.003	0.003	05/17/78	160
							C046.5M	3	23	29	0.069	0.088	05/12/78	151
							C010.0N	3	7		0.021		05/12/78	152
091653	BIG CREEK STOCK COMP. COWLITZ STK.	TUALATIN RIVER	05/08/78	153	15	71.7	C046.5S	4	5	4	0.006	0.006	06/04/78	150
							C046.5M	3	74	104	0.103	0.145	06/03/78	153
							C010.0N	3	27		0.037		06/01/78	147
091654	BIG CREEK STOCK COMP. COL. STOCK	TUALATIN RIVER	05/08/78	153	16	68.8	C046.5S	4	1	1	0.001	0.001	06/06/78	155
							C046.5M	3	83	106	0.120	0.153	05/25/78	147
							C010.0N	3	14		0.020		05/26/78	152
							C005.5N	4	3		0.004		05/30/78	148
							C004.5S	4	1		0.001		05/31/78	150
091657	EAGLE CREEK RES. HATCHERY PRAC.	EAGLE CRK. CLACKAMAS	04/24/78	157	15	74.6	C046.5M	3	96	124	0.128	0.166	05/21/78	148
							C010.0N	3	24		0.032		05/22/78	139
							C004.5S	4	1		0.001		05/18/78	150
631645	ROCKY REACH PROD. EVALUATION	TURTLE ISLAND	05/02/78	151	12	95.8	C046.5S	4	1	1	0.001	0.001	05/25/78	145
							C046.5M	3	55	76	0.057	0.079	05/27/78	162
							C010.0N	3	7		0.007		06/01/78	153
631648	GRAYS RIVER STOCK-PROD. EVALUATION	GRAYS RIVER	05/01/78		19	47.1	C004.5S	4	1		0.001		05/31/78	150
							C046.5M	3	1	1	0.002	0.002	05/25/78	143
							C010.0N	3	14		0.029		05/16/78	142
							C004.5S	4	1		0.002		05/18/78	135

Appendix Table 7 -- continued

SPECIES: COHO

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
631652	KLICKITAT PROD. EVALUATION	KLICKITAT RIVER	04/28/78	143	14	57.7	C046.5S	4	2	1	0.003	0.002	04/30/78	140
							C046.5M	3	34	42	0.058	0.072	05/14/78	144
							C010.ON	3	4		0.006		05/08/78	147
631653	KLICKITAT PROD. EVALUATION	KLICKITAT RIVER	05/04/78	143	13	59.7	C046.5M	3	22	28	0.036	0.047	06/01/78	145
							C010.ON	3	3		0.005		06/12/78	145
631661	GRAYS RIVER STOCK PROD. EVALUATION	GRAYS RIVER	05/01/78		15	48.7	C046.5M	3	3	6	0.006	0.011	05/30/78	148
							C010.ON	3	15		0.030		05/17/78	141
							C004.5S	4	2		0.004		05/09/78	140

Appendix Table 7 -- continued

SPECIES: COHO

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO. RECAP. ACT.	NO. RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
LLLLLL	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	2	3	0.000	0.000	06/17/78	0
NNNNNN	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5S	4	6	5	0.000	0.000	06/02/78	115
							C046.5M	3	64	82	0.000	0.000	05/24/78	151
							C010.ON	3	14		0.000		06/01/78	145
WHGNWH	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C004.5S	4	6		0.000		05/18/78	145
WHGY	MCNARY DAM						C046.5M	3	1	1	0.000	0.000	04/24/78	160
WHGYWH	MCNARY DAM						C046.5M	3	2	2	0.000	0.000	05/19/78	152
WHOR	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	1	1	0.000	0.000	04/24/78	150
							C046.5M	3	1	2	0.000	0.000	05/30/78	120
WHORLBYW	WILLARD CONTROL	L W SALMON RIVER	06/08/78	21	19.7		C005.5N	4	1		0.000		05/11/78	0
							C046.5S	4	1	2	0.005	0.008	06/16/78	140
							C046.5M	3	3	4	0.015	0.017	06/19/78	115
WHORLGYW	WILLARD TEST	HAMMOND/COL RIVER	05/25/78	24	19.9		C010.ON	3	1		0.005		06/23/78	135
							C004.5S	4	1		0.005		06/06/78	120
WHORORLB	WILLARD CONTROL	STAVEBOLT CREEK	05/13/78	26	20.2		C004.5S	4	2		0.009		05/22/78	135
WHORRRD	WILLARD TEST	HAMMOND/COL RIVER	05/26/78	24	19.8		C005.5N	4	1		0.005		05/11/78	130
WHORRDOR	WILLARD CONTROL	STAVEBOLT CREEK	05/25/78	24	22.3		C010.ON	3	1		0.004		06/01/78	115
							C004.5S	4	2		0.008		05/31/78	120
WHORRDYW	WILLARD TEST	STAVEBOLT CREEK	06/07/78	21	18.5		C004.5S	4	1		0.005		06/13/78	120
WHORWHOR	WILLARD TEST	HAMMOND/COL RIVER	05/25/78	26	19.9		C004.5S	4	1		0.005		05/31/78	120
WHORYWGN	WILLARD TEST	BONNEVILLE	06/08/78	21	19.7		C046.5S	4	6	8	0.030	0.040	06/12/78	127
							C046.5M	3	3	5	0.015	0.024	06/12/78	122
WHORYWOR	WILLARD TEST	BONNEVILLE	06/08/78	21	19.7		C010.ON	3	6		0.030		06/14/78	135
							C046.5S	4	3	4	0.015	0.021	06/14/78	131
							C046.5M	3	9	13	0.045	0.065	06/16/78	125
WHPU	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C010.ON	3	3		0.015		06/14/78	123
WHRDRL	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	1	1	0.000	0.000	05/18/78	140
WHRDLB	WILLARD CONTROL	L W SALMON RIVER	05/24/78	24	19.9		C046.5S	4	1	1	0.000	0.000	06/06/78	110
							C046.5M	3	9	13	0.045	0.064	06/04/78	122
							C010.ON	3	3		0.015		06/05/78	121
							C004.5S	4	1		0.005		06/06/78	130
WHRDPK	WILLARD TEST	HAMMOND/COL RIVER	06/08/78	21	19.6		C010.ON	3	1		0.005		06/14/78	150
WHRDXY	WILLARD CONTROL													
WHRDYW	WILLARD TEST	HAMMOND/COL RIVER	05/25/78	26	19.6		C046.5M	3	1	1	0.000	0.000	06/07/78	135
							C046.5S	4	2	2	0.010	0.012	05/20/78	120
YWRD	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	12	15	0.061	0.077	06/01/78	131
							C004.5S	4	1		0.000		05/15/78	110

SPECIES: COHO

MARK	HATCH ORIGIN OR MARKING SITE / PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
LA E 2	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/02/78			0.2	C046.5M	3	1	1	0.344	0.423	05/17/78	220
LD E 3	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/24/78			0.2	C046.5S	4	1	1	0.384	0.527	05/08/78	120
LA H 1	MCNARY MCNARY CONTROL	MCNARY	04/17/78-05/05/78			13.1	C046.5M	3	11	13	0.083	0.097	05/12/78	152
							C010.ON	3	3		0.022		05/12/78	157
							C004.5S	4	1		0.007		05/09/78	180
LA H 2	MCNARY MCNARY CONTROL	MCNARY	05/08/78-05/19/78			3.5	C046.5M	3	5	6	0.140	0.166	05/24/78	170
							C010.ON	3	1		0.028		05/26/78	175
RA H 1	MCNARY	MCNARY					C046.5M	3	1	1	0.000	0.000	05/12/78	180
RA H 2	MCNARY	MCNARY					C046.5M	3	1	1	0.000	0.000	05/20/78	155
RA L 1	CARSON TEST	BONNEVILLE	05/04/78	134	17	29.7	C046.5S	4	4	6	0.013	0.018	05/16/78	136
							C046.5M	3	10	13	0.033	0.042	05/14/78	133
							C011.0S	3	1		0.003		05/22/78	135
RA L 2	CARSON TEST	BONNEVILLE	05/01/78	134	17	28.9	C010.ON	3	1		0.003		05/19/78	145
							C046.5S	4	2	3	0.006	0.010	05/09/78	125
							C046.5M	3	7	9	0.024	0.032	05/16/78	140
							C010.ON	3	3		0.010		05/12/78	145
RA L 3	CARSON						C004.5S	4	1		0.003		05/18/78	120
RD L 4	CARSON						C046.5M	3	1	1	0.000	0.000	05/12/78	140
LA P 1	LOWER GRANITE						C046.5S	4	1	1	0.000	0.000	05/08/78	150
LA P 2	LOWER GRANITE						C046.5M	3	1	1	0.000	0.000	04/24/78	120
LA P 4	LOWER GRANITE						C046.5M	3	1	1	0.000	0.000	04/29/78	115
							C046.5M	3	3	4	0.000	0.000	05/21/78	132
LA R 1	SALMON RIVER	RIGGINS TRAP					C010.ON	3	1		0.000		05/26/78	105
LA S 1	MCNARY MCNARY CONTROL	MCNARY	05/22/78-06/01/78			3.3	C046.5M	3	2	2	0.000	0.000	05/10/78	107
							C046.5M	3	6	8	0.177	0.237	06/07/78	147
LA S 2	MCNARY MCNARY CONTROL	MCNARY	06/05/78-06/12/78			1.6	C010.ON	3	1		0.029		06/01/78	135
							C046.5M	3	1	2	0.061	0.091	06/17/78	130
LD T 1	SANDY RIVER	PRESCOTT (RM 72)					C010.ON	3	1		0.061		06/22/78	130
RD T 1	SANDY RIVER ESTUARY EFFICIENCY	PRESCOTT (RM 72)	05/15/78-05/16/78	147		30.1	C046.5M	3	2	1	0.000	0.000	05/20/78	150
							C046.5S	4	69	73	0.228	0.249	05/18/78	142
							C046.5M	3	2	2	0.006	0.007	05/19/78	150
LD U 1	LITTLE WHITE SALMON PRESCOTT (R.M. 72)						C010.ON	3	3		0.009		05/26/78	148
LA V 1	MCNARY						C046.5S	4	1	1	0.000	0.000	06/12/78	75
LD V 1	MCNARY						C046.5M	3	1	2	0.000	0.000	05/16/78	130
RA V 1	MCNARY MCNARY TRANSPORT	MCNARY	04/21/78-05/19/78			16.8	C046.5M	3	1	1	0.000	0.000	05/22/78	140
							C046.5M	3	13	15	0.076	0.090	05/10/78	145

SPECIES: COHO

MARK	HATCH ORIGIN OR MARKING SITE / PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
RA V 2	MCNARY / MCNARY TRANSPORT	MCNARY	05/22/78-06/08/78			5.4	C046.5M	3	12	16	0.219	0.296	06/02/78	141
RA V 4	MCNARY						C046.5M	3	1	1	0.000	0.000	05/10/78	180
RD V 1	MCNARY						C010.ON	3	2		0.000		05/25/78	137
LA Y 1	CASCADE	BONNEVILLE					C046.5M	3	1	2	0.000	0.000	05/16/78	135
							C046.5S	4	1	1	0.000	0.000	05/12/78	140
LD Y 1	CASCADE / TEST (SURVIVAL)	BONNEVILLE	05/04/78	17		20.2	C046.5M	3	11	13	0.054	0.066	05/17/78	140
							C011.OS	3	1		0.004		05/10/78	155
							C010.ON	3	3		0.014		05/22/78	140
LD Y 2	CASCADE / CONTROL	BONNEVILLE	05/04/78	17		21.5	C004.SS	4	1		0.004		05/18/78	145
							C046.5S	4	4	5	0.018	0.023	05/12/78	140
							C046.5M	3	8	8	0.037	0.037	05/12/78	142
RD Y 1	CASCADE	BONNEVILLE					C010.ON	3	1		0.004		05/17/78	145
LA B4 3	CASCADE	BONNEVILLE					C046.5S	4	1	1	0.000	0.000	05/18/78	140
LD B4 1	CASCADE / TEST (SURVIVAL)	BONNEVILLE	05/02/78	17		21.9	C046.5M	3	1	1	0.000	0.000	05/12/78	140
							C046.5S	4	2	3	0.009	0.011	05/16/78	145
							C046.5M	3	5	5	0.023	0.023	05/11/78	138
LD B4 3	CASCADE / CONTROL	BONNEVILLE	05/03/78	17		22.2	C010.ON	3	5		0.022		05/17/78	131
							C046.5M	3	14	14	0.063	0.063	05/14/78	138
							C011.OS	3	1		0.004		05/22/78	135
							C010.ON	3	5		0.022		05/25/78	138
RA B4 1	CASCADE	BONNEVILLE					C004.SS	4	2		0.009		05/18/78	137
RD B4 1	CASCADE / CONTROL	BONNEVILLE	05/03/78	17		20.2	C046.5M	3	1	1	0.000	0.000	05/10/78	145
							C046.5S	4	2	2	0.009	0.011	05/11/78	150
							C046.5M	3	8	10	0.039	0.050	05/17/78	140
							C011.OS	3	1		0.004		05/10/78	160
							C010.ON	3	2		0.009		05/12/78	135
RD B4 3	CASCADE / TEST (SURVIVAL)	BONNEVILLE	05/03/78	18		21.1	C046.5S	4		5	0.018	0.024	05/09/78	130
							C046.5M	3	10	10	0.047	0.047	05/15/78	142
							C010.ON	3	2		0.009		05/12/78	145
							C004.SS	4	2		0.009		05/18/78	130
LA BE 4	JOHN DAY / TIMING AND EFFICIENCY	JOHN DAY	06/12/78			0.3	C046.5M	3	1	2	0.251	0.376	06/17/78	145
LA ID 1	CARSON / TURBINE MANIPULATION	COL.R/JOHN DAY	05/09/78	135		31.4	C046.5M	3	33	41	0.104	0.130	05/20/78	145
							C010.ON	3	3		0.009		05/26/78	135
LA ID 2	CARSON / TURBINE MANIPULATION	COL.R/JOHN DAY	05/09/78	135		31.5	C046.5S	4	1	1	0.003	0.003	05/17/78	130
							C046.5M	3	35	43	0.110	0.136	05/19/78	142
							C010.ON	3	6		0.019		05/25/78	145
LA ID 3	CARSON / TURBINE MANIPULATION	COL.R/JOHN DAY	05/09/78	135		32.3	C046.5M	3	22	27	0.068	0.083	05/20/78	146
							C010.ON	3	4		0.012		05/25/78	150

SPECIES: COHO

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
LA 1D 3	CARSON	COL.R/JOHN DAY	05/09/78	135	32.3	C004.5S	4	1		0.003		05/18/78	135
	TURBINE MANIPULATION												
LD 1D 1	CARSON	COL. R/JOHN DAY				C046.5S	4	1	1	0.000	0.000	05/17/78	150
						C046.5M	3	6	7	0.000	0.000	05/18/78	144
						C011.0S	3	2		0.000		05/22/78	142
LP 1D 1	CARSON	COL.R/JOHN DAY	05/10/78	135	47.7	C046.5M	3	9	11	0.018	0.022	05/19/78	135
	TURBINE TEST-CONTROL					C010.0N	3	1		0.002		05/19/78	125
LP 1D 3	CARSON					C046.5M	3	1	1	0.000	0.000	05/18/78	135
RA 1D 1	CARSON	COL.R/JOHN DAY	05/22/78	135	33.0	C046.5M	3	25	34	0.075	0.103	05/31/78	141
	TURBINE MANIPULATION					C010.0N	3	1		0.003		06/02/78	130
RA 1D 2	CARSON	COL.R/JOHN DAY	05/22/78	135	33.0	C046.5S	4	1	1	0.003	0.004	06/05/78	165
	TURBINE MANIPULATION					C046.5M	3	14	19	0.042	0.058	06/01/78	143
						C010.0N	3	6		0.018		06/01/78	143
						C004.5S	4	1		0.003		05/31/78	145
RA 1D 3	CARSON	COL.R/JOHN DAY	05/22/78	135	33.0	C046.5M	3	12	16	0.036	0.048	05/31/78	141
	TURBINE MANIPULATION					C010.0N	3	4		0.012		06/01/78	137
RA 1D 4	CARSON	COL. R/JOHN DAY				C046.5M	3	2	3	0.000	0.000	06/04/78	140
RD 1D 1	CARSON	COL. R/JOHN DAY				C046.5M	3	4	6	0.000	0.000	05/31/78	145
						C010.0N	3	3		0.000		06/01/78	146
RD 1D 2	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/23/78	140
RP 1D 1	CARSON	COL.R/JOHN DAY	05/23/78	135	48.5	C046.5M	3	15	21	0.030	0.042	05/31/78	142
	TURBINE TEST-CONTROL					C010.0N	3	2		0.004		06/07/78	147
						C004.5S	4	1		0.002		05/31/78	135
LA 1J 1	CARSON	BONNEVILLE				C046.5M	3	1	1	0.000	0.000	05/26/78	145
LA 1J 2	CARSON	BONNEVILLE				C046.5M	3	2	3	0.000	0.000	05/23/78	150
LA 1J 3	CARSON	BONNEVILLE				C046.5M	3	1	1	0.000	0.000	05/23/78	135
LD 1J 1	CARSON	BONNEVILLE	05/18/78	130	31.5	C046.5S	4	2	2	0.006	0.007	05/23/78	135
	ESTUARY EFFICIENCY					C046.5M	3	10	13	0.031	0.040	05/26/78	140
						C010.0N	3	1		0.003		05/26/78	130
LD 1J 2	CARSON	BONNEVILLE	05/18/78	130	33.1	C046.5S	4	7	8	0.021	0.025	05/24/78	136
	ESTAURY EFFICIENCY					C046.5M	3	8	10	0.024	0.029	05/24/78	142
						C010.0N	3	5		0.015		05/25/78	140
LD 1J 3	CARSON	BONNEVILLE	05/18/78	130	32.3	C046.5S	4	13	13	0.040	0.040	05/24/78	140
	ESTUARY EFFICIENCY					C046.5M	3	12	15	0.037	0.046	05/23/78	143
						C010.0N	3	6		0.019		05/26/78	136
RA 1J 3	CARSON	BONNEVILLE				C010.0N	3	3		0.000		05/30/78	178
LA 1T 3	JONES BEACH 46.5					C046.5M	3	1	1	0.000	0.000	05/24/78	140
RA 1T 3	JONES BEACH 46.5					C046.5M	3	1	1	0.000	0.000	06/07/78	145
LA PP 2	CARSON	PASCO	05/03/78	134 17	43.9	C046.5M	3	47	61	0.106	0.138	05/19/78	143
	CONTROL					C010.0N	3	7		0.015		05/23/78	146
						C004.5S	4	1		0.002		05/18/78	140

SPECIES: COHO

MARK	HATCH ORIGIN OR MARKING SITE / PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM / LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
ADLP	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C010.ON	3	3		0.000		06/19/78	127
ADLV	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C010.ON	3	1		0.000		06/14/78	125
ADRP	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C010.ON	3	1		0.000		06/14/78	130
						C004.SS	4	1		0.000		05/31/78	120
ADRV	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C004.SS	4	1		0.000		05/18/78	120
LP	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.SS	4	6	9	0.000	0.000	04/17/78	142
						C046.SM	3	6	8	0.000	0.000	05/22/78	130
						C011.OS	3	1		0.000		05/22/78	110
						C010.ON	3	21		0.000		05/26/78	133
LPRP	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C004.SS	4	5		0.000		05/31/78	132
						C011.OS	3	2		0.000		05/22/78	122
						C010.ON	3	3		0.000		05/25/78	115
LV	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C004.SS	4	1		0.000		05/31/78	110
LVRV	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.SM	3	1	1	0.000	0.000	04/29/78	235
RP	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C004.SS	4	1		0.000		05/04/78	145
						C046.SS	4	3	4	0.000	0.000	05/02/78	131
						C046.SM	3	11	14	0.000	0.000	05/23/78	145
						C010.ON	3	38		0.000		05/25/78	134
TC	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C004.SS	4	6		0.000		05/18/78	145
						C046.SM	3	4	6	0.000	0.000	05/20/78	136

Appendix Table 7 -- continued

SPECIES: STEELHEAD

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	/LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
090613	WALLOWA	WALLOWA R @ HATCY	05/08/78		6	66.9	C046.5M	3	28	47	0.041	0.069	05/30/78	221
	HTCY. STOCK EVAL PNRC						C004.5S	4	1		0.001		06/12/78	200
091636	WALLOWA	WALLOWA R @ HTCY	05/12/78		13	18.1	C046.5M	3	3	5	0.016	0.027	05/30/78	177
	SITE COMP. ALSO HTCY STOCK EVAL.						C010.ON	3	1		0.005		06/16/78	180
091656	EAGLE CREEK	EAGLE CRK. CLACKAMAS	04/24/78	176	6	44.1	C046.5S	4	1	1	0.002	0.003	05/08/78	140
	STOCK EVAL (PNRC)						C046.5M	3	53	94	0.120	0.212	05/15/78	189
							C010.ON	3	29		0.065		05/12/78	186
							C005.5N	4	1		0.002		05/02/78	195
							C004.5S	4	1		0.002		05/04/78	210
100231	DWORSHAK	N. FORK CLEARWATER	04/21/78		7	90.6	C046.5M	3	79	113	0.087	0.124	05/12/78	192
	NORMAL HATCHERY PROD						C010.ON	3	6		0.006		05/12/78	195
							C004.5S	4	1		0.001		05/18/78	235
100345	NIAGRA SPRINGS	PAHSIMEROI RIVER	04/07/78		14	24.9	C046.5M	3	3	5	0.012	0.020	05/27/78	167
	HOMING EVALUATION						C010.ON	3	1		0.004		05/15/78	185
100346	NIAGRA SPRINGS	PAHSIMEROI RIVER	04/07/78		14	19.1	C046.5M	3	5	9	0.026	0.046	05/28/78	158
	HOMING EVALUATION													
100347	NIAGRA SPRINGS	PAHSIMEROI RIVER	04/07/78		14	30.5	C046.5M	3	9	15	0.029	0.048	05/25/78	172
	HOMING EVALUATION						C010.ON	3	2		0.006		06/05/78	180
100349	DWORSHAK	PAHSIMEROI RIVER	04/18/78		9	33.5	C046.5M	3	24	32	0.068	0.095	05/23/78	179
	HOMING EVALUATION						C010.ON	3	1		0.002		05/12/78	185
101315	KOOSKIA	CLEAR CREEK	04/24/78		10	48.2	C046.5S	4	1	1	0.002	0.002	06/06/78	180
	CLEAR CREEK SITE EVALUATION						C046.5M	3	62	74	0.128	0.154	05/08/78	201
							C010.ON	3	3		0.006		05/08/78	222
130801	RINGOLD	KALAMA FALLS HTCY	04/15/77		6	48.1	C046.5M	3	1	1	0.002	0.002	04/14/78	265
	PROD. EVALUATION													
131406	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	1	1	0.000	0.000	04/19/78	245
								3						
630660	SKAMANIA	WASHOUGAL RIVER	04/01/78-04/31/78	187	7	23.7	C046.5M	3	15	23	0.063	0.097	05/16/78	214
	STOCK PROD. EVALUATION						C010.ON	3	4		0.016		05/12/78	130
631707	RINGOLD	RINGOLD	04/15/78-05/15/78		7	40.7	C046.5M	3	19	23	0.046	0.056	05/13/78	210
	STOCK EVALUATION						C010.ON	3	8		0.019		05/12/78	190
							C004.5S	4	1		0.002		06/06/78	195
631760	COWLITZ	COWLITZ RIVER	05/30/78-05/31/78		6	24.0	C046.5M	3	30	46	0.125	0.190	06/04/78	206
	STOCK EVALUATION						C010.ON	3	9		0.037		06/05/78	200

SPECIES: STEELHEAD

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO. RECAP. ACT.	NO. RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
000000	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	12	16	0.000	0.000	05/23/78	195
SLYW	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/22/78	190
LLLLLL	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	5	11	0.000	0.000	06/05/78	226
NNNNNN	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	75	128	0.000	0.000	05/16/78	193
						C010.0N	3	5		0.000		05/05/78	187
						C004.5S	3	1		0.000		05/22/78	170
						C004.5S	4	7		0.000		05/17/78	150
WHORLGOR	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES?MAPK					C046.5M	3	2	2	0.000	0.000	06/01/78	220
WH	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C004.5S	4	1		0.000		05/25/78	235
WHBL	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/20/78	180
WHBLPK	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/18/78	195
WHGYWH	MCNARY DAM					C046.5M	3	1	2	0.000	0.000	05/30/78	185
WHOR	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	04/25/78	195
WHORBL	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	06/01/78	170
WHORGNOR	WELLS TEST	BONNEVILLE	05/25/78	219	5	C046.5M	3	3	3	0.000	0.000	05/03/78	148
WHORGNYW	LITTLE GOOSE SALTWATER TRANSPORTATION	LITTLE GOOSE	05/16/78-06/02/78		19.1	C046.5M	3	4	5	0.015	0.018	05/10/78	245
					11.3	C004.5S	4	1		0.005		05/10/78	230
WHORLBOR	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	3	3	0.026	0.029	05/18/78	205
						C004.5S	4	1		0.008		05/22/78	175
WHORLOR	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C004.5S	4	1		0.000		05/17/78	205
WHORORXY	WELLS CONTROL	WINTHROP RIVER	05/08/78	219	5	C046.5M	3	2	2	0.000	0.000	05/17/78	200
					20.3	C046.5M	3	3	4	0.014	0.019	05/26/78	222
WHORXY	WELLS												
WHORYW	LOWER GRANITE TAILRACE CONTROL	LOWER GRANITE	05/02/78-05/10/78		11.2	C046.5M	3	1	1	0.000	0.000	05/25/78	250
						C046.5M	3	3	4	0.026	0.031	05/13/78	212
WHORYWOR	CHELAN CONTROL	ICICLE RIVER	05/03/78		6	C004.5S	4	1		0.008		05/16/78	210
					24.1	C046.5M	3	1	1	0.004	0.005	05/19/78	235
WHORYWRD	TUCANNON TEST	BONNEVILLE	05/17/78	190	7	18.5	C004.5S	4	2		0.010		05/31/78	120
WHORYWYW	TUCANNON TEST	BONNEVILLE	05/17/78	190	7	18.1	C046.5M	3	3	3	0.017	0.017	05/21/78	200
WHRD	LITTLE GOOSE FRESHWATER TRANSPORT	LITTLE GOOSE	05/15/78-05/30/78		9.9	C046.5M	3	1	1	0.010	0.012	05/19/78	205
WHRDBL	LOWER GRANITE FRESHWATER TRANSPORT	LOWER GRANITE	05/01/78-06/02/78		43.2	C046.5M	3	4	3	0.009	0.007	05/06/78	188
WHRDOR	LITTLE GOOSE FRESHWATER TRANSPORT	LITTLE GOOSE	04/10/78-05/06/78		17.5	C046.5M	3	2	3	0.011	0.017	05/09/78	210
WHRDORD	LOWER GRANITE BARGE TRANSPORT	LOWER GRANITE	04/11/78-04/28/78		6.6	C010.0N	3	1		0.014		04/20/78	120
WHRDRDOR	LOWER GRANITE BARGE TRANSPORT	LOWER GRANITE	05/01/78-05/31/78		37.0	C046.5M	3	4	5	0.010	0.013	05/23/78	196
WHRDXY	DWORSHAK												
WHRDYW	DWORSHAK TEST	BONNEVILLE	04/28/78	188	7	24.0	C046.5M	3	1	1	0.000	0.000	05/25/78	80
							C046.5M	3	3	0.012	0.014	06/02/78	180
WHRDYWOR	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C004.5S	4	1	0.004		05/23/78	155
WHYW	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C004.5S	4	1	0.000		05/22/78	195
WHYWGN	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	7	9	0.000	0.000	05/21/78	187
WHYWOR	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	1	1	0.000	0.000	04/25/78	270
							C046.5M	3	4	6	0.000	0.000	05/30/78	200

Appendix Table 7 -- continued

STEELHEAD: STEELHEAD

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	/LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
DRYWORPR	TUCANNON TEST	GRAND RHONDE	04730778	190	7	21.6	C046.5M	3	2	3	0.009	0.012	05720/78	192

SPECIES: STEELHEAD

MARK	HATCH ORIGIN OR MARKING SITE / PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO. RECAP. ACT.	NO. RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
LA 0 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	3	4	0.000	0.000	05/23/78	188
RA 0 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	42	57	0.000	0.000	05/21/78	186
LP 2 1	CHELAN						C046.5M	3	1	1	0.000	0.000	05/18/78	155
RA 2 1	CHELAN TEST	BONNEVILLE	05/05/78		22.8		C046.5M	3	15	19	0.065	0.083	05/09/78	201
							C010.ON	3	33		0.144		05/08/78	195
RA 2 2	CHELAN TEST	BONNEVILLE	05/05/78		21.6		C046.5M	3	14	18	0.064	0.082	05/09/78	203
							C010.ON	3	33		0.152		05/08/78	196
							C004.5S	4	1		0.004		05/09/78	195
RA 2 3	CHELAN TEST	BONNEVILLE	05/05/78		23.5		C046.5S	4	2	3	0.008	0.011	05/08/78	180
							C046.5M	3	19	25	0.080	0.104	05/09/78	211
							C010.ON	3	29		0.123		05/08/78	202
RA 2 4	CHELAN	BONNEVILLE					C046.5M	3	1	1	0.000	0.000	05/08/78	190
RD 2 1	CHELAN	BONNEVILLE					C046.5S	4	1	1	0.000	0.000	05/08/78	210
LA 4 1	CHELAN CONTROL	ICICLE RIVER	05/03/78		24.1		C046.5M	3	23	31	0.095	0.129	05/21/78	210
LA 4 2	CHELAN CONTROL	ICICLE RIVER	05/03/78		23.7		C046.5M	3	24	30	0.100	0.125	05/21/78	215
							C010.ON	3	2		0.008		05/17/78	220
LA 4 3	CHELAN CONTROL	ICICLE RIVER	05/03/78		21.9		C046.5M	3	16	20	0.072	0.092	05/24/78	227
							C010.ON	3	2		0.009		05/25/78	202
RA 4 1	CHELAN	ICICLE RIVER					C046.5M	3	1	1	0.000	0.000	05/20/78	205
RA 4 2	CHELAN	ICICLE RIVER					C046.5M	3	1	2	0.000	0.000	05/30/78	210
RA 4 3	CHELAN	ICICLE RIVER					C046.5M	3	1	1	0.000	0.000	06/01/78	200
LA 9 1	TUCANNON						C046.5M	3	1	1	0.000	0.000	05/24/78	220
RA 9 1	TUCANNON TEST	BONNEVILLE	05/17/78	190	7	18.1	C046.5M	3	27	36	0.148	0.199	05/21/78	194
							C010.ON	3	7		0.038		05/23/78	185
RA 9 2	TUCANNON TEST	BONNEVILLE	05/17/78	190	7	18.5	C046.5M	3	9	12	0.048	0.063	05/21/78	190
							C010.ON	3	1		0.005		05/23/78	200
RA 9 3	TUCANNON						C046.5M	3	2	1	0.000	0.000	05/22/78	160
RA 9 4	TUCANNON						C046.5M	3		1	0.000	0.000	05/20/78	180
LA E 2	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/02/78			0.7	C046.5M	3	1	1	0.141	0.168	05/09/78	235
LA E 3	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/01/78			0.2	C046.5M	3	1	2	0.338	0.511	05/06/78	185
LA E 4	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/04/78			0.5	C010.ON	3	2		0.354		05/08/78	210
LP E 4	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/11/78			0.5	C010.ON	3	1		0.185		05/19/78	180
RA E 1	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/12/78			0.5	C046.5M	3	1	1	0.175	0.215	05/17/78	180
RA E 2	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/13/78			0.5	C046.5M	3	3	4	0.521	0.619	05/18/78	203
RD E 1	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/26/78			0.3	C046.5M	3	1	1	0.280	0.294	06/01/78	210
RD E 2	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/27/78			0.5	C046.5M	3	1	1	0.191	0.270	05/22/78	205
RP E 1	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/16/78			0.3	C010.ON	3	3		0.872		05/23/78	170

Appendix Table 7 -- continued

SPECIES: STEELHEAD

MARK	HATCH ORIGIN OR MARKING SITE / PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO. RECAP. ACT.	NO. RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
RP E 2	JOHN DAY TIMING AND EFFICIENCY	JOHN DAY	05/17/78			0.2	C046.5M	3	1	1	0.364	0.463	05/23/78	180
LA H 1	MCNARY MCNARY CONTROL	MCNARY	04/17/78-05/05/78			1.8	C046.5M	3	4	5	0.215	0.259	05/11/78	191
LA H 2	MCNARY MCNARY CONTROL	MCNARY	05/08/78-05/19/78			8.0	C046.5M	3	8	10	0.099	0.129	05/24/78	210
							C010.ON	3	1		0.012		05/25/78	200
RA H 2	MCNARY CONTROL						C046.5M	3	2	2	0.000	0.000	05/22/78	192
LA J 1	LITTLE GOOSE						C046.5M	3	1	2	0.000	0.000	05/06/78	175
LD J 4	LITTLE GOOSE						C046.5M	3	1	1	0.000	0.000	05/20/78	170
RA J 1	LITTLE GOOSE FRESHWATER TRANSPORT	LITTLE GOOSE	04/10/78-05/06/78			17.5	C046.5M	3	24	33	0.136	0.185	05/07/78	181
							C010.ON	3	6		0.034		05/08/78	182
RA J 2	LITTLE GOOSE SALTWATER TRANSPORT	LITTLE GOOSE	04/12/78-05/05/78			15.9	C046.5M	3	5	7	0.031	0.041	05/08/78	192
							C046.5S	4	1	1	0.000	0.000	04/28/78	105
							C010.ON	3	5		0.031		05/08/78	202
RA J 3	LITTLE GOOSE FRESHWATER TRANSPORT	LITTLE GOOSE	05/15/78-05/30/78			9.9	C046.5M	3	95	115	0.960	1.162	05/19/78	185
							C010.ON	3	6		0.060		05/16/78	171
RA J 4	LITTLE GOOSE SALTWATER TRANSPORTATION	LITTLE GOOSE	05/09/78-05/11/78			5.4	C046.5M	3	58	75	1.067	1.385	05/20/78	181
							C010.ON	3	19		0.349		05/25/78	177
RD J 1	LITTLE GOOSE						C046.5S	4	1	1	0.000	0.000	05/18/78	155
LD J 2	LITTLE GOOSE						C004.5S	1	1	1	0.000	0.000	05/31/78	130
LD J 3	LITTLE GOOSE						C046.5S	1	1	1	0.000	0.000	05/22/78	140
							C046.5M	1	1	1	0.000	0.000	05/22/78	145
RA L 1	WELLS TEST	BONNEVILLE	05/05/78	219	5	19.9	C046.5M	3	5	7	0.025	0.033	05/09/78	223
							C010.ON	3	21		0.105		05/08/78	210
							C004.5S	4	2		0.010		05/09/78	220
RA L 2	WELLS CONTROL	METHOW RIVER	04/27/78	219	5	19.9	C046.5M	3	7	9	0.035	0.043	05/21/78	195
							C010.ON	3	1		0.005		05/08/78	250
RA L 3	WELLS TEST	RINGOLD	05/05/78	219	5	17.6	C046.5M	3	11	14	0.062	0.078	05/18/78	239
							C010.ON	3	3		0.017		05/17/78	226
							C004.5S	4	2		0.011		05/18/78	215
RA L 4	WELLS TEST	BONNEVILLE	05/25/78	219	5	19.1	C046.5M	3	20	26	0.104	0.134	05/09/78	220
							C010.ON	3	15		0.078		05/10/78	208
RD L 2	WELLS	METHOW RIVER					C046.5M	3	1	2	0.000	0.000	05/30/78	220
RA Q 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C010.ON	3	8		0.000		05/22/78	182
RA O 2	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C010.ON	3	4		0.000		05/22/78	175
LA P 1	LOWER GRANITE FOREBAY CONTROL	LOWER GRANITE	04/05/78-04/15/78			1.5	C046.5M	3	1	1	0.066	0.077	04/28/78	120
							C010.ON	3	1		0.066		05/17/78	215
LA P 2	LOWER GRANITE FOREBAY CONTROL	LOWER GRANITE	04/18/78-04/27/78			3.6	C046.5M	3	8	9	0.220	0.257	05/10/78	183
							C010.ON	3	1		0.027		05/25/78	165
LA P 3	LOWER GRANITE FOREBAY CONTROL	LOWER GRANITE	04/29/78			2.3	C046.5M	3	1	1	0.041	0.049	05/09/78	175
							C010.ON	3	1		0.041		05/08/78	180
LA P 4	LOWER GRANITE FOREBAY CONTROL	LOWER GRANITE	05/02/78-06/01/78			35.5	C046.5M	3	78	119	0.216	0.336	05/23/78	184
							C010.ON	3	5		0.014		05/22/78	157
LD P 2	LOWER GRANITE						C046.5M	3	2	2	0.000	0.000	05/05/78	175
LD P 4	LOWER GRANITE						C046.5M	3	1	1	0.000	0.000	05/17/78	200
RA P 4	LOWER GRANITE						C046.5M	3	3	4	0.000	0.000	05/21/78	180
LA R 2	SALMON RIVER TIMING & EFFICIENCY	RIGGINS TRAP	04/29/78-05/01/78			1.0	C046.5M	3	1	1	0.092	0.097	05/10/78	165
LA R 3	SALMON RIVER TIMING & EFFICIENCY	RIGGINS TRAP	05/02/78-05/03/78			1.8	C046.5M	3	1	1	0.054	0.065	05/19/78	210

Appendix Table 7 -- continued

SPECIES: STEELHEAD

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
LA R 4	SALMON RIVER TIMING & EFFICIENCY	RIGGINS TRAP	05/09/78-05/11/78		0.2	C046.5M	3	1	1	0.381	0.517	05/20/78	175
RA R 1	SALMON RIVER TIMING & EFFICIENCY	RIGGINS TRAP	03/14/78-03/23/78		0.0	C010.ON	3	1		#.###		05/10/78	155
RA R 2	SALMON RIVER	RIGGINS TRAP				C046.5S	4	1	1	0.000	0.000	04/20/78	105
RA R 3	SALMON RIVER	RIGGINS TRAP				C010.ON	3	1		0.000		05/10/78	240
LA S 1	MCNARY MCNARY CONTROL	MCNARY	05/22/78-06/01/78		4.8	C046.5M	3	3	5	0.061	0.102	05/30/78	198
RA S 1	MCNARY					C010.ON	3	2		0.041		06/05/78	197
LA T 3	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	06/07/78	160
LA U 3	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/25/78	205
LA U 4	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/20/78	165
RA U 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	2	0.000	0.000	06/03/78	220
RA U 2	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	3	4	0.000	0.000	05/11/78	187
RA U 3	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	2	3	0.000	0.000	05/07/78	202
RA U 4	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	8	11	0.000	0.000	05/20/78	176
LA V 1	MCNARY					C046.5M	3	1	1	0.000	0.000	05/18/78	155
						C046.5M	3	1	1	0.000	0.000	05/20/78	230
LA V 4	MCNARY					C010.ON	3	1		0.000		05/25/78	215
						C046.5M	3	1	1	0.000	0.000	05/23/78	170
RA V 1	MCNARY MCNARY TRANSPORT	MCNARY	04/21/78-05/19/78		12.1	C046.5M	3	48	60	0.396	0.491	05/18/78	205
						C010.ON	3	3		0.024		05/12/78	192
						C004.5S	4	1		0.008		05/18/78	205
RA V 2	MCNARY MCNARY TRANSPORT	MCNARY	05/22/78-06/08/78		8.6	C046.6M	3	1		0.011		06/01/78	190
						C046.5M	3	45	56	0.519	0.641	06/02/78	194
						C010.ON	3	6		0.069		05/25/78	175
RA V 4	MCNARY					C046.5M	3	8	10	0.000	0.000	05/25/78	175
RD V 1	MCNARY					C046.5M	3	1	1	0.000	0.000	05/03/78	160
RD V 2	MCNARY					C046.5M	3	1	1	0.000	0.000	05/26/78	150
LA W 2	LOWER GRANITE					C010.ON	3	1		0.000		05/25/78	185
RA W 1	LOWER GRANITE FRESHWATER TRANSPORT	LOWER GRANITE	04/06/78-04/26/78		4.6	C046.5M	3	3	5	0.064	0.107	04/15/78	165
RA W 2	LOWER GRANITE FRESHWATER TRANSPORT	LOWER GRANITE	05/01/78-06/02/78		43.2	C046.5S	4	1	1	0.002	0.002	05/17/78	155
						C046.5M	3	68	83	0.157	0.192	05/18/78	187
						C010.ON	3	27		0.062		05/23/78	176
RA W 3	LOWER GRANITE BARGE TRANSPORT	LOWER GRANITE	04/11/78-04/28/78		6.6	C046.5M	3	17	20	0.254	0.302	05/03/78	176
						C010.ON	3	1		0.014		05/17/78	185
RA W 4	LOWER GRANITE BARGE TRANSPORT	LOWER GRANITE	05/01/78-05/31/78		37.0	C046.5S	4	1	2	0.002	0.004	05/13/78	215
						C046.5M	3	108	153	0.291	0.411	05/22/78	186
						C010.ON	3	14		0.037		05/12/78	175
RP W 1	LOWER GRANITE					C046.5M	3	1	2	0.000	0.000	05/27/78	175
RA Y 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/10/78	210
RA Z 1	DWORSHAK TEST	BONNEVILLE	05/28/78	188 7	20.6	C046.5M	3	15	19	0.072	0.092	05/02/78	197
						C010.ON	3	2		0.009		05/05/78	197
RA Z 2	DWORSHAK TEST	BONNEVILLE	04/28/78	188 7	24.0	C046.5M	3	22	24	0.091	0.100	05/05/78	196
						C010.ON	3	1		0.004		05/08/78	205
LA 0 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/20/78	170
RA 10 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	1	0.000	0.000	05/04/78	335
LA AN 2	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	2	0.000	0.000	05/06/78	175

SPECIES: STEELHEAD

MARK	HATCH ORIGIN OR MARKING SITE / PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
LA B2 1	LOWER GRANITE TAILRACE CONTROL	LOWER GRANITE	05/02/78-05/10/78			11.2	C046.5M	3	8	9	0.071	0.080	05/12/78	180
							C010.ON	3	5		0.044		05/19/78	183
LD B2 1	LOWER GRANITE						C004.5S	4	1		0.008		05/18/78	195
LA B4 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	1	1	0.000	0.000	05/09/78	180
LA DT 1	TUCANNON TEST	GRAND RHONDE	05/10/78	190	7	31.6	C046.5M	3	5	6	0.000	0.000	05/18/78	199
							C046.5M	3	1	1	0.003	0.004	05/20/78	180
LA DT 2	TUCANNON						C010.ON	3	1		0.003		06/16/78	180
LA DT 3	TUCANNON	GRAND RHONDE					C046.5M	3	1	1	0.000	0.000	05/19/78	195
LA DT 4	TUCANNON	GRAND RHONDE					C046.5M	3	2	3	0.000	0.000	05/23/78	195
RA DT 1	TUCANNON	GRAND RHONDE					C046.5M	3	37	52	0.000	0.000	05/21/78	185
RA DT 4	TUCANNON	GRAND RHONDE					C046.5M	3	1	1	0.000	0.000	05/20/78	170
RD DT 1	TUCANNON	GRAND RHONDE					C046.5M	3	4	5	0.000	0.000	05/20/78	202
							C046.5S			1	0.000	0.000	05/18/78	150
LA ID 1	WELLS TURBINE MORTALITY	WELLS DAM	04/12/78		5	10.1	C046.5M	3	2	3	0.019	0.025	05/09/78	235
LA ID 2	WELLS CONTROL	WELLS DAM	04/12/78		5	10.0	C046.5M	3	4	4	0.040	0.040	05/20/78	203
LA ID 3	WELLS TURBINE MORTALITY	WELLS DAM	04/13/78		5	10.1	C046.5M	3	2	2	0.019	0.022	05/21/78	225
LA ID 4	WELLS CONTROL	WELLS DAM	04/13/78		5	10.1	C046.5M	3	2	3	0.019	0.028	05/06/78	227
LD ID 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	1	2	0.000	0.000	05/06/78	210
RA ID 1	WELLS TURBINE MORTALITY	WELLS DAM	04/14/78		5	10.1	C046.5M	3	3	3	0.020	0.020	05/28/78	220
							C010.ON	3	3		0.029		05/12/78	225
RA ID 2	WELLS CONTROL	WELLS DAM	04/14/78		5	10.2	C046.5M	3	2	2	0.020	0.020	05/28/78	178
RA ID 3	WELLS	WELLS DAM					C046.5M	3	1	1	0.000	0.000	05/18/78	230
LA IK 1	ICE HARBOR TIMING & EFFICIENCY	ICE HARBOR	05/15/78-05/20/78			2.7	C046.5M	3	1	1	0.035	0.048	06/02/78	175
LA IK 2	ICE HARBOR TIMING & EFFICIENCY	ICE HARBOR	05/22/78-05/26/78			1.8	C046.5M	3	1	1	0.053	0.072	06/07/78	180
RA IK 4	ICE HARBOR TIMING & EFFICIENCY	ICE HARBOR	05/08/78-05/13/78			3.3	C046.5M	3	1	1	0.030	0.042	05/22/78	166
							C010.ON	3	2		0.060		05/25/78	167
LD IU 2	DWORSHAK	DWORSHAK	04/14/78			6.0	C046.5M	3	3	4	0.049	0.058	05/06/78	205
RA IU 2	DWORSHAK						C046.5M	3	1	1	0.000	0.000	05/17/78	205
LA PI 1	LITTLE GOOSE TAILRACE CONTROL	LITTLE GOOSE	04/11/78-04/21/78			2.9	C046.5M	3	3	3	0.100	0.117	05/05/78	195
LA PI 2	LITTLE GOOSE TAILRACE CONTROL	LITTLE GOOSE	04/24/78-04/28/78			2.1	C046.5M	3	2	3	0.092	0.117	06/03/78	245
LA PI 3	LITTLE GOOSE TAILRACE CONTROL	LITTLE GOOSE	05/01/78-05/06/78			4.4	C046.5M	3	2	3	0.045	0.065	05/11/78	230
LA PI 4	LITTLE GOOSE TAILRACE CONTROL	LITTLE GOOSE	05/18/78-06/05/78			12.6	C046.5M	3	5	7	0.039	0.052	05/31/78	197

Appendix Table 7 -- continued

SPECIES: STEELHEAD

MARK	HATCH ORIGIN OR MARKING SITE / PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
LA PP 1	WELLS CONTROL	WINTHROP RIVER	05/08/78	219	5	20.3	C046.5M	3	4	5	0.019	0.025	05/30/78	258
LA PP 2	DWORSHAK NORMAL HATCHERY PROD.	N.F.CLEARWATER	04/21/78		7	30.0	C046.5M	3	40	48	0.133	0.158	05/12/78	182
							C010.ON	3	7		0.023		05/12/78	211
LD PP 2	DWORSHAK	N.F.CLEARWATER					C046.5M	3	3	4	0.000	0.000	05/04/78	171
RA PP 1	WELLS						C046.5M	3	1	2	0.000	0.000	06/05/78	220
RA PP 2	DWORSHAK	N.F.CLEARWATER					C046.5M	3	1	1	0.000	0.000	05/22/78	165
LD SU 2	KOOSKIA						C046.5M	3	1	1	0.000	0.000	05/03/78	155
LD SU 3	KOOSKIA						C046.5M	3	1	2	0.000	0.000	05/06/78	165
LD SU 4	KOOSKIA CLEAR CREEK SITE EVALUATION	CLEAR CREEK	04/24/78		10	11.3	C046.5M	3	8	11	0.070	0.096	05/07/78	195
							C010.ON	3	1		0.008		05/12/78	210
RA SU 1	KOOSKIA						C046.5M	3	1	2	0.000	0.000	05/15/78	195
RA SU 3	KOOSKIA						C046.5M	3	2	2	0.000	0.000	05/22/78	207
LA X3 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	4	5	0.000	0.000	05/20/78	195
							C010.ON	3	2		0.000		05/17/78	215
RA X3 1	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	1	3	0.000	0.000	04/14/78	235

SPECIES: STEELHEAD

MARK	HATCH ORIGIN OR MARKING SITE / PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO. RECAP. ACT.	NO. RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
D	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	1	1	0.000	0.000	05/08/78	220
ADLP	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	6	7	0.000	0.000	05/05/78	198
ADLV	S. SANTIAM PHOTO PERIOD	N. SANTIAM	04/25/78	170	8	41.1	C046.5M	3	14	18	0.034	0.044	05/21/78	192
							C010.ON	3	8		0.019		05/25/78	205
							C004.5S	4	1		0.002		05/18/78	180
ADRP	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	2	2	0.000	0.000	05/04/78	195
ADRV	S. SANTIAM PHOTO PERIOD	N. SANTIAM	04/26/78	176	8	40.8	C046.5M	3	14	18	0.034	0.044	05/18/78	200
							C010.ON	3	3		0.007		05/08/78	186
BCRV	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	1	1	0.000	0.000	05/18/78	220
LM	S.SANTIAM PHOTO PERIOD	S. SANTIAM	04/25/78	177	8	39.8	C046.5M	3	37	48	0.092	0.121	05/08/78	228
							C010.ON	3	7		0.017		05/19/78	182
							C004.5S	4	1		0.002		05/18/78	200
							C004.5C	4	1		0.002		05/18/78	205
LMLP	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	27	34	0.000	0.000	05/03/78	235
							C010.ON	3	1		0.000		05/05/78	280
LMLV	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	3	4	0.000	0.000	05/23/78	225
LMRV	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	13	17	0.000	0.000	05/21/78	205
							C010.ON	3	9		0.000		05/19/78	208
							C004.5S	4	1		0.000		05/18/78	180
LP	GNAT CREEK STOCK EVALUATION	MOLALLA RIVER	04/24/78		6	75.0	C046.5M	3	43	53	0.057	0.070	05/09/78	199
							C010.ON	3	12		0.016		05/15/78	200
LPRM	ROUND BUTTE EARLY BROOD	DESCHUTES R	04/15/78	218	4	25.5	C046.5M	3	18	23	0.070	0.089	05/03/78	228
							C010.ON	3	3		0.011		05/19/78	220
							C004.5S	4	1		0.003		05/18/78	235
LPRP	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	7	9	0.000	0.000	05/03/78	219
							C010.ON	3	4		0.000		05/05/78	190
LV	MARION FORKS STOCK EVALUATION	N. SANTIAM	04/03/78-04/04/78	202	5	45.5	C046.5M	3	89	115	0.195	0.251	05/08/78	216
							C010.ON	3	26		0.057		05/10/78	209
							C005.5N	4	2		0.004		05/02/78	190
							C004.5S	4	1		0.002		05/31/78	300
LVRM	LEABURG STOCK EVALUATION	MCKENZIE	05/01/78-05/05/78	187	6	80.1	C046.5M	3	34	41	0.042	0.050	05/21/78	208
							C010.ON	3	4		0.004		05/17/78	210
							C005.5N	4	1		0.001		05/30/78	215
LVRV	ROUND BUTTE LATE BROOD	DESCHUTES R	04/15/78	207	5	27.6	C046.5M	3	48	65	0.173	0.234	05/15/78	209
							C010.ON	3	20		0.072		05/17/78	215
RM	S.SANTIAM PHOTO PERIOD	S. SANTIAM	04/25/78	180	8	39.8	C046.5M	3	41	51	0.102	0.128	05/16/78	199
							C010.ON	3	12		0.030		05/17/78	203
RMRP	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C005.5N	4	2		0.005		05/30/78	197
							C046.5M	3	23	30	0.000	0.000	05/02/78	235
RMRV	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C005.5N	4	1		0.000		05/02/78	230
							C046.5M	3	24	30	0.000	0.000	05/21/78	228
							C010.ON	3	2		0.000		05/19/78	240
							C005.5N	4	1		0.000		05/30/78	230
RP	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	36	45	0.000	0.000	05/06/78	213
							C010.ON	3	18		0.000		05/08/78	225
RV	ROARING RIVER PHOTO PERIOD	N. SANTIAM	04/27/78	182	7	41.3	C046.5M	3	74	101	0.178	0.243	05/16/78	207

SPECIES: STEELHEAD

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	SIZE AT RELEASE /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO. RECAP. ACT.	NO. RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
RV	ROARING RIVER PHOTO PERIOD	N. SANTIAM	04/27/78	182	7	41.3	C010.0N	3	23		0.055		05/17/78	201
TC	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	3	4	0.000	0.000	05/25/78	213

Appendix Table 7 -- continued

SPECIES: SOCKEYE

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM	/LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
NNNNNN	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK						C046.5M	3	1	1	0.000	0.000	05/03/78	150
UNKOYWRD	MCNARY	MCNARY	04/17/78-05/05/78			1.1	C046.5M	3	1	1	0.087	0.091	05/03/78	180
	MCNARY CONTROL													

SPECIES: SOCKEYE

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO.RECAP. ACT.	NO.RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
LA H 1	MCNARY MCNARY CONTROL	MCNARY	04/17/78-05/05/78		1.1	C046.5M	3	2	3	0.174	0.220	05/05/78	180
LA S 1	MCNARY MCNARY CONTROL	MCNARY	05/22/78-06/01/78		2.0	C046.5M	3	1	2	0.049	0.073	06/10/78	115
RA V 1	MCNARY MCNARY TRANSPORT	MCNARY	04/21/78-05/19/78		3.0	C046.5M	3	7	9	0.227	0.300	05/07/78	122
RA V 2	MCNARY MCNARY TRANSPORT	MCNARY	05/22/78-06/08/78		3.7	C046.5M	3	1	2	0.026	0.039	06/09/78	105
						C010.0N	3	2		0.053		06/02/78	110

SPECIES: UNKNOWN

MARK	HATCH ORIGIN OR MARKING SITE PURPOSE OF RELEASE	RELEASE SITE	RELEASE DATE	SIZE AT RELEASE MM /LB	NO. MKD (THOUS)	RECAPT. SITE	GEAR CODE	NO. ACT.	NO. RECAP. ADJ.	% RECAP. ACT.	% RECAP. ADJ.	RECAPTURE DATE OF MED. FISH	MEAN LENGTH (MM)
UREL	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	2	0	0.000	0.000	04/28/78	117
WHONRL	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	5	0	0.000	0.000	04/19/78	140
WHORUR	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	5	0	0.000	0.000	04/25/78	123
WHORYWGN	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	2	0	0.000	0.000	06/17/78	140
WHRD	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	0	0.000	0.000	04/28/78	140
WHRDGN	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	4	0	0.000	0.000	04/27/78	155
WHRDOR	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	4	0	0.000	0.000	04/24/78	121
WHRDRD	NO RELEASE INFORMATION AVAILABLE FOR THIS SPECIES/MARK					C046.5M	3	1	0	0.000	0.000	04/27/78	150

Appendix Table 8 -- Recaptures in 1978, from marked fish groups released in 1977.

Tag#	Specie	Release site	Release date (1977) (mo/day)	#Recapt.	Date of median recapture in 1978 (mo/day)
9/16/27	Sp. ch	S. Santiam	11/7	4	4/28
9/16/29	Sp. ch	S. Santiam	11/7	1	4/28
9/16/30	Sp. ch	Willam. R.	11/8	5	4/16
9/16/31	Sp. ch	Willam. R.	11/8	4	4/16
9/16/32	Sp. ch	Willam. R.	11/8	9	4/8
10/3/21	Sp. ch	Hayden Cr.	9/22	1	4/20
63/17/16	Sp. ch	Cowlitz R.	10/15	1	4/29
63/16/4	F. ch	Elokomin R.	6/16	1	3/22
63/16/39	F. ch	Kalama Falls	6/22	2	4/14
63/16/40	F. ch	Toutle R.	6/29	2	4/13
63/16/55	F. ch	Kalama Falls	6/23	3	4/9
63/17/19	F. ch	Kalama Falls	10/28	12	4/14
13/8/1	Sthd	Kalama Falls	4/15	2	4/14

Appendix Table 9 -- Catch composition of beach seine samples at Jones Beach, Oregon, RM 46.5, October 1977 to December 1978.

Common name/ Species	Month	1977[b] OCT	NOV	DEC	Total	Average per set	1978 JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	Total	Average per set
	No. sets	12	10	7	29		9	6	121	234	246	214	202	166	109	25	46	12	1390	
Chinook Sal. - subyearling *Oncorhynchus tshawytscha*		175	29	14	218	7.5	5	19	3021	9582	37142	103447	21720	7918	2470	286	306	35	185951	133.8
Chinook Sal. - yearling *Oncorhynchus tshawytscha*		126	12	0	138	4.8	3	1	1338	2623	940	69	16	0	0	0	0	0	4990	3.6
Coho Salmon - juv. *Oncorhynchus kisutch*		0	1	0	1	0.0	0	0	0	2016	3584	327	6	0	0	0	0	0	5933	4.3
Steelhead Trout - juv. *Salmo gairdneri*		0	0	0	0	0.0	0	0	0	41	104	25	0	0	0	0	0	0	170	0.1
Sockeye Salmon - juv. *Oncorhynchus nerka*		0	0	0	0	0.0	0	0	3	18	8	13	2	1	0	0	0	0	45	0.0
Chum Salmon - juv. *Oncorhynchus keta*		0	0	0	0	0.0	0	0	1	65	17	5	1	0	0	0	0	0	89	0.1
Cutthroat Trout - juv. *Salmo clarki*		0	0	0	0	0.0	0	0	4	35	38	6	6	50	31	2	2	0	174	0.1
Three Spine Stickleback[a] *Gasterosteus aculeatus*		975	221	10	1206	41.6	54	51	5939	10242	6968	11543	40042	49230	10513	3091	965	139	138777	99.8
American Shad - juv. *Alosa sapidissima*		366	4	10	380	13.1	0	0	0	0	22	497	1226	6013	6578	1292	227	3	15858	11.4
Eulachon *Thaleichthys pacificus*		0	0	0	0	0.0	4	2	72	12	0	0	0	0	0	0	0	0	90	0.1
Starry Flounder *Platichthys stellatus*		18	26	37	81	2.8	55	80	221	195	67	80	240	374	340	78	95	46	1871	1.4
Carp - adult *Cyprinus carpio*		0	0	2	2	0.0	2	0	2	13	37	13	7	4	2	1	0	0	81	0.1
Sucker *Catostomus* sp.		0	2	3	5	0.0	0	0	8	3	10	9	84	54	10	1	4	3	186	0.1
Black Crappie *Poroxis nigromaculatus*		0	0	0	0	0.0	1	0	1	2	15	0	59	33	1	0	0	0	112	0.1
Largemouth Bass *Micropterus salmoides*		0	0	0	0	0.0	0	0	0	1	1	1	2	2	3	1	1	0	12	0.0
Peamouth Chub - adult *Mylocheilus caurinus*		34	134	37	205	7.1	3	0	877	689	1664	1365	1775	2015	545	75	15	1	9024	6.5
Prickly Sculpin *Cottus asper*		0	0	4	4	0.0	0	1	66	16	21	53	224	17	2	4	0	2	406	0.3
Mountain Whitefish *Prosopium williamsoni*		6	0	3	9	0.3	0	0	1	1	0	1	24	17	6	2	0	2	54	0.1
Yellow Perch *Perca flavescens*		0	0	0	0	0.0	0	0	8	15	5	30	326	6	2	1	0	0	393	0.3
Northern Squawfish *Ptychocheilus oregonensis*		0	0	4	4	0.0	0	0	1	4	2	25	84	95	23	0	0	0	234	0.2
Northern Anchovy *Engraulis mordax*		0	0	0	0	0.0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.0
Pacific Lamprey - adult *Lampetra tridentata*		0	0	0	0	0.0	0	0	0	0	0	1	0	0	0	0	0	0	1	0.0
White Sturgeon - adult *Acipenser transmontanus*		0	0	0	0	0.0	0	0	0	0	0	0	3	0	0	0	0	0	3	0.0
Sand Roller *Percopsis transmontana*		0	0	0	0	0.0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.0
Shiner Perch *Cymatogaster aggregata*		0	0	0	0	0.0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.0
Catfish *Ictalurus* sp.		0	0	1	1	0.0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Goldfish *Carassium auratus*		0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Pumpkinseed *Lepomis gibbosus*		0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Sunfish *Lepomis* sp.		0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Chinook Salmon - adult *Oncorhynchus tshawytscha*		5	0	0	5	0.0	0	0	12	3	4	28	14	6	36	0	1	0	104	0.1
Coho Salmon - adult *Oncorhynchus kisutch*		1	0	0	1	0.0	0	0	0	0	0	0	0	0	8	0	0	0	8	0.0
Steelhead Salmon - adult *Salmo gairdneri*		0	2	0	2	0.0	3	0	8	5	7	9	6	0	0	0	1	0	39	0.0
Sockeye Salmon - adult *Oncorhynchus nerka*		0	0	0	0	0.0	0	0	0	0	0	2	0	0	0	0	0	0	2	0.0

a/ Includes estimated catches.
b/ The catches for October through December 1977 were not included in the Annual report for 1977 and are consequently recorded here.

Appendix Table 10 -- Catch composition of beach seine RM 4.5 and Clatsop Spit, RM 5.5,

Species / Month / No. sets	APRIL 80	MAY 70	JUNE 54	JULY 36	AUGUST 18	SEPT. 7	Total 265	Average per set
Chinook Sal. - subyearling *Oncorhynchus tshawytscha*	747	2978	3079	291	70	23	7188	27.1
Chinook Sal. - yearling *Oncorhynchus tshawytscha*	61	124	5	2	0	0	192	0.7
Coho Salmon - juv. *Oncorhynchus kisutch*	48	1464	86	6	0	0	1604	6.1
Steelhead Trout - juv. *Salmo gairdnerii*	4	67	11	0	0	0	82	.3
Sockeye Salmon - juv. *Oncorhynchus nerka*	0	13	0	0	0	0	13	0.0
Chum Salmon - juv. *Oncorhynchus keta*	180	73	0	0	0	0	253	1.0
Cutthroat Trout - juv. *Salmo clarkii clarkii*	0	6	4	4	1	0	15	0.1
Black Crappie *Pomoxis nigromaculatus*	0	1	0	0	0	0	1	0.0
Largemouth Bass *Micropterus salmoides*	0	1	0	0	0	0	1	0.0
Stickleback *Gasterosteus aculeatus*	325	450	600	500	400	0	2275	8.6
Carp *Cyprinus carpio*	4	11	8		1	0	24	0.1
Peamouth Chub *Mylocheilus caurinus*	0	5	15	34	45	0	99	0.4
Chiselmouth Chub *Acrocheilus alutaceus*	0	0	2	4	2	0	8	0.0
Starry Flounder *Platichthys stellatus*	199	204	192	98	56	25	774	2.9
Sand Sole-juv. *Psettichthys melanostictus*	28	24	29	12	3	7	103	0.4
Rex Sole-juv. *Glyptocephalus zachirus*	0	0	1	2	1	0	4	0.0
Pacific Sand Dab *Citharichthys* sp.	64	84	73	34	19	13	287	1.1
Surf Smelt *Hypomesus pretiosus*	5600	6650	8350	2200	6000	50	28850	108.9
Long Fin Smelt *Spirinchus dilatus*	0	0	270	105	200	0	575	2.2
Eulachon *Thaleichthys pacificus*	2	0	0	0	0	0	2	0.0
Pacific Lamprey *Lampetra tridentatus*	0	0	3	4	1	0	8	0.0
American Shad - juv. *Alosa sapidissima*	1	30	60	74	200	0	365	1.4
American Shad - adult *Alosa sapidissima*	0	0	2	3	0	0	5	0.0
Anchovy *Engraulis mordax*	0	220	1440	550	3000	0	5210	19.7
Herring *Clupea pallasii*	0	10	95	176	100	0	381	1.4
Tom Cod *Microgadus proximus*	0	0	12	3	0	0	15	0.1
Red Tailed Surf Perch - juv. *Holconotus rhodoterus*	36	185	410	390	150	0	1171	4.4
Red Tailed Surf Perch - adult *Holconotus rhodoterus*	1	5	35	46	26	0	113	0.4
White Sea Perch - juv. *Phanerodon furcatus*	0	0	8	1	0	0	9	0.0
Striped Sea Perch - juv. *Embiotoca lateralis*	0	0	0	0	2	0	2	0.0
Walleye Surf Perch - juv. *Hyperprosopon argenteum*	0	0	8	2	0	0	10	0.0
Shiner Perch *Cymatogaster aggregata*	9	28	199	231	500	0	967	3.6
Pacific Hake *Merluccius productus*	0	0	3	1	0	0	4	0.0
Pacific Snake Blenny *Lumpenus sagitta*	0	0	1	1	0	0	2	0.0
Pacific Sand Lance *Ammodytes hexapterus*	0	0	12	4	0	0	16	0.1
Bay Pipefish *Syngnathus griseolineatus*	1	1	0	0	0	0	2	0.0
Tube Snout *Aulorhynchus flavidus*	1	0	0	0	0	0	1	0.0
White Spotted Greenling *Hexagrammos stelleri*	0	0	0	1	0	0	1	0.0
White Sturgeon *Acipenser transmontanus*	2	1	1	1	0	0	5	0.0
Green Sturgeon *Acipenser medirostris*	0	0	1	0	1	0	2	0.0
Sculpin *Hamilepidotus hemilepidotus*, *Leptocottus armatus*	4	26	209	412	300	0	951	3.6
Dungeness Crab - juv. *Cancer magister*	28	68	55	26	15	3	195	0.7
Dungeness Crab - adult *Cancer magister*	2	5	6	0	0	0	13	0.0
Chinook Salmon - Jack *Oncorhynchus tshawytscha*	3	3	2	0	0	0	8	0,0
Chinook Salmon - adult *Oncorhynchus tshawytscha*	4	1	0	0	0	0	5	0.0
Steelhead Trout - adult *Salmo gairdnerii*	1	2	1	1	0	0	5	0.0
Coho Salmon - adult *Oncorhynchus kisutch*	0	0	0	0	0	1	1	0.0
Sockeye Salmon - adult *Oncorhynchus nerka*	0	0	2	0	0	0	2	

Appendix Table 11 -- Catch composition of purse seine samples at RM 46.5, March to December 1978.

Species	Month / No. sets	MARCH 25	APRIL 79	MAY 120	JUNE 96	JULY 37	AUG. 30	SEPT. 4	OCT. 1	NOV. 18	DEC. 4	Total 414	Average per set
Chinook Sal. - subyearling													
Oncorhynchus tshawytscha		47	948	5004	7211	3041	1019	36	1	144	21	17472	42.2
Chinook Sal. - yearling													
Oncorhynchus tschawytscha		101	2448	7976	2159	240	5	0	0	0	0	12929	31.2
Coho Salmon - juv.													
Oncorhynchus kisutch		0	3029	17485	5045	44	2	0	0	0	0	25605	62.1
Steelhead Trout - juv.													
Salmo gairdneri		0	971	12280	1205	3	0	0	0	0	0	14459	34.9
Sockeye Salmon - juv.													
Oncorhynchus nerka		0	10	1592	1017	2	0	0	0	0	2	2623	6.3
Chum Salmon													
Oncorhynchus keta		0	3	1	0	0	0	0	0	0	0	4	0.0
Coastal Cutthroat Trout													
Salmo clarki		0	9	104	28	0	3	1	0	0	0	145	0.4
Three spine Stickleback													
Gasterosteus aculeatus		26	35	32	105	19	111	33	0	0	0	361	0.9
American Shad - juv.													
Alosa sapidissima		0	0	33	87	25	26	0	0	78	194	443	1.1
Eulachon													
Thaleichthys pacificus		193	117	0	0	0	0	0	0	0	0	310	0.7
Starry Flounder													
Platichthys stellatus		2	11	14	3	1	4	1	0	3	0	39	0.1
Carp													
Cyprinus carpio		1	1	12	4	1	0	0	0	0	0	19	0.0
Sucker													
Catostomus sp.		0	1	11	5	1	0	0	0	0	0	18	0.0
Black crappie													
Pomoxis nigromaculatus		0	1	1	1	0	3	0	0	0	0	6	0.0
Peamouth Chub													
Mylocheilus caurinus		0	21	489	844	207	251	1	0	1	0	1814	4.4
Prickly Sculpin													
Cottus asper		0	0	1	3	1	0	0	0	0	0	5	0.0
Mountain Whitefish													
Prosopium williamsoni		0	0	1	0	0	0	0	0	0	0	1	0.0
Yellow Perch													
Perca flavescens		0	0	1	1	1	0	0	0	0	0	3	0.0
Northern Squawfish													
Ptychocheilus oregonensis		0	0	3	12	5	0	0	0	0	0	20	0.0
Sunfish													
Lepomis sp.		0	0	1	0	0	0	0	0	0	0	1	0.0
Pacific lamprey - adult													
Lampetra tridentata		0	3	5	1	0	0	0	0	0	0	9	0.0
American Shad - adult													
Alosa sapidissima		0	1	69	16	1	0	6	0	0	0	87	0.2
Chinook Salmon - adult													
Oncorhynchus tshawytscha		1	5	4	2	0	0	0	0	0	0	12	0.0
Coho Salmon - adult													
Oncorhynchus kisutch		0	0	0	1	0	0	0	0	0	0	1	0.0
Steelhead Trout - adult													
Salmo gairdneri		11	33	22	4	0	0	0	0	0	0	70	0.2

Appendix Table 12 -- Catch composition of purse seine samples at the Astoria Bridge (Washington side), RM 10, 1978.

Species	1978 Month	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	Total	Average
	No. sets	29	60	62	24	18	23	8	224	per set
Chinook Sal. - subyearling *Oncorhynchus tshawytscha*		65	3780	28708	5566	842	249	33	39243	175.2
Chinook Sal. - yearling *Oncorhynchus tshawytscha*		620	4123	370	8	1	0	0	5122	22.9
Coho Salmon - juv. *Oncorhynchus kisutch*		540	6039	3618	26	5	0	0	10228	45.7
Steelhead Trout - juv. *Salmo gairdnerii*		237	3615	493	4	0	0	0	4349	19.4
Sockeye Salmon - juv. *Oncorhynchus nerka*		0	419	618	4	1	0	0	1042	4.7
Chum Salmon - juv. *Oncorhynchus keta*		0	1	0	0	0	0	0	1	0.0
Stickleback *Gasterosteus aculeatus*		30	300	0	0	0	0	0	330	1.5
Carp *Cyprinus carpio*		0	0	0	0	1	0	0	1	0.0
Peamouth Chub *Mylocheilus caurinus*		0	0	3	1	0	0	0	4	0.0
Chiselmouth Chub *Acrocheilus alutaceus*		0	0	0	1	0	0	0	1	0.0
Sucker *Catostomus* sp.		0	0	2	0	0	0	0	2	0.0
Troutperch *Percopsis omiscomaycus*		0	0	0	1	0	0	0	1	0.0
Starry Flounder *Platichthys stellatus*		2	53	63	54	13	18	9	212	0.9
Sand Sole *Psettichthys melanostictus*		1	2	0	0	0	0	0	3	0.0
Surf Smelt *Hypomesus pretiosus* a/			23000	4400	5000	950	500	250	34100	152.2
Long Fin Smelt *Spirinchus dilatus*		0	0	225	136	93	33	0	487	2.2
Eulachon *Thaleichthys pacificus*		66	7	0	0	0	0	0	73	0.3
American Shad - juv. a/ *Alosa sapidissima*		10	2200	12000	1900	800	200	50	17160	76.6
American Shad - adult *Alosa sapidissima*		1	82	109	15	18	1	0	226	1.0
Anchovy *Engraulis mordax* a/		10	5100	1500	36000	45000	10000	4000	101610	453.6
Herring *Clupea pallasii* a/		120	640	580	500	1250	300	150	3540	15.8
Red Tailed Surf Perch *Holconotus rhodoterus*		17	600	250	125	37	29	11	1069	5.0
Walleye Sea Perch *Hyperprosopon argenteum*		0	0	0	0	0	1	0	1	0.0
Shiner Perch *Cymatogaster aggregata*		0	60	200	75	100	700	63	1198	5.3
Pacific Hake *Merluccius productus*		0	0	1	0	0	0	0	1	0.0
Pacific Snake Blenny *Lumpenus sagitta*		0	0	1	0	0	2	0	3	0.0
Pacific Pompano *Palometa simillima*		0	1	0	0	1	0	0	2	0.0
Pacific Sandfish *Trichodon trichodon*		1	0	0	0	0	0	0	1	0.0
Kelp Greenling *Hexagrammos decagrammus*		0	1	0	0	0	0	0	1	0.0
Tom Cod *Microgadus proximus*		0	1	3	0	0	2	0	6	0.0
White Sturgeon *Acipenser transmontanus*		1	1	0	0	0	0	0	2	0.0
Green Sturgeon *Acipenser medirostris*		0	0	1	0	0	0	0	1	0.0
Sculpin *Hamilepidotus hemilepidotus* *Leptocottus armatus*, etc.		3	36	38	20	2	1	0	100	0.4
Pacific Lamprey *Lampetra tridentatus*		2	1	1	4	1	1	0	10	0.0
Dungeness Crab - juv. *Cancer magister*		2	0	0	1	0	4	0	7	0.0
Dungeness Crab - adult *Cancer magister*		1	0	0	0	0	1	0	2	0.0
Chinook Salmon - jack *Oncorhynchus tshawytscha*		0	1	0	1	4	0	0	6	0.0
Chinook Salmon - adult *Oncorhynchus tshawytscha*		0	0	2	0	2	0	0	4	0.0
Steelhead Trout- adult *Salmo gairdnerii*		2	22	12	2	0	0	0	38	0.2
Coho Salmon - Jack *Oncorhynchus kisutch*		0	0	1	0	1	0	0	2	0.0
Sockeye Salmon - adult *Oncorhyncnus nerka*		0	0	1	0	0	0	0	1	0.0
Cutthroat Trout - adult *Salmo clarkii clarkii*		2	24	16	13	18	13	2	88	0.4
Coho Salmon - adult *Oncorhynchus kisutch*		0	0	0	0	0	3	1	4	0.0

a/ Includes estimated catches.

Appendix Table 13 -- Catch composition of purse seine samples taken from marine waters adjacent to the Columbia River (within 24 km), 1978.

Species \ Month	JULY	AUGUST	SEPT.	Total	Average
No. sets	18	16	15	49	per set
Chinook Sal. - subyearling *Onchorynchus tshawytsch*	977	1558	47	2582	52.7
Chinook Sal. - yearling *Onchorynchus tshawytscha*	12	2	0	14	0.3
Starry Flounder - juv. *Platichthys stellatus*	83	140	65	288	5.9
Starry Flounder - adult *Platichthys stellatus*	12	15	21	48	1.0
Sand Sole - juv. *Psettichthys melanostictus*	61	120	73	254	5.2
Sand Sole - adult *Psettichthys melanostictus*	4	28	13	45	0.9
Rex Sole - juv. *Glyptocephalus zachirus*	35	50	0	85	1.7
Rex Sole - adult *Glyptocephalus zachirus*	6	11	0	17	0.3
Sanddab *Citharichthys* sp.	101	217	83	401	8.2
Surf Smelt [a] *Hypomesus pretiosus*	9000	101456	1500	111956	2284.8
Longfin Smelt *Spirinchus dilatus*	50	250	41	341	7.0
American Shad - juv. [a] *Alosa sapidissima*	300	150	0	450	9.2
Anchovy [a] *Engraulis mordax*	800	1500	500	2800	57.1
Herring [a] *Clupea pallasii*	400	618	600	1618	33.0
Red Tailed Surf Perch - juv. [a] *Holconotus rhodoterus*	96	200	134	430	8.8
Red Tailed Surf Perch - adult *Holconotus rhodoterus*	4	9	6	19	0.4
Pacific Hake *Merluccius productus*	0	1	0	1	0.0
Pacific Pompano *Palometa simillima*	9	1	0	10	0.2
Pacific Sandfish *Trichodon trichodon*	0	1	0	1	0.0
Rock Greenling *Hexagrammos lagocephalus*	0	1	0	1	0.0
Tom Cod *Microgadus proximus*	0	0	1	1	0.0
White Sturgeon *Acipenser transmontanus*	2	0	0	2	0.0
Green Sturgeon *Acipenser medirostris*	3	1	0	4	0.1
Dogfish *Squalus suckleyi*	4	1	0	5	0.1
Sculpin *Hamilepidotus hemilepidotus*, *Leptocottus armatus*	25	41	24	90	1.8
Pacific Lamprey *Lampetra tridentatus*	3	1	0	4	0.1
Big Skate *Raja binoculata*	0	5	0	5	0.1
Squid	7	0	0	7	0.1
Dungeness Crab - juv. *Cancer magister*	83	210	211	504	10.3
Dungeness Crab - adult *Cancer magister*	69	93	54	216	4.4
Chinook Salmon - Jack *Onchorynchus tshawytscha*	1	3	1	5	0.1
Chinook Salmon - adult *Onchorynchus tshawytscha*	0	2	0	2	0.0
Coho Salmon - adult *Onchorynchus kisutch*	0	0	1	1	0.0

[a] Includes estimated catches.